

6 Weekend Projects to Make Your Home More Livable

# POPULAR MECHANICS

FEB. 1967  
35 CENTS

## U.S. HELICOPTERS IN VIETNAM

Another Great Painting  
in Combat Color



### THE DAYTONA 500

Can the Independents  
Take Over Stock-Car Racing?

### BOATS — BOATS — BOATS

20 Pages • New Ones for '67 in Color  
Buying Your First One • Staying Out of Trouble

### JACKIE STEWART TESTS PONTIAC'S FLASHY NEW FIREBIRD

10 New 'Tricks' to Try on Your Saw      The Next Five Years in Space  
Saturday Mechanic: How to Cure Rough Idle      Drivin' with Dan



# Miller High Life

*The Champagne of Bottle Beer*



Fifth frame favorite  
with more and more bowlers everywhere...



Miller High Life Distilled

Manufactured by Miller Brewing Company, Milwaukee, WI. © 1988 Miller Brewing Company. All rights reserved.



# The Norelco Triple Dare:

## **DARE 1—Closeness.**

The new Norelco Tripleheader Speedshaver® shaves so close we dare to match shaves with a blade. That's because the Microgroove heads have been made 35% thinner to give you a 35% closer shave. Pop-up trimmer, too!

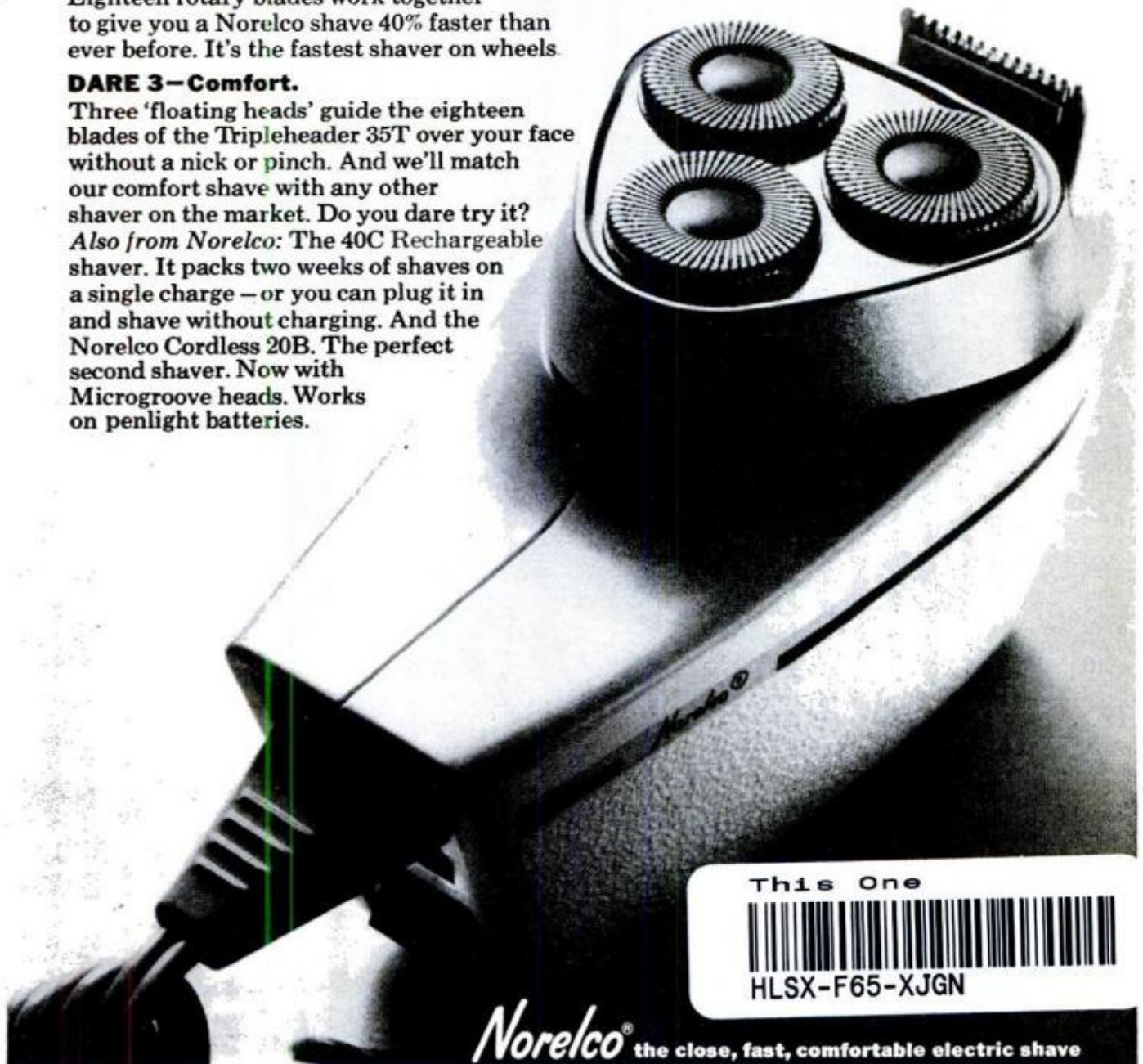
## **DARE 2—Speed.**

Eighteen rotary blades work together to give you a Norelco shave 40% faster than ever before. It's the fastest shaver on wheels.

## **DARE 3—Comfort.**

Three 'floating heads' guide the eighteen blades of the Tripleheader 35T over your face without a nick or pinch. And we'll match our comfort shave with any other shaver on the market. Do you dare try it?

*Also from Norelco:* The 40C Rechargeable shaver. It packs two weeks of shaves on a single charge — or you can plug it in and shave without charging. And the Norelco Cordless 20B. The perfect second shaver. Now with Microgroove heads. Works on penlight batteries.



This One



HLSX-F65-XJGN

**Norelco®** the close, fast, comfortable electric shave

©1967 North American Philips Company, Inc., 100 East 42nd Street, New York, N. Y. 10017.



# POPULAR MECHANICS

INTERNATIONAL EDITIONS: AUSTRALIAN, SPANISH, CARIBBEAN, FRENCH, DUTCH, PORTUGUESE, DANISH, SWEDISH

## AUTOMOBILES AND DRIVING

- 22 Drivin' with Dan
- 32 Automobile Clinic
- 88B Detroit Listening Post
- 89 Can the Independents Win at Daytona?
- 98 Jackie Stewart Tests Pontiac's Flashy Firebird
- 101 PM Owners' Report: Dodge Charger
- 104 Glassy, Klassy Karts
- 122 The Big Pile-Up of 1966
- 140 Saturday Mechanic: 15 Ways to Cure Rough Idle (Flagged for filing)

## SCIENCE AND INVENTIONS

- 14 Science Worldwide
- 45 New Inventions

## SHOP AND CRAFTS

- 166 Don't Sell Your Table Saw Short (Flagged for Filing)
- 170 Hints from Readers
- 172 Build This Butterfly-Trestle Table (Flagged for filing)
- 176 How to Get Started in Metal Turning, Part 2 (Flagged for filing)
- 186 Electric Trim Saw Puts Miter Box to Shame
- 188 Make Your Own Auger Bits
- 189 Hints from Readers
- 190 Build Your Own Abrasive Cutoff Machine (Flagged for filing)
- 193 Make a Bulletin Board for Your Lathe

## REGULAR FEATURES

- 6 Letters

## HOME AND YARD

- 53 Homeowners' Clinic
- 86 Bird Cafeteria

- 128 How Good is That Guarantee?
- 134 6 Weekend Projects for Your Home
- 144 How to Mold Character into Drab Walls
- 170 Dragster Sled
- 175 Magnetic Game
- 180 Solving Home Problems
- 215 Classic Columns

## AEROSPACE, AVIATION, MILITARY

- 46 Aviation Jetstream
- 93 The Next Five Years in Space
- 107 Helicopters in Vietnam

## ELECTRONICS, RADIO AND TV

- 194 Staying on the Beam with Tuning Indicators
- 198 Electronic Kinks
- 200 New in Electronics

## BOATING, OUTDOOR RECREATION

- 50 What's New Outdoors
- 112 Anyone Can Climb a Mountain
- 118 America's Longest and Highest Thrill Ride
- 146 1967 Boats: Fast Bottoms, More Push
- 153 How to Buy Your First Boat: Runabout, Sailboat, Fishing Boat, Ski Boat, Cruiser
- 158 Those New Black Box Ignitions
- 161 How to Avoid Trouble in Your Boat
- 164 New Gadgets and Gear for Your Boat

## JOBS AND CAREERS

- 28 Career Barometer

## PHOTOGRAPHY

- 56 Picture This
- 182 Make This Copier

Cover Illustration: Edward Valigursky

## NEXT MONTH IN POPULAR MECHANICS

**Racewatcher's Guide to Competition Cars.** Thirty-two full-color paintings of the world's top racing cars appear in a special section that car buffs will want to save.

**Those Great Pictures in 'Grand Prix'—How They Were Made.** An exciting background story on the filming of the racing classic.



Published By The Hearst Corporation  
**RICHARD E. BERLIN, PRESIDENT**

President, Magazines Division:  
**RICHARD E. DEEMS**

Publisher:  
**JOSEPH F. KERN**

Editor:  
**ROBERT P. CROSSLEY**

Executive Editor:  
**RICHARD F. DEMPEWOLFF**

Managing Editor:  
**JOHN A. LINKLETTER**

Shop Crafts Managing Editor:  
**WAYNE C. LECKEY**

Art Director:  
**THOMAS G. DAUER**

CLIFFORD B. HICKS	Midwest Editor
THOMAS E. STIMSON	Western Editor
WILLIAM KILPATRICK	Automotive
KEVIN V. BROWN	Aviation
ALFRED W. LEES	Home Workshop
ARTHUR MIKESSELL	Boating
JOHN F. PEARSON	Science
STUART JAMES	Outdoors
BILL HARTFORD	Electronics
LEONARD SAMUELS	Photography, Shop Products
JOHN J. SHEAHAN	Production
TERRY HONIGFELD	Assistant Production
MURRAY COOPER	Assistant Art Director
ALVIN KIETZ	Assistant Art Director
LEO R. WEEKS	Assistant Art Director
GEORGE W. BLOW	Technical Art Director
FRANK P. FRITZ	Chief Photographer
EUGENE A. COLANGELO	Staff Photographer
GARRY WINTER	PM Books
EVERETT JOHNSON	Cabinetmaker

ADDRESS ALL EDITORIAL COMMUNICATIONS TO: 575 Lexington Ave., New York, N.Y. 10022. For additional sources of information on the articles and products in this issue, write to Bureau of Information, Popular Mechanics, for free "Where-to-Find-It" list.

**L. PARK BENJAMIN**, Advertising Director

ADVERTISING OFFICES: New York: 575 Lexington Ave., Murray Hill 8-8500; Chicago: 520 N. Michigan Ave., 527-2400; Detroit: General Motors Bldg., TRinity 5-8711; Cleveland: Hanna Bldg., 1422 Euclid Ave., PRespect 1-0456; Los Angeles: 3460 Wilshire Blvd., DUnkirk 2-8458; San Francisco: 1101 Hearst Bldg., YUkon 2-0823; Savannah, Ga.: 310 Drayton St., ADams 2-1106.

SUBSCRIPTION SERVICE: Mail all subscription orders, changes of address, correspondence concerning subscriptions, and Postmaster notices of undeliverable copies to Popular Mechanics, Box 646, New York, N.Y. 10019.

Popular Mechanics is published monthly by The Hearst Corporation, 57th St. at 8th Ave., New York, N.Y. 10019, U.S.A. Richard E. Berlin, President; George Hearst, V-Pres.; Richard E. Deems, President of Magazines; John R. Miller, V-Pres. and Gen. Mgr. of Magazines; William S. Campbell, V-Pres. and Director of Circulation; Joseph F. Kern, V-Pres. for Popular Mechanics; Frank Massi, Treasurer; Harvey L. Lipton, Secy. Single copy in the United States and Canada, 35 cents. Subscription prices: United States and Possessions, \$4.00 for one year; \$7.00 for two years; \$10.00 for three years. Canada, add \$0.50 for each year. Pan American Postal Union countries, add \$1.00 for each year. All other countries, add \$2.00 for each year. When changing address, give old address as well as the new, with postal-zone number, if any, and allow six weeks for change to become effective. Second-class postage paid at New York, N.Y., and at additional mailing offices. Authorized as second-class mail by the Post Office Department, Ottawa, and for payment of postage in cash. Registered as second-class matter at the Post Office at Mexico, D.F., Mexico, June 20, 1950. © 1967 by The Hearst Corporation. All rights reserved. Printed in U.S.A.

## Reach for a McCulloch for the quickest starts ever. Push button electric starting.

Electric starting 7½'s and 9's have their starter button in the throttle handle for easy one-hand control. With a touch of the golden button, these McCullochs spring to life. A revolutionary direct-coupled starter/generator supplies the muscle, keeps the battery fully charged. And you can fish right over these compact engines. The same low-silhouette design as on manual 7½ and 9's. For extra-slow trolling, McCulloch makes the air-cooled 4. Runs at a slow 450 r.p.m. without a sputter. For literature, write McCulloch Corporation, 6101 West Century Boulevard, Los Angeles, California 90045.



**MCCULLOCH**   
OUTBOARDS • CHAIN SAWS  
LEADERSHIP THROUGH  
CREATIVE ENGINEERING

All specifications and features subject to change without notice.



# LETTERS

TO THE EDITOR

## UFOs: Once more with feeling

I enjoyed *Did Flying Saucers Cause the Blackout?* (page 100, Nov. PM) very much. Mr. Fuller's book, *Incident at Exeter*, from which the article is condensed, is one of the few serious books on the UFO subject.

I also noticed in *Science Worldwide* (page 19, same issue of PM) that a University of California "researcher" from Berkeley reported that most UFO enthusiasts tend to be elderly, poor mental and physical specimens and are the product of a lower middle-class background.

I have investigated the University of California and found it to be a home for delinquent intellectuals and a breeding ground for potential traitors.

Internat'l Investigations **ROBERT A. STIFF**  
of UFOs Foreign Office  
Oklahoma City, Okla. Director

*You guys out in Berkeley . . . from now on, you'd better keep a sharp eye on the horizon.*

Why not conclude that the huge red ball is an optical phenomenon produced by the electromagnetic field being generated by the high-power lines? Instead the implication is there that some alien craft is draining the power to recharge its batteries.

Abington, Pa.

**DAVID E. SHARP**

UFOs have been created in the laboratory; they are caused by corrosion of high-voltage power lines and are not from outer space.

Beverly Hills, Calif.

**JOHN MARCUS**

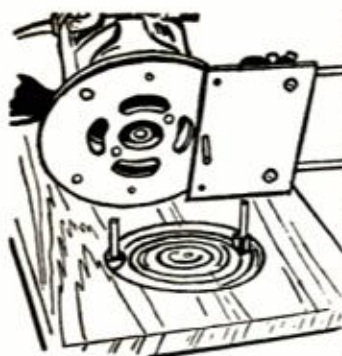
It isn't likely that ships as powerful as UFOs would need to draw electric power from lines. If they are ships, it's more reasonable to think that they were using a clip-on meter that fits around like a padlock to measure the amp. load in the lines.

Phoenix, Ariz.

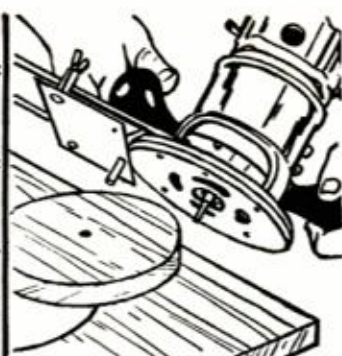
**DONALD A. BAER**

About a year ago I set out to find what kind of field would knock out power wires, cause magnetic deflection, heat, static and hold a large object in the sky. Well, I found it. A flying saucer operates on 2 or 3 million volts, alternates from positive to negative, causes longitudinal

*(Please turn to page 8)*



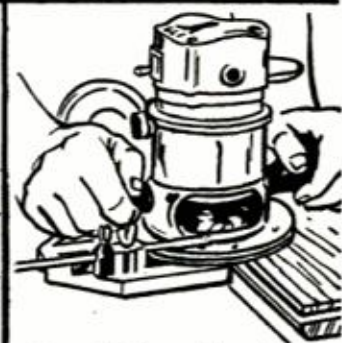
For unique circle designs swing router on pivot pin with bit cutting shallow. Combine bits for rosettes.



Set pivot pin of circle guide in pre-drilled  $\frac{1}{4}$ " hole, move router counterclockwise to cut wheels, disks.



Use guide bar with pivot pin removed, or simple T-square made of scrap, to cut decorative grooves and slots.



For rabbets or decorative cuts in straight edges, move router with straight guide pressed firmly against work.

## You can be a "pro" at cabinet work, with this Router Kit in your shop.

With quickly acquired skill, you can do inlay work, bas-relief carving, fine joinery, beading, grooving, even make your own molding from inexpensive lumber with this Black & Decker heavy-duty Router Kit. The metal carrying case contains router motor, base, straight-and-circular guide, wrenches and six most popular router bits. Special priced for limited time at only \$88.88. You save \$17.11. (Router only—\$69.99, including free straight-and-circular guide worth \$7.10.) It's the tool most likely to give amateur work that professional look. At dealers everywhere. Black & Decker, Dept. C-027Y, Towson, Md. 21204.





# "Look who's smiling now!"

"The department head's job had just been left vacant. When the boys in the office learned I was gunning for it, they gave me their widest grins. One thing they didn't know: I had made up my mind sometime back to take LaSalle training that would prepare me for a better job. My study paid off so fast it surprised even me—I was picked for that shiny promotion over everyone's head. Who wouldn't be smiling with a neat new \$1,500 increase!"

LaSALLE's files are filled with letters from graduates who have rapidly climbed the ladder of success. You, too, can qualify for the job opportunity of your choice through LaSalle home study—without interfering with your present work—and by devoting only a little of your spare time.

LaSalle has been leader in home education for more than half a century and has enrolled more than 1,000,000 ambitious men and women. Its faculty includes some of the country's foremost practicing specialists and instructors. Your training is in good, experienced hands.

Mailing the LaSalle coupon below may be the first step in getting a better job, higher pay, and all of the good things that go with success. Simply check the program in which you are most interested, and we will send you a valuable free booklet describing the opportunities in that field. Mail to LaSalle, 417 Dearborn, Chicago, Illinois 60605.



## LASALLE EXTENSION UNIVERSITY

A Correspondence Institution • 417 South Dearborn, Dept. 62-079, Chicago, Illinois 60605

Please send me, without cost or obligation, FREE booklet and full information on the field I have checked below:

### ACCOUNTING

- Complete Accounting with CPA Training
- General Accounting
- Income Tax
- Accounting Fundamentals
- Auditing
- Controllership
- CPA Training
- Modern Bookkeeping

### BUSINESS MANAGEMENT

- Complete Business Management
- Credit and Collections
- Office Management
- Personnel Management
- Business Correspondence

### LAW COURSES

- Bachelor of Laws Degree
- Business Law
- Insurance Law
- Claim Adjusting Law
- Law for Police Officers
- Law for Trust Officers

### SALESMANSHIP

- Sales Management
- Complete Sales Training

### DRAFTING

- Basic Drafting
- Aeronautical Drafting
- Architectural Drafting
- Electrical Drafting
- Mechanical Drafting
- Structural Drafting

### REAL ESTATE

- Complete Real Estate
- Real Estate Brokerage
- Real Estate Management
- Real Estate Sales

### TRAFFIC AND TRANSPORTATION

- Complete Traffic Mgt.
- Transportation Law
- Rates and Tariffs

- Agency and Services
- Motor Truck Traffic

### STENOTYPE

- Machine Shorthand

### TECHNICAL COURSES

- Mechanical Refrigeration
- Air Conditioning, Refrigeration and Heating
- Diesel

### HIGH SCHOOL

- High School Diploma

### CAREERS FOR WOMEN

- Interior Decorator
- Dental Assistant
- Secretarial
- Accounting
- Bookkeeping
- Real Estate

Name.....Age.....

Address.....County.....

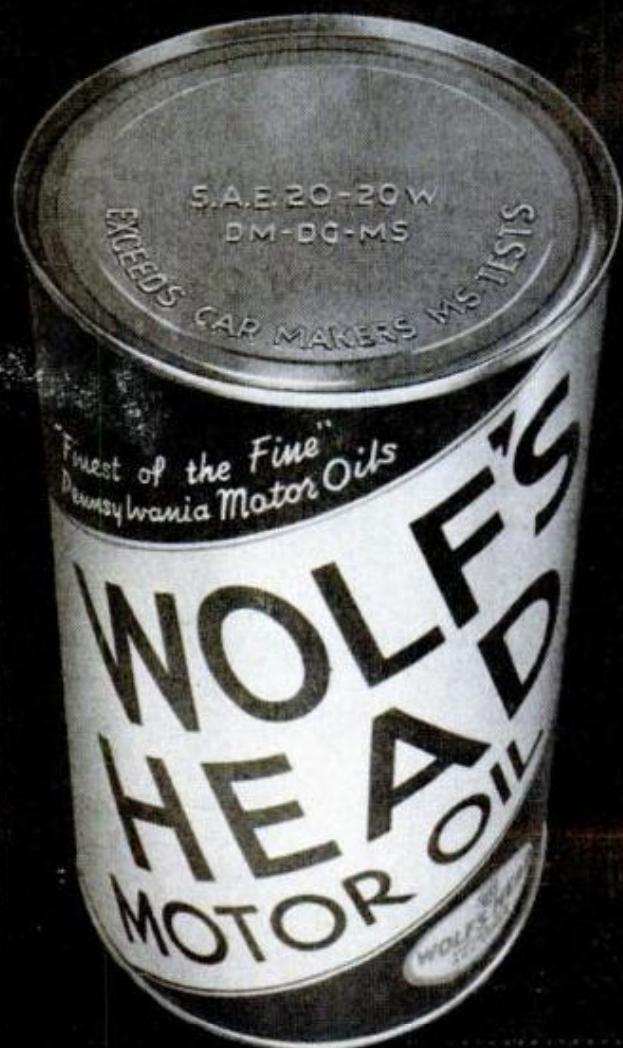
City & State.....Zip No.....

Occupation.....Working Hours.....A.M.....P.M.





**A  
regular  
around  
the  
racing  
circuit.**



the Uncommon Motor Oil  
100% Pure Pennsylvania  
Wolf's Head Oil Refining Co.  
Oil City, Pa.

## LETTERS

*(Continued from page 6)*

electric waves (not transverse) which drive the ship.

Would anyone care to buy a flying saucer when I am able to make them?  
Red Oak, Iowa CHARLES MORTON

*Will it fit in the garage?*

Why was no mention made of St. Elmo's fire as a possible explanation of what these people saw? And another common phenomenon was not considered: corona.

Maybe one of the above, mixed with overactive imagination, is the answer.  
Chicago, Ill. KEN GREENBERG

### Hey, Mr. Haas . . .

Seeing as how Mr. Haas' question failed to arouse a suitable answer in your November issue (*Letters*, page 9), I would like to give you the reason for the parachute on an H-bomb.

Atomic weapons are detonated some distance in the air because, with their great power, this gives them a larger area destroyed. The parachute is used to slow the descent of the bomb somewhat to give the plane a chance to get away. With the great power of atomic bombs, a few hundred feet off makes little difference.  
Lincoln, Neb. GERALD COATES

*Sh-h-h-h-h, Gerald, the Air Force says that sort of stuff is classified. Don't tell another soul!*

### 'Difficult to be surprised'

In *Safety Myths That Mess Up Your Driving* (page 93, Nov. PM), Mr. Pearson states that "The Purdue research group recently studied three intersections in Indiana where lights had just been installed—and found that in each case the number of accidents increased, especially the rear-end variety."

I find it difficult to be surprised at this. It seems to me that you would expect this sort of result until the motorists got used to the new lights. This really doesn't convince me that signals don't reduce accidents.  
Menomonie, Wis. BURTON H. SANGLER

### Bargain blueprints

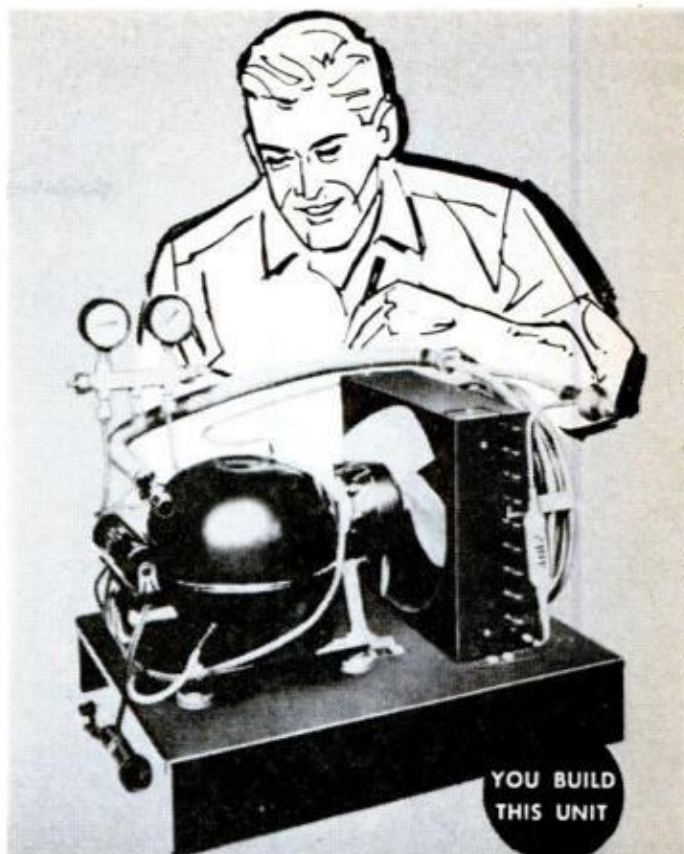
I have made more than 20 blue-and-white prints for only 45 cents after running across your article *Build a \$3 Dry Blueprinter* (page 146, Jan. '65 PM). I found that 30 seconds in the sun and 10 minutes in ammonia makes perfect prints.  
Chandler, Ariz. ROD A. NELSON



**LEARN BY DOING! BUILD YOUR OWN COMPLETE REFRIGERATION SYSTEM! 25 VALUABLE TRAINING KITS INCLUDED!**

You learn by doing. Not just theory, but practical home training that gets you ready for big pay opportunities fast. All the tools, the parts, the step-by-step help you need to build your own complete refrigeration system and to get experience fast for a better job, a business of your own, or to earn extra money in your spare hours.

What CTI has done for thousands of other ambitious men, it can do for you too. But the first step must be yours. Send for your FREE catalog now.



**IF YOU'RE EARNING LESS THAN \$180 A WEEK YOU CAN STEP UP TO BIG MONEY IN AIR CONDITIONING, REFRIGERATION AND HEATING**

Skilled men are in big demand in the air conditioning, refrigeration and heating field. Industry leaders say that 20,000 mechanics must be trained each year. Last year, over 3 million air conditioning units and 5 million refrigerators and freezers were produced. Over 150 million units are in use. It takes skilled men to install, service and repair such equipment. They are well paid. They work steady. Why don't you qualify for one of the better-pay jobs? CTI trains you at home in spare time. Send coupon for valuable information. No obligation.

**APPROVED FOR GI TRAINING** If you served since January 31, 1955 or are in service, check GI line in coupon

**FREE!**

Send for this **NEW** CTI catalog



**Cut out and mail coupon today!**

**COMMERCIAL TRADES INSTITUTE**  
1400 Greenleaf Avenue • Chicago, Illinois 60626 • Dept. PM-267

**Earn Money as You Train**

Since the CTI course includes training with real equipment, many students earn money repairing units soon after enrolling. On completing training they go into top pay jobs. Many get started in their own business.



**Automotive Air Conditioning**

You will learn to install, maintain and service the various types of air conditioning systems being used in millions of modern automobiles.



**Build A Home Air Conditioner**

Complete plans and instructions for building and installing a central air conditioning system or a room air conditioner are included in your training.



**COMMERCIAL TRADES INSTITUTE**  
1400 Greenleaf Avenue • Chicago, Illinois 60626 • Dept. PM-267

**CHECK ONE**  Please rush me your FREE 28 page illustrated opportunity book, "Success in Air Conditioning, Refrigeration and Heating."  
 Free Color Television Servicing Book  Free Automation Electronics Book

Name \_\_\_\_\_ Age \_\_\_\_\_  
 Address \_\_\_\_\_ Zip Code \_\_\_\_\_  
 City \_\_\_\_\_ County \_\_\_\_\_ State \_\_\_\_\_  
 Check for facts on new GI Bill

Accredited Member National Home Study Council



**FASTER! EASIER! BETTER!**

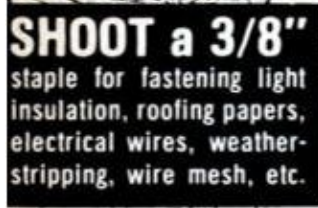
**SHOOT a 1/4"**

staple for tacking window screening, shelf papers, closet linings, window shades, draperies, etc.



**SHOOT a 5/16"**

staple for tacking light upholstery, leatherettes, cornices, quilting for closets, wall decorations, etc.



**SHOOT a 3/8"**

staple for fastening light insulation, roofing papers, electrical wires, weatherstripping, wire mesh, etc.



**SHOOT a 1/2"**

staple for tacking underlayment for carpets, porch screening, felt stripping, canvas, fiberglass, etc.



**SHOOT a 9/16"**

staple for tacking metal lathing, cornerite, wire fencing, roof coverings, insulation board, etc.



**SHOOT a Ceiltile**

staple—especially made for safe, secure installation of ceiling tile.



**SHOOT A STAPLE WHEREVER YOU'D DRIVE A NAIL!**

**ARROW**

Heavy Duty  
**STAPLE GUN**

LOADS  
6  
STAPLE  
SIZES

1/4"  
5/16"  
3/8"  
1/2"  
9/16"  
CEILTILE

**ARROW FASTENER COMPANY, Inc.**  
Saddle Brook, New Jersey 07663

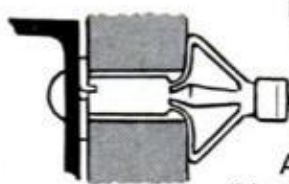
Model T-50

All-steel construction, lasting chrome finish—built to last a lifetime. List \$12.95. Other models from \$5.95.  
At Hardware, Lumber, Building Supply, Stationery and Other Retail Outlets.

Fasten with  
the real thing



**MOLLY**



MOLLY is the original hollow-wall fastener. Nobody ever made a better one. For walls, doors, ceilings, everywhere with inner space. All sizes. Look for red and black MOLLY cards.



CONSUMER PRODUCTS CENTER  
**United Shoe Machinery Corporation**  
221 OLEY STREET, READING, PA. 19601

MOLLY Fasteners, product of  
Molly Division of United Shoe Machinery Corporation.

Save Money on **WOOD**

Hardwood Veneers . . . Hardware . . .  
Wood Shop Supplies and Equipment  
. . . Power Tools



Hardwoods, Fine Plywoods,  
Inlays, Mouldings, Mosaic  
Tile, Tools, Lamp Parts,  
Upholstery Supplies

Your new MONEY SAVING wood and workshop buying guide now ready! 140 page. Full color! Your best "one stop" source for finest kiln dried domestic and imported hardwoods, veneers, plywoods, modern and traditional legs . . . over 1500 items.

**STANLEY TOOLS at Discounts**  
Startling savings on top name power tools, hard to find cabinet hardware, lamp and upholstery supplies. New projects and kits. Enclose 35¢ to help pay mailing and handling costs. Mail coupon.

**New Catalog**  
over 1500 items  
**Now Ready!**

**CRAFTSMAN**  
**WOOD SERVICE COMPANY**

2729 South Mary, Chicago, Illinois 60608. Dept. A-27  
Rush new Craftsman WOOD Catalog. I enclose 35¢ to help pay mailing cost.

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

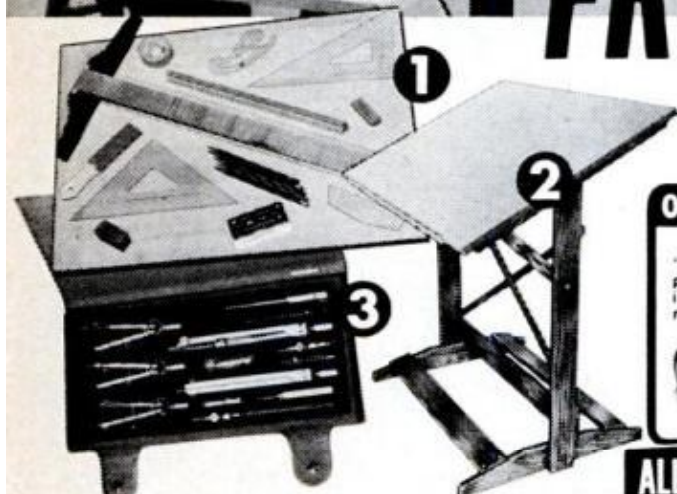
POPULAR MECHANICS





You get these

# 3 BIG DRAFTING KITS \* FREE!



### OTHERS REPORT:

**Earns \$820 Month!**  
 "My first position after completing your course jumped my income from \$350 to \$820 per month." — G. W., Tenn.



**Big Promotion!**  
 I was promoted from the production line ahead of 4 others and got a good pay raise." — W. A., Wisc.

**ALL 4 FREE!**  
 Rush Coupon today!



...when you train at home with NASD for a **HIGH PAY JOB IN DRAFTING**

**Coast-to-Coast Shortage of Trained Draftsmen Opens Thousands Big Salary Jobs for Beginners!**  
 Now you can take your pick of thousands of big salary jobs open to Draftsmen (see "help wanted" sections of metropolitan newspapers) Huge nationwide demand... U.S. Dept. of Labor reports "42% more Draftsmen needed in next 10 years—not enough applicants to fill drafting jobs available now!" Our easy "Quick-Learn" Method has helped hundreds toward good income, security and prestige as Draftsmen. Why not you? **YOU NEED NO DRAWING SKILL... NO TECHNICAL ABILITY!** NASD's staff of Professional Draftsmen guide you step-by-step. With our spare time home-study plan you work on actual projects. Makes learning fun—easy to remember, too. Many graduates have succeeded with only grade school training. Others report good earnings drafting part time while still learning!

### RUSH COUPON FOR FREE KIT..

Mail coupon today for FREE "DRAFTING CAREER KIT, Sample Lesson, Drafting Aptitude Test including intriguing new 5-Way Drafting Instrument & 20-page Book "Your Future in Drafting"—jam-packed with revealing facts on your opportunities to win top pay and job security in Drafting. No salesman will call. Everything sent FREE and WITHOUT OBLIGATION. Write today!

**North American School of Drafting, Dept. 417**  
 4500 Campus Dr., University Plaza, Newport, Calif. 921

Rush "DRAFTING CAREER KIT", including Book, Sample Lesson, Aptitude Test & Drafting Instrument **ALL FREE!** No salesman will call.

NAME \_\_\_\_\_ AGE \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
A home study program in association with Cleveland Engineering

\* Precision Drawing Instrument Set, Professional Drafting Board Outfit and Fingertip Tilt-tilting Drafting Table are given to you free of extra cost with your complete North American Master Course in Drafting.

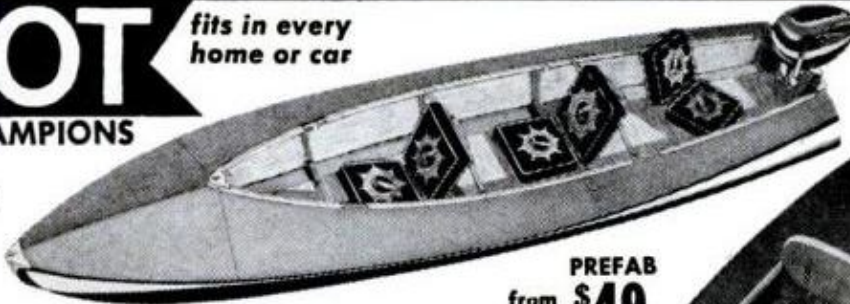
# FOLBOT

fits in every home or car

FACTORY BUILT \$136

CHOICE of CHAMPIONS

belongs to You



PREFAB from \$49

**Most inexpensive too**

GENUINE Folbot RECREATION for just ONE small investment, WITHOUT the continuous burdens of complicated "big rig" operation. You GO CAREFREE anytime with COMPACT Folbot... rocky streams, lakes, marsh, surf & open sea. Superior non-sinkable designs provide SAFEST low gravity center, balanced low & high seating, substantial construction, protective decks & EXCLUSIVE swivel-back COMFORT. ALL within your reach. In handy Folbot YOU GLIDE smoother, faster & NOISELESS with paddles, oars, or sails and ride softly w. 1 to 10 HP. motors. Many styles & sizes from 1 to 4 seaters, FOLDING or rigid PORTABLE come in PREFAB KIT, or expertly FACTORY BUILT

NOW at SPECIAL SAVINGS

YACHT-SMART large DACRON

Sail Rig \$99

NEW Fabulous 16 foot \$107

Factory BUILT Folding from; \$165 Factory finished

**FREE ACTION CATALOG**

**NATIONAL SAFETY RECORDS**  
**WORLD RECORD FISHING**

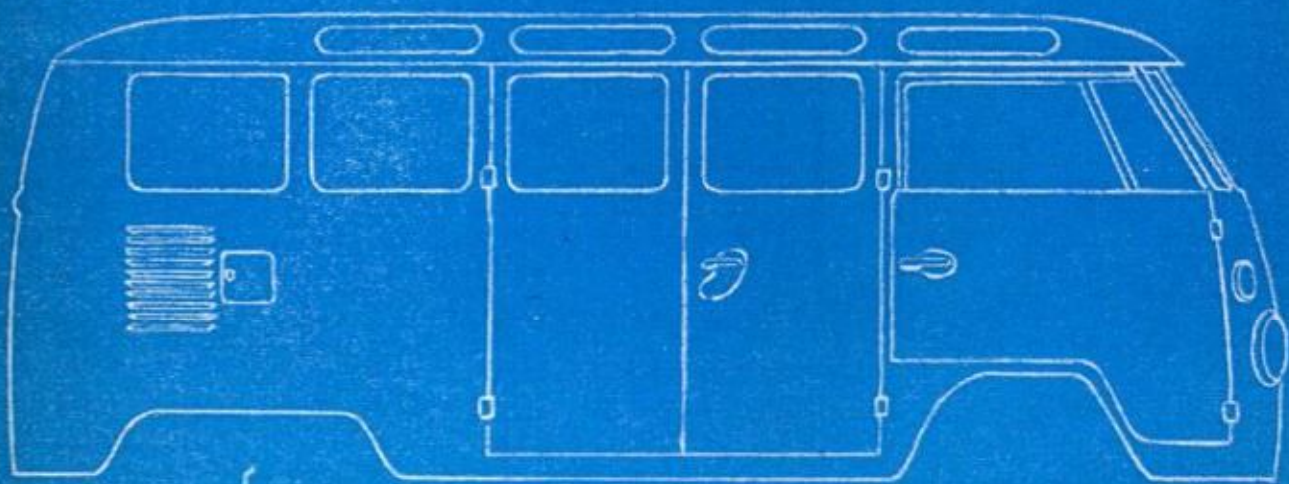


for **YOUR SPORT & FAMILY FUN**

Mail coupon or address to: FOLBOT CORP., Dept. PM-267 Charleston, S. C. 29405

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_





© VOLKSWAGEN OF AMERICA, INC.

## We started with a simple plan.

It all began with the notion that a wagon should hold a lot, and no notion about how it should look.

So when we sat down to design the VW Station Wagon we started by drawing a big box with 170 cubic feet of space.

(Roughly two times the room of an ordinary station wagon.)

This gave us room to seat 8 people comfortably and 13 pieces of luggage.

(13 bags more than you could ever fit into most wagons that hold 8 people.)

Once we got the people in we couldn't

just let them sit there in a dark box.

So we cut 21 windows to let the light in, a big hole in the back to put the luggage in, and 4 doors to let the people out.

To make the thing go, we put the air-cooled Volkswagen engine in back.

And what we ended up with is what you see in the picture.

A sensible wagon that holds a lot, parks in little spots and doesn't drink much gasoline.



What could be simpler than that?



# 3 WAYS to a profitable business of your own

— and only —

## VON SCHRADER HAS ALL 3

Von Schrader is the oldest and largest company making Detergers of this type. For over 30 years our FREE ENTERPRISE PLAN has been fashioned with your future in mind. Start with the Deterger that most appeals to you. We have thousands of Associates who have built successful businesses with just one Deterger. Naturally, bigger and more profitable businesses can be built when you are able to offer two or all three cleaning services.

*For example, let's say you start with the*

### VON SCHRADER WALL DETERGER

(LOWEST PRICE OF ALL THREE)

1 • Associate G. H. Jones made \$1200.00 on one job. Associate R. G. Fullmer says contracts this year will gross about \$18,000.00. And no wonder...this machine washes walls 6 times faster than by hand...with no mess...no drop cloths needed. Washing is so easy...no tiresome scrubbing...special glider wipes walls clean with little effort. You can start part-time and by working week-ends add hundreds of dollars to your income while still employed.

*Then you can double your profit by adding the*

### VON SCHRADER UPHOLSTERY DETERGER

2 • Associate Charles Lemmin averaged \$100.00 a day during his first year. Associate Peter Young took in \$960.00 last week. You clean upholstered furniture on customers' premises—homes, hotels, motels, etc....even auto upholstery. No hauling...operate from your home. Watch business grow as customers tell their friends.

*And, finally, you can more than triple your profits by adding the*

### VON SCHRADER RUG DETERGER

*because each service helps to sell the other two*

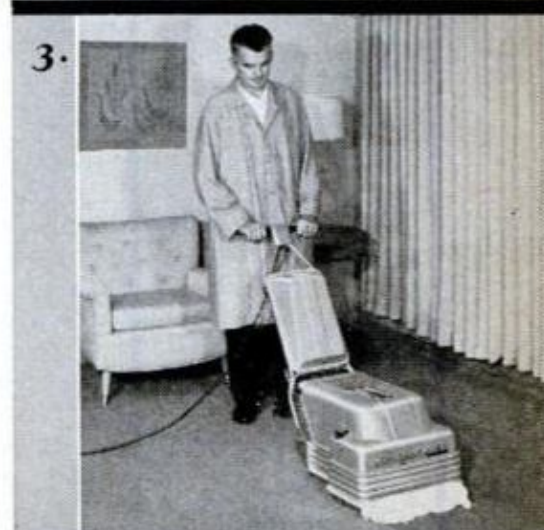
3 • Associate C. E. Nevin reports he averaged \$1000.00 a month for 12 months. An Associate father-son team grossed \$33,000.00 their first year. Von Schrader's FREE ENTERPRISE PLAN is not a lease arrangement. You sign no contract. You own the equipment. You pay no fees, dues or royalties to anyone. Every dollar you take in is yours to keep.

Full Operating Instructions come with each Deterger... you need no special skill or training. And our Business Manual tells everything you need to know about getting business, suggested sales letters, tips on keeping books and tax records, suggested ads and radio announcements, etc. Our assistance is always at your service. Training and consulting with experts is also available...and without charge.

*Don't Delay...it costs nothing to get the details. Return the coupon TODAY for informative FREE booklet. Be sure to check the Deterger you are most interested in starting with.*

## VON SCHRADER MFG. CO.

FEBRUARY 1967



**SEND FOR THE FACTS TODAY**

**VON SCHRADER MFG. CO.**  
210 "A" Place, Racine, Wisconsin

Please rush information about your  
 WALL DETERGER,  RUG,  UPHOLSTERY  
 and how I can start my own profitable business.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_



BY JOHN F. PEARSON  
**SCIENCE**  
WORLDWIDE

**PRESIDENT'S LIMOUSINE** is bugged—but in reverse. According to a Washington, D.C., newspaper, there are tiny microphones mounted on the outside of the car to pick up crowd noises. Idea is, if people sound unfriendly the car won't stop for a round of presidential handshaking but will keep rolling until the mikes pick up sounds indicating a warm reception.

**ADDING GRANULATED GLASS** to road surfacing materials makes them longer-lasting and safer. That's been the experience in several European countries—and now the new surfaces may be tried in the United States.

Two safety features: The glass surface diffuses light, helping to reduce headlight glare; highly porous, the material allows water and oil to seep through it instead of becoming saturated.

**HUGE BLAST** of conventional explosives has been reported in Russian newspapers. A total of 5200 tons of explosives was used to create a big bang that ripped 3.25 million cubic yards of rock out of a mountainside in the Soviet republic of Kazakhstan. The rock slid into a gorge, creating a dam across it that's a quarter of a mile wide and 330 feet high. The dam was needed for flood control.

**CHUBBY SCHOLARS** face an extra hurdle when it comes to getting into college. A study by the Harvard School of Public Health shows that a fat high-school girl has one-third less chance of college acceptance than does her thin girl friend with comparable grades. Overweight boys are also "marked down," but not to the same degree as the girls. Finding no valid reason for the situation, Harvard researchers concluded that admissions officials simply like 'em thin.

**CAREER FOR YOU?** Micro-precision technicians—people qualified to do watchmaking or work in fields such as miniaturization of controls for space exploration—are in short supply.

As a result, according to a University of Illinois spokesman, a special tuition-free course lasting seven months is being offered at the university. To qualify, you must be between 18 and 25 and a high-

school graduate. For information, write: Dr. Hugh G. Wales, P.O. Box 2070, Station A, Champaign, Ill., 61820.

**WATER YOU CAN CUT** with scissors was recently discovered by a Caltech graduate student. By adding a small amount of polyethylene oxide—a resin polymer used in paints and hair sprays—he created "elastic water" that continues to flow up and over the edge of a pitcher even after the pitcher has been set down on a table. To stop the flow of colorless liquid from the pitcher, you merely snip it with scissors.

**KNEE INJURIES** in football—the sport's biggest medical problem in recent years—prompted a Houston orthopedic surgeon to turn inventor. He has come up with a football shoe that has a front cleat that rotates when a certain amount of pressure is applied. The cleat allows a player's leg to pivot when his foot is firmly planted in the turf and he is blocked or tackled from the side. Ordinarily, knee ligaments are the only thing with "give" in such a situation.

**COMPUTER TAKEOVER** in yet another field—Radar Signature Analysis (RSA)—is the goal of techniques now being developed. That's the word from an official of a big electronics firm that's working on the problem.

RSA is the way our scientists "read" alien satellites. By studying radar reflections, or echoes, experts can determine whether a satellite is manned or unmanned, whether it is tumbling, rolling, spinning or stabilized, whether its mission is military or peaceful in nature.

Once computers are on the job, the process of analyzing will be speeded up tremendously.

**ARTHRITIS** may be an infectious disease. That possibility came to light after researchers at the University of California Medical Center, San Francisco, took organisms from the swollen joints of humans suffering from a rheumatoid type of arthritis and injected them into monkeys. Within two days, the medical men report, the monkeys' joints became red, warm, swollen and tender—all symptoms of rheumatoid arthritis.



MAIL  
ORDER

# SHOPPING MART

UNUSUAL  
VALUES

A selection of products available by mail for readers of Popular Mechanics.  
All merchandise sold in a money-back guarantee. Order Direct by Stock No. Send check or M.O.



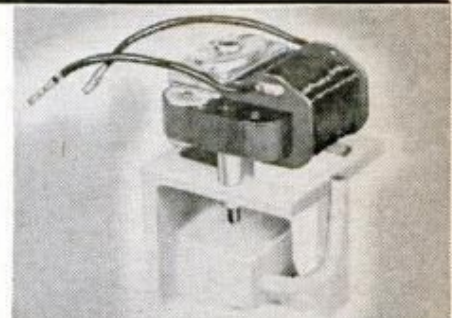
## GIANT SURPLUS BALLOONS

"Balls of fun" for the kids, traffic stoppers for stores, terrific for amateur meteorologists. Create a neighborhood sensation. Great backyard fun. Exciting beach attraction. Amateur meteorologists use to measure cloud heights, wind speed and temp. Made of heavy black rubber. Inflate with vacuum cleaner or auto air hose; or locally available helium for high rise. 8' diam. \$2.00 ppd. Order Stock No. 60,568H. Edmund Scientific Co., Barrington, New Jersey 08007.



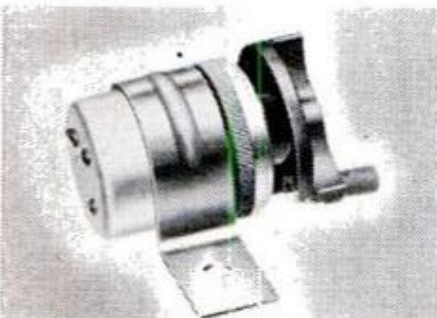
## AMERICAN MADE OPAQUE PROJECTOR

Projects illustrations up to 3" x 3 1/2"—enlarges them to 35" x 30" if screen is 6 1/2 ft. from projector, larger pictures if screen is further away. No film or negatives needed. Projects charts, diagrams, color or black-and-white. Operates on 115 volts A.C. current . . . 6 ft. extension cord and plug included. Size 12" x 8" x 4 1/2" wide. Weight 1 lb. 2 ozs. Plastic case \$7.95 Ppd. Order No. 70,199H. Edmund Scientific Co., Barrington, New Jersey 08007.



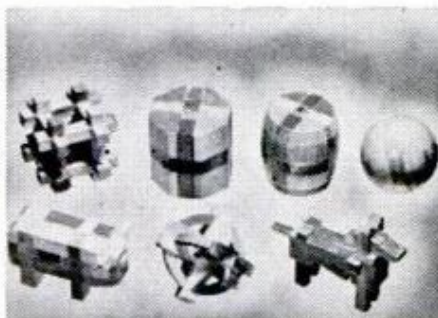
## BIG BARGAIN—"LITTLE GIANT PUMP"

Use this extra rugged miniature pump for ad and Christmas displays, table fountain, bird bath, photo darkrooms, etc. Continuous pumping for long periods—even pumps mild chemicals. Runs on household current. Pumps 28 gallons per hour to ht. of 1 ft. or 11 gallons to 2 ft. Maximum head 3 ft. Bearings pre-lubricated with year's supply of oil. 2 1/2" x 2 1/2" x 4" high. Wt. 8 oz. \$9.00 Ppd. Order #60,607H. Edmund Scientific Co., Barrington, New Jersey 08007.



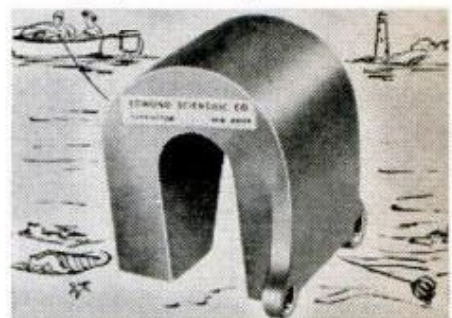
## WAR SURPLUS ELECTRIC GENERATOR

Brand new Signal Corps Electric Generator. Generates up to 90 volts by turning crank. Use in high impedance relays. Charge ground & bring up night crawlers for bait or study. 2 Alnico Magnets alone now worth more than original gov't. cost of \$15. Wt. 2 lbs. \$6.95 Ppd. Order Stock No. 50,225H. Mtd. with light, to demonstrate electricity. \$11.95 Ppd. Order Stock No. 50,365H. Edmund Scientific Co., Barrington, New Jersey 08007.



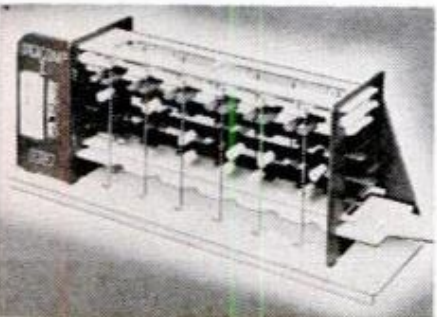
## WOODEN SOLID PUZZLES

Here's a fascinating assortment of 12 different puzzles to provide hours of pleasure and stimulate ability to think and reason. Animals and geometric forms. Take them apart and reassemble them. Lots of fun for the whole family—young and old. Will test skill, patience and ability to solve problems. \$3.00 ppd. Stock No. 70,205H. Edmund Scientific Co., Barrington, N.J. 08007.



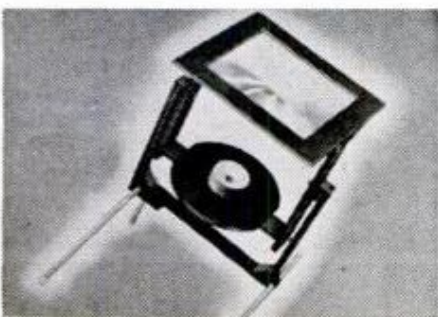
## "FISH" WITH A MAGNET

Go treasure hunting on the bottom! Fascinating fun & sometimes profitable! Tie a line to our 5-lb. Magnet—drop it overboard in bay, river, lake or ocean. Troll it along bottom—your "treasure" haul can be outboard motors, anchors, other metal valuables. 5-lb. Magnet is war surplus—Alnico V Type—Gov't. cost \$50. Lifts over 150 lbs. on land—much greater weights under water. \$12.50 Ppd. Order Stock #70,571H. Edmund Scientific Co., Barrington, N.J. 08007.



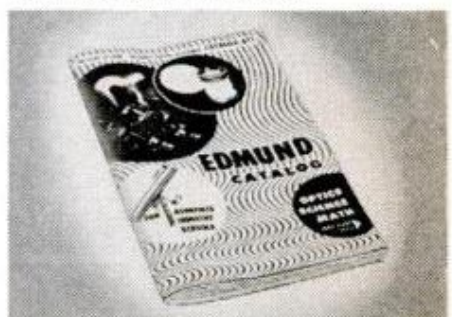
## NEW MODEL DIGITAL COMPUTER

Solve problems, tell fortunes, play games with miniature version of giant electronic brains! Adds, subtracts, multiplies, shifts, complements, carries, memorizes. Colored plastic parts easily assembled. 12" x 3 1/2" x 4 3/4". Includ. step-by-step assembly diagrams, 32-p. instruction book covering operation computer language (binary system) programming, problems & 15 experiments. \$5.98 Ppd. Order stock #70,683H AD. Edmund Scientific Co., Barrington, N. J. 08007.



## BUILD A SOLAR ENERGY FURNACE

Fascinating new field. Harness the incredible heat of the sun for experimentation—many practical uses. Easy! Inexpensive! Use scrapwood. We furnish instructions. This sun powered furnace generates terrific heat—2000° to 3000°. Fuses enamel to metal. Sets paper aflame in seconds. Use on Fresnel Lens—11" square, 1/16" thick, 19" Focal length, effective speed of f/1.9. \$6.00 Ppd. Order #70,533H. Edmund Scientific Co., Barrington, New Jersey 08007.



## GIANT FREE CATALOG

Completely new 1967 edition—148 pages. Bargains galore! New categories, items, illustrations, 1,000's of buys for industry—Optics, Science, Math, On-the-job helps, quality control aids. Options for research labs, design engineers, experimenters. Instruments for checking, measuring . . . to speed work, improve quality, cut costs. Hard-to-get war surplus bargains. Write for Catalog H. Edmund Scientific Co., Barrington, New Jersey 08007.



**ACCOUNTING**

Accounting for Business  
 Programmers  
 Accounting (Canadian)  
 Auditing  
 Business Law  
 Cost Accounting  
 C.P.A. Review  
 Estate & Trust  
 Accounting  
 Executive Accounting  
 Federal Tax  
 General Accounting  
 Industrial Accounting  
 Junior Accounting  
 Legal Accounting  
 Office Accounting  
 Personal Income Tax &  
 Social Security  
 Practical Accounting  
 Public Accounting  
 Small Business  
 Accounting  
 Starting & Managing a  
 Small Bookkeeping  
 Service

**ARCHITECTURE  
AND BUILDING**

Architectural Drawing &  
 Designing  
 Architecture  
 Building Contractor  
 Building Estimator  
 Building Inspector  
 Building Maintenance  
 Carpenter-Builder  
 Carpentry & Millwork  
 House Planning & Interior  
 Design  
 Mason  
 Painting Contractor  
 Reading Arch. Blueprints  
 Review in Arch. Design &  
 Practice  
 Review of Mech. Systems  
 in Buildings

**ART**

Amateur Artist  
 Commercial Art  
 Commercial Cartooning  
 Interior Decorating  
 Oil Painting for Pleasure  
 Show Card & Sign  
 Production  
 Show Card Writing  
 Sign Painting & Designing  
 Sketching & Painting

**AUTOMOTIVE**

Automatic Transmission  
 Specialist  
 Automobile Body  
 Rebuilding & Refinishing  
 Automobile Electrical  
 Technician  
 Automobile Engine Tune-Up  
 Automobile Technician  
 Automotive Mechanic  
 Diesel-Gas Motor Vehicle  
 Engines

**BUSINESS**

Advertising  
 Basic Inventory Control  
 Business Administration  
 Business Management &  
 Marketing  
 Business Management &  
 Production  
 Canadian Business Courses  
 COBOL Programming  
 Condensed Business  
 Practice  
 Direct Mail & Mail  
 Order Advertising  
 Industrial Psychology  
 Magazine & Newspaper  
 Advertising  
 Managing a Small Store  
 Marketing  
 Marketing Research  
 Modern Executive  
 Management  
 Office Automation  
 Office Management  
 Programming for Digital  
 Computers  
 Programming the IBM 1401  
 Computer  
 Purchasing Agent  
 Retail & Local Advertising  
 Retail Business  
 Management  
 Retail Merchandising  
 Retail Selling  
 Systems and Procedures  
 Analysis  
**CHEMICAL**  
 Analytical Chemistry  
 Chemical Engineering  
 Chemical Engineering Unit  
 Operations  
 Chemical Laboratory Tech.  
 Chemical Process Operator  
 Elements of Nuclear Energy  
 General Chemistry  
 Instrumental Laboratory  
 Analysis

**CIVIL ENGINEERING**

Civil Engineering  
 Construction Engineering  
 Highway Engineering  
 Principles of Surveying  
 Reading Highway  
 Blueprints  
 Sanitary Engineering  
 Sewage Plant Operator  
 Structural Engineering  
 Surveying and Mapping  
 Water Works Operator

**DRAFTING**

Architectural Drafting  
 Design Drafting  
 Drafting Technology  
 Electrical Drafting  
 Electrical Engineering  
 Drafting  
 Electronic Drafting  
 Introductory Mechanical  
 Drafting  
 Mechanical Drafting  
 Pressure-Vessel and Tank  
 Print Reading  
 Sheet Metal Layout for  
 Air Conditioning  
 Structural Drafting

**ELECTRICAL**

Electric Motor Repairman  
 Electrical Appliance  
 Servicing  
 Electrical Contractor  
 Electrical Engineering  
 (Power option or  
 Electronic option)  
 Electrical Engineering Tech.  
 Electrical Instrument Tech.  
 Industrial Electrical Tech.  
 Power Line Design and  
 Construction  
 Power Plant Operator  
 (Hydro or Steam Option)  
 Practical Electrician  
 Practical Lineman  
 Reading Electrical  
 Blueprints

**CAST  
 YOUR  
 BALLOT  
 FOR  
 A  
 SUCCESSFUL  
 FUTURE!**

**253 I.C.S.**

**Convenient Payment Plan**

Special in-plant training programs for industry

New! Special Package for Women



I.C.S. is the oldest, largest school of its kind. Over 200 courses for men and women. High school, business, secretarial, interior decorating, engineering. One for **you**. Direct, job-related. Bedrock facts and theory plus practical

application. You learn from experts. Diploma to graduates.

Clip and mail the coupon **now**. You'll receive, absolutely FREE, 3 valuable booklets that have helped thousands. But don't delay. Cast **your** "ballot" today!





**ENGINEERING  
(Professional)**

Chemical  
Civil  
Electrical  
Industrial Management for Engineers  
Mechanical

**ENGLISH AND WRITING**

Better Business Writing  
Free Lance Writing for Fun & Profit  
Introductory Technical Writing  
Modern Letter Writing  
Practical English  
Short Story Writing

**HIGH SCHOOL**

High School Business  
High School (Canadian)  
High School College Prep (Arts)  
High School College Prep (Engineering & Science)  
High School General  
High School Mathematics  
High School Secretarial  
High School Vocational

**LANGUAGES**

(Edited by Berlitz)  
French  
German  
Italian  
Spanish

**LEADERSHIP**

Basic Supervision  
Industrial Foremanship  
Industrial Supervision  
Personality Development  
Personnel-Labor Relations

**MATHEMATICS**

Advanced Mathematics  
Mathematics and Mechanics for Engineering  
Mathematics & Physics for Technicians  
Mathematics and Physics for Engineering  
Modern Elementary Statistics

**MECHANICAL**

Aircraft & Power Plant Mechanic  
Industrial Engineering  
Industrial Instrumentation  
Machine Design  
Mechanical Engineering  
Quality Control  
Safety Engineering Tech'n'gy  
Tool Design  
Value Analysis

**PETROLEUM**

Natural Gas Production & Transmission  
Oil Field Technology  
Petroleum Production  
Petroleum Production Engineering  
Petroleum Refinery Operator  
Pipeline Engineering

**PLASTICS**

Plastics Technician

**PLUMBING, HEATING,  
AIR CONDITIONING**

Air Conditioning  
Air Conditioning Maintenance  
Domestic Heating with Oil & Gas  
Domestic Refrigeration  
Heating  
Heating & Air Conditioning with Drawing  
Industrial Air Conditioning  
Industrial Heating  
Plumbing  
Plumbing & Heating  
Practical Plumbing  
Refrigeration  
Refrigeration & Air Conditioning  
Steam Fitting

**PULP AND PAPER**

Paper Machine Operator  
Paper Making  
Pulp Making  
Pulp & Paper Engineering  
Pulp & Paper Making

**SALESMANSHIP**

Creative Salesmanship  
Real Estate Salesmanship  
Sales Management  
Salesmanship

**SECRETARIAL**

Clerk-Typist  
Commercial  
Legal Secretary  
Medical Secretary  
Professional Secretary  
Shorthand  
Stenographic  
Typewriting

**SHOP PRACTICE**

Drill Operator  
Foundry Practice  
Industrial Metallurgy  
Lathe Operator  
Machine Shop Inspection  
Machine Shop Practice  
Machine Shop Practice & Toolmaking  
Metallurgical Engineering Technology  
Milling Machine Operator  
Multicraft Maintenance Mechanic  
Practical Millwrighting  
Reading Shop Prints  
Rigging  
Tool Engineering Tech'n'gy  
Tool Grinder  
Toolmaking  
Turret Lathe Operator  
Welding Engineering Technology

**STEAM AND DIESEL  
POWER**

Boiler Inspector  
Industrial Building Engineer  
Power Plant Engineering  
Stationary Diesel Engines  
Stationary Fireman  
Stationary Steam Engineering

**TEXTILES**

Carding  
Carding and Spinning  
Dyeing & Finishing  
Loom Fixing  
Spinning  
Textile Designing  
Textile Mill Supervisor  
Textile Technology  
Warping and Weaving

**TRAFFIC**

Motor Traffic Management  
Railway Rate Clerk  
Traffic Management

**TV-RADIO-ELECTRONICS**

Communications Techn'gy  
Electronic Fundamentals  
Electronic Fundamentals (Programmed)  
Electronic Fundamentals with Electronic Equipment Training  
Electronic Instrumentation & Servo Fundamentals  
Electronic Principles for Automation  
Electronics and Applied Calculus  
Electronics Technician  
First Class Radiotelephone License  
Fundamentals of Electronic Computers  
General Electronics  
General Electronics with Electronic Equip. Trng.  
Hi-Fi Stereo and Sound Systems Servicing  
Industrial Electronics  
Industrial Electronics Engineering  
Industrial Electronics Engineering Technician  
Practical Radio-TV Eng'ng  
Practical Telephony  
Principles of Radio-Electronic Telemetry  
Principles of Semiconductor-Transistor Circuits  
Radio Servicing with Equipment Training  
Radio & TV Servicing  
Radio & TV Servicing with Equipment Training  
Second Class Radiotelephone License  
Sound Systems Specialist  
Telephony, Electronics and Radio Communications  
TV Receiver Servicing  
TV Technician

# COURSES

In Hawaii: P. O. Box 418, Honolulu

In Canada: I. C. S. Canadian, Ltd.

Clip coupon—and take your first big step to real success! I. C. S., Scranton, Penna. 18515

In other countries: I. C. S. World, Ltd.

**FREE! THE I.C.S. SUCCESS KIT!**

Three valuable booklets sent to you free when you mark and mail the I.C.S. coupon. No obligation.

1. "How to Succeed"—A new, exciting booklet that lets you evaluate yourself and your future in an entirely different way!
2. Complete catalog outlining job opportunities and outlook in your field of interest.
3. Sample lesson to demonstrate the success-proved I.C.S. method of spare-time study.

Accredited Member, National Home Study Council

**INTERNATIONAL CORRESPONDENCE SCHOOLS ICS**

Box 23031A, Scranton, Penna. 18515

Without cost or obligation, send me "HOW TO SUCCEED," the opportunity booklet about the field I have indicated below, and a sample lesson.

Course in which I'm interested: \_\_\_\_\_  
(Select from listing above)

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_  
(Indicate Mr., Mrs., or Miss)

City \_\_\_\_\_ State \_\_\_\_\_ Zip code \_\_\_\_\_

Occupation \_\_\_\_\_ Working hours \_\_\_\_\_ A.M. to \_\_\_\_\_ P.M.

Employed by \_\_\_\_\_  I am in the U.S. Armed Forces.  
Tell me about special low rates.



# FREE!



## Trial lesson in **DRAFTING & DESIGN**

### LEARN AT HOME IN SPARE TIME

Check the want ads in any newspaper—SEE the big-pay opportunities open to you as a draftsman. What's more, you can learn this well-paid, prestige profession at home—quickly, easily! No special talent needed! Get complete, step-by-step Chicago Tech lessons in the mail, spend a few pleasant hours studying each week. In a short time you'll be a well-trained draftsman, ready to take your pick of many good jobs. Act now! Approved for Veterans.

### FREE INFORMATION—MAIL COUPON TODAY!

Get **FREE TRIAL LESSON** plus information about C.T.C. practical training. Learn what successful Chicago Tech graduates say about high pay and opportunities in drafting. No charge, or obligation.  
Est. 1904 Accredited Member NHSC

## CHICAGO TECHNICAL COLLEGE

B-205 Tech Bldg., 2000 So. Michigan Ave.  
Chicago, Illinois 60616

Rush **FREE** Trial Lesson in **DRAFTING**.

Name..... Age.....

Address.....

City..... State..... Zip.....

New G.I. Bill! Veterans check here:



WE'LL SEND YOU  
A MONEY-MAKING  
"SHOE STORE BUSINESS"  
**FREE**

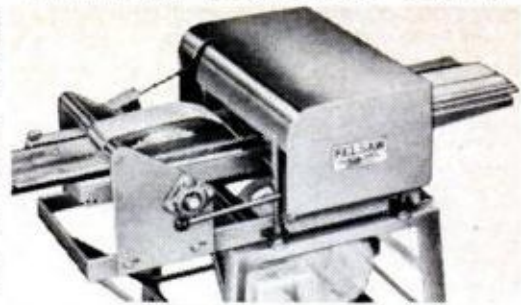
Rush postcard today for  
free sales outfit



Run your own profitable shoe store at home. Sell to friends, neighbors, folks where you work. Earn \$217.00 EXTRA monthly on just 2 easy orders a day. You feature 230 styles of quality shoes for men and women. Famous Air Cushion Mason Shoes that sell themselves. Sizes 2½-15. Widths AAAA to EEEE. Many comfort features—stock of over 250,000 pair to draw from. Also horse-hide jackets. Represent fast-growing million dollar shoe firm in spare or full time and big profits are yours. Everybody is a customer. You don't need to invest a cent in this wonderful sales opportunity. We'll rush you **FREE** a complete starting outfit that contains everything you need to begin making money. Just send us a postcard today!

MASON SHOE, Dept. G-591 Chippewa Falls, Wisc.

## PLANER · MOLDER · SAW!



Now you can use this **ONE power-feed** shop to turn rough lumber into moldings, trim, flooring, furniture... **ALL** popular patterns. **RIP... PLANE... MOLD...** separately or all at once with a one HP motor. Use 3 to 5 HP for high speed output. Low Cost... You can own this power tool for only **\$30.00** down.

Send postcard today for complete facts.  
BELSAW POWER TOOLS, 9071 Field Bldg., Kansas City, Mo. 64111

# ELECTRONICS

## COYNE ELECTRONICS INSTITUTE

A quarter million dollars worth of equipment. Non-Profit Institute—Est. 1899. Courses: Electronics • Electricity • TV-Radio • F.C.C. • Electronics Engineering Technology. Mail coupon or write for **FREE BOOK**.

### ★ VA APPROVED-G.I. BILL ★

COYNE ELECTRONICS INSTITUTE Educ. Serv. Dept. 27-S  
1501 W. Congress Parkway, Chicago, Ill. 60607

NAME..... PHONE.....

ADDRESS..... AGE.....

CITY..... STATE.....



## PROCESS YOUR OWN 8mm B&W or COLOR HOME MOVIES

No Darkroom  
Required **\$17.50**

(Plus 50c postage & handling)

Project your movies one hour after shooting them! Simple! Economical! **CINE TANK!** Entire developing process, **INCLUDING LOADING**, is performed in daylight without ever removing film from camera spool. Plastic Cine Tank holds 30 ft. rolls 8.8mm B&W or AnscoColor. Less than 20 ounces of chemical fills tank. Complete instructions included. Satisfaction guaranteed or money back!

B&W Chemical Kit  
—\$2.50

FREE! Write for 64  
page Cine Manual

SPECIAL! With this ad and purchase of Cine Tank—  
Regular \$2.25 8mm Film Slitter—yours **FREE!**

## SUPERIOR BULK FILM COMPANY

448 N. Wells St. • Dept. PM-26 • Chicago, Illinois 60610

## PLAY GUITAR IN 7 DAYS OR MONEY BACK



**TOP GUITARIST ED SALE'S** famous 66 page secret system worth \$3.00 teaches you to play a beautiful song the first day and any song by ear or note in seven days! Contains 52 photos, 87 finger placing charts, etc. plus 110 popular and western songs. (words and music); a \$1.00 Chord Finder of all the chords used in popular music; and a \$3.00 Guitarist Book of Knowledge.

**TOTAL VALUE \$7.00**  
**—ALL FOR ONLY \$2.98**

SEND NO MONEY! Just your name and address, pay postman \$2.98 plus C.O.D. postage. Or send \$3.00 with order and I pay postage. (Sorry, no C.O.D. outside Continental U.S.A.—please remit with order!)

### Unconditional Money-Back Guarantee

ED SALE, Studio 153-B AVON BY THE SEA, N. J. 07717



# U.S. GOV'T SURPLUS

**DIRECT FROM GOV'T. FOR ONLY A FRACTION OF ORIGINAL COST. BUY FOR AS LITTLE AS 2¢ AND 3¢ ON THE DOLLAR!!**

Examples:

BOATS \$178.00  
 BICYCLES \$5.50  
 TELESCOPES \$4.00  
 LEATHER BOOTS 65¢  
 TYPEWRITERS \$8.79  
 AIRPLANES \$159.00  
 REFRIGERATORS \$5.00  
 PASS. BUSSES \$208.00

COMPLETE SOURCES AND INFORMATION ON HOW YOU CAN BUY THOUSANDS OF ITEMS FROM GOV'T—ONLY \$1.00



## YOU GET ALL THIS—AND MORE

• LIST OF 1,000 LOCATIONS THROUGHOUT THE COUNTRY WHERE YOU CAN SEE THOUSANDS OF SURPLUS ITEMS AND BUY ONE OR A DOZEN OF ANY ITEM YOU WANT, RIGHT ON THE SPOT!

• plus COMPLETE METHOD FOR GETTING ON GOVERNMENT MAILING LIST ABSOLUTELY FREE, THAT KEEPS YOU REGULARLY INFORMED OF WHAT SURPLUS ITEMS ARE GOING TO BE AVAILABLE TO THE PUBLIC EACH MONTH!

• plus SPECIAL LISTING WITH PICTURES AND PRICES OF BRAND NEW WALKIE TALKIES, BINOCULARS, TAPE RECORDERS, RADIOS, ETC., THAT YOU CAN BUY IMMEDIATELY DIRECT BY MAIL AT CLOSE TO WHOLESALE COST!! BUY ONE OR A DOZEN OF ANY ITEM YOU WANT!!

**MONEY BACK IF YOU ARE NOT COMPLETELY SATISFIED**

## FREE HOME TRIAL COUPON

SURPLUS BARGAINS, DEPT. 710-2  
 605 THIRD AVENUE  
 NEW YORK, N. Y. 10016

I enclose \$1.00. Send the combined catalog and directory immediately. I understand that my money will be refunded if I am not completely satisfied. Also I will receive a full refund with my first order of \$10.00 or more.

Name \_\_\_\_\_  
 (Please Print)  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**FULL PURCHASE PRICE OF \$1.00 REFUNDED WITH FIRST ORDER OF \$10.00 OR MORE**

## If you've ever thought of learning WATCH REPAIRING— consider this...



The need for trained watch repairmen outraces the available supply. A surging sales torrent of 34 million new watches is flooding the U.S.A., swamping watch repairmen with more and more work. Each year adds over 1,000 more watches for each repairman to care for! And not just the trade alone, but the precision instrument field clamors for those with watchmaking skills and grabs trained men as fast as they are ready.

### Age Is No Barrier

Whether you are a teen ager or one step from retirement, there's room for you in watch repair. Previous experience not needed. Average education will do.

### Learn At Lowest Cost

Chicago School of Watchmaking offers a swift, sure, low cost way to learn watch repairing. This professional has been training professional repairmen since 1908. You learn in spare time. 35 home study lessons. Each one advances you step by step with giant strides toward successful watch repair. Over 900 illustrations light the way. Tuition just \$5 a month.

### Make Rapid Progress

You learn the common repairs first so you can use your training soon after you start. You'll learn how to identify watches worth repairing . . . how to estimate work to be done . . . how to order needed parts . . . and a streamlined method for making repairs quickly as you take the watch apart. Then you polish your skills with the less common repairs that bring practiced professionals big money.

### Write Today For Complete Information and Free Sample Lesson

Investigate this time-tested practical home training program today. Learn how you can profit from the shortage of trained watch repairmen. No salesman will call upon you nor is there any obligation whatever. Mail coupon or write today to Chicago School of Watchmaking, Dept. 127, Fox River Grove, Ill. 60021.

**FREE  
 SAMPLE  
 LESSON**

CHICAGO SCHOOL OF WATCHMAKING  
 Dept. 127, Fox River Grove, Ill. 60021

Please rush FREE Sample Lesson and full information on learning watch repair at home.

Name \_\_\_\_\_ Age \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_



# Drivin' with Dan

How does a fellow get started as a race driver? How can I set proper spring stiffness on my "stocker?" What's the best all-around tire in the \$50 range? Dan Gurney answers these and other provocative questions



**THE SERIOUS BUSINESS OF RACING** is reflected in Dan's face as he gets ready to test one of his All-America Eagles at Indianapolis. Dan will be back in force for this year's race; he's rebuilding the '66 Eagles and completing work on three brand-new cars

**Q.** I race a "stocker" at a local half-mile flat clay oval. I don't know about chassis engineering, but I feel there must be some way to determine when your springs are at the correct level of stiffness for maximum wheel control and handling for the existing track condition. Can you help me?—Tony Goodell, Utica, Mich.

**A.** One simplified approach is rigging up some sort of indicator, usually in the vicinity of the tubular shock absorber on a given wheel, to show you how much wheel travel you are getting. This indicator could be a rubber O-ring around the shock shaft that would be pushed to the position of highest travel. Once you have an idea of how much travel you are encountering, you can install a stiffer spring for too much travel, or a softer one if you don't have enough. A gen-

eral rule might be two inches of travel on a shock. It's impossible to cover here all the variations, but this may help you to help yourself.

**Q.** I understand they are considering moving the 12-hour race at Sebring, Fla., to West Palm Beach. I would like your comments on the advantages and disadvantages the drivers will encounter and your personal feelings on leaving the old air base.—James Reeve, Decatur, Ga.

**A.** Although it was announced that the Florida 12-hour Grand Prix of Endurance was moving to West Palm Beach, a delay in completion of the new site has returned it to the air base course at Sebring for 1967. Had it moved, it would have meant, from my standpoint as a driver, that it closed with me holding the track record. Now, of course, I'll have to try to defend it this year. In a way, I'm sort of glad it didn't move. The old air base, although an artificial course at best, does have as much tradition as any road circuit in the United States.

**Q.** I've had the urge to drive at Daytona since I was 16. How can I prepare myself? I'm sure that throughout the country there are men who have the natural driving ability to be great race drivers, but don't have the money available. Just because a man doesn't have money or connections to develop his talent I don't believe it should lie dormant. I'm sure you have a great ability and that through money or some connection you were able to unleash it, but what of the man who works in a city and has this same ability but doesn't know how or where to use it?—William P. Grubbs, Jacksonville, Fla.

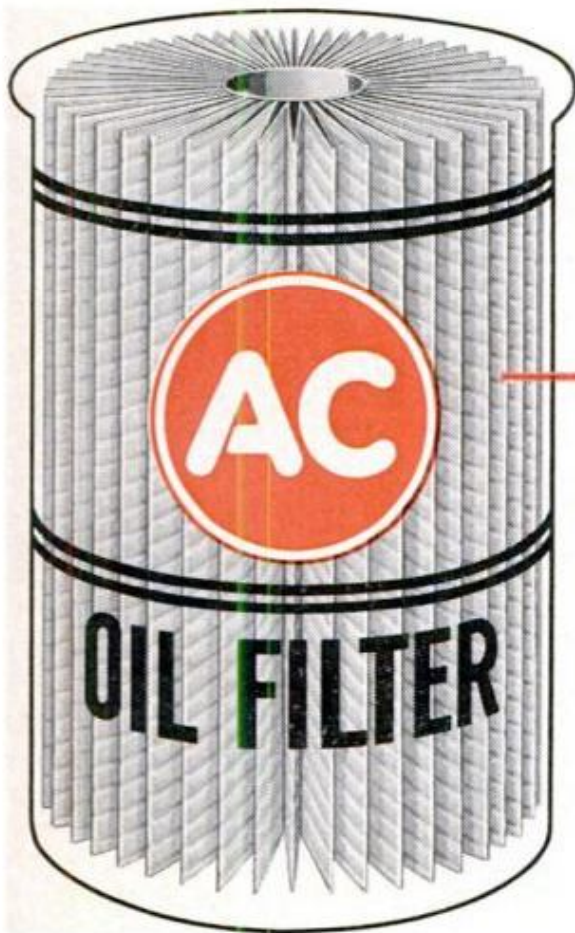
**A.** I agree that undoubtedly there are men obscured by other professions who have this natural talent buried within themselves. But among the established top drivers, I think you'll find many more examples of men who

*(Please turn to page 25)*



# AC announces a breakthrough that virtually eliminates wear in your car engine...

# ACron!



AC's new Oil Filter with ACron — a special heat-resistant composition, proved in grueling road and laboratory tests. ACron virtually eliminates engine wear, even under the most severe operating conditions.

AC now offers new ACron to the motoring public. ACron is a special filtering material, proved in the laboratory and in actual road tests to be the best protection available for modern engines using full-flow filtration. ACron virtually eliminates engine wear.\* It traps all harmful engine contaminants while letting through additives that clean and lubricate vital engine parts. AC Oil Filters with ACron are original equipment on new General Motors cars. They meet or exceed the warranty requirements of all car manufacturers. Insist on AC Oil Filter protection the next time you change. *It costs no more to get the best.*

AC SPARK PLUG DIVISION



\*When oil filter is replaced and other engine maintenance services are performed in accordance with car manufacturer's recommendations.

**FOR SAFETY'S SAKE, CHECK YOUR HEADLAMPS — REPLACE WITH AC GUIDE LAMPS**



# Stanley makes a new steel tape rugged enough to stand up to a 50-ton tank



November 16, 1966: a huge M48A1 50-Ton Tank of the 9th Battalion 34 Armor rolls over a Stanley "Steelmaster" No. MY100A Long Tape.

Who says they don't make tools like they used to anymore? Stanley makes tools like they used to anymore. Just look at this new "Steelmaster"™ Long Tape — run over by a 50-ton tank and it didn't break!

That chrome-finished, die-cast case is tough — shaped to fit comfortably in your hand. And the blade is designed for long

life, too — protected with Mylar\* to last 10 times longer than conventional blades.

Take your choice of 50 or 100 foot lengths. Both sizes are graduated in feet and inches to eighths, with red stud markings and foot markings. And both are a snap to replace

This rugged tape comes up working as good as ever.



— just open the case and pop in a blade cartridge.

Get the tapes that measure up to all kinds of work on the job site — new "Steelmaster" Long Tapes. Stanley Tools, Division of The Stanley Works, New Britain, Connecticut.



**STANLEY**

Stanley makes tools like they used to anymore

\*DuPont Polyester film

Stanley Steelmaster  
100 ft. long tape No. MY100A

POPULAR MECHANICS



## DRIVIN' WITH DAN

*(Continued from page 22)*

started with no extra money, if any, and who at the beginning had no friends who could pull strings. It takes more than just driving talent to become a top driver. You must have the determination and ingenuity to overcome the obstacles you mention. In a way, if you don't you probably will find that somewhere along the line you'll fall short anyway. If you want to do it bad enough, you'll find a way.

**Q.** *This may be a little out of your line, but what do you think of Aurora slot cars?—Perry Rease, Somerdale, N.J.*

**A.** While it is a bit out of my line, I know there are some half-dozen prominent slot-car manufacturers and Aurora is certainly among them. I couldn't endorse any one over the other with my limited knowledge of the field, which, incidentally, many of the guys on our All-American Racers team enthusiastically participate in. You might like to know that American Russkit makes a model of our V-12 Eagle and that Cox has a model of the Wood Brothers Ford stock car in which I won the 1966 Riverside 500.

**Q.** *I'd like to buy a Mustang, but I keep tossing the question back and forth as to which engine would be best for the car, a Six or V8. This would be for street use only, but I'd like to have the handling kit suspension package with it. Is a four-speed manual transmission worth the extra cost?—Richard Winter, Chicago.*

**A.** My preference for that car would be 289-cu.-in. V8 power, with the handling kit you mention. I also prefer the automatic transmission. From the standpoint of all-around versatility, the automatic wins hands down. I wouldn't buy the four-speed unless I intended to race. A four-speed is a more reliable transmission under road-racing conditions.

**Q.** *I am a high school senior and would like to know how a boy who likes racing and would like to drive a race car can get into one.—James E. Poston, Pamlico, S.C.*

**A.** There are no established routes. I would suggest that you get as much experience as possible so that when you find your way to the big leagues, you will have built up a foundation of knowledge and technique that

will be there when you need it. The type car—or even motorcycle, for that matter—you start in isn't that important. Any kind of machinery can provide valuable experience for a racing career.

**Q.** *What are your plans for the 1967 Indianapolis 500? Will you use your Eagles again? And the Ford DOHC engine? I know how you feel about the accident that knocked you out of the '66 race, but I hope you don't let that deter you from taking another crack! I hope you or one of your Eagles win! Bring back the race to the USA—I can't stand foreigners walking off with first!—Bill Krill, Milwaukee.*

**A.** I do plan to take another crack at Indianapolis this year, and I intend to go back with a new Eagle—a better, faster one. Present plans are to again use the DOHC Ford for power. I assure you I'll be doing everything possible to bring this race back to the USA, and even perhaps to give the "foreigners" you mention a dose of their own medicine with our American Eagle in Grand Prix races over there.

**Q.** *What's the best all-around tire in the \$50 range? I've tried Michelin and Pirelli on a foreign car and would like to know if they would be good on a Cougar, or should I order something like an Armstrong "Monte Carlo?" Both have the same tread rating and mileage guarantee.—H. Chapman, Southbridge, Mass.*

**A.** I am partial to the new, wider American tires, I must warn you first of all. I've driven quite a few miles with Michelin and Pirelli tires and frankly, while I think they are excellent on cars designed to use them as original equipment, they don't seem to be the answer on a Cougar-type car. I have to admit I haven't been able to evaluate all the fine tires available, however, so I suggest you experiment a bit yourself.

**Q.** *What is the fastest speed any car (not jet propelled) has gone?—Ricky Giancola, Syracuse, N.Y.*

**A.** The land speed record for wheel-driven cars (which is what I assume you mean) is held by Summers Brothers' "Goldenrod" at 409.277 mph.

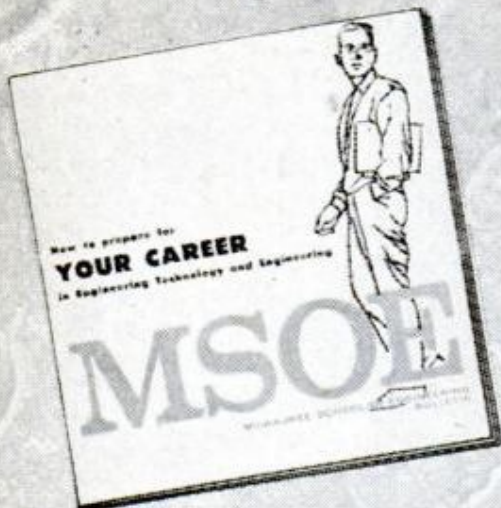
---

*If you have questions on racing, high-performance and everyday driving techniques, send them to "Drivin' with Dan," c/o Popular Mechanics, 575 Lexington Ave., New York, N.Y. 10022. Questions cannot be answered by individual letters. Questions on maintenance and repair should be addressed to the Auto Clinic (see page 32).*

---



Thinking of college and a space age career?



Send for this booklet on **ENGINEERING TECHNOLOGY AND ENGINEERING**

Learn how you can prepare for a dynamic career as an electrical or mechanical engineering technician or engineer in such exciting, growing fields as avionics, missiles, reliability control, fluid mechanics, data processing, metallurgy, microelectronics, and advanced aerospace research.

MSOE offers residence study programs leading to these degrees in engineering technology and engineering:

- 2 years — Associate in Applied Science
- 4 years — Bachelor of Science

Also get facts about scholarships and financial aids, job placement and other student services, plus photographs of MSOE technical laboratories and student activities. Courses approved for veteran training. For your copy, just mail the coupon — no obligation.

# MSOE

Milwaukee, Wisconsin 53201

Milwaukee School of Engineering  
Dept. PM-267, 1025 N. Milwaukee Street  
Milwaukee, Wisconsin 53201

Please send the "Your Career" booklet. I'm interested in

- Electrical fields       Mechanical fields

Name.....Age.....

Address.....

City.....State.....ZIP.....

MS-284

## 75 POWER TELESCOPE \$498

NEW 3 in one telescopes, 3 variable 25X, 45X-75X magnification. Brass bound. 25 power for ultra bright images 45 & 75 power for long range. Guaranteed to bring distant stars, moons, objects, sports 75 times closer.

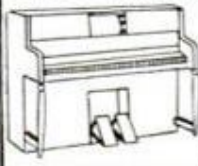


Most powerful scope anywhere at this amazing-low price. 5 sections. Opens 36" closes 1 ft.; Contains 4 ground & polished lenses. Can also be used as powerful microscope. American made. Mass production enables us to offer telescope complete including case \$4.98 post paid. Money back guarantee.

CRITERION CO., Dept. PMB-36, 331 Church St., Hartford, Conn. 06101

## ELECTRIFY PLAYER PIANOS PUMP ORGANS

YOU CAN QUICKLY END TIRESOME FOOT-PUMPING With a Compact Low-Cost Lee Silent Suction Unit



EASY TO INSTALL  
FULLY GUARANTEED  
1000'S IN USE



write to  
**LEE MUSIC MFG. CO.**  
Box 595, Tujunga, Calif.

## Liquid WRENCH



LOOSENS RUSTED NUTS, BOLTS, PARTS IN SECONDS at Service Stations, Auto and Hardware Stores  
RADIATOR SPECIALTY COMPANY, CHARLOTTE, N. C.

## BUILD A LOW COST PONTOON BOAT WITH THIS KIT



It's Fun, It's Easy Too! If you can use a saw, hammer and wrench you can build a rugged pontoon boat that will provide years of fun for your family at an amazingly low cost to you. Write for complete catalog, free.

**Prima-D** DIVISION  
CENTRAL MACHINE WORKS COMPANY  
ESTABLISHED 1911

1235 Central Avenue  
Minneapolis 13, Minnesota

## HOTTEST \$1.00

Seller on the Market  
Ideal for Fund Raising

Join the many people making \$50, \$100, \$150 or more with our famous "Hexe" **AUTOMATIC NEEDLE THREADER**—the amazing invention that threads all size needles with the simple press of a button. Show to friends, neighbors, fellow-workers, in stores, offices, factories. Everyone buys. Order from this ad at **LOW WHOLESALE PRICES**—only \$3.00 per doz.; \$8.80 for 3 doz.; \$30.00 for 12 doz.; \$144.00 for 60 doz. (Or, send \$1.00 for 3 samples.) Our **PROVEN SALES PLAN**, complete display aids, and catalog on 50 other fast sellers included with all orders. Order today. 30-day money back guarantee. **DISPLAY SALES:** Dept. PM-17; 2349 Devon; Chicago, Ill. 60645.



## Excitement! Security! Good Pay! CRIME DETECTION

LEARN AT HOME IN SPARE TIME—START NOW!

Crime everywhere is on the rise! Learn now, in your own home, the profitable profession that enables you to track down criminals and bring them to justice! Hundreds of Identification Bureaus employ I. A. S. graduates... trained in finger printing, police photography, handwriting identification, firearms and investigation. Our 44th year! FREE "Blue Book of Crime"... packed with crime facts and the full story of famous I. A. S. training. State exact age. No salesman will call. Rush Coupon! *A Correspondence School Founded in 1916.*

**FREE**  
Blue Book of Crime  
MAIL COUPON

**INSTITUTE OF APPLIED SCIENCE, Dept. 1352**  
1920 Sunnyside Avenue, Chicago, Illinois 60640  
Rush Blue Book of Crime... FREE!  
NAME.....Age.....  
ADDRESS.....  
TOWN.....STATE.....ZIP.....





# I'd like to give this to my fellow men... while I am still able to help!

I was young once, as you may be—today I am older. Not too old to enjoy the fruits of my work, but older in the sense of being wiser. And once I was poor, desperately poor. Today almost any man can stretch his income to make ends meet. Today, there are few who hunger for bread and shelter. But in my youth I knew the pinch of poverty; the emptiness of hunger; the cold stare of the creditor who would not take excuses for money. Today, all that is past. And behind my city house, my

summer home, my Cadillacs, my winter-long vacations and my sense of independence—behind all the wealth of cash and deep inner satisfaction that I enjoy—there is one simple secret. It is this secret that I would like to impart to you. If you are satisfied with a humdrum life of service to another master, turn this page now—read no more. If you are interested in a fuller life, free from bosses, free from worries, free from fears, read further. This message may be meant for you.

By Victor B. Mason

I am printing my message in a magazine. It may come to the attention of thousands of eyes. But of all those thousands, only a few will have the vision to understand. Many may read; but of a thousand only you may have the intuition, the sensitivity, to understand that what I am writing may be intended for you—may be the tide that shapes your destiny, which, taken at the crest, carries you to levels of independence beyond the dreams of avarice.

Don't misunderstand me. There is no mysticism in this. I am not speaking of occult things, of innumerable laws of nature that will sweep you to success without effort on your part. That sort of talk is *rubbish!* And anyone who tries to tell you that you can *think* your way to riches without effort is a false friend. I am too much of a realist for that. And I hope you are.

I hope you are the kind of man—if you have read this far—who knows that anything worthwhile has to be *earned!* I hope you have learned that there is no reward without effort. If you have learned this, then you may be ready to take the next step in the development of your karma—you may be ready to learn and use the secret I have to impart.

## I Have All The Money I Need

In my own life I have gone beyond the need of money. I have it. I have gone beyond the need of gain. I have two businesses that pay me an income well above any amount I have need for. And, in addition, I have the satisfaction—the deep satisfaction—of knowing that I have put more than three hundred other men in businesses of their own. Since I have no need for money, the greatest satisfaction I get from life is sharing my secret of personal independence with others—seeing them achieve the same heights of happiness that have come into my own life.

Please don't misunderstand this statement. I am not a philanthropist. I believe that charity is something that no proud man will accept. I have never seen a man who was worth his salt who would accept something for nothing. I have never met a highly successful man whom the world respected who did not sacrifice something to

gain his position. And, unless you are willing to make at least half the effort, I'm not interested in giving you a "leg up" to the achievement of your goal. Frankly, I'm going to charge you something for the secret I give you. Not a lot—but enough to make me believe that you are a little above the fellows who merely "wish" for success and are not willing to sacrifice something to get it.

## A Fascinating and Peculiar Business

I have a business that is peculiar—one of my businesses. The unusual thing about it is that it is needed in every little community throughout this country. But it is a business that will never be invaded by the "big fellows." It has to be handled on a local basis. No giant octopus can ever gobble up the whole thing. No big combine is ever going to destroy it. It is essentially a "one man" business that can be operated without outside help. It is a business that is good summer and winter. It is a business that is growing each year. And, it is a business that can be started on an investment so small that it is within the reach of anyone who has a television set. But it has nothing to do with television.

This business has another peculiarity. It can be started at home in spare time. No risk to present job. No risk to present income. And no need to let anyone else know you are "on your own." It can be run as a spare time business for extra money. Or, as it grows to the point where it is paying more than your present salary, it can be expanded into a full time business—overnight. It can give you a sense of personal independence that will free you forever from the fear of lay-off, loss of job, depressions, or economic reverses.

## Are You Mechanically Inclined?

While the operation of this business is partly automatic, it won't run itself. If you are to use it as a stepping stone to independence, you must be able to work with your hands, use such tools as hammer and screw driver, and enjoy getting into a pair of blue jeans and rolling up your sleeves. But two hours a day of manual work will keep your "factory" running 24 hours turning out a product that has a steady and

ready sale in every community. A half dollar spent for raw materials can bring you six dollars in cash—six times a day.

In this message I'm not going to try to tell you the entire story. There is not enough space on this page. And, I am not going to ask you to spend a penny now to learn the secret. I'll send you all the information, free. If you are interested in becoming independent, in becoming your own boss, in knowing the sweet fruits of success as I know them, send me your name. That's all. Just your name. I won't ask you for a penny. I'll send you all the information about one of the most fascinating businesses you can imagine. With these facts, you will make your own investigation. You will check up on conditions in your neighborhood. You will weigh and analyze the whole proposition. Then, and then only, if you decide to take the next step, I'll allow you to invest \$15.00. And even then, if you decide that your fifteen dollars has been badly invested I'll return it to you. Don't hesitate to send your name. I have no salesmen. I will merely write you a long letter and send you complete facts about the business I have found to be so successful. After that, you make the decisions.

## Does Happiness Hang on Your Decision?

Don't put this off. It may be a coincidence that you are reading these words right now. Or, it may be a matter that is more deeply connected with your destiny than either of us can say. There is only one thing certain: If you have read this far you are interested in the kind of independence I enjoy. And if that is true, then you must take the next step. No coupon on this advertisement. If you don't think enough of your future happiness and prosperity to write your name on a postcard and mail it to me, forget the whole thing. But if you think there is a destiny that shapes men's lives, send your name now. What I send you may convince you of the truth of this proverb. And what I send you will not cost a penny, now or at any other time.

**VICTOR B. MASON**  
1512 Jarvis Ave., Suite M-2-BT  
CHICAGO, ILLINOIS 60626



# CAREER BAROMETER

BY CREIGHTON PEET

## JOBS IN PLEASURE BOATING

**M**ORE PEOPLE TAKE TO BOATS every year in the United States, so it's logical to wonder what the prospects are for jobs in boat building, repairing or management.

There are around 8 million pleasure boats on our lakes, rivers and coasts, including 580,000 inboards. Some 350,000 new boats are sold every year. Next to the family car, the family boat is tops when it comes to summer enjoyment.

Considerable change has taken place in boat building. What once required a vast amount of handwork is now accomplished with speed and ease. A few coats of plastic are sprayed on sheets of fiberglass—and while you watch, a complete boat takes shape. One of the biggest manufacturers in this field, Traveler Boat Div. of the Stanray Corp., recently replaced its regional factories with a \$6 million computer-operated plant at Danville, Ill., almost in the exact center of U.S. population. From here it ships finished boats on special railroad cars. A fiberglass or aluminum boat is completed every two minutes; a brand-new boat comes off an assembly line in just four hours.

New production methods that have cut the price of boats obviously have been a factor in the growing number of owners, but they have also cut the number of profitable jobs in the plants. Very little skill that can't be acquired in a few days is needed, so the pay starts around a low \$2 an hour and seldom gets past \$3. It should also be pointed out that many find the fumes unpleasant, despite elaborate ventilating and shielding systems.

While not as numerous as fiberglass boats, wooden-hull boats are still quite popular, and here the pay and working conditions are usually much better. Many mass-producers of these boats use computers and the latest power tools. The Trojan Boat Co. of Lancaster, Pa., for example, produces several thousand 28, 31 and 40-foot wooden boats a year, using an incentive pay system under which its men may work a nine-hour or longer day and get from \$7000 to \$10,000 a year.

Standardized wooden elements are produced to exact measurements in a mill and shipped to assembly lines in the main plant. This assembly requires skill, chiefly

*(Please turn to page 30)*

JOB TITLE	CURRENT NATIONAL DEMAND	STATES OR AREAS WITH SIGNIFICANT DEMAND	JOB TITLE	CURRENT NATIONAL DEMAND	STATES OR AREAS WITH SIGNIFICANT DEMAND
Aeronautical Engineer	770	Wash., Calif., Mo., Pa.	Mechanical Engineer	1387	Calif., Wash., N.J., Wis., Ohio
Aircraft Repairman	629	Calif., Fla., Conn., Md.	Metal Turner, Miller, Borer	1713	Conn., Calif., Ga., Ohio, Ill.
Air Pilot	241	Fla., Ill., Pa.	Modelmaker, Pattermaker	761	Wash., Calif., Ga., Mo., Vt.
Auto Body Worker, Transport Equipment	782	Calif., Fla., N.C., Ill., Conn.	Molder, Coremaker, Foundryman	127	Mass., Pa., Ill., Conn., Wash.
Carpenter	174	Minn., Wash., Mass., Va.	Medical, Dental Techn.	176	Ill., D.C., Calif., Colo.
Civil Engineer	458	Calif., Ohio, N.J., Wash.	Plumber, Gas Fitter, Steam Fitter	780	Calif., Va., Mass., Minn., Ohio
Draftsman	1230	Wash., Calif., Ohio, Wis., Minn.	Policeman, Detective, Guard	1072	Calif., Mo., D.C., Va., Fla.
Computer Data Processor, Automatic	273	Mass., Wash., Va., Minn.	Radio-TV Assembler, Repairman	153	Ill., Calif., Va., N.H., Iowa
Computer Programmer, Statistician	1009	Wash., Minn., Calif., Pa., D.C.	Sheet-Metal Worker	715	Wash., Calif., Md., Va.
Electrical Components Assembler, Repairman	213	Calif., N.H., Wis., Ill., Minn.	Timber Cutter	82	N.H., Minn., Mont., Pa.
Electrical, Electronics Engineer	1264	Calif., Fla., N.J., Okla., Minn.	Toolmaker	1450	Wash., Calif., Ga., Ill., Ind.
Electrical, Electronics Products Fabricator	515	Wash., Hawaii, Utah, Colo., Va.	Transportation Equip. Assembler	2888	Mich., Wash., Calif., Mass., Ill.
Electrical, Electronics Technician	486	Calif., Fla., Alaska, Pa., Ohio	Transportation and Material Handler	540	Calif., Va., Mo., Mass., Ohio
Electrical Products Assembler	179	Calif., Iowa, Ark., Fla., Ind.	Vehicle and Rail-Equipment Repairman	352	Ill., Pa., Utah, Wis., Iowa
Machinist	2807	Wash., Calif., Mass., Ill., Va.	Welder	1247	Calif., Ill., Ohio, Mass.
Marine Equipment Repairman	222	Mass., Wash., Calif., Ohio, Va.	Wire Communication Assembler	519	Mich., Fla., N.C., Ill., Minn.
Mathematician	89	Calif., Mo., N.J., Va., Pa.			

PM'S CAREER BAROMETER CHART, above, gives the actual number of job openings listed with state employment agencies by various industries. They do not represent all jobs available, but relative demand is reflected. "Current Demand" figures are true as of our closing date. Check this chart each month and it will tell you where your talents are needed, and how badly. For names of actual

employers represented by these listings you must apply in person to the state employment agency in the capital city of the state indicated.

Today, with proper schooling, you can qualify for many of the job categories shown. For a list of accredited correspondence and residence schools, write to PM'S INFORMATION BUREAU, 575 LEXINGTON AVE., N. Y. 10022.



Need More Money? Want to Be Your Own Boss?

# START SAW SHARPENING BUSINESS

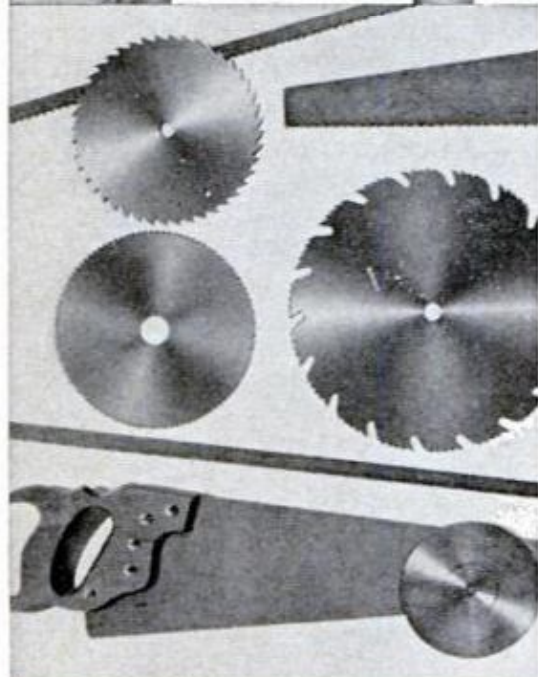
Of Your Own - in Your Sparetime



Turn your spare hours in the evening or week-ends into extra dollars, this proven practical way—start your own money-making sharpening business—No selling or canvassing—No experience required. You can do it automatically with the Foley Saw Filer or Lawn Mower Sharpener.

## Beginners Earn \$3 to \$6 an Hour

People, just like yourself, all over the United States are making extra cash—\$20 to \$30 a week—right now in their spare time. "My sparetime saw filing business has made me \$952 these first ten months," says R. T. Chapman. Many start part-time, find it so profitable that they build year-round service business. You can, too, simply by following easy Foley plan.



## Town of 150 Supports Profitable Business

Here's the story from Dick and Jo Ann Koester after being in business less than a year. "We have acquired another Foley Saw Filer and for the past two months we have been in full-time operation. As we live in a small town of 150 population in farm area we use our truck to pick up saws in five nearby towns. With a family to support and plans for building to our house we had to pick up a business fast and already sharpen an average of 15-20 saws a day. Business for the future looks even better as good machine filing is our best advertising."

## CASH for Sharpening Mowers

Every neighbor with a lawn needs his lawn mower sharpened at least once a year. No experience is needed to start—anyone can operate and turn out professional jobs. All operations are handled quickly, easily and accurately.



Sharpen These Professionally  
with amazing

## Foley Saw Filer

You can sharpen combination (rip and crosscut) circular saws, band saws, hand saws, crosscut circular saws—and do a perfect job every time without experience or special training. The precision Foley Filer does it for you automatically! A complete repair shop in one machine! Set up in basement or garage, work your own hours in your own way and earn big sparetime profits.



# FREE

**BOOKLET TELLS HOW!** Free Book "Money Making Facts" shows just how you can start at home in spare time. Small investment—time payments if desired. Get this booklet—study it! Send coupon today. No salesman will call on you.

Foley Manufacturing Co., 216-7 Foley Bldg.  
Minneapolis, Minnesota 55418

Send Free Booklet on  Saw Sharpening Business  Lawn Mower Sharpening

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zipcode \_\_\_\_\_



## CAREER BAROMETER

(Continued from page 28)

learned on the job. Most of the men have a high-school education and a familiarity with ordinary mechanics.

The aristocrats of the boat-building business are the men who make the fantastically complicated elements of laminated oak or mahogany used in yachts and racing cup challengers. At the Minneford Yacht Yard on City Island in New York City, builder of many famous racing hulls, apprentices start at \$1.80 an hour and work up to \$3.75, but there are no starting requirements. All one needs to know is taught by older craftsmen.

### Pleasure job for craftsmen

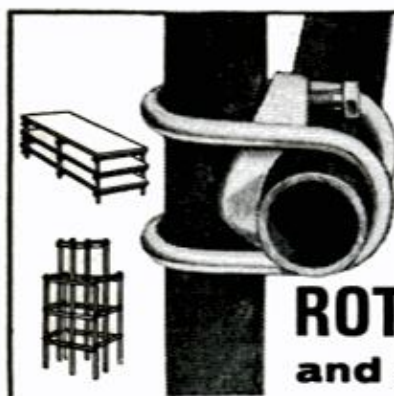
Among the most important things a man can bring to this job, they'll tell you, are a real feeling for boats and a satisfaction in working with fine woods. It's no way to get rich, certainly, with \$150 a week the usual top pay, but something for men who deplore routine assembly-line work and take pleasure in craftsmanship.

As to working at, or eventually owning, a marina—a number of these 5500 water-side parking lots are owner-operated, and a man can make \$10,000 a year; more if he's alert to what customers want. His money comes primarily from the rental of slips where boats tie up—sometimes all year—but most big marinas also sell gas, oil, groceries, ice, hardware, paint, bait and tackle and provide all sorts of services from laundry to garbage collection.

This requires a lot of capital or a working partnership with other operators. But boat people point out that many large lakes are still without boats or marinas and offer real opportunities for the enterprising.

Any competent auto mechanic can adapt himself to marine engines in a few months, and the storing, cleaning and repairing of boats can be profitable. While many owners like to do their own cleaning and painting as a hobby, getting a boat of any size out of the water and properly supported in a storage cradle ashore is no job for an amateur. Thus, they need marinas with storage facilities. The marina operator also can earn nice commissions on boat and engine sales.

The National Assn. of Engine and Boat Manufacturers, 420 Lexington Ave., New York—a group you might contact for advice in this field—provides this breakdown of a marina's revenue: repair services, 15 percent; winter storage, 12 percent; food and liquor, and hardware and paint, 11 percent each; fuel sales, 10 percent, and boat rentals, 4 percent. ★ ★ ★



**Build strong, useful structures at half the cost with ROTA-LOCKS and steel pipe!**

Sturdy work benches, playground equipment, storage racks or other structures are built quickly and inexpensively using standard steel pipe and Rota-Lock... the new open loop locking device. One screw locks both pipes. 15 second assembly. 8000 lb. load capacity. Completely reusable.

Enter our Order No. \_\_\_\_\_ for these ROTA-LOCKS f.o.b. factory:

_____ ea. 3/4" x 3/4" Rota-Locks	at \$1.20	
_____ ea. 1" x 1" Rota-Locks	at \$1.40	
_____ ea. 1 1/4" x 1 1/4" Rota-Locks	1.60	
_____ ea. 1 1/2" x 1 1/2" Rota-Locks	2.00	
_____ ea. 2" x 2" Rota-Locks	2.80	

Send Rota-Lock design load tables.

Company \_\_\_\_\_  
Address \_\_\_\_\_  
City and State \_\_\_\_\_  
Signed by \_\_\_\_\_

**UP-RIGHT SCAFFOLDS**  
**rota-lock** Dept. 735 • 1013 Parnes Street  
Berkeley, California  
ALSO IN CANADA

**MAKE BIG MONEY—ALL PROFIT—AT HOME**

**INVISIBLE MENDING**

**Pays up to \$10 in an Hour!**

Make moth holes, cigarette burns, tears, rips, disappear from all fabrics. Little-known craft pays extra spare-time profits at home. Write today for exciting details FREE!

**FABRICON, 1555 Howard St.**  
DEPT. 322, CHICAGO 26, ILLINOIS

**BEFORE**  **AFTER** 

**GO AHEAD! Ask Your Dealer to Demonstrate this BENJAMIN**

... then You'll Know Why Today's Oldest AIR RIFLE is Still the Most DEPENDABLE BB or PELLET GUN ever made!

This Single Shot Model isn't new. It's been around since 1908. In Performance and Popularity it has more than proved itself to be the Dominant Hi-Compression Air Rifle in the field. Does that surprise you? Probably if you owned one you'll find you agree it cannot be equalled, much less surpassed, in qualities which contribute to Better Shooting. A universal favorite for all uses—Indoors or Out. This gun combines such distinctive features as Genuine Bronze Barrels, Machined Brass and Steel Parts, Superior Workmanship with Modern Refinements and Styling to deliver Power, Accuracy, Dependability that rightfully put it in a class by itself. Choice of BB or 177 or 22. At Benjamin Dealers.

**\$32.50** No. 318 CAL. BB—No. 312 CAL. 22 PELLET—No. 317 CAL. 177 PELLET.

**BENJAMIN AIR RIFLE COMPANY**  
896 Marion St., St. Louis, Mo. 63104

**FREE** Catalog Single Shot and Repeaters—Cal. BB or 177 or 22. Also Special Hunting Knife Offer. Write today!

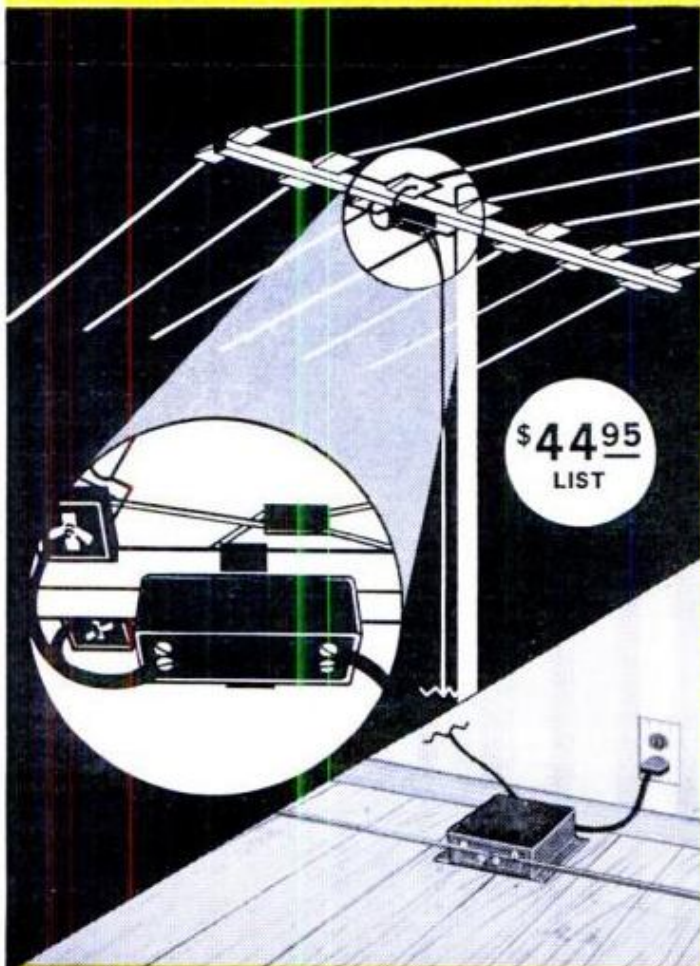
**You Can DEPEND on BENJAMIN**



# POWER NEW POWER

FROM

# FINCO



## Model 65-3 VHF-TV ANTENNA AMPLIFIER

improves reception of WEAK VHF-TV signals in FRINGE AREAS even where strong local TV or FM signals are present. AMPLIFIES UP TO 7 TIMES for Better Color and B/W

A two-transistor—high and low band—amplifier in one compact weather-resistant housing. Engineered to provide the lowest noise and highest amplification with the most desirable overload characteristics. Designed for easy and convenient installation on antenna boom, mast, or under roof eave.

Amplifier used in conjunction with dual outlet power supply for one, two, or multiple set installations (with Finco 3003 coupler). 117 V 60 cycle input. AC power up to amplifier: 24 volts - 60 cycle. Metal enclosed with easy keyhole mounting. Amplifier and power supply provided complete with mounting hardware. Each unit tested and inspected prior to shipment.

Let Finco solve your Color and B & W reception problems. Write for complete information, schematics and specifications. Form #20-357.

## Model 65-3 VHF-TV ANTENNA AMPLIFIER



## THE FINNEY COMPANY

34 West Interstate Street • Bedford, Ohio 44014  
Dept. PM

Please send free 65-3 Amplifier Brochure

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_



# SOLUTIONS FOR MECHANICAL HEADACHES

# AUTOMOBILE CLINIC

## BY MORT SCHULTZ

### Automatic leaking

*My 1965 Ford with automatic transmission leaks fluid "around the hand-adjusting screws." At least they told me that—and also that there's no way to correct it. I don't know what you can do, but I am desperate. With only 4000 miles on the speedometer, I hate to think of the mess I'll always have on the garage floor.—Laurence Weber, Tuscola, Ill.*

I don't know who "they" are, but they sure don't read service bulletins. Ford's SB 513 (11/19/65) tells "them" to install a new-type nut with a self-contained neoprene seal to stop transmission leaks.

### Oil pumper

*I have a 1961 Corvair Monza which pumps oil up the dipstick. If you remove the filler cap, it pumps oil out the filler neck at freeway speeds. At idle, it's okay. A mechanic, without even looking at the car, said to change engines. Surely, there's a better solution than this.—Doug Hall, Chula Vista, Calif.*

You'd better believe it. If there isn't a better solution than what that mechanic suggested, lots of Corvair owners are in for a financial fiasco. I believe that a "better" solution is twofold:

1. Be aware that you've got a short oil-filler neck on that Corvair. Even if the car's in perfect shape, oil will be tossed out the neck at higher speeds if the filler cap is removed.

2. Since you live in California, you probably have some sort of PCV system on the car. Oil being tossed out could be a sign of a plugged-up PCV system. So, I'd get that entire system cleaned out and the PCV valve replaced—just to be sure.

### Now it's a moanin' Olds

*Several months ago you advised a reader complaining of a vibrating, moaning noise in the front of his Pontiac to install a new drive-belt bumper to the alternator. I have the same type noise in my 1966 Delta 88 Olds. Is there such a part for my car?—John J. Davino, Matawan, N. J.*

Forget it, John. No such luck because the Olds problem seems to be different. Of

course, it's tough to say without hearing the noise myself, but several Oldsmobile shop chiefs have told me that they've had a problem with the Delcotron bearings going bad. If so, the part should be replaced under the terms of the warranty. Seek the advice of your Olds dealer.

### Shimmy comes and goes

*Our 1965 Comet has always had a shimmy in the front end and steering wheel when going 55 to 60 mph and more. On many occasions, the dealer has balanced the wheels, replaced the front ball joints and even replaced the front brake drums. The tires have been carefully checked for trueness.*

*After each service, the shimmy either lessens or disappears entirely. But only to return again. Is there anything more permanent that can be done, or is this a characteristic of the car?—Mrs. Diane Schmidt, West Babylon, N.Y.*

This is a real tough one, and I've got a hunch it's some oddball thing. I'm going to take a crack at it, though. Have your dealer check page 3 of SB (9/22/64). These cars incorporated a revised front-suspension, lower arm strut that has an identification mark on it. That mark must be facing downward. If for some strange reason the strut wasn't installed properly at the factory, it might cause the problem.

### Something's out of round

*I have a 1966 Dodge Monaco station wagon with close to 9000 miles on it. About 5000 miles ago, it developed a brake problem that my dealer can't solve. When I apply the brakes at medium to high speed, I get a terrible shudder in the front end.*

*The wheels have been balanced, and the brakes have been cleaned and adjusted. My front end, the dealer says, doesn't need aligning. I've got a hunch the brakes are just not strong enough. Am I right?—Jack Barrett, Cleveland.*

You may be, Jack, but that's not the report I've been receiving. According to my information, this is a typical problem with this model car. After the first 4000 or  
*(Please turn to page 34)*

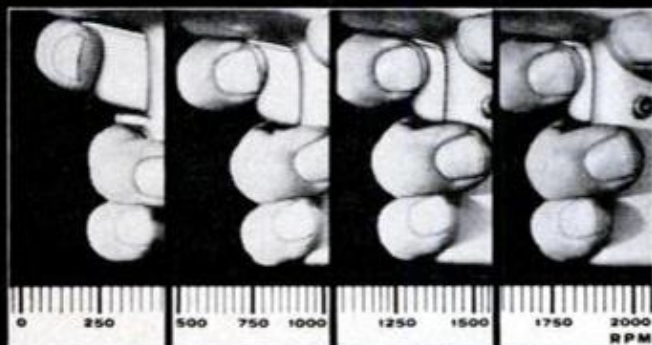


# Meet the most useful power tool ever invented!



Other drills are single speed. This one is any speed you want it to be. An accelerator instead of an "on-off" switch gives you speeds from 0 to 2000 r.p.m. to drill any material. Other drills operate in only one direction. This one goes forward and reverse. Lets you drive screws, nuts, bolts and remove 'em, too. Powers a workshop of accessories. We call it **Drive-R-Drill**. You'll call it the most useful power tool ever invented. Comes in 1/4", 3/8" and 1/2" sizes. Prices start under \$32 at better hardware, lumber and department stores. Skil Corp., Chicago 60630.

WRITE FOR FREE 32-PAGE POWER TOOL CATALOG.



Has trigger speed control, any speed 0-2000 rpm.



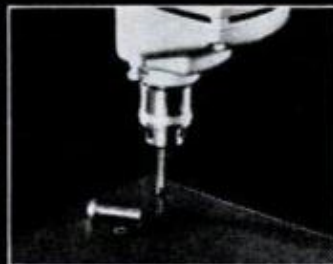
(1) Forward or (2) reverse at flick of a switch



Drives screws and removes 'em, too



Removes nuts, bolts like a power wrench



Makes threaded holes in metal



Drills holes in tile, masonry and glass

Put power in your hands with **SKIL**®



## AUTOMOBILE CLINIC

(Continued from page 32)

5000 miles, the brake drums seem to go out of round. Why? Who knows, but they must be doing something wrong.

Anyway, many people have had the problem solved when their dealers have turned down all four drums.

### Thank you, Rambler

The American Motors Corp. has shed more light on the question of welding cracks in aluminum blocks that was asked by a reader in the Sept. 1966 *Auto Clinic*. Hidden in the files of Rambler dealers should be Service Bulletin 61-11, group 1.000, dated March 9, 1961.

The procedure outlined is a last-ditch effort. As Rambler states, it's recommended "when the remaining option would be to scrap the cylinder block." Furthermore, the repair is *not* recommended in main bearing, cylinder head contact face, oil gallery or other area which would require disassembly of the engine at considerable cost to the owner. Why? Because, as Rambler puts it, there is no

guarantee that the weld will hold up. The repair procedure should be used only in non-critical areas.

### Split seam

*I have a problem with the rear quarter panel of my 1964 Ford custom four-door: it's always cracking in the weld where it's fastened to the body. The crack starts at the door post and works its way back along the joint until it fails into the trunk deck. The shop has welded it five times in two years, and still it breaks. Can you suggest a permanent solution?—Jack Houston, Astoria, Ore.*

A reason for the problem could be the metal brace piece beneath the quarter panel that was put in during production. If for any reason this piece was inadvertently cut, either during production or afterwards, the joint in the quarter panel wouldn't have anything to grab hold of. Vibration you get while driving would therefore allow it to let loose. I suggest you attack the problem from behind the quarter panel. Have that brace piece wedged by shimming it. Then, spot weld.

---

## Service Tips

● **CAR HARD TO START WHEN WARM?** If you're a 1966 Chevrolet owner with a 327-c.i.d. engine equipped with a Carter AVS carburetor, here is a valuable tip for you. Things can be improved by increasing the idle vent valve setting from .030 to .065 in., using carburetor kit J-9789-01. This change applies **only** to carburetors 3876749 (AVS 4027SA) and 3875966 (AVS 4028SA). There's an additional bit of information for you fellows with the 3875966 carburetor, which has a tendency to load up on driveaway. Increase the vacuum-break setting from .120 to .160 in. Your dealer has the word on all this.

● **WHEEL NOISE IN A '65 OR '66 STUDEBAKER?** If so, look to those wheel discs (to be specific, wheel disc AC-352, which you may have had put on as an option). There could be interference between the outer edge of the disc and the tire sidewall. This can cause the disc to loosen and become noisy. It can also cause an indentation in the sidewall.

So, what to do? The answer is easy: Refer your dealer to service letter C-1966-2 (2/8/66). It tells him to install four new retaining clips (Part No. 1565915) on each wheel disc.

● **ANTIFREEZE FOR OLDSMOBILES.** We promised to pass on this word to Oldsmobile owners. Since the release of GM Inhibited Ethylene Glycol Antifreeze (Part No. 982209), which the directions say to change every two years, there have been lots of inquiries as to the recommendation for past model cars. Here it is, straight from Olds:

If other than Ethylene Glycol Part No. 982209 was installed, it should be replaced after one year. If the improved antifreeze was installed as a replacement, you can follow that two-year recommendation.

---

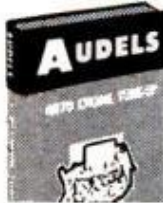
Each month Auto Clinic answers questions on car repair. For a personal reply, send 50 cents in coin to cover mailing and handling. Write Auto Clinic, Popular Mechanics, 575 Lexington Ave., New York, N.Y. 10022. One question per letter, please.



**LEARN MORE—  
EARN MORE!**

# AUDEL SKILL-BUILDING PRACTICAL GUIDES

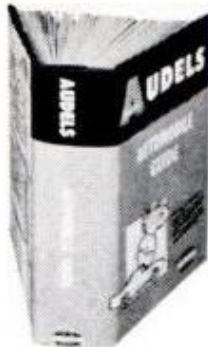
## AUTO ENGINE TUNE-UP



Complete tune-up procedures for all types of auto engines. Full adjustment data for carburetors, ignition, valves, etc. For the car owner who wants to do his own tune-up, as well as for the student or experienced mechanic. Fully illustrated. 416 pages. \$4.95

Circle No. 58 in Coupon

**NEW**



## AUTO GUIDE

**ALL-NEW**

biggest Auto Guide value! **\$6.95**

## FIX ANY CAR FAST!

**STEP-BY-STEP REPAIR GUIDE COVERS EVERYTHING:** Troubleshooting—unique symptoms-and-causes charts • Spark Plugs • Batteries • Tune-up • Distributors • Ignition Testing • Starters & Generators • Lighting • Tire Servicing • Brakes • Power Brakes • Front Suspension • Steering Systems • Wheel Alignment • Chassis, Springs & Shocks • Fuel Pumps • Carburetors • Cooling Systems • Lubricating Systems • Pistons & Rings • Crankshafts and Connecting Rods • Camshafts • Valves • Clutches • Automatic & Manual Transmissions • Drive Shafts & Universal Joints • Rear Axle Assemblies—**ABSOLUTELY EVERYTHING YOU SHOULD KNOW TO FIX ANY CAR!** Hundreds of illus. 736 pages. **\$6.95**

Circle No. 1 in Coupon

### Home Appliance Service Guide

How to fix refrigerators, washers, ranges, toasters, and all other electric & gas appliances. Fully illus. 608 pages. \$6.95

Circle No. 2 in Coupon

### Home Refrigeration & Air Conditioning

Servicing, operation and repair of all systems and machines, freezers, lockers, water coolers, etc. Illus. 576 pages. \$6.95

Circle No. 14 in Coupon

### COMMERCIAL REFRIGERATION

Practical guide and ready reference for students and workers. Covers all phases of installation, operation, maintenance and repair of commercial systems and machines. Complete coverage of electrical and mechanical work. Includes many useful tables and data. Fully illustrated. 544 pages. \$5.95

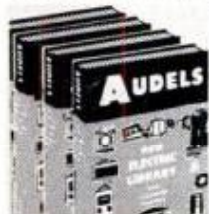
Circle No. 14B in Coupon



### BUILDING MAINTENANCE

A guide for maintenance & custodial workers & building managers. Covers everything: Painting & Decorating • Plumbing • Concrete & Masonry • Carpentry • Roofing Maint. • Glazing & Calking • Elec. Maint. • Heating • Air Conditioning • Insect and Rodent Control, etc. Comprehensive; fully illustrated. 488 pages. \$4.95

Circle No. 99 in Coupon



### new Electric Library

10 volume electrical encyc. Answers questions on thousands of electrical problems. 9000 ill. 5558 pgs. Set \$25.00

Circle No. 15A in Coupon



### MACHINISTS LIBRARY

Three volumes of ready reference on all the latest shop practices for machinists and toolmakers. Vol. 1—Practical Fundamentals of Basic Machine Shop Operations. Vol. 2—Setup and Operation of all the widely used, important shop machines. Vol. 3—Toolmakers Handybook with down-to-earth data on layouts, specifications, jigs and fixtures, gear forming, cams, etc. Illus. 1310 pages. 3-Vol. Set \$13.50

Circle No. 12N in Coupon



### CARPENTERS & BUILDERS GUIDES

Four all-inclusive volumes provide latest inside trade information on modern construction. Vol. 1—Tools, Steel Square, Joinery. Vol. 2—Builders Math, Drawings, Specs. Vol. 3—Layouts, Foundations, Framing. Vol. 4—Millwork, Power Tools, Windows, Doors, Roofing, Flooring. Most practical guide available. Thousands of diagrams, charts, graphs and photos. 1616 pages. 4-Vol. Set \$16.95

Circle No. 8 in Coupon

### Practical Electricity

Complete handbook; practical, simplified ready reference on all electrical subjects. 1300 illus. 1088 pages. \$5.95

Circle No. 4 in Coupon

### TV-Radio Library

Two vols. on TV & radio circuits & how to install and repair all radio and TV including color. Illus. 960 pages. Set \$9.50

Circle No. 3 in Coupon

### Mathematics for Mechanics

A complete guide to the mastery of practical math. Simplified method makes learning fast and easy. Ill. 704 pgs. \$4.95

Circle No. 11 in Coupon

### Sheet Metal Pattern Layouts

Modern guide to all phases of sheet metal work, including pattern development. 350 layouts. Illus. 1152 p. \$7.50

Circle No. 29 in Coupon

### Blueprint Reading

For mechanics and construction men. Step-by-step explanation of how to read all types of blueprints. Ill. 416 pgs. \$4.95

Circle No. 25 in Coupon

### Electric Motor Guide

Covers hookups, control, maintenance and troubleshooting of all types of motors. Complete; 617 illus. 1062 pages. \$5.95

Circle No. 27 in Coupon

### Millwrights & Mechanics Guide

Practical information on plant installation; operation and maintenance data for foremen & workers. Illus. 1236 pgs. \$6.95

Circle No. 42 in Coupon

### Diesel Engine Manual

Complete practical guide to modern Diesel engines. Explains principles & how to maintain & oper. Illus. 544 p. \$6.00

Circle No. 9 in Coupon

### Truck and Tractor Guide

A guide for mechanics, drivers and maintenance men. Gas & Diesel repair, service and operation. Illus. 1366 pages. \$5.95

Circle No. 5 in Coupon

### Masons and Builders Guides

Four practical vols. for bricklayers, stone masons, cement workers, plasterers. 2000 illus. 1488 pages. Set \$10.50

Circle No. 26 in Coupon

### Plumbers & Steamfitters Guides

4 vols. of ready reference for plumbers, steam fitters, gas fitters, sheet metal workers. 3600 ill. 2318 pages. Set \$10.50

Circle No. 6 in Coupon

### Welders Guide

Practical guide to theory, operation. Maintenance of all types of electric, oxy-acetylene & Thermit welding. Ill. 626 p. \$4.95

Circle No. 10 in Coupon

### Foreign Auto Repair Manual

Up-to-date service data for all popular imports: English, French, German, Italian, Swedish. Illus. 592 pages. \$5.00

Circle No. 53 in Coupon

### Outboard Motor & Boating Guide

Practical details on all phases of outboard motor repair, maintenance and operation. Up-to-date. Illus. 446 pages. \$4.00

Circle No. 49 in Coupon

## 10-DAY FREE EXAMINATION

**SEND NO MONEY**—Pay the postman nothing! We are glad to send you any of the Audel Guides for absolutely FREE examination in your own home. We take all the risks and leave all the decisions up to YOU. There is no obligation! If you decide to keep the books of your choice you may pay for them under our astounding easy-pay plan of only \$3 a month.

**HERE IS ALL YOU DO**—IT'S EASY TO ORDER: In the No-Risk Mail Order Coupon at the right just draw a circle around the number of Audel Guides you want us to send you for FREE EXAMINATION. We will send them to you at once to help you build a brighter future by increasing your SKILL. If you are not COMPLETELY satisfied, return the books, and that will end the matter! NO STRINGS OR CATCHES TO THIS OFFER.

## MAIL THIS NO-RISK COUPON TODAY!

**THEODORE AUDEL & CO.**—Self Improvement Publishers Since 1879—  
4300 W. 62nd Street, Indianapolis, Indiana 46206

Please mail me for 10 days' FREE EXAMINATION the books I have circled at right. I agree to mail \$3 in 10 days on each book or set ordered, and to further mail \$3 a month on each book or set ordered until I have paid the purchase price, plus shipping costs. If I am not completely satisfied with my Audel Guides I may return them.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Employed By \_\_\_\_\_

**SAVE SHIPPING COSTS!** Check here if you enclose complete payment with order (plus sales tax, if any). We pay postage charges. You have same return privilege.

**1 New Auto Guide**

2 3 4 5

6 8 9 10

11 12N 14A 14B

15A 25 26 27

29 42 49 53

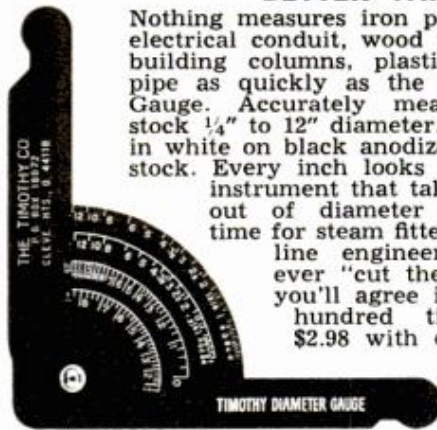
58 99

I have bought Audel books before

**THEODORE AUDEL & CO.**  
division of HOWARD W. SAMS & CO., INC.  
Indianapolis • New York



## MEASURES DIAMETER BETTER THAN ANYTHING



Nothing measures iron pipe, copper tubing, electrical conduit, wood poles, rubber hose, building columns, plastic pipe, aluminum pipe as quickly as the Timothy Diameter Gauge. Accurately measures any round stock 1/4" to 12" diameter. All figures etched in white on black anodized, hard aluminum stock. Every inch looks like a professional instrument that takes the guess-work out of diameter measuring. Saves time for steam fitters, plumbers, pipe-line engineers, etc. If you've ever "cut the wrong size" pipe you'll agree it'll save its cost a hundred times over. Send \$2.98 with order (NO COD's) to The TIMOTHY CO., P.O. Box 18072, Cleveland, Ohio 44118

## BIGGER BETTER SMALL ENGINES SERVICE MANUAL



It's ready... 8th edition Small Engines

Service Manual. More than 300 pages of authentic easy-to-follow information on repair and upkeep of small engines. 1302 models of popular domestic and foreign makes. Many new models. Practical information. Written by expert mechanics in down-to-earth language and with lots of helpful illustrations. EVERYTHING MECHANICS NEED!

MAKE \$\$\$  
in Your  
Spare Time

for minor tune-up to major overhaul... Read how, see how from 780 photos and drawings. Big field and big part-time and full-time profits repairing Mowers, Garden Tillers, Cycles, Scooters, etc... Order yours NOW and start a busy business... only \$4.95 postpaid.

4.95  
post  
paid

SMALL ENGINES SERVICE MANUAL, Dept. 167  
1014 Wyandotte Kansas City, Mo. 64105



## FREE FISHING

### CATALOG

170 PAGES  
OVER 5,000  
FISHING ITEMS

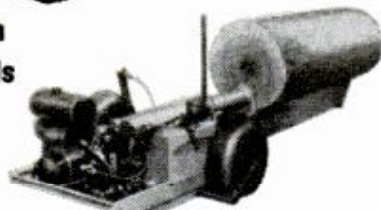
Hard to find Fishing Specialties and Kits  
Send postal card & please add ZIP

NETCRAFT CO.

Toledo, Ohio 43613

## LICKITY WACO LOG SPLITTER

Splits Big Profits from toughest woods— Ends Splitting Drudgery with 18 ton hydraulic power!



7 H.P. trailer unit squats under power to load logs without dead lift. Has 2 speeds, auto-shift, auto-stroke. 26" ram travel splits logs up to 34", any diameter — with extended frame and adjustable wedge splits up to 60". NEW LOW COST Economy model for farmers and small wood lots. Also ask about the 60L Series for logs up to 8 1/2 ft. long—Details free.

Piqua Engineering Inc., Dept. P, Box 605, Piqua, Ohio

## FREE MUSCLE COURSE!

Trade in that skinny scrawny, milk toast or overweight body of yours for a new Weider Jet-Charged body, rippling with mountains of muscles loaded with energy, drive and virility, the envy of every man and admiration of every woman, now!

In 15 minutes I'll prove you can slap on 4 inches of muscles to your chest,—3 inches to each arm—give you life-guard shoulders, trim your waist to athletic size—give you speedy athletic legs. I don't care if you're short or tall, (skinny or fat) young or not so young, expect a muscle building miracle when you send for my FREE course. Send only 25 cents to cover postage and handling and write to the Trainer of "Mr. Universe", "Mr. America", "Mr. Europe".

JOE WEIDER, Dept. 38-27D  
531 32nd St., Union City, N. J. 07087



## MAKE BIG MONEY

MAKING COSTUME JEWELRY AT HOME!  
Thrilling spare-time, MONEY-MAKING hobby! Make newest, beautiful jeweled earrings, necklaces, bracelets, pins, pendants, cuff links, tie clips! Quick, easy to make—easier to sell to friends, neighbors, stores, at big profit! Details FREE!



DON-BAR CO., Dept. A-197  
2934 W. Fullerton Ave., Chicago, Ill. 60647

## LIFE INSURANCE UP TO \$5000

IF YOU ARE NOT OVER AGE 74. Supplement Social Security to help survivors meet your after-death bills, debts or family needs. Legal reserve life insurance pays in all states and countries for death from any cause, except during the first policy year for either suicide or death from undisclosed pre-existing health conditions. Compare lifetime protection and guaranteed rates. No medical examination. Easy to apply by mail direct to the Home Office. Introductory offer and application mailed to you without obligation. Tear out this reminder and mail with your name, address, zip code and year of birth to Great Lakes Insurance Company, Elgin, Illinois 60120. Dept. B89X14.

## EXTRA INCOME FOR ADVERTISERS in this Magazine

Do you have a list of Customers, Prospects or inquiries for your product? . . . You can receive extra income by selling us these lists for use by non-competitors.

The publishing industry needs good up-to-date names. (Minimum 5,000.) Many national business firms have found it profitable . . . Why not you?

ACTIVE MAIL ORDER LIST Co., Dept. PM  
241 LAFAYETTE ST. N. Y. 10012

## INVENTORS

INVENTIONS—NEW PRODUCTS—IDEAS  
DEVELOPED & PREPARED

For Commercial Appeal & Sales

DESIGN—MARKETING—PATENT SEARCHES—DRAWINGS

United States Patent Office former Patent Examiner

United States Government former Patent Adviser

Member: United States Chamber of Commerce

Second Decade of Reliable Service to

INVENTORS—MANUFACTURERS—ATTORNEYS

THE RAYMOND LEE ORGANIZATION

130-Z West 42 Street—New York, New York 10036

SEND FREE "INVENTION RECORD" Form & "IMPORTANT PATENT INFORMATION"

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_



## Bill Problems ?

CAN'T MAKE ENDS MEET ?  
NOBODY REFUSED UP TO \$10,000.00

- POOR CREDIT, No Trouble. NOT A LOAN CO.
- Send Your Name for FREE APPLICATION
- AUTOMATIC ACCEPTANCE • Dept. 98
- 307 Pocasset Ave., Providence, R. I. or
- 318 Broadway Blvd., Reno, Nevada

## REAL ESTATE

SEABROKER

**PAYS BIG! SEND FOR FREE, BIG, ILLUSTRATED CATALOG NOW!** Graduates report making substantial incomes. Start and run your own business quickly. Men, Women, all ages, learn easily. Course covers Sales, Property Management, Appraising, Loans, Mortgages, & related subjects. **STUDY AT HOME** or in classrooms in leading cities. **DIPLOMA AWARDED. Write TODAY for FREE Booklet!**

FREE BOOK TELLS HOW

Accredited Member National Home Study Council. (Established 1936)  
**WEAVER SCHOOL OF REAL ESTATE**  
3521-P Broadway Kansas City, Mo. 64111

**DRAINS** cellars, cisterns, wash tubs; \$8.95  
IRRIGATES - CIRCULATES - SPRAYS



1,001 uses. Stainless shaft. Won't rust or clog! Use 1/8 HP motor or larger... 3/4 HP for up to 2,400 GPH; 450 GPH 80" high; or 1,800 GPH from 25' well. 1" inlet; 3/4" outlet. Coupling included free. \$8.95. **HEAVY DUTY BALL-BEARING PUMP.** Up to 5,200 GPH; or 3,000 GPH from 25' well. 1 1/4" inlet; 1" outlet. \$12.95. Postpaid if cash with order. **MONEY BACK GUARANTEE**

Centrifugal and Gear Pumps in All Sizes  
**LABAWCO PUMPS 7, Belle Mead, New Jersey**

more profitable career

### WELDING SPECIALIST

Learn Application of Gas, Arc and Helium Welding to fill Job Demands.

**GREER TECHNICAL INSTITUTE**  
2230 SOUTH MICHIGAN AVE.  
CHICAGO, ILLINOIS 60616 D.A.

### FREE-400 GENUINE POSTAGE STAMPS

Stamp Collector's Bonanza. From Africa—Europe—Asia and British Empire worth \$10.00 catz. prices, a fascinating mixture from convents—banks—etc. Who knows what you will find! All yours as our get acquainted gift. Adults only. Free valuable collectors handbook. Fine collection of stamps for your inspection will also be enclosed.

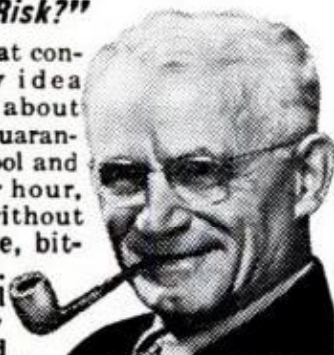


**FRASEK CO., PM2, White Plains, N.Y.**

## "WILL YOU SMOKE MY NEW KIND OF PIPE ..."

**30 Days at My Risk?"**

New principle that contradicts every idea you've ever had about pipe smoking. I guarantee it to smoke cool and mild hour after hour, day after day, without rest, without bite, bitterness or sludge. To prove it, I'll let you try a new Carey Pipe. Send your name and address today for my FREE complete trial offer. Write to: **E. A. CAREY,** 1920 Sunnyside Ave., Dept. 252-B, Chicago 40.



FEBRUARY 1967

# Bond Street is almost matchless



A product of Philip Morris Inc.

Try the great tasting pipe tobacco that stays lit.

The secret is Bond Street's Old English cut—a combination of flakes for even burning and cubes for slower burning. You'll enjoy a whole pipeful of pleasure, on one match.

## TROJAN INBOARD CRUISERS



26' SEA SKIFF EXPRESS CRUISER

Send for free color literature describing the spectacular 1967 Trojans. All popular sizes from 24' to 42'.

## TROJAN BOAT COMPANY

DEPT. DG-58 LANCASTER, PA. 17604

37





**EARN  
HIGH  
WAGES**  
as a **HEAVY  
EQUIPMENT  
OPERATOR**

Train your way to high pay in the booming construction industry! Learn the skills you need to qualify . . . NOT by correspondence, but by actual field training on machines like the ones used by the industry. Huge training grounds in North Carolina, a million dollars worth of school-owned diesel-engined machines, experienced instructors, full 220-hour and 440-hour courses. National, the original school of heavy equipment operation, is the recognized leader. Member American Road Builders Assn., Services and Supply Division. Associate Member A.G.C. Full-time Job Advisory and Counseling Director on staff. VA approved. For men ages 17 to 56. Train Now-Pay Later plan . . . other payment plans also available. Write TODAY for FREE catalog and FREE copy of school newspaper reporting news of National School graduates.

NATIONAL SCHOOL  
OF HEAVY EQUIPMENT OPERATION, Dept. D-84  
P.O. Box 1686 Moores Chapel Road, Charlotte, N. C. 28201  
Please send me FREE illustrated school catalog and complete information. I understand there's no obligation.

Name \_\_\_\_\_ Age \_\_\_\_\_  
Address \_\_\_\_\_ Phone: \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

**FREE!**

**BIGGER... BETTER  
THAN EVER!**



**40th ANNIVERSARY  
1967 CATALOG**



**YOUR BUYING GUIDE  
FOR:** ● Stereo & Hi-Fi Systems & Components. ● Tape Recorders. ● Electronics Parts, Tubes, Tools. ● Phonos & Records. ● Ham Gear. ● Test Instruments & Kits. ● Cameras & Film. ● PA. ● Citizens Band. ● Radio & TV Sets. ● Musical Instruments.

**SEND FOR  
YOURS TODAY!**

**BURSTEIN-APPLEBEE CO.**

Dept. PM, 1012 McGee, Kansas City, Mo. 64106  
 Rush me the FREE 1967 B-A Catalog.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

**NOW! GET 3  
REAL OLD  
LINCOLN CENTS**  
— for only **10¢**



Only 10¢ brings you 3 old Lincoln pennies — America's most sought-after coin. 1919, 1920, 1926. (Only one set to a customer.) For all 3 coins, plus free coin catalog, plus selections of coins from our buyers service which may be returned without purchase and service cancelled at any time, send 10¢ to LITTLETON COIN Co., Dept. B2, Littleton, N.H. 03561

**PROFIT IN YOUR SPARE TIME**



**SMALL ENGINE REPAIR PAYS BIG!**

Outboard • Powermower • Chain Saw • Tractor  
**MAKE EXTRA MONEY** — or fix your own engines and SAVE! Illustrated, easy-to-learn Home Study Course qualifies you as expert. Approved for Veterans. Write today!

**LINCOLN TECHNICAL INSTITUTE**  
SUITE 2E, 427 MARKET STREET, NEWARK 5, N.J.

**BUILD THIS 8' POOL TABLE**



- Regulation size
- Commercial quality
- Full cushions
- Accurate play

**FOR YOURSELF FOR OTHERS**

Substantial profits for spare-time craftsmen with basic power tools. Complete instruction. Materials. Write for business opportunity info. OR just SAVE HUNDREDS OF DOLLARS for yourself by building your own table. TESTED PLANS. Specs. \$3.50

K. Bates, Box 19271, Portland, Ore.

**BUILD YOUR OWN POWER TOOLS**



FREE CATALOG

GILLIOM MFG. CO

**METAL PARTS KITS AT LOW**

**FACTORY DISCOUNT PRICES FOR:**

- 10-IN. TILT/ARBOR SAW
- COMB. DRILL PRESS-LATHE
- 12-IN. BAND SAW
- 18-IN. BAND SAW
- 6-IN. BELT SANDER
- SPINDLE SHAPER

**SAVE \$50  
OR MORE**

**PLANS \$1.00 EACH**  
Full Size Patterns DEDUCTIBLE

Kits from \$15.50 to \$39.95. Satisfaction guaranteed. Built and sold for 20 years. 48,000 units in use. Send for Plans today!

Dept. PM-2

St. Charles, Mo.

**Shrinks Hemorrhoids  
New Way Without Surgery  
Stops Itch — Relieves Pain**

For the first time science has found a new healing substance with the astonishing ability to shrink hemorrhoids and to relieve pain — without surgery.

In case after case, while gently relieving pain, actual reduction (shrinkage) took place.

Most amazing of all — results were so thorough that sufferers made astonishing statements like "Piles have ceased to be a problem!"

The secret is a new healing substance (Bio-Dyne®) — discovery of a world-famous research institute.

This substance is now available in suppository or ointment form under the name Preparation H®. Ask for it at all drug counters.



**SAW SHARPENING IS EASY**

Super Filer No. 11 joints and sharpens circular saws 6" to 10" with all teeth correct in height, depth, pitch, bevel. When file hits steel roller, teeth are finished. **\$9.95**  
Saw runs true with no side pull. Includes 8" file. **FPD.**



**"TRU-CIRCLE"**

saw set automatically sets teeth at 10° **\$2.95** or more. **FPD.**



**MONEY BACK GUARANTEE**

A.D. McBURNEY, 1610 Victory Blvd., Glendale, Calif. 91201, A-27

Two or four-wheel drive  
**JEEP OR SCOUT**  
owners

**REPOWER** with a 6 or V-8. H.D. ADAPTORS for using Car, Compact and some Truck engines. Conversion Kits \$45.35 to \$56.90. Want fast action? Give us **FULL INFORMATION**. Send \$15.00 Dep. and we will ship correct kit, bal. COD. Send full amount for prepaid shipment. Wire, phone or write today. Details **FREE**

**HOOSIER MACHINE PRODUCTS CO.**

312 S. E. 6th St., Phone 276-3442, Pendleton, Oregon 97801



**WARN HUBS**

**ON 4-WHEEL DRIVES  
STOP FRONT END DRAG  
IN 2-WHEEL DRIVE**

*save gas, gears, tires!*

See your 4-w.d. dealer or write WARN Mfg. Co., 9050-A Empire Way S., Seattle, Wash. 98118

**FINGER SAVER!**

**HOLD-E-ZEE®**  
Automatic Grip

**SCREWDRIVERS**

Patented finger-type gripper holds screws securely for starting and setting them up in hard-to-get-at places. LOK-BLOK insert securely imbedded in an easy-grip handle holds blade shank in vice-like grip; prevents twisting. Why settle for less when HOLD-E-ZEE drivers cost no more!



Models for all types of screws.

Gripper snaps back and recedes into handle when not in use.



Available at dealers everywhere write for literature

**UPSON BROS. INC.**  
Rochester, N.Y. 14614



upson hand tools



**This point lets you bore holes up to 1 1/2" with small electric drill**

**It's hollow ground to bore cleaner, faster at any angle**

**NOW YOU CAN** increase the boring range of your small electric drill or drill press. New Irwin Speedbor "88" bits bore faster, cleaner holes up to 1 1/2" in any wood. 1/4" shank chucks perfectly. No wobble, no run-out. Sharp cutting edges on Irwin exclusive hollow ground point start holes faster, permit spade-type cutters to bore up to 5 times faster. All Irwin Speedbor "88" wood bits are forged from single bar of special bit steel, tempered full length and machine-sharpened for extra accuracy, longest life. 17 sizes, 1/4" to 1 1/2". Buy individually or in sets from your Irwin hardware or building supply dealer.

Only **80¢** each, sizes 1/4" to 9/16" 5/8" to 1", \$.90 ea., 1 1/8" to 1 1/2", \$1.40 ea.

**IRWIN** SPEEDBOR "88" WOOD BITS  
at Wilmington, Ohio, since 1885

**This free folder was created from your mistakes.**

Send for 101 tips on preserving wood with Woodlife®, the water repellent wood preservative that protects against warping, swelling, rotting, paint failure.

Write to U.S. Plywood Corp., Dept. PM 2-67, 2305 Superior Ave., Kalamazoo, Mich. 49003

Name .....  
Address .....  
City .....  
State ..... Zip Code .....



**U.S. Plywood Corporation**



# Learn APPLIANCE REPAIR PLUS AIR CONDITIONING TRAIN AT HOME

Fix all kinds of Electrical Appliances, including refrigeration, air conditioning, small gas engines. Earn extra money in spare time, or have a full-time business. Earn extra money, get a new job, or save on your own repairs.



## Make \$4 to \$6 an Hour in Spare Time

Over 800-million appliances are in use. Profit from this growing field. Appliance Tester included. Send for FREE catalog. No salesman will call. NATIONAL RADIO INSTITUTE, Washington, D. C. 20016. Accredited Member National Home Study Council.

### — FREE CATALOG—MAIL TODAY.—

NATIONAL RADIO INSTITUTE 600-027  
Appliance Division, Washington, D. C. 20016  
Send FREE Appliance Training Catalog

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Check for facts on New GI Bill

## 300 POWER . . . .



Complete Telescope Lens Kit only \$3.98 postpaid

Conquer space. Explore the Universe, Planets, Moon craters, New Stars etc. Complete Lens Kit consists of 80 inch focal length ground and polished objective lens, eyepiece lenses for 50 POWER, 100 POWER, 150 POWER, 200 POWER, 250 POWER, 300 POWER, and all necessary lens fittings. Easy to make from simple step by step instructions. (Tripod and mount not included.) Money back guarantee.

BUSSE SALES, DEPT. PM 96, Hartford, Conn. 06101



## HEY! Your blinker is on!

Always embarrassing and sometimes very, very dangerous! The Electronic Turn

Signal Indicator, just invented, solves all this by a tuneful "beep-beep" when your signal is on. If no sound—probably a lamp is out. Easily installed in minutes—no tools. Hooks onto usual flasher under dash. Weighs 4 ounces, 3 3/4" x 2 3/4" x 1 1/4". No moving parts, transistorized, guaranteed one year. Specify whether battery 12V or 6V (some foreign cars). Send \$9.95, check or money order. Post paid.

AUSTIN PRODUCTS COMPANY  
10 E. Yanonali St. P. O. Box 1380, Dept. PM  
Santa Barbara, California 93102

# BOAT PLANS

## FULL SIZE PATTERNS • FRAME KITS

Over 60 sail, inboard and outboard designs . . . catamarans, houseboats, dragsters, hydros . . . "Glen L" has the most complete selection of build-it-yourself boats from an 8' dinghy to a 35' cabin cruiser. And, only "Glen L" includes written and pictorial step-by-step instructions and material listings specially prepared for amateurs with most Plans, Patterns and Frame Kits.

Send for new 80-page catalog completely illustrating the full selection of over 60 boats.

MAIL 50¢ TO:

GLEN L—9152T Rosecrans, Bellflower, Calif. 90707



## Dress up baths with

## DAP® KWIK-SEAL® Tub & Tile Caulk

Easiest to use. Just squeeze the tube and draw a neat, white bead around tubs, showers, sinks. Clean up with water. Cures to a rubbery, watertight seal. Money-back guarantee. Sold at leading hardware, building supply, paint and specialty stores.

DAP INC., Dayton, Ohio 45401 • Subsidiary of Plough, Inc.

## EARN \$200 A WEEK

### LEARN A TRADE YOU LIKE

After graduation you start as a mechanic in a good paying job; then advance to head mechanic or service manager. Many earn \$200 a week and up. You learn fast in our shops because you learn with tools on real equipment. Some students earn the greater part of their expenses while going to school.

Check the course in which you are interested.

- DIESEL MECHANICS  AUTO MECHANICS  
 WELDING  BODY FENDER REPAIR

Mail to: AUTO-DIESEL COLLEGE

226 7th Avenue, North, Department 86, Nashville, Tennessee  
Send me FREE catalog about course I have checked, also information about your FREE Placement Service.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



# NEW RUBBER STAMP BUSINESS PAYS BEGINNERS UP TO \$16.50 AN HR. START AT HOME IN SPARE TIME

THIS LITTLE TABLE TOP MACHINE  
MAKES EVERYTHING SIMPLE & EASY



The multi-million dollar Rubber Stamp business—once controlled by a few big companies—is now being taken over by small operators—one in each community throughout the United States. Men and Women who have this inexpensive machine can turn out huge quantities of Rubber Stamps with special wording that buyers once were forced to buy from big cities. Material costing only 27c makes a stamp that sells for \$2.75. The machine that does the work is simple and easy to operate and it turns out as many as six Rubber Stamps at a time, each with different wording such as names, addresses, notices, stock numbers, prices and other "copy" needed by offices, factories and individuals. Working full capacity, it can earn as much as \$33.00 an hour for the operator! Now you can get into the big-pay business yourself, with your own home as headquarters. You don't need experience. We supply everything, including complete instructions and eight ways to get business coming in fast. We even help finance your start. Start making up to \$16.50 an hour from the very beginning. Cash in on the profitable Rubber Stamp business in your community, right away. We'll mail full particulars FREE and no salesman will call. Be first in your locality. Rush coupon or send your name on postcard now to:

**RUBBER STAMP DIV., Dept. R-2-BT  
1512 Jarvis Ave. • Chicago, Illinois 60626**

## RUBBER STAMP DIV.

1512 Jarvis Avenue Dept. R-2-BT, Chicago, Ill. 60626

Please rush full particulars about your financing plan and the little machine that can get me started in the profitable Rubber Stamp business at home in spare time. Everything you send me is FREE and no salesman will call.

MAIL THIS

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip Code \_\_\_\_\_

**FREE**  
MUSCLE BUILDING  
INFORMATION  
Sensational New Isometrics  
Less Time—Less Effort—Better results  
**BODY-TONE**, Box 638, North Miami, Fla. 33161

**"WE STARTED OUR OWN ANTI-POVERTY PROGRAM - with a beat-up sofa we picked up for only \$5. sold \$300.00"**

**\$10 an hour for our time!**

**A REAL FUTURE AT LAST!**

**YOU GET 6 BIG FURNITURE KITS FREE WITH MUI TRAINING... build a roomful of furniture—keep or sell!**

Learn by doing

**MUI TAUGHT US THE SECRET OF UPHOLSTERING.** "My family and I were trapped by my no-future, no money job. Now we know that cast-off furniture—which thrift stores practically give away—can be a gold mine for us. We'll never be poor again!"

**THOUSANDS OF NEW HOMES, BUILDINGS, HOTELS, RESTAURANTS, LOUNGES—All Need Upholstered Chairs, Sofas, Footstools... and imagine how much of it wears out every year and needs re-upholstering! Upholstery is on the move with booming America. Campers, trailers, mobile homes, and millions of autos need re-upholstered seats, headliners, door panels. MUI training lets you take advantage of this great boom. Don't let it pass you by!**

**UPHOLSTERY OFFERS A BUSINESS OF YOUR OWN OR TOP-PAY AUTOMATION-PROOF JOB!** Husband-wife teams ideal. Learn at home, spare time—no big capital needed. No overhead—just any corner is your workshop!

**TOOLS TOO!**

**YOURS TO KEEP!**

**AIR MAIL COUPON TODAY!**  
Start Your Own Anti-Poverty Program

Clip and mail the coupon below. You'll receive FREE the MUI 32-page upholstery career book, free sample lesson, complete free information about UPHOLSTERY, the gigantic new field that has brought prosperity, independence and security to thousands. **SEND FOR FREE BOOK AND SAMPLE LESSON TODAY!**

**MODERN UPHOLSTERY INSTITUTE, Box 899-RG Orange, Calif. 92669**

Please rush illustrated career book, sample lesson, facts on MUI home training program—all free, no obligation.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_, State \_\_\_\_\_, Zip \_\_\_\_\_

**... APPROVED FOR VETERANS ...**

**You'll Like Being a SKILLED LOCKSMITH**

**... and You'll EARN MORE, LIVE BETTER Than Ever Before in Your Life!**

You'll enjoy your work as a Locksmith because it is more fascinating than a hobby—and highly paid besides! You'll go on enjoying the fascinating work, year after year, in good times or bad because you'll be the man in demand in an ever-growing field offering big pay jobs, big profits as your own boss. What more could you ask!

**Train at Home—Earn Extra \$\$\$\$ Right Away!** All this can be yours FAST regardless of age, education, minor physical handicaps. Job enjoyment and earnings begin AT ONCE as you quickly, easily learn to CASH IN on all kinds of locksmithing jobs. All keys, locks, parts, picks, special tools and equipment come with the course at no extra charge. Licensed experts guide you to success.

**Illustrated Book, Sample Lesson Pages FREE** Locksmithing Institute graduates now earning, enjoying life more everywhere. You can, too. Coupon brings exciting facts from only school of its kind Lic. by N.J. State Dept. of Education, Accredited Member National Home Study Council, **VA APPROVED.**

**LOCKSMITHING INSTITUTE**  
Division of Technical Home Study Schools  
Dept. 1-110-027, Little Falls, N.J. 07424

**EARN BACK TUITION PLUS**

"While training, I earned enough at locksmithing to pay for the course and purchase \$800 in equipment & supplies I wanted."  
Joe Warren, Overland Pk., Kan.

**306**

Pieces of equipment **LOCKS, PICKS and TOOLS** supplied for use with course

**LOCKSMITHING INSTITUTE, Dept. 1-110-027 Est. 1948 Little Falls, New Jersey 07424**

Please send FREE Illustrated Book—"Your Big Opportunities in Locksmithing," complete Equipment folder and sample lesson pages—FREE of all obligation —(no salesman will call).

Name \_\_\_\_\_ (Please Print)

Address \_\_\_\_\_

City \_\_\_\_\_, State \_\_\_\_\_, Zip \_\_\_\_\_

Check here if eligible for Veteran benefits.





**WALKIE TALKIE**

Transmits, receives. Transistorized. Fits in shirt pocket. Telescoping antenna extends for more distant reception. Ideal for sportsmen, construction, etc. **\$325**



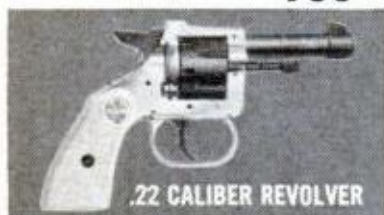
**ELECTRIC RAZOR**

Product of Swiss Craftsmanship. Shaped to shave heaviest beard. Maker guarantees for one full year. With cord, head guard and brush. **\$170**



**COMPACT CAR**

Up to 60 miles per gallon, even at freeway speed. Seats 4. Easy to park. Comfort ride assured with individual wheel suspension. **\$780<sup>00</sup>**



**.22 CALIBER REVOLVER**

Fires six shots. Double action. Precision blued. Hand finished West German craftsmanship. **\$436**



**ELECTRIC CARVING SET**

Self contained power—no dangling cord to get in the way. Two serrated stainless steel blades are instantly interchangeable—12" and 10". **\$150**

More examples of thousands of import bargains you can get to make fantastic profits up to 200% and more.

- FISHING ROD . . . . .50
- FM HI-FI RADIO . . . . .8.80
- RIFLE SCOPE . . . . .1.85
- MOVIE TITLE KIT . . . . .1.00
- BEADED HANDBAG . . . . .1.01
- FLASHLIGHT . . . . .10
- TRANSISTOR RADIO . . . . .1.70
- CARDIGAN SWEATER . . . . .2.00
- SPINNING REEL . . . . .96
- STOP WATCH . . . . .1.12
- WRIST RADIO . . . . .2.90
- MODEL BOAT KIT . . . . .65
- WATER PISTOL . . . . .08

Prices subject to availability, price fluctuation.

**THE MELLINGER CO., Dept. A252**  
1554 S. Sepulveda  
Los Angeles, Calif. 90025



**8mm MOVIE CAMERA**

Electric powered—no winding! Detachable pistol grip. Loads in seconds. Adjustable lens. Black and white or color. **\$550**



**Transistor TAPE RECORDER**

Records—Plays Back—Erases—Rewinds. Includes dynamic speaker, microphone, tape, reels, etc. **\$580**

# Buy Below Wholesale

## Start your own BIG PROFIT Home Import Business...

Import bargains by the thousands give you profit opportunities beyond your wildest dreams. Men—women start now in your own Home Import Business, full or part time. Cash in now without previous experience or capital investment. You can make your first import order 10 minutes after you get my proven drop ship plan. These bargains and thousands more go quick to stores, mail order operators, premium users, friends, others.

## DISCOVER SECRETS OF IMPORT The Profits are All Yours!

Plan reveals everything to start you importing immediately. Gives you free membership in International Traders—famous world wide organization that puts you in direct contact with suppliers abroad. It's easy to buy below wholesale when we show you how. Rush coupon today for my FREE BOOK, "How to Import and Export"—get details about thousands of amazing buys. Airmail reaches me overnight.



B. L. MELLINGER, JR.  
Famous world trader...  
President of The Mellinger Co.

**Send No Money!**  
Do Not Order From Us.  
I show you how to get these bargains and hundreds of others.  
Prices shown are direct from suppliers abroad.  
**Put coupon in mail today!**



**HI-INTENSITY LAMP**

100 watts concentrated light. Easily adjustable for any angle. Rotates in full circle. Folds up for easy storage. Attractive design. Ideal for reading, hobby work, sewing, etc. **\$186**



MAIL POSTPAID CARD TODAY

# FREE BOOK

MAIL POSTPAID CARD TODAY



**REAL SAPPHIRE RING**

Hand set Sapphire Stone in Sterling Silver mounting. Smart design. Ladies styles also available. **\$350**



**HUMAN HAIR WIG**

Exciting new craze! Glamour high fashion wigs. Popular hair colors. Skillfully made. Luxuriously soft; fine textured. **\$1500**

## Get details on 8 FREE Imports MAIL CARD TODAY



**TELEPHONE AMPLIFIER**

Transistorized. Hear phone conversations across room. Push button control. Easily attached to any phone. No wiring. **\$310**

FREE BOOK TELLS HOW TO MAKE MONEY IN IMPORT

Postage-Paid Card provided above for your convenience  
**SEND NOW FOR FREE BOOK "HOW TO IMPORT-EXPORT"**  
Tells how to get dazzling buys below wholesale



FROM THE PATENT OFFICE **NEW INVENTIONS**

BY M. J. PEDERSEN

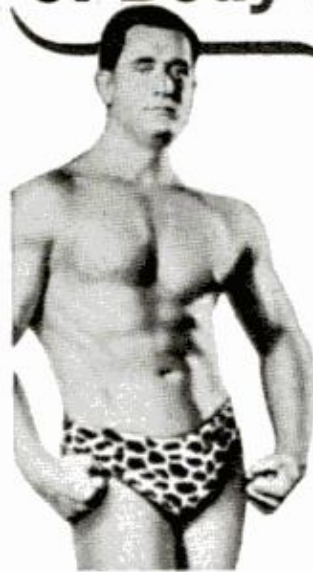
**A LANDING CRAFT** that could deposit foot soldiers and machines on dry land earned patent 3,259,097 for John Van Veldhuizen, Homestead, Fla. Air-propelled by means of two air intake fans mounted to two aircraft (Lycoming) engines, the 25-footer has cruised in just 10 inches of water—within 6 feet of the shoreline. It is steered by lateral discharges of air through flap valves in ports behind the engines on each side. Thus, air directed back toward the bow acts as a braking force. In test runs, Van Veldhuizen has hovered his stainless steel boat in an inch of water. On a *highway*, it was set on a tandem wheel trailer with no front wheel on the ground and clocked at 32 mph.

**INSTALLING A NEW CEILING** may be greatly simplified for homeowners hanging tongue-and-groove tiles from exposed joists. A new system of channel-shaped metal strips allows tiles to be assembled three at a time—at a workbench instead of on a ladder. Tile tongues are clamped in the channel, which is then suspended by perpendicular clips that may be adjusted to correspond with joists. Clips are nailed to joists, eliminating the need for packing in vertical adjustment of tiles. Standard clip allows 1/8-in. to 1-in. clearance between joist and tile, longer clip up to 2-in. clearance for basement pipes extending below joists. Patent 3,203,148 was awarded Fred White, Richmond, Va.

**SUDDEN RAIN SQUALLS** have damaged many a hat and coat. But with a 6 1/2-inch styrene clip, a newspaper-reading commuter need never be caught short. This compact device, appropriately called a newspaper umbrella, unfolds to 23-inch length and clips onto paper to provide—kite-like style—more than adequate emergency protection. Joseph Zweben, Bellmore, N.Y., received patent 3,280,830.

**GARMENT THEFT** may be thwarted by means of a hard plastic shoulder shield that fits over clothing and locks it to a hanger. Called Hang-A-Lock, the two-section shield clamps together to lock around neck of the garment. To prevent removal of hanger and all by store thieves, there's a bar straddling the rod that locks hangers in place. Patent 3,266,684 to John Weddle, Alexandria, Va. ★★★

# Check the Kind of Body You Want:



- Broader Chest, Shoulders
- Slimmer Waist, Hips
- More Powerful Arms
- More Powerful Legs
- More Energy, More Restful Sleep

... and I'll Show You How **EASILY** You Can **HAVE IT!**

**J**UST tell me, in coupon below, the kind of body you want — and I'll give it to you **SO FAST** your friends will be amazed!

You wouldn't believe it, but I myself used to be a 97-lb. weakling. Fellows called me "Skinny." Girls made fun of me. **THEN** I discovered my marvelous new muscle-building system — "Dynamic-Tension." It turned me into such a specimen of **MANHOOD** that I won the title "THE WORLD'S MOST PERFECTLY DEVELOPED MAN."

"DYNAMIC-TENSION" — that's my secret! And it **GETS RESULTS**. That's because it's the natural method you can practice in your own room — **JUST 15 MINUTES A DAY** — while your chest and shoulder muscles begin to swell . . . those arms and legs of yours bulge . . . and your whole body starts to feel "alive" — full of zip and go — **INSIDE and OUT!**

**FREE** My Valuable Illustrated 32-Page Book Not \$1.00—Not 10¢—But **FREE**



Send **NOW** for my famous book showing how "Dynamic-Tension" can make you a new man. 32 pages, packed with photos, valuable advice, answers to vital questions. I'll send you a copy absolutely **FREE** if you rush coupon to me personally.

Charles Atlas, Dept. 82  
115 East 23rd St., N.Y., N.Y. 10010  
In U.K.: Atlas, Chitty St., London, W. 1



**CHARLES ATLAS, Dept. 82,  
115 East 23rd St., New York, N. Y. 10010**

Dear Charles Atlas—Here's the Kind of Body I Want:

(Check as many as you like)

- Broader Chest, Shoulders
- Slimmer Waist, Hips
- More Weight, Solid
- More Powerful Arms
- More Powerful Legs
- Better Energy

Send me, absolutely **FREE**, a copy of your famous book showing how "Dynamic-Tension" can make me a new man. 32 pages, crammed with photographs, answers to vital questions, and valuable advice. No obligation.

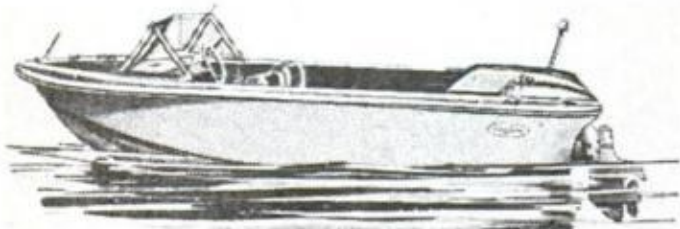
Print Name.....Age.....

Address.....  
City & State..... Zip.....  
Code.....

In England send to: Charles Atlas, Chitty St., London, W. 1



# SILVER LINE NUMBER ONE STERN DRIVE BOAT FOR '67

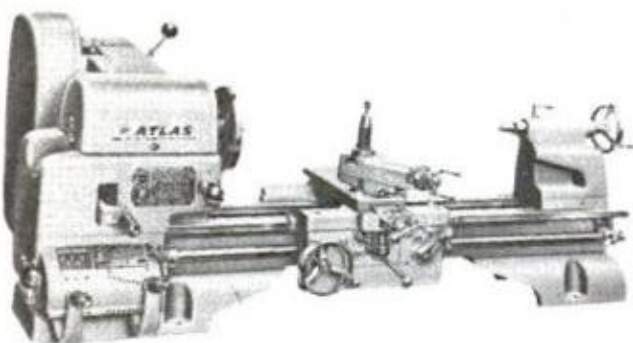


MerCruiser Inboard/Outboard drives are Number One in the industry by a wide margin. Now, they are exclusive in Silver Line Boats—Number One in stern drives. This dynamic combination brings you the most breath-taking, full-performance boats of the year. These are boats you drive—and “park”—like a car. See them at your dealer, or write for our beautiful new four-color catalog.

*Silver Line*

BOATS  
MOORHEAD, MINN.

## Get more for your \$\$



### with ATLAS 12"

- Quick change gear box with 54 threads and feeds
- 16 spindle speeds—V-belt drive
- Power cross feed—power longitudinal feed
- Timken tapered roller bearings
- 12¼" swing—big capacity
- And more—from only \$509 f.o.b. factory

Write for free catalog

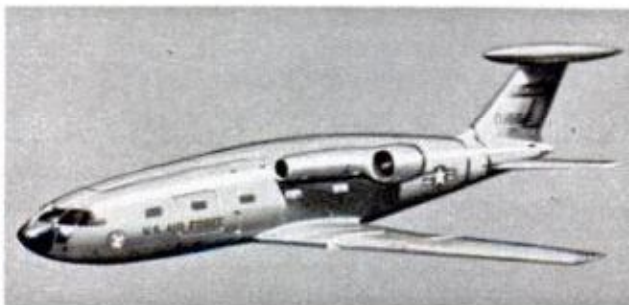
**ATLAS PRESS CO.**

2-24 N. Pitcher St. • Kalamazoo, Mich.  
507-A

## BY KEVIN V. BROWN AVIATION JETSTREAM



**STOWED-ROTOR HELICOPTERS** could revolutionize both military and commercial aviation. After vertical takeoff (above), aircraft would fold, then stow (below), rotors and accelerate up to speeds of 500 mph



**STOWED ROTORS**, which may boost helicopter speeds up to 500 mph, have been proposed by two manufacturers.

Both “compound aircraft” have similar designs, including conventional overhead and tail rotors. But they can also fold their rotors back, like a bird tucking in its wings, then store them inside a recess, cleaning up the fuselage for maximum speed. They would be propelled by conventional engines and get lift from conventional wings.

One design, by Lockheed Aircraft Corp., has passed wind-tunnel tests, the model stopping its wings and folding them at speeds from 90 to 160 mph. Full-scale models would take off vertically, then transform into a fixed-wing airplane at about 150 mph.

The second design, by Sikorsky Aircraft, would have similar characteristics, with a four-ton payload.

Both manufacturers foresee military and commercial uses. The military would have a hovering aircraft for deployment of troops and cargo in front-line areas, with the getaway speeds of subsonic jets.




Airlines would have subsonic jets capable of landing in downtown heliports for time-saving city-center-to-city-center routes, a long sought vehicle. ★★★



# Did you know?


- **7 out of 10 of the world's racing cars use an oil treatment or additive!**
- **8 out of 10 of these use  Oil Treatment!**
- **Millions and millions of motorists in passenger cars use  Oil Treatment!**

## What further proof do you need?

**If** these facts don't convince you, one can of  Oil Treatment will! So, the first time you need oil... every time you change oil... add  Oil Treatment to make your car run smoother, quieter, longer. Ask for  Oil Treatment at service stations everywhere! World's best seller.

 DIVISION  
Studebaker  
CORPORATION  
125 OAKTON, DES PLAINES, ILL.

### LATE NEWS!

Jimmy Clark wins Grand Prix of the United States.  
Jackie Stewart wins Tokyo "Indy 200".  
BOTH RODE TO VICTORY WITH  OIL TREATMENT

\* Reg. U.S. Patent Office

FEBRUARY 1967

Материал, защищенный авторским правом 47.01





## Holy Toledo, what a car!

### Only Toledo could build this

Toledo? That's where 'Jeep' ruggedness comes from! Now it's built into a *bold new sportscar*. With bucket seats. Continental spare. Roll-up windows. If you like, add automatic top. Sports console. Hot new V-6 engine with automatic transmission. Power brakes, even air-conditioning.

And world-famous 'Jeep' 4-wheel drive is standard equipment. Flip one simple lever...you can leave the crowds behind, and blaze your own trail! Testing is believing. Test the adventure and safety of 'Jeep' 4-wheel drive. Climb a mountain. Cross a creek. Take the gang right down





YES, YOU'RE RIGHT... THAT'S TOLEDO'S FAVORITE SON, DANNY THOMAS!

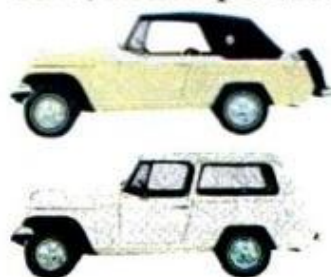
# rugged rascal. The Jeepster.

on the beach. Holy Toledo, what a car!

There's a whole family of Jeepsters to choose from... Convertible; Jeepster Commando Station Wagon; Jeepster Commando Pick-up; Jeepster Commando Roadster. Choice of colors, too.

Hop in and give the new Jeepster a test drive. You've never handled a

sportscar with the smooth ride and bold, brash performance of this one!



You've got to drive it to believe it. See your 'Jeep' dealer. Check the Yellow Pages.

**KAISER Jeep CORPORATION**  
TOLEDO 1, OHIO



# WHAT'S NEW OUTDOORS

BY STUART JAMES

**GIs IN VIETNAM** seem to have at least three ideas—different from the quartermaster's—about the equipment required for survival in combat against the Vietcong. Since I wrote a column on knife sharpening I have had hundreds of letters from Vietnam requesting additional information, and in talking with several makers of quality knives I learned that most of their recent orders are from GIs in combat or on their way. One small manufacturer is swamped with orders for a belly knife, a short-bladed dagger with a "T" handle that is clutched in the fist and used for close combat.

Some months ago I spoke with a manufacturer of handguns who told me that he has been filling hundreds of individual orders for parents whose sons have requested a sidearm. Another example is the manufacturer of a dry, graphite-base gun oil that prohibits gun jamming despite conditions of water, moist heat and mud, who has been sending gifts of his product to the thousands who have written for it.

And now I learn that Sterno Inc. has been sending hundreds of complimentary stoves and cans of fuel to GIs who have written to purchase it so they can have hot "C" rations when they're in the line. It seems that this item is not available in the local PXs, and after reading a batch of the letters the Sterno company received I recommend that a few cans (they weigh 7 oz.) be included in every package sent to a boy overseas.

**A FISHING LODGE OPERATOR** in Manitoba, George Maryk, is known as a man who makes careful advance preparations for his customers. Last spring, before the season opened, he flew a 14-foot boat to a small back-country lake where he left it for future use. When he returned with some customers later in the summer the boat was gone. He found it after considerable searching, but it was in use. A family of beavers had built the boat into their dam.

**SCUBA DIVERS** with a yen for treasure hunting can now purchase an electronic aid for their searching. Nemo-1, a transistorized, waterproof and pressurized metal locator, operates to depths of 100 feet and detects gold, silver, copper, iron, aluminum, bronze and any conductive

metals. It is simple to operate with just one control knob and the meter is illuminated for dark or murky water. It sells



for \$249.50, which isn't very high if you find a good treasure. One group of Long Island (N.Y.) divers are using one to look for the USS *Savannah*, a navy vessel that went down off Center Moriches a century ago. (That's a lot of scrap iron—if you get it up.) It is made by The Radiac Co., Box 657, Center Moriches, N.Y., a manufacturer of precision scientific instruments.

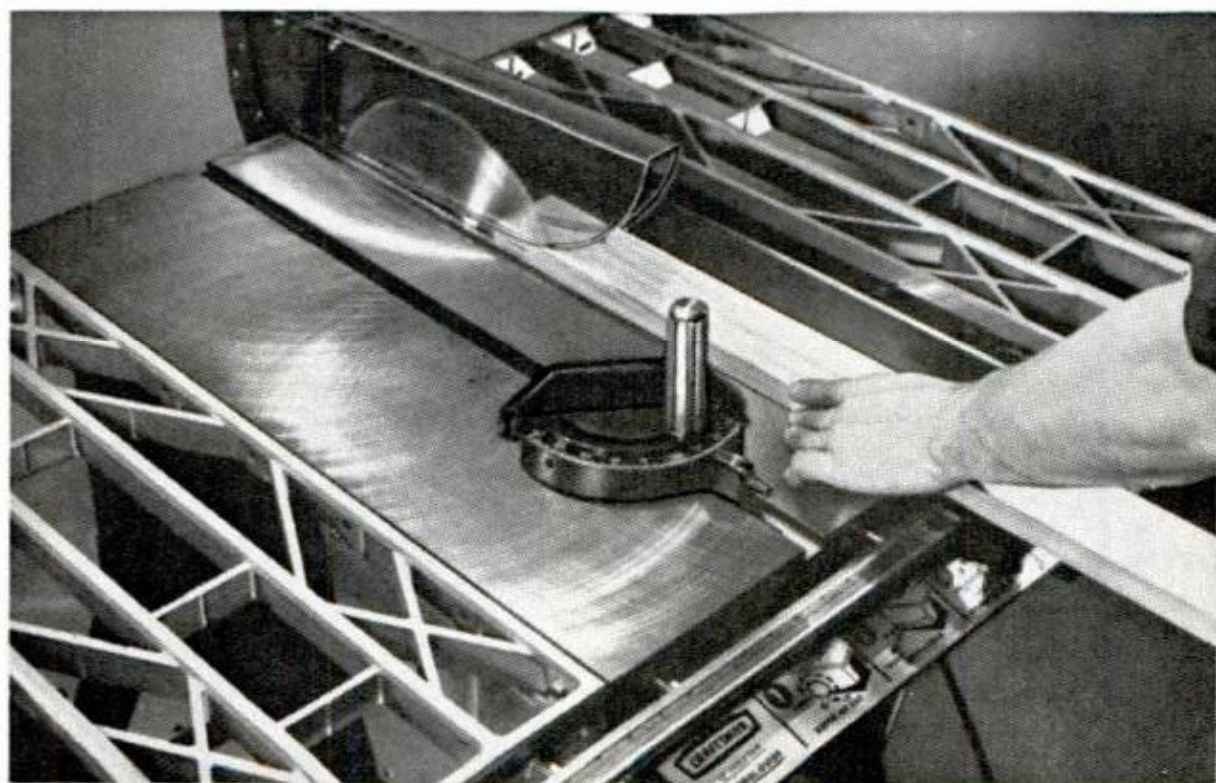
**FIBERGLASS SKIS** are still the center of a raging controversy. The big question is how they compare with wooden or metal slats. But a large part of the argument results from mass confusion about terms. No two skiers will give you the same definition when asked to explain so-called glass skis. Very few know what the labels mean. Here's a rundown:

"Plastic" skis are nothing more than wooden skis protected with a plastic coat. The plastic has no structural value. The same is true of "epoxy" skis. Neither have glass fibers in their construction. But "fiberglass-epoxy" skis do have glass fibers, and the term generally denotes a good product. However, the best grade is "fiberglass-reinforcing-wood" skis. These slope-riders combine the virtues of both wood and fiberglass.

Prices range from a low of \$35.50 for some plastic skis to \$200 for the top-grade fiberglass models.



# Introducing the most powerful Craftsman floor saw ever at **Sears** \$299.00.



**It develops a full 3 HP to cut through wood 3-9/16th" thick.**

**S**EARS new 12" Craftsman® floor saw was built to commercial standards. It's as much designed for the professional as for use in your workshop.

The controls are color-coded. You can see at a glance what adjustments to make, without stopping work. The rip fence locks front and rear for accuracy. And the twist of a knob aligns it. You never need a trial run.

The controls are pre-tensioned.

They hold both depth and angle settings with *no* readjustment for repeated cuts. The direct drive motor won't lose power from friction or belt slippage.

Work space? Unextended, the table measures 20" x 27". Fully extended, you can cut to the center of a work-piece that's 76" wide.

What do you get for your money? The saw, *plus* two side extensions, one adjustable extension, as well as support legs.

Good value? Of course. It's from Sears, Roebuck and Co.





## Ford Camper Special: Peace-of-mind is standard equipment.

Relax and enjoy! Let the unique, heavy-duty features of a Ford Camper Special see you through years of worry-free adventures. Features like tough, Twin-I-Beam suspension for easing you over those back-road ruts. Features like man-sized room and comfort to reduce fatigue behind the wheel.

With Ford's 131" wheelbase Camper Special you'll carry camper bodies up to 10½' long (14' on Ford's longer F-350 model). And with options like Select-Shift Cruise-O-Matic transmission that provides both 3-speed manual and automatic shifting, husky Six or V-8s, power steering, power brakes, and air conditioning, you get car-like comfort and responsiveness.

Drop us a Camper Coupon—or drop in on your Ford dealer—and get the full story today.



Ford Division, Dept. PM-2, Ford Motor Company  
Box 1000, Dearborn, Mich. 48121

Please send me, free, the 1967 Ford Recreational Vehicle Guide Book.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_





# HOMEOWNERS' CLINIC

BY W. CLYDE LAMMEY

## Renewing ceramic floor

*The ceramic floor in my bathroom is old. Tiles are rather worn and the joints darkened and discolored from long use. How does one clean such a floor?—R.L., Calif.*

I once tried the following method and found it worked quite satisfactorily. First clean the floor by scrubbing with a medium-to-strong detergent solution. Rinse well, allow to dry and then wipe on a thinned interior semi-gloss paint in an ivory or light cream color. It must be thinned with turpentine so that it will wipe off the tile readily, the residue catching in the joints, much as a filler does applied to an open-grained wood. Permit it to dry overnight.

## Blistering wallpaper problem

*Wallpaper in two rooms of our new home has loosened from the plaster, forming large, discolored blisters. Both outside and inside walls are affected. What's the cause of this? Should I replace the paper or can it be repaired?—W.B., Ky.*

I'd suspect right away that the wet-plastered walls were not thoroughly dry before the paper was hung. Whether to attempt to repair the blisters or replace the paper is difficult to say offhand, but it will likely prove faster and more satisfactory to repaper, particularly if the discolorations are noticeable.

Small blisters might be repaired successfully by slitting at right angles, folding the flaps back, applying paste to them and then pressing the flaps down, making sure the cut edges butt when the paper shrinks. But first, the flaps will have to be left open for a time to be sure the plaster is thoroughly dry. Any blisters larger than 4 or 5 in. are difficult to repair well. If you repaper, wash the walls thoroughly after removing old paper, then allow the plaster to dry 10 days or more. Resize the bare walls with a thin glue size before hanging the new paper.

## Hard-to-find leak

*There's a leak in my basement floor and it's not along the wall. After a heavy rain, I find about one-fourth of the floor*

*covered with water 1/8 to 1/4 in. deep. It's dry all along the walls. As yet, I haven't located where the water comes in, but the hole must be in the floor. Have you any suggestions?—T. B., Ohio*

You don't mention any hairline cracks, so the water must be coming in through a tiny hole in the concrete. This could be caused by a rotted sliver of wood or possibly a small piece of rusted-out wire in the mix that might not have been discovered by the floor finisher and removed. A lot of water can come in over several hours' time through a hole no larger than pinsize if there is moderate hydrostatic pressure from below.

Next time, try to catch the leak during a storm. Spread a little fine sand over the wet area. The sand will be washed away from the hole if there is any flow at all. Then drill out the hole to a depth of 3/4 in. or so and undercut the sides with a cold chisel. Work carefully so that you don't chip or flake the adjacent concrete. Clean the hole of debris, wet it and fill it a little over-flush with a concrete patcher and trowel smooth. Cover it with a damp cloth for at least 24 hours to cure it. Carefully done, this should hold, even under moderate pressure.

## Spiffing up spindles

*My old home has a long porch across the front. The railings consist of top and bottom rails with spindles between, 12 to 20 to each span. The paint is in very bad shape and I don't like to think about removing it from all 48 spindles. I can handle the house painting, but what should I do about those turnings?—D. L., Tenn.*

Cleaning and painting porch railings with turned spindles might develop into an all-season job, but in the end it could be worth it. Assuming that the wood in the spindles is still in reasonably good condition, you can "paint" them with a wash-off-type of remover, allowing it to soften the rough paint. Wash off the excess softened paint. You won't get all of it, but the residue will do no harm if you use a remover that does not contain benzol. Allow to dry thoroughly and then paint.

If you don't like the turnings well enough to retain them as a feature of the railings, then cover them with siding that matches that of the house. You'll need to add nailing strips between the rails not more than 24 in. apart. If the matching siding is narrow and thin, as were many old-style sidings, 16-in. spacing would be better.



## FREE Key Machine

Kindmaster locksmiths use. Sells for \$125, but yours FREE with Locksmithing Course.



## You Can Learn To Be A LOCKSMITH in your spare time

There's a big demand for skilled locksmiths. You can earn big money either full or part-time in your own home. Be your own boss; earn steady, year 'round income with no layoffs. The BELSAW INSTITUTE training, recommended by professional locksmiths, teaches you to make keys, open and repair locks on homes, cars and buildings. Easy, step-by-step illustrated lessons complete with all tools and supplies. We tell you how to get servicing jobs, how much to charge, how to earn while you learn and how to build a secure cash profit business.

Mail Coupon for FREE Book Today!

BELSAW INSTITUTE, 1071 Field Bldg., Kansas City, Mo. 64111

Send FREE book, "Keys To Your Future!"

No obligation. No salesman.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

# SPECIAL INVITATION TO INVENTORS

If you have an invention (patented or unpatented) you want to sell, we offer a free booklet which may save you time and money. As specialists in submitting inventions to potential buyers, we have contact with scores of manufacturers seeking new products to manufacture.

The booklet contains information on which types of inventions have the best chance, the price manufacturers are paying for them, and dangerous pitfalls inventors should avoid. It also tells how, for a modest fee and commission, we are helping inventors find potential buyers. We are an old firm, Nationally known, with an impeccable reputation.

Every informed inventor should have the booklet "How to Go About Selling Your Invention," regardless whether or not you ever use our service. Merely send your name (no models or blueprints, please). Booklet is free, postage prepaid, with no obligation. References: Your own bank, attorney, or Chamber of Commerce.

K. O. Kessler, President

Dept. D-52, Kessler Sales Corp., Fremont, Ohio 43420

## --Earn To \$15 An Hour, Full or Spare Time-- INVESTIGATE ACCIDENTS

**CAR FURNISHED**

**EXPENSES PAID**

**NO prior experience needed. Only average education required.**

**YOU PERFORM A REAL SERVICE  
WHILE ENJOYING A BIG-PAY CAREER**

As an Accident Investigation specialist you will (1) INVESTIGATE FACTS and (2) DISTRIBUTE MONEY as the representative of wealthy organizations.

No other business offers you greater opportunities. Here's why: The huge, rapidly expanding Accident Investigation field right now distributes more money than any other service industry. And it's growing fast. Over 200 MILLION ACCIDENTS must be investigated this year for Insurance Companies, Airlines, Steamship Lines, and Government Offices.

**KEEP PRESENT JOB UNTIL READY TO SWITCH**

Already hundreds of men we have trained are earning thousands of dollars extra each month. Joe Miller earned \$14,768 his first year. A. J. Allen earned over \$2,000 in ten weeks. Robert Meier says "I'm now earning \$7.50 to \$15.00 an hour in my own business... Universal's course is wonderful."

**FREE EMPLOYMENT HELP GIVEN**

Firms needing men from coast-to-coast, in Canada and overseas, call upon Universal. We place far more men in this booming field than any other individual, company or school. Write today. Let me show you how easy it is for you to get into this exciting new career in just a matter of weeks. **State Approved for Veterans' Training**



Mail Now for FREE BOOK

M. O. Wilson, Dept. PM-2  
Universal Schools,  
6801 Hillcrest, Dallas, Texas 75205

Please rush me your FREE BOOK on Big Money in The Booming Accident Investigation Field. I will be under no obligation — and no salesman will call upon me.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_





# LEARN MEAT CUTTING AT NATIONAL

Pay After Graduation



The steady dependable trade of Meat Cutting taught easily in 8 short weeks. **YOU LEARN BY DOING** under actual meat market conditions in big modern school at Toledo.

For beginners or men with experience. Get a profitable store of your own. Remember. **PEOPLE MUST EAT!** Big pay jobs. Free employment help. Thousands of successful graduates.

Buying, cutting, percentage, pricing, advertising, selling, etc. A complete retail meat education. National School established 44 years. Get National training NOW. Pay your tuition in easy weekly

payments after you graduate. Send coupon for **FREE** school catalog—**TODAY**. G.I. approved.

National School of Meat Cutting, Inc., Dept. 50-R, Toledo, Ohio 43604

Send me your **FREE** school catalog on National Training at Toledo in Meat Cutting, Meat Merchandising and Self Service Meats. No obligation. No salesman will call.

Name..... Age.....

Address .....

City..... State.....

Approved for Veterans

## Catalog of 2400 Novelties 10c

Send 10c for amazing catalog of novelties, live animals, scientific supplies, hobbies, funmakers, planes & boats, looms, magic tricks, joke articles, unusual seeds, gadget timesavers, cameras, optical goods, projectors, movies, lucky jewelry, religious novelties, disguises, musical instruments, stamps, coins, puzzles, fortune tellers, radios, auto & bike accessories, telescopes, magnifiers, compasses, banks, smokers' gadgets, artists' supplies, printing sets, engines, motors, shockers, knives, billfold, guns, rifles, sports, books, games, plants etc. Send 10c.

JOHNSON-SMITH CO., Dept. 114, Detroit, Mich. 48207

## A BUSINESS OF YOUR OWN REPAIR HYDRAULIC JACKS



Earn while you learn at home. Trained and qualified mechanics needed NOW to service inoperative hydraulic jacks. BIG opportunity for ambitious men. We show you HOW - in your basement or garage, spare time cash income in an expanding industry. Don't wait, ACT NOW! Get the facts.

Write for folder PM2 and free bonus offer

HYDRAULIC JACK REPAIR MANUAL CO.  
P. O. BOX 50 • BLOOMFIELD, N. J.

## Print Your Own



Cards, Stationery, Advertising, Circulars, labels, photo and movie titles, church work, tags, greeting, sympathy, prayer cards, etc. Save money. Pays for itself in a short time.

### Own a Printing Business

Good Profit. Raised printing like engraving too. Have home shop. We supply everything. Direct from factory, only. Easily followed rules. Write now for free details. **KELSEY PRESSES E-37 Meriden, Conn. 06450**

## Learn Profitable Profession in few months at Home



### MEN AND WOMEN, 18 TO 60

\$4.00 to \$5.00 for 1-hour treatment is the established charge for a skilled operator. Easy to learn and do. Diploma awarded. Open your own office or earn good income from Doctors, Hospitals, Clubs and other health or recreational centers. Wonderful part-time profession. Low monthly payments. Write today for free Anatomy Charts and catalog. No obligation.

ANDERSON SCHOOL OF SCIENTIFIC MASSAGE  
Dept. B-1, Princeton, Illinois

## NEW Improved Accurate Scope-Shot

SCOPE-SHOT COMPLETE WITH 50 DISINTEGRATING PELLETS They crack like a rifle when they hit—leave mark—guff of smoke! \$1.95 P.P.

Big Bag of 250 EXTRA Pellets 98c P.P.

World's Finest Precision SLINGSHOT Scope-type sight! D. 178,837

ROOTS PESTS! Price without pellets.

\$1.50 P.P.

Order Now!

Pure gum rubber slings. Beautifully polished cast aluminum stock. Pistol grip. So powerful it kills small game. Fits pocket perfectly! Guaranteed. **FREE** shooting manual.

EXTRA RUBBER SLINGS, 4 pairs \$1.00 p.p. Leather Pouch & Sling assembly only 40c p.p. Order NOW from:

GENERAL SPORTS

4184-M2 Apple Street, Cincinnati, Ohio 45223

## 53 ORIENTALS - ONLY 10c



Imported from strange lands of the mysterious Far East—this valuable collection of 53 genuine postage stamps from Borneo, Burma, Hong Kong, Malaysia, Nepal, Siam, Sarawak, Singapore, Viet Nam, etc. Supernatural Demon-God (half man, half bird), ferocious wild beasts, ceremonial dancers, weird oriental idols, many others. Guaranteed worth over \$1.50 at standard catalog prices—all for 10c! Also, fine stamps from our approval service which you may return without purchases and cancel service at any time—plus big **FREE** Illustrated Catalog.

Jamestown Stamp Co. Dept. C27PM, Jamestown, N.Y. 14701

Jamestown Stamp Co. Dept. C27PM, Jamestown, N.Y. 14701

RUSH my Collection of 53 Orientals & other offers. I enclose only 10c.

Name .....

Address .....

City, State & Zip Code.....



# PICTURE THIS

By Leonard Samuels

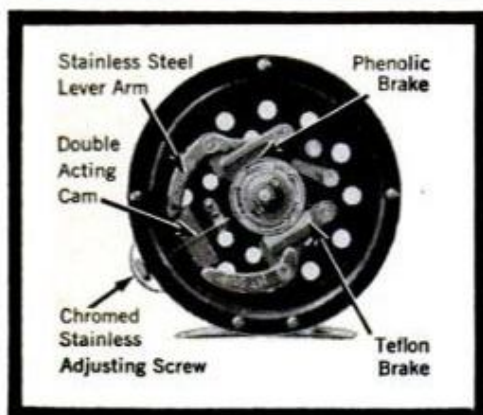
**ONE AFTERNOON** may well end my spotty and feeble attempts at making movies. I attended a showing of some prize-winning entries in the annual Kodak Teen-Age Movie Awards competition. If this is what 14 and 15-year-olds can produce, then I'm wasting my time.

One film by an 18-year-old was good in conception and story and best overall in scripting, camera work and editing. All the more remarkable were the achievements of the younger set. One 14-year-old produced a documentary on the effects of taking LSD that was immensely imaginative and well executed. A 15-year-old turned out a "professional quality" animated cartoon. A 16-year-old created a competent educational film on taking the electrocardiogram of developing chick embryos. While many of the entrants are looking forward to careers in moviemaking, many more are just doing it for fun. And most of the films show a concern with serious subjects. The "nowhere to go, nothin' to do" school of teen-age complainers has no adherents here.

Since the films are good and the approaches fresh indeed, perhaps Kodak and some TV executives ought to consider programming them with instruction to encourage other youth to investigate this field as an emotional and creative outlet.

**HERE'S A SWITCH** on the old saw about orientals' inability to pronounce the letter "R." One Japanese camera manufacturer was showing a prototype of a handsome, new movie camera. In examining the controls, I found a button down near the pistol grip that bore the engraved legend "single flame."

**MORE FLASHCUBE ADAPTERS** are around since *Hitch Any Camera to a Flashcube* (page 180, Oct. '66 PM) went to press. Hudson Photographic Industries (HPI) and Amplex are in the fold. The HPI unit permits two adapters to be stacked on the camera. One overlooked in the story was the New Devices, Inc., Cube-dapter for instamatics 104 and 105. This one licks the problem of close-up overexposure with AG-1 bulbs (which have higher light output than flashcubes). The single-bulb unit makes contact without triggering the  $\frac{1}{60}$ -second flash speed, but instead uses the daylight speed of  $\frac{1}{60}$  second.



## GREAT Combinations from South Bend

**EXCLUSIVE SOUTH BEND** two stage, balanced drag. Sensitive and smoothly adjustable to slow or stop the largest fish. Two stage stainless steel lever arms. All metal ratchet. One drag shoe is smooth Teflon, provides the light drag. When more resistance is necessary, the second Phenolic brake shoe is engaged for real stopping power. Another South Bend first! (Pat. Pending.)



**SOUTH BEND FINALIST®** . . . The high quality, heavy duty, single action fly reel with exclusive South Bend two staged balanced Action Drag! Handsome and rugged-aluminum housing and balanced spool. Pushbutton "Instant Change" spools. Beautiful maroon finish with chrome trim and line guard. 4" spool — 1" pillars: Extra Spools available.

# South Bend

South Bend Tackle Company, Inc.  
Division of GLADDING Corporation  
South Otselic, New York 13155

South Bend Tackle Co., Inc. Dept. PM  
South Otselic, N.Y. 13155

Please send 84 page-catalog and tips.  
Enclosed find 50¢ to cover handling.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zip \_\_\_\_\_

POPULAR MECHANICS

Материал, защищенный авторским правом



# How would you like to be the guy who bought the last car you traded in?

And yours might have been in pretty good shape compared with a lot of them. Most people don't trade a car in until something serious goes wrong.

Of course, used car dealers usually take care of something like that in one way or another. One way is to fix it. That's what Volkswagen dealers do. And you can be sure they do it very well because they guarantee their used cars.

The Volkswagen used car guarantee covers everything that makes the car tick. Engine. Transmission. Rear axle. Front axle assemblies. Brake system. Electrical equipment. For 30 days or 1,000 miles (whichever comes first), a VW dealer will repair or replace anything that goes wrong in any of these areas. At absolutely no cost to you.

You're covered during the period when anything wrong with the car usually shows up. That gives you

something important that you don't always get with a used car.

Peace of mind.

We hope that's worth something to you, because it's going to cost you a few dollars more. Not much, considering how much money a VW dealer puts into every car he puts a guarantee sticker on.

The car gets inspected and tested. Then everything that needs fixing gets fixed. Very carefully, since every dealer knows that anything that goes out a little wrong will come back very wrong.

If you're thinking "that's all very nice but I don't want to buy a used Volkswagen," don't go away. To sell a Volkswagen, a VW dealer usually has to buy something else.

So he probably has whatever kind of used Something Else you're looking for.

Try him. He might give you a much better buy on a Something Else than a Something Else Dealer.



Look for this sticker and you won't get stuck.



# PUBLICATIONS WORTH WRITING FOR

BY TERRY HONIGFELD

**ELECTRICIANS:** Modern approach to electrical wiring is available in a new 24-page booklet. *Helping Hand for Electrical Wiring* covers electricity and how it works—complete with diagrams—to illustrated wiring methods, tools and accessories needed. Pictured, descriptive sections show the installation of radios, TVs and appliances. Also includes a wire-size and decimal equivalent chart and a glossary of electrical and wiring terms. Available free of charge from Vaco Products Co., 317 East Ontario Street, Chicago, Ill., 60611.

**RACING AND SPORTS CAR** enthusiasts will want to read *A Short History of*

*Racing*, a 12-page booklet tracing the sport from "The Race of Death," 1903, to the Grand Prix of the United States, 1961. Write Kendall Refining Co., Bradford, Pa., 16701, for this interesting account.

**PREVENTING RUST** is a constant concern of the homeowner. A handy 36-page booklet, *101 Rust Stopping Tips*, is stocked with helpful hints to stop rust in such areas as exterior siding, aluminum doors and screens, window shutters, fire escapes, garbage cans, radiators, railings, water pipes and storm gutters. Write to Rust-Oleum Corp., 2425 Oakton Street, Evanston, Ill., 60204.

## POPULAR MECHANICS SHOPPING GUIDE



**Art LESSONS \$6 a month**  
Study Art for pleasure and profit. Learn Drawing, Painting, Advertising Art at home in spare time for only \$6 a month. Assignments corrected with overlays and returned to you by mail. Write for FREE BOOK. No obligation.

**WASHINGTON SCHOOL OF ART Studio 142, Port Washington, New York 11050. Estab. 1914.**

Accredited Member NHSC. Tear out ad as reminder.



**PAINT YOUR OWN WALL MURAL!**  
Enjoy the beauty, creative satisfaction of painting a lovely 5 to 14 ft. wide mural directly on your wall! New "paint-by-numbers" method is fun, incredibly easy. Takes just 3 to 5 hours. Artists charge up to \$350; wallpaper scenes cost \$100 and more. Our complete kits, \$12.95 up! Also fabulous "Black Light" mural kits. Many exquisite modern, provincial, oriental, etc. designs. A stunning prestige touch! Send for FREE Color Catalog. "How to" details (encl. 10¢ for postage handling). MURAL ART CENTER, Dept. 4172, 4401 Birch St., Newport, Calif. 92660.

Please mention Popular Mechanics when writing to advertisers

Save 20% to 30%\* on your gas bill  
MONEY BACK GUARANTEE

Amazing new invention fits gas water heater and gas central heating furnace (either natural or LP gas)

- Automatically closes vent pipes when main burner goes off.
- Eliminates loss of a roomful of expensive heated air every five minutes.
- Automatically opens vent when burner comes back on.
- Easy to install.
- 10 year Unconditional Guarantee.



**ONLY \$9.95** Send Check or Money Order (no COD's) Specify Size Prepaid Vent Pipe I.D. 3", 4", 5" or 6"  
**SAVE FUEL CORPORATION**  
Vilonia, Arkansas

**FREE Electronics Bargain Catalogs for 1 Year!**

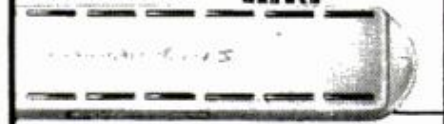
**RADIO SHACK** Exclusive House Brands | Nationally Famous Makes | Closeout Special Buys  
Stereo • CB • Parts • Kits. Testers • Tubes • Tools • Tape.  
Read the exciting catalogs of America's biggest nationwide electronics store chain. Get our latest issue today.

**RADIO SHACK** 2727 West 7th St. Fort Worth, Texas 76107, Dept. PM

Name \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_

Radio Shack Corp. — Division of Tandy Corp.

**READY? ALWAYS!** Only \$395 P.P.



Metal kitchen or shop tools held magnetically by **MAGNAGRIP MARK X**. Always handy, orderly, safe. MARK X mounts on any surface easily. Smartly styled in white. Gift boxed.

Complete line folder on request. Money back guarantee. Send check or M.O. to Dept. E.

**PHELON MAGNAGRIP COMPANY, INC.**  
East Longmeadow, Mass. 01028

Only \$198 P.P.  
Any soap cake hangs magnetically, air dries, always handy. **MAGNAGRIP SOAP HOLDER** mounts anywhere.



**Only TREYCO  
6-in-1 Machines**  
have Curved Abrasive Discs to  
**DO HOLLOW GRINDING**

Do quality sharpening of saws, scissors, pinking shears, knives, tools, clippers, skates, etc. Part or full time. Make as much as



**\$6 per Hour Sharpening**  
Factory to You Savings Manual shows you how.

Write for New Catalog 966.  
**TREYCO PRODUCTS, INC.**  
381 Niagara St., N. Tonawanda, N.Y.

TAPE THIS AD TO THE BACK OF YOUR TV SET

**ALL TV-RADIO RECEIVING TUBES**

ALL BRAND NEW, all at a flat discount price of only... ea.

No exceptions... all tubes \$1. regardless of list price. Virtually all types available, including the new color tubes.  
• All Tubes 1st QUALITY  
• All Sold on Written 24-MONTH WARRANTY  
• All Orders SHIPPED 1st CLASS SAME DAY REC'D!



• If you know for sure which tubes are defective, order them (R \$1 each, plus 50¢ postage and handling on your entire order)  
• If uncertain which tubes need replacing, send for our FREE leaflet "How To Save On TV-Radio Repair Costs". This valuable leaflet should be taped to the back of your set and kept handy.

Write today to Dept. PM-27

**UNIVERSAL TUBE CO.**  
Ozone Park Station, N. Y. 11417

**SECRETS of Teaching Yourself MUSIC**

revealed in your own home  
this money-saving way



**YES!** Teach yourself Piano, Guitar, Accordion, Violin, ANY instrument—even if you don't know a single note now! No special "talent," no previous training needed. Famous low-cost U.S. School of Music Course, with step-by-step pictured lessons, make it simple as A-B-C.

Everything is in print and pictures. First you are told what to do. Then a picture shows you how. No boring exercises, no tedious scales. You start by playing actual pieces. Sooner than you may imagine you'll amaze friends by playing your favorite music—popular, classical, jazz, contemporary music, dance tunes, etc. Over 1,250,000 students all over the world.

**Stop Cheating Yourself of These Joys**

Popularity. New friends. Gay parties. Musical career. Extra money. Banish worries, frustrations. Satisfy self-expressions, creative urge. Gain self-confidence.

Write today for 36-page illustrated FREE book, U.S. SCHOOL OF MUSIC, Studio A302, Port Washington, N.Y. 11050. (Est. 1898. Approved by N.Y. State Education Dept.)

Print Name.....  
Address.....  
City.....  
State.....  
Zip Code.....



**FREE BOOK**

FEBRUARY 1967

**U. S. STAMPS!**



4 SENSATIONAL OFFERS IN ONE - ONLY 10¢!

1. Genuine centennial postage stamp (illustrated), picturing first U.S.A. issued 1847!
2. Collection 25 all-different U. S. - Ancient 19th century, \$5.00 denomination stamp.
3. Collection of prized Commemoratives: 1775 Revolution, Wild West, 1893 Columbian many others.
4. Collectors Guide; other unusual stamps from our Approval Service which you may return without purchases and may cancel service at any time; PLUS Complete New United States Catalog - 786 illustrations!

Send name, address, zip, and 10¢ - TODAY  
H. E. Harris, Dept. C-348, Boston, Mass. 02117

**FLAMETHROWERS**

150,000 Candlepower  
EXTEND YOUR SAFE DRIVING RANGE  
**\$9.95** pair Prepaid U.S.A. No C.O.D. please

Fits all 4 light systems—bright sockets. American made for American cars. 75,000 candle power each sealed beam—over 2 1/2 times as bright as stock. A fine pencil of light that stays on your side of the road. A safety feature for highway driving. May not be approved in some states yet.

warren ENTERPRISES Box 5637 Shakie, Ill.



Today let these  
**AMAZING SHOES**  
ADD INCHES TO  
**YOUR HEIGHT!**

Nothing like a pair of "ELEVATORS" to help you get up in the world! In seconds, these miraculous height-increasing shoes make you almost 2 inches taller!

And no one will suspect that you're wearing them because "ELEVATORS" look just as smart and feel just as comfortable as any other fine shoes.



Write for FREE CATALOG today.

**ELEVATORS®**  
HEIGHT-INCREASING SHOES

Brockton Footwear, Inc.  
Dept. 1102-H, Brockton 68, Mass.  
Please send free catalog  
Name.....  
Street.....  
City..... State.....

CLIP AND MAIL COUPON NOW

**IMPORTED LOCK-BLADE KNIFE**



OPENS WITH FLICK OF FINGER, and locks with a click into position. Blade can't shut when in use. PUSH BUTTON release. Handy pocket size, yet rugged. Fine quality, polished stainless steel razor-sharp blade. PIERCES METAL. Narrow tapered stiletto blade with thick rigid backbone for heavy duty trouble-free use. Fine outdoor knife for sportsmen and emergencies. Comfortable handle. Safety guards. Order now. Don't be fooled by imitations. (See below.)

**\$1.88**

Free Postage



**Metal Piercing Throwing Knife**

Great for hunting game. Weighted, balanced for sure throwing accuracy. Hits with a hard smack. FAST, EASY TO THROW. Use for self defense, hunting, thrills, targets. Razor sharp cutlery steel 16" long—Double edge. Wrapped leather handle. **\$1.00** (2 for **\$1.85**) (3 for **\$2.75**). Knife-throwing instructions FREE. Order Now. (See below.)



**America's Lowest Priced Jet Engine**

Hell cat takes off all by itself or powers model autos, plane, boat, train, etc. Strong constant thrust for exciting experiments. Operates on ram jet principle. Fast starting. No Moving Parts. Operates on Solid Fuel. Only **\$1.50**. + 50¢ for Fuel.

**AUTOMATIC 100-SHOT PELLET STINGER**



**\$1.98**

Dogs, Other Animals, Assaults Instantly Repulsed. The pellet is harmless but STINGS. Holds and fires 100 pellets automatically as fast as you can pull the trigger to knock most stubborn assailants off guard. Portable. Fits easily in pocket or purse. Made of high impact styrene for long life, trouble-free use. Fully guaranteed. Keeps dogs and animal pests off your property. A great training aid. More humane to animals than kicking or hitting. Send **\$1.98** cash, check or money order plus 27¢ to cover handling and we include 50 stinging pellets. Not sold in N.Y.C. or under 18 (State add'l order). (100 pellets \$1) (250 pellets \$2) (1000 pellets \$5). (See below.)



**POWERFUL, NEW, TRANSISTORIZED LISTENING DEVICE**

**SNOOPER-EAR Amplifies Sound**

Complete with Tripod & Earphones

Electronic marvel. Works on same principle as fabulous Missile Tracking antennas. Aim disk reflector, hear jets roar in your special earphones. Pick up voices too distant to hear. Big 18" reflector-disc concentrates sound waves into the transistor unit and amplifies inaudible sounds loud and clear. Sturdy tripod with stethoscope-type earphones. Used by government agencies. Tape recorder can be plugged in. Fully guaranteed.

Only **\$18.95** plus \$1.00 pp. & hdlg. in. Fully guaranteed.

**SWISS SPORT AND STOP WATCH**

Combination Stopwatch, Telemeter, Tachometer. Handsome multi-purpose watch for sportsmen, athletes, businessmen, anyone who checks distances, speed, recording time, races; output, stainless back, shock resistant, leather strap, radium hands, precision movement. Incl. 45-minute and 6-hour registers. **\$9.95** ppd.



**6 DIALS \$9.95**

Standard American, Dept. 2PM, 1 Park Ave., New York 10016.



**MEN! 60 STYLES FOR  
W-I-D-E  
F E E T!**

**E to EEEEE Only  
Sizes 5 to 13**

Men only. Casual, dress, work shoes that really fit. Top quality, popular prices. Money Back Guarantee.



Not sold in stores

Write Today for FREE CATALOG  
HITCHCOCK SHOES, Hingham 28-B, Mass.



Micro edge finders  
& center finders

**NEW COMBO EDGE AND CENTER FINDER**

Edge Finder tips all .200" plus or minus .001". From left: 1/2" COMBO \$4.45; 3/8" MBO \$3.95; 1/2" Center Finder \$3.45; 3/8" Center Finder \$2.95; 1/2" Edge Finder \$3.45; 3/8" Edge Finder \$2.95. Includes plastic case & guarantee. Shipped postpaid same day. COMBO Edge & Center Finder is the most as ONE instrument serves BOTH purposes. Fisher Machine Shop, Inc., 11704-PM Blewett Ave., Hawthorne, Calif. 90250. DEALERS SEE PAGE 69.



**Automatic 100-SHOT PELLET STINGER  
\$1.98**

Dogs, Other Animals, Assaultants Instantly Repulsed. The pellet is harmless but STINGS. Holds and fires 100 pellets automatically as fast as you can pull the trigger to knock most stubborn assaultants off guard. Portable. Fits easily in pocket or purse. Made of high impact styrene for Long life, trouble-free use. Fully guaranteed. Keeps dogs and animal pests off your property. A great training aid. More humane to animals than kicking or hitting. Send \$1.98 cash, check or money order plus 27c to cover handling and we include 50 stinging pellets. Not sold in N.Y.C. or if under 16 (State age with order. (100 pellets \$1) (250 pellets \$2) (1000 pellets \$5)

Heller Company, Dept. PM-13  
Box 826 Niagara Falls, N.Y. 14302.



**METAL PIERCING THROWING KNIFE**

Great for hunting game. Weighted, balanced for sure throwing accuracy. Hits with a hard smack. FAST, EASY TO THROW. Use for self defense, hunting, thrills, targets. Razor sharp cutlery steel. 16" long—Double edge. Wrapped leather handle. Knife-throwing instructions FREE. Order now.

... \$1.00 (2 for \$1.85) (3 for \$2.75)

Heller Company, Dept. PM-13  
Box 826, Niagara Falls, N.Y. 14302



**McGREGOR  
GOES  
KING-SIZE!**

**FOR TALL OR BIG MEN ONLY**

McGregor Jackets, Slacks, Sweaters . . . all extra long. Arrow Perma-Iron Shirts with bodies 4" longer, sleeves to 38". Also 80 SMART SHOE STYLES in Sizes 10 AAA to 16 EEE. Hush Puppies, Boots, Dress, Sport, Casuals. Mail only. 100% Guaranteed. Send for FREE 72 Page Color Catalog of Footwear and Apparel. KING-SIZE, Inc. 1607 King-Size Bldg., Brockton, Mass.



**SEWS LEATHER, CANVAS FAST  
Stitches Like a Machine**

No experience needed. Sew, repair leather, canvas, convertible tops, upholstery. Just push in, pull out. Fast, easy. Automatically you have a Lock-Stitch just like an industrial sewing machine. Half a million satisfied users. Order now.

**FREE 30 HT. Heavy Cord—Special Needles**

You also receive utility wrench, extra waxed thread and needles that fit right in handle. Easy pictured directions. Pays for itself with first repair job.

Send \$1.97 plus 25¢ pstg. & hdlg.

Heller Company, Dept. PM-13  
Box 826, Niagara Falls, N.Y. 14302



**EARN UP TO \$50 A WEEK IN  
YOUR SPARE TIME AS A  
TYPEWRITER  
REPAIRMAN**

Great demand for trained men. Over 25 million typewriters need service and repairs! Cash in on this 300 million dollar market. Now you can get industry-approved training at home. Easy to learn. Low Cost. Qualify quickly in your spare time for a high paying job or a business of your own. Earn while you learn. Real typewriters, sub-assemblies, visual aids, and professional tools provided at no extra cost. Simple, clear illustrated lessons. Expert teachers personally guide you all the way. Fully licensed, accredited, and approved school. State authorized diploma. Mail Coupon Today. Typewriter Repair School, Little Falls, N.J. 07424

**TYPEWRITER REPAIR SCHOOL**

DEPT. 3-110-027

Little Falls, New Jersey 07424

**FREE BOOK**

Check for Vet. Info.

Send **FREE BOOKLET** describing unlimited opportunities for Typewriter Repairmen. No obligation. No salesman will call.

Name.....

Address.....

City..... State..... Zip.....



**SEND ONLY \$2.00**

**Money Back  
Guarantee**

**HEAVY DUTY-ARC WELDER**

**Life Time  
Guarantee**

All New 110 Volt Heavy Duty Arc Welder. You cannot buy a better welder anywhere at this low price. **NO EXPERIENCE NECESSARY.** Anyone can braze, solder, cut and weld metal up to 1/4" thick. Generates heat to 10,000 degrees for cutting through steel plate, etc. **NOTHING ELSE TO BUY.** Comes complete with heavy duty power cable, twin carbon torch, helmet, instruction book, rod holder, and a supply of 1/16" and 1/8" welding and brazing rods, carbons, and flux, etc. **MONEY BACK GUARANTEE.** Try it for 10 days. If not completely satisfied, we will immediately refund your money without question. **LIFE TIME GUARANTEE.** Never a repair charge for parts or labor. Do not confuse this new improved welder with other units selling for \$14.95. This is a heavy duty deluxe model selling for \$18.95 and we have over 25,000 satisfied customers throughout the world. **SEND ONLY \$2.00** and when delivered pay postman \$16.95 plus postage, or send \$18.95 and we will ship postpaid. (For an extra supply of rods, carbons, and flux, send an additional \$2.00.)

Order Direct from factory: NATIONAL ELECTRIC, Dept. PM-2, DELRAY, FLORIDA

For more information on articles and products, write to the PM Bureau of Information for "Where-to-Find-It" list.

Only  
**50¢**



**VANISHING KEY!**

Now you see it—now you don't! Hold it up and P-O-O-F — it's gone! Vanishes faster than a woman can change her mind. Clever and astonishing. Comes complete with easy directions for 4 amazing tricks! You can do it! Lots of fun! Mystify others! Be the Life of the Party! Send check, cash, money order.

**FREE**

WITH EACH ORDER YOU GET OUR WORLD-FAMOUS CATALOG — 160 Pages of 1000 Exciting Tricks.

House of 1000 Mysteries-Dept. PM 27-4018 N. E. Fifth Ave. Ft. Lauderdale, Florida

**LAW FREE BOOK**

**THE LAW  
TRAINED  
MAN**

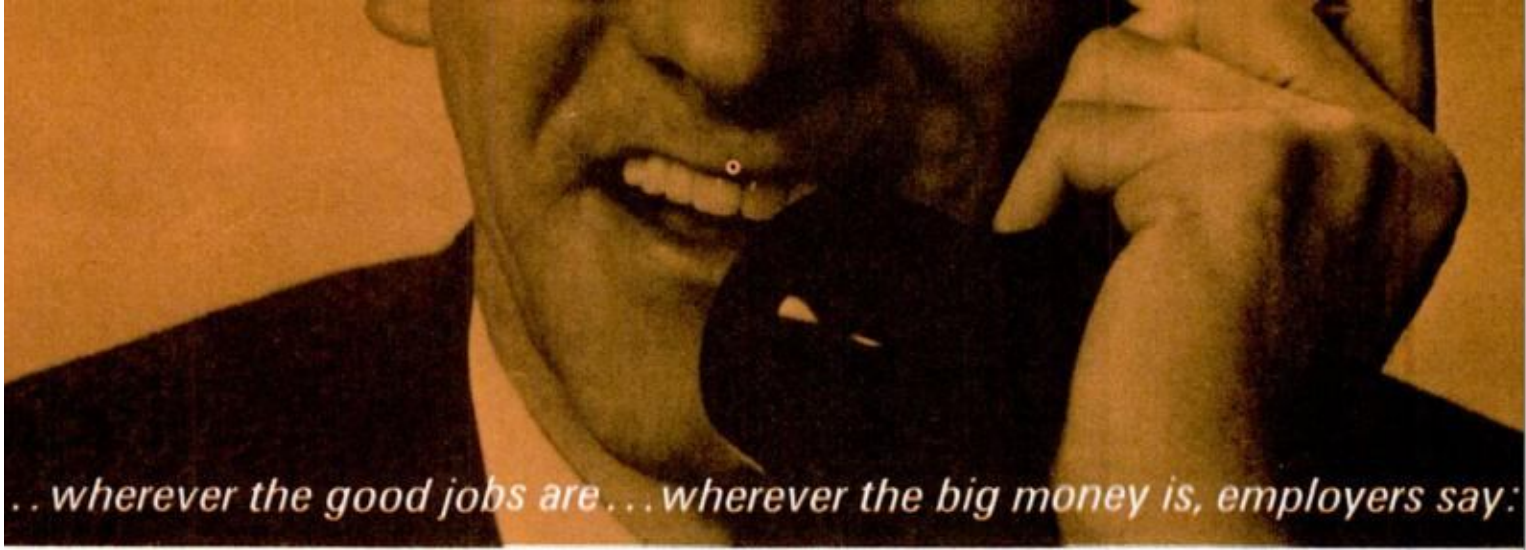
Write today for a **FREE** copy of illustrated law book, "THE LAW-TRAINED MAN," which shows how to earn the professional Bachelor of Laws (LL.B.) degree through home study of the famous Blackstone Law Course. All necessary books and lessons provided. Moderate cost; convenient monthly terms. Write for **FREE** law training book today.

**Blackstone School of Law, 307 N. Michigan Ave.**

Founded 1890

Dept. 52, Chicago, Illinois 60601





... wherever the good jobs are... wherever the big money is, employers say:

# 'SEND ME AN NTS MAN!'

Today, more than ever, the NTS-Trained Man is in demand. He has all the qualifications for a better job. He earns more money... industry needs and wants him, because NTS training is **ACTIONEERED**. It's specially planned to help you learn quickly, easily. All courses are **shop-tested**, home-study designed, indus-

try-approved. And, you **enjoy** learning while you prepare for the great opportunities that are always open to the "NTS Man." The four big career fields shown below are the fastest growing in industry today! Note the coupon for complete list of courses. See other side of page for professional tools and equipment.

**ELECTRONICS DIVISION:**

**NEW 25" Color TV**

Get on the big pay wave of today and tomorrow... Electronics! 10 N.T.S. action courses show you how—quickly... whether it's Color TV Servicing, Radio Servicing, or all around training in the electronics field, N.T.S. is the way to go.

**AUTO-MECHANICS DIVISION:**

If you live cars, make cars your living... and build yourself a great future! The N.T.S. way gives you the technical training necessary to become a skilled Mechanic fast in any one of four Automotive fields. Check coupon for courses.

**AIR CONDITIONING REFRIGERATION DIV.:**

Air Conditioning and Refrigeration Technicians are needed right now. NTS gives you the practical skills that pay off big. Move right into this high-profit field with either of the two courses in this division. Check below for free catalog.

**HOME APPLIANCES DIVISION:**

Get the Home Appliances "know-how" fast... then get in on the big money! All 3 courses are up-to-date, exciting, and a sure-fire way to go out on your own, full time or part-time. Be a Master Technician, or Handyman. Check coupon below.

**HIGH SCHOOL AT HOME**

National offers accredited high school programs. Take only subjects you need. Study at your own pace. Everything included at one low tuition. Check special High School box in coupon for full information and **FREE** catalog.

**CLASSROOM TRAINING AT LOS ANGELES**

You can take Classroom Training at Los Angeles in Sunny Southern California. N.T.S. occupies a city block with over a million dollars in training facilities.

**NATIONAL TECHNICAL SCHOOLS**

WORLD-WIDE TRAINING SINCE 1905

4000 S. Figueroa Street  
Los Angeles, Calif. 90037

**SEND POSTCARD OR FREE BOOK AND SAMPLE LESSON**

**TEAR OUT AND MAIL THIS CARD TODAY. CHECK ONE ONLY.**

- |   |   |
|---|---|
| <p><b>ELECTRONICS DIVISION</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> MASTER COURSE IN COLOR TELEVISION</li> <li><input type="checkbox"/> COLOR TV SERVICING</li> <li><input type="checkbox"/> MASTER COURSE IN ELECTRONICS-TV-RADIO plus advanced TV &amp; Industrial Electronics</li> <li><input type="checkbox"/> ELECTRONICS—TV—RADIO Servicing &amp; Communications</li> <li><input type="checkbox"/> FCC LICENSE COURSE</li> <li><input type="checkbox"/> RADIO SERVICING (AM-FM-Transistors)</li> <li><input type="checkbox"/> TELEVISION SERVICING (including color lessons)</li> <li><input type="checkbox"/> STEREO HI-FI &amp; SOUND SYSTEMS</li> <li><input type="checkbox"/> BASIC ELECTRONICS</li> <li><input type="checkbox"/> ELECTRONICS MATH</li> </ul> <p><b>HOME APPLIANCES DIVISION</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> HOME APPLIANCES MASTER TECHNICIAN'S COURSE</li> <li><input type="checkbox"/> HOME APPLIANCES SERVICING</li> <li><input type="checkbox"/> HANDYMAN APPLIANCE REPAIR</li> </ul> | <p><b>AUTO-MECHANICS DIVISION</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> AUTOMOTIVE-DIESEL MASTER COURSE</li> <li><input type="checkbox"/> AUTOMOTIVE MECHANICS</li> <li><input type="checkbox"/> DIESEL MECHANICS</li> <li><input type="checkbox"/> ENGINE TUNE-UP AND ELECTRICITY</li> </ul> <p><b>AIR CONDITIONING-REFRIGERATION DIVISION</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> AIR CONDITIONING, REFRIGERATION &amp; ELECTRICAL APPLIANCES MASTER COURSE</li> <li><input type="checkbox"/> AIR CONDITIONING-REFRIGERATION SERVICING COURSE</li> </ul> <p><b>HIGH SCHOOL DEPARTMENT</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> HIGH SCHOOL AT HOME Dept. 201-27</li> </ul> |
|---|---|



NAME \_\_\_\_\_ AGE \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

Please fill in Zip Code for fast service \_\_\_\_\_

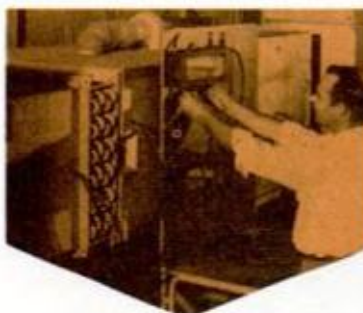
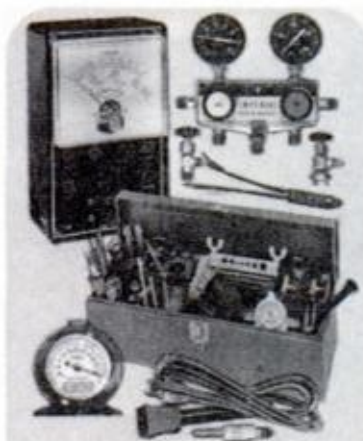
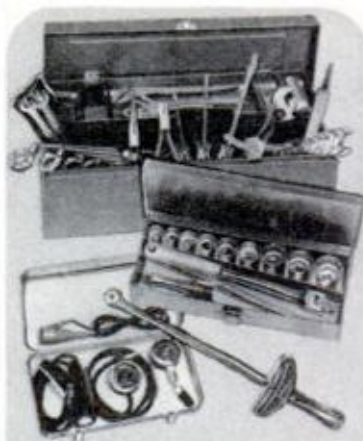
Check if interested in veteran training under the new GI Bill.

Check if interested **ONLY** in classroom training at Los Angeles.



# BOOST YOUR EARNING POWER PERMANENTLY

Prepare now with these advanced methods in Home Study Training



## ELECTRONICS DIVISION

**NEW**  
25" Color  
TV

Electronics training opens a world of interesting high-pay jobs, and N.T.S.-trained men can make their own opportunities. Big Equipment Kits come with most Electronics courses at no extra cost; no kit deposits.

## AUTO MECHANICS DIVISION

Professional Tools and Equipment come with all NTS Auto Mechanics courses at no extra cost; no kit deposits. Service your own car after the first few lessons; earn while you learn.

## AIR CONDITIONING REFRIGERATION DIV.

You get the Tools, Tester, Training Equipment you need at no extra cost; no kit deposits. Learn to handle home and industrial work—start your own business. NTS provides valuable, practical help.

## HOME APPLIANCES DIVISION

Courses include Equipment Kits, Tester, Tools. Set up shop soon for full-time or part-time income in this highly profitable field. Courses are designed for easy learning, quick results.

### BUSINESS REPLY MAIL

No Postage Stamp Necessary if Mailed in the United States

— POSTAGE WILL BE PAID BY —

# NATIONAL TECHNICAL SCHOOLS

WORLD-WIDE TRAINING SINCE 1905

4000 South Figueroa Street  
Los Angeles, California 90037

FIRST CLASS

Permit No. 3087

Los Angeles, Calif.

FILL OUT AND  
MAIL CARD TODAY

GET FULL COURSE  
DETAILS AND  
LEARN ABOUT THESE  
NTS "EXTRAS"

1. "No obligation" Enrollment
2. Student Dividend Plan
3. Bonus Classroom Training

APPROVED FOR  
VETERANS

YOU ENROLL BY MAIL UNDER N.T.S. "NO OBLIGATION" PLAN. WE HAVE NO SALES MEN: IT MEANS LOWER TUITION FOR YOU



Accredited Member  
National Home  
Study Council



# MAGIC MAIL PLAN

that comes with this Little Machine  
CAN MAKE YOU \$1200 AN HOUR

The machine is turning out a job that will bring operator \$2.58, by mail. Material cost, only 11c



Write today for free facts about the newest and most fascinating of all new home operated businesses. For the first time, a simplified machine brings the fabulous profits of Plastic Sealing and Plastic Laminating within reach of the small operator. Anyone can learn to operate it with a few minutes practice. Then—with our MAGIC MAIL PLAN—can get mail orders pouring in daily with cash in every envelope.

### No Canvassing or Selling

Fill orders at home in spare time to start. Then expand to full time business. We even supply circulars to bring back cash and orders. Rush name for all the facts you need to start. A postcard will do. No charge.

**WARNER ELECTRIC CO., Dept. L2BT**  
1512 Jarvis, Chicago, Ill. 60626



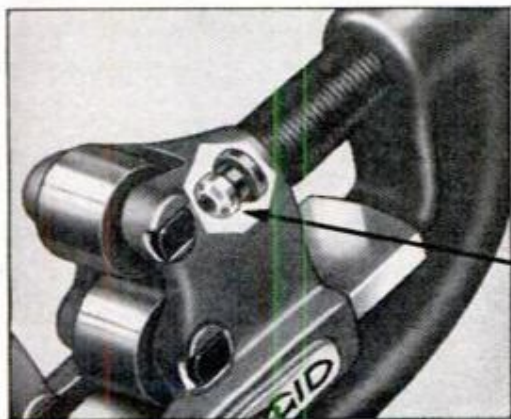
## make your own Gems 36.50 F.O.B.

The Gem Maker comes complete with all necessary equipment, including a super-charged diamond blade for sawing, and all the wheels for grinding, shaping and polishing; also complete instructions. The complete equipment as shown, less motor and belt for only \$36.50, f.o.b. Burlington, Wisconsin. Write today for information and literature.

**B & I MANUFACTURING CO.**  
Dept. P, Burlington, Wis.



## Small Nylon Bearing Makes Big Performance Difference



### That's why RIDGID Pipe Cutters are easiest to use... cut the straightest!

Cuts all 1/4" through 2" pipe and conduit

Start feeding a RIDGID Cutter into a pipe and you'll feel a remarkable difference. Its smooth, cushioned action makes cutting easier, faster and more accurate. Why? Because the feed screw turns freely on a nylon bearing. This same bearing also absorbs shocks, resulting from uneven pipe surfaces, to let the cutter wheel track smoothly. This means less work for you... and straight, even cuts every time.

The Ridge Tool Company, Elyria, Ohio 44035, U. S. A.

You can get this Cutter and other RIDGID Work Saver Tools at your Dealers.

# RIDGID

FEBRUARY 1967

# Bean's Free Spring Catalog

Ready Feb. 15

Fully illustrated 100 pages of camping specialties, fishing tackle, clothing and footwear for men and women. Featuring practical outdoor items, many of our own manufacture.

L. L. Bean, Inc.

255 Maine St., Freeport, Maine 04032  
Fishing, Camping and Hunting Specialties

## FUN TO BUILD—EASY TO FLY!



Bensen Copter—build with ordinary hobbyshop tools. Safest, easiest to fly. Plans, factory kits available. Get 3-View Drawings, specs, photo for \$3, or simpler Gyroglider \$2.

**BENSEN AIRCRAFT CORP., Dept. PM-27**  
Raleigh-Durham Airport, Raleigh, N. C. 27602

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

20 COURSE HOME STUDY PROGRAM

# KARATE!

## JUDO BOXING! MUSCLEBUILDING! YOGA! STRONGMAN STUNTS! STRENGTH & ENDURANCE! HANDBALANCING! etc.



YOU GET ALL THESE COURSES! \*20 Illustrated KARATE blows \*SAVATE foot fighting \*Secret NERVE CENTER and ANATOMY charts \*20 lethal JUDO throws \*20 terrific STRONGMAN STUNTS \*Complete MUSCLE-BUILDING course \*Ancient YOGA secrets \*HANDBALANCING stunts \*Complete BOXING course: Secrets of ENDURANCE \*WRESTLING holds \*WEIGHTLIFTING \*TENSION-FLEX COURSE \*HEALTH & FITNESS EXERCISES \*KEEP FIT PROGRAM \*K-MAN Karate Dummy Chart. No C.O.D.'s. Canadian 75c. YOU GET THE LOT.

ONLY 50c

Free K-Man Practice Dummy showing attack points.

COMPLETE HOME GYM PLANS—Build gym equipment: vault horse, rowing machine, etc. Convert basement, garage to gym. ONLY 50c with courses. Total \$1.00 compl.

OXFORD STUDIO, 146 Blake (PM-6), Mattapan, Mass.

NAME (print) ..... 50c PROGRAM

Address ..... \$1.00 with GYM

City ..... State .....

## POWERFUL NEW INVENTION, ONLY 2" LONG SHOOT THRU 100 PAGES-THIS BOOK!

### 'B-B SHOT'



MAKE THIS TEST... Load your 'BB Shot' and fire against this magazine. Notice that it drives BB's through more than 100 pages. Though only 2" long x 1" in diameter, this pocket-size device has amazing power and accuracy. Use it for targets, pests and hunting. Scientifically designed for high power, operating ease and safety.

**FREE!** Get the 'BB Shot' now—we'll include an extra Velocity Cone and FREE Target, BB's and Automatic BB Dispenser... all for only \$1.98 ppd. 3 for \$5.00 ppd. Money Back Guarantee. Not sold to N. Y. C. residents or minors

**GRAYSON CO. • Dept. C-56, 210 Fifth Ave., N. Y. 10**

**MONEY-BACK GUARANTEE**

Name.....  
Address.....  
City..... State.....

**\$1.98**  
ppd.



# Let MOTOR'S Big New **1967** AUTO REPAIR MANUAL

## Show You How to

# **FIX ANY PART OF ANY CAR**



**Quickly... Easily... Right!**

**Shows You Where to START...  
Which TOOLS to Use...  
Exactly What to DO!**

1,256 pages, 3,800 pictures and diagrams  
cover 2,300 models (1959-1967) . . . 225,000 facts  
that make those "tough" repairs come easy

**M**OTOR'S great new illustrated 1967 AUTO REPAIR MANUAL! Here is the "meat" of over 300 factory manuals, brought together for you in the most complete, up-to-date auto repair guide ever prepared! Here are the easy directions and "see-how" pictures that help you sail through virtually every auto repair . . . from a simple carburetor adjustment to a complete transmission overhaul! Here are 1,256 almost-foot-high pages that can lick your toughest problems—quickly, easily, right the first time!

Yes—fix practically any part of any car! This revised, enlarged 1967 edition immediately identifies 2,300 models (1959-1967) for you. Just look up make, model, and repair in the huge Instant-Reference Index—and go to it! Motor's Auto Repair Manual takes you all the way—shows where the trouble is, which tools to use, what to do to fix it fast. 3,800 pictures and diagrams detail the parts . . . clear, simple language

puts over 225,000 service and repair facts at your fingertips! And a special Trouble-Shooter section pinpoints in a flash over 2,300 causes of car trouble: transmissions, brakes, engines, electrical systems.

### **Saves You Time, Money, Work**

You get hundreds of compact tables . . . over 50,000 essential specifications and dimensions . . . tune-up and adjustment charts . . . tables of measurements and clearances . . . overhauling and replacement facts . . . adjusting and servicing guidance, and much, much more!

Here is the step-by-step help every beginner needs. And here are the labor-saving methods and shortcuts that get old pros over the "tight spots" and save time and money. No wonder more than 5,000,000 copies of this great book have been sold all over the world— to garages, schools, Armed Forces!

**New Illustrated 1967 Edition**

### **SEND NO MONEY**

**Use Manual FREE for 10 Days**

Put Motor's big, new AUTO REPAIR MANUAL to work for you. See for yourself how quickly and easily it gets the work done! We'll send you this 1967 edition to use FREE for 10 days. If it doesn't start paying for itself in even this short time, return the Manual and owe nothing. Just mail the coupon below TODAY to MOTOR Book Dept., 250 West 55th Street, New York, N. Y. 10019. (Schools, Bookstores: Write for discounts).

### **Same FREE 10-Day Trial on Motor's TRUCK REPAIR MANUAL**



Covers 98% of all trucks, 1955-1967, including all new economy models. Over 2,000 illustrations; 300,000 facts. Covers all gasoline engines, plus Ford, GM, Cummins, Mack, Perkins, Caterpillar, International diesels. Over 1,000 big pages. For FREE Trial, check box in coupon.

### **FIX ALL THESE CARS**

- |             |                |
|-------------|----------------|
| Volkswagen  | Chrysler       |
| Mustang     | Plymouth       |
| Barracuda   | Fury           |
| Jepo        | Rambler        |
| Chevy II    | Dodge          |
| Pontiac     | Oldsmobile     |
| Thunderbird | Ford Bronco    |
| Buick       | Buick Special  |
| Imperial    | Comet          |
| Cadillac    | Corvaire       |
| Lincoln     | American       |
| Dart        | Oldsmobile F85 |
| Continental | Falcon         |
| Mercury     | Ford Fairlane  |
| Ford        | Lancer         |
| Chevelle    | Tempest        |
| De Soto     | Corvette       |
| Chevrolet   | Valiant        |
| Camaro      | Merc. Cougar   |
| Scout       | Toronado       |

**MOTOR'S**  
**AUTO REPAIR**  
**MANUAL**

**FREE 10-DAY TRIAL**  
Return and Pay Nothing  
If Not Delighted

### **MAIL COUPON NOW FOR 10-DAY FREE TRIAL** (Attach to Postcard if More Convenient)

**MOTOR BOOK DEPT., Desk 712**  
**250 West 55th Street**  
**New York, N. Y. 10019**

Rush to me at once (check box opposite books you want):

**MOTOR'S New AUTO REPAIR MANUAL.** If O.K., I will remit \$2 in 10 days, \$3 monthly for 2 months and a final payment of \$1.95 (plus delivery charge and sales tax, if any) one month after that. Otherwise I will return the book post-paid in 10 days.

Also send me for 10-day Free Trial **MOTOR'S New TRUCK REPAIR MANUAL.** If O.K., I will remit \$12, plus delivery charge and sales tax, if any, in 10 days. Otherwise I will return book postpaid in 10 days.

Print Name.....Age.....

Address.....

City.....

State.....

**Check box and save shipping** charge by enclosing WITH coupon payment of \$9.95 for Auto Manual (or \$12 for Truck Manual) plus sales tax, if any. Same 10-day return-refund privilege.

ZIP CODE (Zone No.)



**COMPLETE AND SIMPLE.** "I always rely on my Motor Books. They're well illustrated — and complete and simple."  
—Mr. Erve Jones,  
Minnesota  
(Garage Owner)



**DEPENDS ON IT.** "Motor's Auto Repair Manual is invaluable to me. I depend on it for all makes and models."  
—Mr. W. W. Farlines,  
Virginia  
(Mechanic)



**INVEST NOW!  
PROSPERITY AWAITS YOU!**

**1 1/4 ACRES**

**MEADOW VALLEY  
RANCHOS  
in NEVADA**

**\$1.00 DOWN \$10.00 MONTHLY FULL PRICE \$595.00**



THE BOOM THAT HAD TO COME IS NOW ON IN NEVADA. Ground floor buyers have reaped fortunes from small initial investments. A factual example of skyrocketing values is Las Vegas, Nevada. Land that originally sold for \$200.00 an acre, now sells for \$20,000.00 an acre, a profit of 1000%! The first offering of LAS VEGAS land was open to everyone. Buyers who took advantage or low opening prices have become wealthy. The ground floor opportunity of Las Vegas is gone, BUT ANOTHER AREA OF PROSPEROUS NEVADA IS BEING RELEASED FOR PUBLIC SALE!

This area has such a tremendous growth potential, such a fantastic, unlimited future, that wise investors have purchased large acreage. Bing Crosby's ranch was one of the largest cattle ranches in the county. James Stewart is honorary sheriff. Yes, the smart, experienced investors have sensed the future and are buying MEADOW VALLEY RANCHOS in Elko County, Nevada.

MEADOW VALLEY RANCHOS has all the factors needed to boom... to prosper... to skyrocket its land values. Ideally located in the prospering Elko Valley, The Ranchos have the backdrop of the statuesque Ruby Mountains. The sparkling Humboldt River actually flows through the property and is a valuable asset of the Ranchos. Every Rancho fronts on a graded road. The City of Elko, with its long established schools, churches, and medical facilities is MEADOW VALLEY RANCHOS friendly neighbor.



**FAMILY RECREATION**

**FISHING:** A fisherman's paradise. Huge Rainbow, Brook Trout and German Browns abound in Alpine-like lakes and mountain-fed bottom streams.

**GOLF:** Enjoy leisurely golfing, with never a rush for starting times, at the city owned Ruby View Golf Course. This beautiful golf course is only minutes from the property.

**LAKE OSINO:** No charge to Rancho owners for full privileges at nearby Lake Osino. Fish, Picnic and Relax with your fellow Ranch owners at this private lake and recreation area.

**HUNTING:** You will find the hunting of your life. Big game species such as Mule Deer are abundant. Duck, Quail and Chukar are plentiful.

**YOUR PROFITABLE TOMORROW —**

YES, wise investors are buying in MEADOW VALLEY RANCHOS, but America's largest corporations, whose research closely follows the trend of increasing land values and population growth, are also busy investing throughout Nevada. U.S. COMMERCE BUREAU FACT: Per capita income in Nevada is highest of all 50 states.

**TAX RELIEF —** No State Income, Gift or Inheritance Tax. The low Real Estate Property Tax is actually limited by the State Constitution.

**WHAT ARE THE TOTAL COSTS?**

The full price of the title to your 1 1/4 acre Rancho is only \$595. Total payment schedule is \$1 down, and \$10 per month. No interest, no carrying charges. John D. Rockefeller said, "The big fortunes of the future will be made in Real Estate." You are not required to do anything to your land. You can live or vacation on it, or simply watch its value grow, then sell all or part of it for a profit. Your profitable tomorrow is here today in MEADOW VALLEY RANCHOS.



**NOW! DON'T MISS THIS OUTSTANDING OPPORTUNITY!**



**MEADOW VALLEY RANCHOS**

**MAIL COUPON TODAY**

4406 STOCKMEN BLDG., ELKO, NEVADA 89801

Yes!—Reserve acreage at MEADOW VALLEY RANCHOS for me—\$595 for each 1 1/4 acre parcel—payable \$1 down and \$10 a month. No other charges. Send purchase contract and map showing exact location of my holding. You will return my \$1 deposit if I request same within 30 days. I enclose \$1 deposit for each 1 1/4 acre Rancho desired.

SIZE ACRES	DOWN	PER MO.
1 1/4	\$1	\$10
2 1/2	2	15
3 3/4	3	20
5	4	25

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ Zone: \_\_\_\_\_ State: \_\_\_\_\_

Indicate No. of Ranchos \_\_\_\_\_ Total enclosed \$ \_\_\_\_\_



# ACCORDIONS

## SAVE 1/2 Big Discounts

off retail prices of comparable accordions



**BUY DIRECT**  
IMPORTER-TO-YOU PRICES

**E-Z TERMS** **LOW DOWN PAYMENT**  
Low as \$7.95 a month

**NO RISK 5 DAY HOME TRIAL!**

**42 "NEW SOUND"**  
Electronic and Standard Models

Choose your "new sound" accordion from world's biggest selection of Famous Imported Italian Makes... for beginners, hobby players, professionals. Totally new styling and startling new features—plus an exciting new sound! Buy direct from world's largest dealer at fantastic Importer-to-You savings of 1/2 or even more. Easy terms... low down payment, up to 3 years to pay. **NO RISK PLAN—5 Day No Obligation Home Playing Trial.** Lifetime performance policy. Satisfaction guaranteed or money back.

**FREE!** Color Catalogs Selection Guide Discount Prices. Beautiful New Color Swatches

Rush coupon today. Get full details, pictures and low discount prices on over 40 models... plus big savings on Amplifiers and accessories. All FREE. No obligation. Write:

**TRY BEFORE YOU BUY!**

**FREE BONUS GIFTS**

for promptness in ordering  
E-Z LESSONS • MUSIC PORTFOLIO  
• MUSIC STAND • DELUXE CASE  
YEAR'S SUPPLY OF MUSIC Many More



NOW—Popular "Button Type" Accordions! Full line at discount prices. Check coupon below.



Big discounts on Accordion Amplifiers and Reverb Units. Finest makes—custom designed for Accordions.

**MONEY BACK GUARANTEE**

**TRADE-INS!** BIG ALLOWANCE on anything of value!

**ACCORDION CORP. of AMERICA, Dept. R-27**  
5535 West Belmont, Chicago, Illinois 60641

**FREE**  
Color Catalogs  
Discount Prices  
Rush Coupon

Accordion Corp., of America, Dept. R-27  
5535 West Belmont, Chicago, Illinois 60641

Send FREE Color Catalogs and Discount prices. Includes special information checked.

Amplifiers  Button Type Accordions

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

I have a trade-in

**Just Published**

## How 88,648 Heavy Smokers Stopped Smoking

NEW YORK—The Anti-Tobacco Center of America has just published a booklet which explains how 88,648 heavy smokers (of whom many are physicians) have stopped smoking without straining their will power. This booklet is available free of charge to smokers. All you need to do, to obtain it, is to send your name and address to The Anti-Tobacco Center of America, Dept. 670-E, 366 Fifth Avenue, New York 1, New York. This offer is open while the supply of these booklets lasts.



### Build This Beautiful Grandfather Clock

We show you how at price you can afford. Send only \$1.00 for complete plans and instructions plus information-packed catalog of clock movements, dials, blueprints and kits for constructing Grandfather, Grandmother, Terry and other fine clocks.

**MASON & SULLIVAN CO.**  
DEPT. PM OSTERVILLE, MASS.

### A \$20,000 A YEAR BUSINESS OPPORTUNITY WITH AMERICA'S LEADING DRIVE-IN RESTAURANTS WITH OVER 1600 STORES

You're the Boss when you own a new year-round inside seating Drive-In Tastee-Freez Restaurant. And what you make is yours. We provide complete training, advertising, national television and supervision. Carefully selected sites. Millions know Tastee-Freez. High Profit small investment. Complete Turn Key business costs \$19,500. Just \$9,500 can put you in business. Write or phone:

**MR. SPIRA, TASTEE-FREEZ RESTAURANTS**  
1200 North Homan, Chicago, Illinois, 312 227-8900

### Men .. DIESEL SEMI TRUCK DRIVING

Learn Docking, Curbing, Over the Road on World's Largest 1700 Acre Training Grounds. Qualify for Class "E" License.

**GREER**  
TECHNICAL INSTITUTE, INC.  
2230 SO. MICHIGAN AVE.  
CHICAGO, ILLINOIS 60616

Write today for  
**FREE** Additional  
Information

for prestige, high pay, advancement



### Learn TECHNICAL WRITING!

All industries need trained Tech Writers now. Behind every product from a car to a shotgun is a Tech Writer telling you how to use it. Technical Writing is one of the highest paying careers NOT requiring college. The demand for trained writers is growing with thousands needed in all areas.

**ATWS WILL TRAIN YOU AT LOW COST.** Fascinating, easy-to-follow home instruction includes everything you need to become a top-notch highly paid Tech Writer. Send today for free book and sample lesson. No salesman will call. APPROVED FOR VETERANS.

**AMERICAN TECHNICAL WRITING SCHOOLS, Dept. P.M-27**  
5512 Hollywood Blvd., Hollywood, Calif. 90028



# CLASSIFIED ADVERTISEMENTS

Rate: \$1.50 per word payable in advance each insertion. Capitalized words—75¢ per word additional. Minimum insertion ten words. To be inserted under the proper classification, copy must be in our office by the 15th of the second month preceding date of issue. The next available issue to place an advertisement in America's No. 1 Classified Section is April. The closing date is February 15th. Send remittance and order to C. A. Martin, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

## GIFT SHOPPING

**TELL** The more than 1,550,000 avid readers of Popular Mechanics about your products and services. It costs very little to place your classified message in front of these proven mail order buyers. For further details, write: C. A. Martin, Dept. 64AN, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

## AUTOMOBILES, MIDGET CARS

**AUTOMOBILE** Literature, antique, classic. First Ford V-8 catalog. Hobby Club, free information, Enthusiasts, Box 451B, Mt. Clemens, Mich. 48043.

**KART** Frame \$5, Minibike \$10, Simplex Motorcycle \$5, Cushman \$5, Indian Scout \$45, less engines. Engines \$4 up. Isetta \$75. Kart \$15, Minibike \$30. (Mailorder Only). Send 25¢ (35¢ for first class mailing) for Directory-Catalogue Number 131, listing these and hundreds of other bargains, homebuilders parts, plans, etc. Midget Motors Directory, Athens, Ohio.

## AUTO SUPPLIES AND EQUIPMENT

**FOREIGN** Car parts. Discounts. Catalog. Box 7, Elmont, N.Y.

**NEW** And used parts savings. Complete guaranteed service all model cars and trucks. Largest in West. Jeep and Army parts specialists. Shifting hubs for all front-end drive vehicles. \$27.50 up. Foreign parts. Fast service. Pioneer, 734 W. 13th Avenue, Denver, Colorado 80217.

**NOW! NEW MACHINE** with "FORWARD & REVERSE" permits YOU to adjust **SPEEDOMETERS**, tachometers, tickometers, hour meters, etc. **WITHOUT REMOVING DIAL HEAD** from panel! Works on cars, trucks, boats, airplanes, cycles, farm tractors, etc. Simply hook up to cable and switch "ON". Agents wanted. \$24.95 postpaid or 25¢ for circular. Gulf Manufacturing, Box 5217-PMP Gulfport Florida 33737.

(SAVE \$150) Ring-Valve Job while driving. \$6.00 postpaid. Unbelievable results! Safe! Guaranteed! Our 16th year. Details free. Motaloy, Grantham, Penna. 17027.

**JEOP Owners—V8 conversions.** Read Jeep Owners ad, page 39

**CROSLEY.** New, used, parts. Discounts. Catalog. Box 7, Elmont, N.Y.

**BUY** Direct. Delux Swinger Travel Trailers, truck campers. Literature 10¢. Swinger, 1229 Bristol, Elkart, Indiana 46514.

**HYDRAULIC** Jack repair kits, parts and supplies. Catalog 50¢ (in coin). Hydraulic Jack Packing & Tool Co., P. O. Box 1104, Bloomfield, N. J.

**MORE** Miles per gallon! Write: Schetz, 98 Branch, Sellersville, Pa.

**TROUBLESHOOT** Your own Ignition. SAVE lots of MONEY on expensive TUNING-UPS. Ignition TROUBLESHOOTING IS EASY with the \$2,000.00 REWARD "IGNITION MASTER". ANYONE can use it. PIN-POINTS ALL Ignition failures. C. G. Steffenson, 2548 No. Front St., Phila., Pa. 19133.

**REVOLUTIONARY** New product stops engine oil leaks when all others failed. Two-year intensive tests proves Drip-Stop works in 95% of cases. Air Force tested, used, proved, recommended. For all motor vehicles. Harmless. \$3.95 for immediate delivery. Free details. Sold through mails by: Mail Order Company of America, Box 97, Newark, New Jersey 07101.

**REMARKABLE** New gauge continuously glows ignition condition. Free details. Q-Arc, Box 47876 Los Angeles, Calif. 90047.

**ANTIQU** Car pistons, gaskets, gears, valves, etc. Catalogue \$1.10. Antiques Auto, Milwaukee, Wisconsin 53204.

**JEOP** Parts catalog: Military and Civilian. For owners, dealers, garages, service stations. Save \$\$\$ Surplus and replacements. American Auto Parts Co., 1830 Locust, Kansas City, Missouri 64108.

## AUTO TRAILERS

**WILD** Life decals, full color, large. Free folder. Dealer inquiries invited. Washington Poster Co., 16824-PMC Pacific Highway So., Seattle, Wash. 98188.

**BUILD** Your Pickup Camper. Pre-cut kits. Blueprints, Supplies. Literature 10¢. Comstock Trailers, Dept. 664, Parsons, Kansas 67357.

**CAMPER** Unit—Compact Buses, Volkswagens, Econoliners, Dodges. Easy construction—Save. Plans. \$2.95. Dot Campers, P.O. Box 67M, Saugus, California. 91350.

**PICKUP** Camper, trailer or pickup-cover—build yourself, save! Complete plans \$3.95 each. Econoline Camper, foldout trailer, bus conversion drawings, \$2.95 each. Satisfaction guaranteed. Equipment Catalog \$1.00 (refundable on first order). Details 10¢. Viking Camper Supply, 94-F Glenwood, Minneapolis, Minn. 55403.

**CAMPING** Trailers, plans & kits. Sleeps 6 or more. Basic kit \$140, tent \$146. Complete plans \$3.00. Circulars, 10¢. Stratford Trailer, Seymour St., Stratford, Conn.

**BUILD** Aluminum pickup camper over-cab, hi-boy, lo-boy. blueprints, material, list, 3 models included. \$3.00. Blance Custom Campers, Wolflake, Indiana 46796.

## MOTORCYCLES, BICYCLES, MOTORSCOOTERS AND SUPPLIES

**HARLEY-Davidsons**—Used bargains. New, used parts, accessories, all models. Bulletin 35¢. Knuth's (Factory Dealer), 1753 Muskego, Milwaukee, Wis. 53204.

**HONDA** 50 to 90-S big bore & stroker kits. Columbia Engineering, 2105 E. 37th, Los Angeles, Calif. 90058.

**SNOW VEHICLE & GO KART CATALOG.** Hop up accessories—speed and performance equipment—manifolds, engine mounts, exhaust systems. Send 25¢ G.E.M. PRODUCTS, 436 Roosevelt Rd., Glen Ellyn, Illinois.

**CONVERT** Your bicycle to electric drive, using old auto starter for motor. Plans, photos & instructions, \$1.00. 115 W. 37th St., Long Beach, California 90807.

**HONDA.** \$25. Other bargains. Send 50¢ to Motorscooter, 1837 Harriman, Bend, Oregon.

**BUILD** Motorbike from Bicycle! Plans, \$1.00: Go-Byk Industries, Rothsay, Minnesota 56579.



## AVIATION

**BE** A Government licensed aviation mechanic. Practical training. Free information. Aero Mechanics School, Municipal Airport, Kansas City 16, Missouri.

**BARTLETT** Flying Saucer. Amazing machine hovers 200 lb. man across land/water, powered by ordinary lawn mower engine. Complete Plans Kit information, \$3.00. Write: Herb Bartlett, Box 367-C, Silverdale, Wash.

**PROPELLERS.** Plans, Engines, Supplies for airboats, snowsleds, hovercraft, autogyros. Catalog, drawings \$1.00. ESCO-P, Brookport, Illinois 62910.

**HOMEBUILT.** Real enclosed helicopter, 24 pages ideas, information, \$2.00. Build "executive" helicopter drawings, specifications, \$1.50. Helicopter Development, Box PM147, Washington, New Jersey.

**FREE** Catalog 950 aviation/space books. Aero Publishers, 329 PM Aviation Road, Fallbrook, California 92028.

**AVIATION** Surplus big catalogue 50¢ (Refundable). Box 52P, Thomasville, Penna. 17405.

**PROPELLERS.** Plans, kits, supplies for airboats, snowplanes. Gauges, spark plugs, gas-oil hose, oil coolers, primers, wrenches, switches, propeller hubs, engine mounts. Corvair-Volkswagon conversion parts, 125-190 Lycoming engines, manuals, gaskets, parts. Catalog. \$1.00. Banks-Maxwell, Box 3301E, Ft. Worth, Texas 76105.



## BOATS

**DACRON** SAILS Custom built to your specifications at bargain prices. Over 75 years sailmaking experience. Send insignia desired, type of boat, or sail plan to Phylton Sails, 1 Washington Avenue, Providence, R. I. 02905.

**KAYAKS**—One-man \$19.50; two-man \$24.50; Sailboat \$44.00. Exciting Sitka Kayak Kits known world wide for speed and safety. Assemble in one afternoon. Free pictorial literature. Box 78-P, Brecksville, Ohio 44141.

**BOAT** Plans, full size patterns, and frame kits especially prepared for amateur builders. Save the "Glen L" way by selecting from modern up to date designs—Deep Vee's and SK styled inboards and outboards, cruisers, houseboats, sailing catamarans. Every type from 8' to 35'. Huge new 80 page catalog, 50¢. Glen Designs, 9152 Rosecrans, Bellflower, Calif. 90706.

**FREE** Catalogue—dozens of plans for kayaks, canoes, sailing rigs. Bruce Clark, PM: 115 McGavock Pike, Nashville, Tenn. 37214.



**FULL Size, cut-to-shape boat patterns, blueprints.** Send 60¢ for big new illustrated "Build a Boat" catalog includes fishing boats, garvies, cruisers, catamarans, houseboats—outboards, inboards, sailboats—7½ to 38'. "How to Build a Boat" booklet, \$2.50. Cleveland Boat Blueprint Co., Box 18250, Cleveland, Ohio.

**BUILD Your own boat from our large-scale blueprints.** Books of plans give how-to-build help. Hundreds of professional designs—motor, sail or auxiliary—for amateur builders. Free catalog. MoToR Boating, 959 Eighth Ave., Dept. RS, New York 19, N. Y.

**PLANS & PATTERNS, FRAME KITS, BOAT KITS,** world's largest catalog over 200 proven designs including 40 new complete Boat Kits, fishing boats, cruisers, sailing, ski boats, houseboats, inboard and outboard hydroplanes. Send \$1.00 for large 1967 catalog or \$2.00 for catalog plus boat building handbook to: Clark Craft, 1709-P Niagara Street, Buffalo, New York 14207.

**FIBERGLASS Cloth and resin.** World's finest cloth and non-run resin, at direct mill prices. Flotation foam. Complete line of plastics, silicon bronze and brass screws, save 60%. No sales tax. Boat Plans. Free catalogue. Freight prepaid. Stiles Boat Supply Box 11P, Linden Ave., Mantua Hts., N. J.

**BOAT KITS.** Save money—assemble yourself. Factory molded fiberglass or pre-assembled plywood. 12' to 32' Cruisers, Runabouts, Houseboats, Sail Boats. Big line accessories, motors, trailers. Easy terms. Free catalog. Luger, Dept BC-67, 9200 Bloomington Freeway, Bloomington, Minnesota, 55435.

**CANOE Kit.** New concept. Easily assembled factory finished sections. A quality product from \$112.00. Free literature. Eagle River Canoes, Box 35, Cleveland, Ohio 44141.

**AMATEUR Boat Building Society.** 1535-B Farwell, Chicago 60626. Plans, technical question service, books, local building clubs, send 25¢ for copy of monthly magazine and details.

**SPORTSCRAFT Canoes,** factory direct. Four canvas hulled models, from \$18.95. Streamlined appearance, unsurpassed performance. Also, canvas, paddle supplies. Free literature! Sportscraft, Box 8393-P, Columbus, Ohio 43201.

**PLANS, Kits, hulls.** 24-page 20th Anniversary catalog. All class racing boats, Flatbottom to Drag Hydros, Midget to 7 Litre. 50¢. Champion Boats, Box 9215A, Long Beach, Calif. 90813.

**FIBERGLASS Canoes.** Three exciting models. Easily assembled kits. \$34.95 up (factory direct). Free literature. Riverside Canoes, P.O. Box 5595BL Riverside, Calif. 92507

## MARINE EQUIPMENT AND SERVICES

**NEW, Used, rebuilt marine motors.** Marine conversions, fittings. Free catalog. Stokes Marine Supply, Dept. 24, Coldwater, Michigan.

**NAVIGATION—Locate your position by the sun or stars!** Send for free simplified celestial navigation lesson and descriptive literature on the world's lowest priced sextant. Geometer Co., Dept. P-M, 8291 Baldwin Street, Oakland, Calif. 94621.

**FIBERGLASS Boat covering.** Wholesale prices. Free literature and sample. Seifert's, Box 1206-M, Green Bay, Wisconsin.

**CONVERT Auto engines to marine.** Catalog, 50¢. Lehman Manufacturing Company, 800 Elizabeth Avenue, Linden 4, New Jersey.

**"FLEET" Liquid Plastic Boat Finish** seals water out! Unsurpassed for rich, gloss finish. Wears longer! 28 colors. Use on wood, metal, fiberglass, canvas. Send for "Free" color card and introductory offer. Stay-Tite Products, Box 20130, Cleveland, Ohio 44120.

**SAVE 40% Customized Fiberglass water fuel tanks.** Send sketch. LaBash Laminates, 300 Warrington Avenue, Pittsburgh, Penn. 15210.

**MARINE Reverse-reduction gear; patterns, jigs, fixtures & tooling for manufacture of this Unit for fitting to small air-cooled engines, a proven item for 20 years.** Price \$5000.00 plus parts on hand at half cost. Bennett Machine Works, Box 65, University Sta., Seattle, Wash. 98105.

**BUILD Your boat engine from Chevy, Ford, others. Complete kits.** Free catalog. Star Marine Engine Works, Berkeley, Calif. 94710.

## ATHLETIC AND BODY BUILDING COURSES

**"GIANT Arms." Dr. Young's, D.C. revolutionary discovery, \$2.** Satisfaction or refund. Gaucho, Box 9309-ST, Chicago 60690.

**KARATE—Complete instructions, illustrated, only \$1.25.** Bales Co., Box 5050, Rt. 2-PM, Escondido, Calif. 92025.

**NOW! Build great strength and health!** Illustrated manual, only \$2.00. Box 1423, Brooklyn, New York 11202.

**FEAR No bully! Master authentic Chinese Kungfu unbeatable techniques!** Defeat within seconds any attacker including giant Judo-Karate experts. Free details by air. Write Asia's Greatest Master Leong Fu, (M/21) 119 Anderson Road, Ipoh, Malaysia.

**POWERFUL Muscles fast! Free brochure!** Universal, Box 4327-C, Northeastern, Dearborn, Michigan 48126.

## SPORTING GOODS AND EQUIPMENT

**FREE . . . Wholesale catalog.** Arrow shafts, broadheads, fletchings, fisharrow parts, tools, bows. Finnysports (22G), Toledo, Ohio 43614.

**HUNDREDS Of Army-Navy surplus items, camping, hunting, fishing equipment, gun accessories, etc.** Write for free catalog. P&S Sales, Box 115, Tulsa, Oklahoma.

**SILENCERS, Pistols, rifles.** Details, construction operation \$1.00. Gunsco, Soquel, Calif. 95073.

**SILENCERS: Pistol, rifle details, diagrams.** Includes new design for .22s. Simple, clear! \$1.00 Crossbow plans, \$1.00—both, \$1.75. Twin, Box 192-A, Dunellen, New Jersey 08812.

**BIG Money raising crickets and 12 inch African fishworms.** Free literature. Carter Ranch, Plains, Georgia 31780.



## FISHING, TACKLE, LURES

**OVER 5,000 HARD-TO-FIND FISHING SPECIALITIES and kits galore.** Send for free 170 page catalog. Netcraft Co., Dept. PM, Toledo, Ohio 43613.

**FREE! Newest edition famous Corcoran catalog.** Largest selection hunting, camping, fishing equipment. All items field tested. Boots, clothing, fishing tackle, tents, gun cases, sleeping bags. Dozens of specialties. Zip code, please. Corcoran, Dept. PM-27-B, Stoughton, Massachusetts 02072.

**FREE . . . Wholesale catalog.** Beads, Spinners, Lure parts, Sinker molds, Jigs, Reels, Finnysports (ME), Toledo, Ohio 43614.

## EARTHWORMS, LIVE BAIT

**SUCCESS For you! Raise Carter's Pure-bred hybrid red wiggler fishworms, crickets.** "Known All Over the World." Write for free literature and our success story in Life Magazine. Pure-Bred Fishworms—3000—\$5.95, 5000—\$8.95, 10,000—\$16.95. Postpaid with Free Raising Instructions. Carter Redworms, Plains, Georgia.

**HYBRID Redworms 1000—\$3.00, 3000—\$5.75, 5000—\$8.00, 10,000—\$14.00.** Bedruns 20,000—\$19.00. Postpaid with raising instructions. Brazos Worm Farms, Route 9, Waco, Texas 76705.

**EARN BIG MONEY Growing fishworms, giant African crawlers, crickets, Grey Nightcrawlers.** Free Literature. Fain's Hatchery-31, Edison, Georgia, 31746

**HUSKY California hybrid worms.** Tough jumbo bait or large prolific breeders, superior production. Breeders—1,000, \$6.75; Bedrun—6,000, \$9.75. Postpaid with raising instructions. Free information and price list. Kerns Bait Wholesalers, Dept. M, Box 528, Carmichael, Calif. 95608

**REDWORMS.** Bait size, 1000—\$3.75; 5000—\$16.00. Mediums, 2500—\$5.00; 5000—\$8.50; 10,000—\$16.00. Live delivery. Count guaranteed. Hall's, Hilton, Georgia 31758.

**MEN!—Women! Make money raising Bait for us at home.** Wigglers, Warsaw 45, Indiana 46580.

**EARN Money raising fishworms for us!** Exciting details free! Oakhaven—56, Cedar Hill, Texas.

## FROGS, FISH, REPTILES

**FROG Raising.** Young frogs and giant breeders. Stock your lakes, pond. Nu-Tex Frog Farm, Box 4029, Corpus Christi, Texas 78408.



## HUNTING, GUNS, DECOYS

**FREE! Newest edition famous Corcoran catalog.** Largest selection hunting, camping, fishing equipment. All items field tested. Boots, clothing, fishing tackle, tents, gun cases, sleeping bags. Dozens of specialties. Zip code, please. Corcoran, Dept. PM-27-C, Stoughton, Massachusetts, 02072.



## DOGS AND KENNELS

**TELL The more than 1,550,000 avid readers of Popular Mechanics about your products and services.** It costs very little to place your classified message in front of these proven mail order buyers. For further details, write: C. A. Martin, Dept. 14N, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.



## GAME BIRDS

**LAYING Quail.** World's greatest laying bird. Free information. Marsh, 12252 Haga, Garden Grove, Calif.

## RABBITS—FUR BEARING ANIMALS

**RAISE Rabbits successfully by knowing facts.** 48 page illustrated book describing 25 breeds. Housing, breeding, feeding, markets, marketing etc. 25 cents. American Rabbit Association, 36 Arba Building, Pittsburgh, Penn.

**RAISE Rabbits for us on \$500 month plan.** Free details. White's Rabbitry, Mt. Vernon, Ohio 43050.

**MINK Raising information free.** Lake Superior Mink Farm, Inc., Superior EE1, Wisconsin 54880.

**EARN \$10,000 Yearly raising Angora rabbit wool for us.** Particulars 25¢ coin. Angora, Malta 12, Montana.

## PETS—BIRDS, CATS, HAMSTERS, ETC.

**MAKE Money raising chinchillas, mink, rabbits, cavy for us.** Free catalog. Keeney Brothers, New Freedom 2, Penna. 17349.

**FLYING Squirrels, wonderful pets.** Literature 10¢. Squirrel Ranch, Neches, Texas.

**LIVE Seahorses, marine specimens, aquarium supplies.** Illustrated catalog 15¢. Marine, Box 248-110, Dania, Florida.



**SQUIRREL** Pet Monkey \$15.95. Chimpanzees, Mynahs, Skunks, Baby Alligators, Reptiles. Catalog 25¢. AquaLand Pet, Box 130 (Coral Way), Miami, Fla. 33145.

285 **PICTURE BROCHURE** 50¢. Everything—you name it. Stromberg's Pets Unlimited, Port Dodge, Iowa 50501.

**HAWKS**, Reptiles, raccoons, skunks, squirrels. Catalogue 25¢. Trails End Zoo, St. Stephens, S.C. 29479.

## HORSES & LIVESTOCK

"**HOW TO TRAIN HORSES**"—Everyone who likes horses or ponies should have this book; **FREE**. Send name, zip code. Beery School, 1101, Pleasant Hill, Ohio. 45359.

## CAMPING EQUIPMENT AND TENTS

**CAMPING** Equipment, tents, sleeping bags. World's greatest selection. Send 25¢ for giant catalogue. Print name, address, zip code. Morsan, 810R Route 17, Paramus, New Jersey 07652.

**SAVINGS** Plus dividends! Campers-fishermen-outdoorsmen cooperative. Free 56-page catalog. Recreational Equipment, Inc., 1525-P 11th, Seattle, Washington 98122.

**FREE!** Newest edition famous Corcoran catalog. Largest selection hunting, camping, fishing equipment. All items field tested. Boots, clothing, fishing tackle, tents, gun cases, sleeping bags. Dozens of specialties. Zip code, please. Corcoran, Dept. PM-27-A, Stoughton, Massachusetts, 02072.

## TRAVEL AND RESORTS

**RETIRE** Or **VACATION** on beautiful Mediterranean Island. Room with bath, all meals—\$5 day for two. Write including \$2. Wallace, Hotel Mara, San Augustin, Isla Mallorca, Spain.

**BACHELOR** Party @—Worldwide cruises and tours for single people. Free 36-page catalog, Dept. PM, Bachelor Party Tours, 444 Madison Avenue, New York 10022.

## ELECTRICAL SUPPLIES

**METERS**—Surplus, new, used, panel and portable. Send for list. Hanchett, Box 5577, Riverside, Calif.

**LAMP** Parts. Catalog, prices, wiring instructions. 50¢. Refunded first order. Gyro, 5208P N.W. 35 Ave., Miami 42, Fla. 33133.

## BATTERIES, GENERATORS

**COMPLETE** Rebuilding Manuals!!! Batteries \$3.00. Hydraulic Jacks \$3.00. C.O.D. Accepted. Write Today! Bayer Publications, 938FT Betty Avenue, Neenah, Wisconsin 54956.

**BATTERY** Reconditioning kit, includes molds, material, complete instructions. The Battery Shop, P.O. Box 477, San Marcos, Calif. 92069.

**DIESEL** And gasoline powered electric generator sets. 5-KW to 60-KW, 110-220 volts, 60 cycle, excellent condition government surplus. K. A. Welmer, 1300 Richard Road, Decatur, Georgia 30032.

## ENGINES, MOTORS, DYNAMOS

**LIVE** Steam powered backyard railroads! All sizes. Complete "bolt-together-kits," and rough castings. Excellent drawings. 100 page catalog \$1.00. Little Engines, Lomita, Calif. 90717.

**FREE** Catalog. Motor rewinders supplies. Modern, Box 10025, Kansas City, Mo. 64111.

**OPERATE** Three phase motors from single phase. Plans \$1.00. Donald Howell, Barnesville, Ohio. 43713.

**WINDING** Data. 275 motors, single and three phase \$1.10. Data Company, 512 Kensington, Kansas City, Mo. 64124.

**DIESEL** Injector parts and fuel pumps wanted. GM51-53-71-110. Bares, 2093 East 19 Street, Cleveland 15, Ohio.

## MACHINERY, TOOLS AND SUPPLIES

**MAGNETIC** Chuck V blocks & parallels, edge finders, center finders, thread measuring wires, sine bars. Hi-precision—first quality—low prices. Factory distributors wanted. Be the dealer in your locality. Buy for yourself and sell to others. Liberal discount, products guaranteed. Est. 1943. Write for brochures. Fisher Machine, 11704-M Inglewood, Hawthorne, Calif. 90250. Pictures edge-finders, Page 60 this issue.

"**RAFTERULE**" Solves any rafter cutting problem. Free literature. Emmert, Sycamore, Illinois 60178.

**MICROMETERS** - Indicators - chucks - rods. Small Shop Supplies, 1424 Barclay, Springfield, Ohio 45505.

**SAND CAST ALUMINUM** \$30.00 buys 2,200°P. blast Furnace. For information and instructions, send \$1.00 to: Gerald Rowe, 1315 26th. St. N.W., Washington, D.C. 20036.

**MACHINISTS** Toolmakers wooden chests. Circular free. Cepuder, 4715 Spencer, Lisle, Illinois 60532.

## WELDING, SOLDERING, PLATING

**CHROME** Plating equipment, supplies. All other finishes. Home workshop and production sizes. Send \$1.00 (refundable) for formulas, operating data, equipment guide and catalog. HBS Equipment Division L50, 3543 East 16th, Los Angeles, Calif. 90023.

**LINCOLN** Welders complete with accessories. 180 amp, \$80.00; 225 amp, \$93.00. Haun Welding Supply, Inc. 6000 Court St. Rd., Syracuse, N.Y. 13206.

**WELDER**, 30 Amperes \$11.95. Free literature. Aqua-Jets Company, Florence, Kentucky.

**A.C. WELDERS**, 150 Amperes, \$49.50. Morris, 1070 Inner, Schenectady, N. Y. 12303.

## GOVERNMENT SURPLUS

**JEEPS** Typically from \$53.90 . . . trucks from \$78.40 . . . boats, typewriters, airplanes, sporting equipment, used, 100,000 bargains direct from Government nationwide. Complete sales directory and surplus catalog. \$1.00. Deductible first \$10.00 order. Surplus Service, Box 820-A, Holland, Michigan 49423.

**JEEPS** From \$50.00. Many other bargains direct from Gov't. Complete "buying directions" plus our "color" Surplus and Camping Catalog \$1.00. Quality Surplus (PM 2) 2546 W. Michigan, Indianapolis, Indiana.

**SURPLUS** Army, Navy store Illustrated catalog. Ruvel & Company's Mail Order Division. Send 25¢ stamp or coin (refundable with first \$5.00 order). Ruvel, 707 Junior Terrace, Dept. 9-J, Chicago, Ill. 60613.

**GOVERNMENT** Lands . . . Low as \$1.00 Acre! Millions acres! For exclusive copyrighted report . . . plus "Land Opportunity Digest" listing lands available throughout U.S., send \$1.00. Satisfaction guaranteed! Land Disposal, 222-RN Georgetown Building, Washington, D.C. 20007.

\$50 **JEEPS?** Wrecked? Repairable? New? Learn the Truth! Our New 1967 United States Government Official Jeep and Surplus Personal Property Buying manual is the most! Latest, most accurate information available. Nothing like it elsewhere. 1000's of items Big Amazing Surplus Bargain catalogue Free with every \$1.00 order for Manual, Box 177P, Abbottstown, Penna.

**GOVERNMENT** Surplus Manual, how and where to buy in your area. Send \$1.00. Surplus Manual, Box 8, Thomasville, Penna.

**CHEEP** Jeeps. Buy from Govt. Full information, 25¢. Box 789TFM, York, Penna.

**CHEEP JEEPS**, \$53?? (Repairable) Buy one or hundreds From U.S. Surplus. Official information plus Free Surplus Catalogue, 50¢. Box 9TFPM, Abbottstown, Penna.

**JEEPS** From—\$52.50; Typewriters from \$4.15; Cars from—\$31.50. Walkie-talkies, motorcycles, airplanes, boats. Typical "As Is" bid bargains from Uncle Sam. Tremendous variety. Exciting free list. Write: Enterprises, Box 402-X19, Jamaica, New York 11430.

**SURPLUS** Catalog—War, Government Bargains. Save up to 80%. Fresh stock arriving constantly. Clothes, boots, coats, tents, etc. for farm . . . home . . . outdoors. Send for free catalog. Must have zip code. Surplus Store, Sioux Falls, South Dakota 57102.

**CHEEP** Jeeps, \$53?? (Repairable) Buy one or hundreds from U.S. Surplus. Official information plus Free Surplus Catalogue, 50¢. Box 9TFPM, Abbottstown, Penna. 17404.

**CHEEP** Jeeps. Buy from Govt. Full information, 25¢. Box 789TFM, York, Penna.

**GOV'T.** Surplus. How and where to buy in your area. Send \$1.00. Surplus Information. Headquarters Building, P.M., Washington, D.C. 20006.

## HOBBIES AND COLLECTIONS

50 **JUNGLE** Butterflies \$2.00. Giant nature hobbies catalog 25¢. Collectors Wonderland, Box 1170, New York 10008.

**SMALL** Gold nugget from Dahlonega gold mines, \$1.00. Minnie balls from Confederate battlefields, 2/\$1.00. Civil War newspaper, \$2.00. List 10¢. Murphy, 1644 Anita Place, Atlanta, Ga.

25 "**JUNGLE BUTTERFLIES**" (Different) 99¢. The Discount Center, 9425 Meriton Way, Seattle, Washington 98118.



## STAMP COLLECTING

225 **STAMPS** For only 10¢! This mammoth value includes airmails, pictorials, stamps from strange countries cataloging up to 25¢ each! Also approvals. Mystic Stamp Company, Camden 80, New York 11316.

**AMAZING OFFER!** 200 United States stamps—including commemoratives, airmails, high denominations to \$1.00. Only 10¢ to approval applicants! Illustrated bargain lists free. Mystic Stamp Co., Dept. 80, Camden, New York 11316.

**UNITED** States, 100, 35¢; 300, \$1.00; No approvals. Mitchell Stamp Co., Lanham, Maryland 20801.

**TEN** Different nudes: 20¢. Approvals. Stamp Farm, 2M18, Oxford, Wis. 53952.

50 **DIFFERENT** Old U.S. Revenue stamps 50¢. Winchester stamps, Box 1592, Mansfield, Ohio 44907.

100 **OLD** United States between 1861 and 1935. \$1.00. Roush Stamps, 51 Chestnut, Mansfield, Ohio 44903.

500 **DIFFERENT** Stamos, \$1.00. Smith, 508-A Brooks, College Station, Texas 77840.

**PENNY** Stamps! 1000 Mounted in book at 1¢ each. Trust Stamp Company, P.O.B. 132-P, Jamaica, N.Y. 11435.

**ONE** Pound value Geo. VI Bermuda, plus 100 worldwide 10¢. approvals. Stevens, Box 105A, Homecrest Sta., Brooklyn 29, N.Y.

**PENNY!** Approvals! Regardless catalogue! Kloster, 4164 52nd St., San Diego 5, Calif. 92105.

64 **PAGE** U.S. and U.N. catalog free. Stone, 260 Washington, Boston 8, Mass.



FREE Sample. Interesting, illustrated, informative National Stamp News, Anderson, South Carolina 29621.

INTRODUCING Our better United States approvals we offer 15 United States stamps including Columbian, Bi-Centennials, famous American, airmail, others: only 10¢. Ocean Stamps, Box 64-PM, Brooklyn, New York 11229.

UNITED States commemorative collection containing 33 different—10¢. Approvals. White, 516-A Avenue L, Brooklyn 30, New York.

UNITED STATES price list, 132 pages, price 30¢. Mark Hanna, 335 Fifth Ave., Pittsburgh, Pa. 15222.

121 DIFFERENT Flag stamps free. Approvals. W-B Stamps, Wilkes-Barre, Pa. 18703.

U.S. Mint specials! Flag set, complete \$1.00. 1¢, 2¢, 3¢ famous Americans (21 different) \$1.00. Free list, Brooks, 2601 Avenue "U", Brooklyn 29, N.Y.

U.S. Approvals. Low prices. Eagle, 2221 Romine Ave., Pittsburgh, Pa. 15226.

GERMAN Commemoratives. 10¢ with approvals. Schaefer, Box 1704, Washington, D. C. 20013.

FREE 1966 U. S. list, mint #704-15 \$4, #740-9 \$2.10, #859-99 \$6, #909-21 \$1. Simmy & Co., 40 Court St., Boston, Mass. 02108.

U.S. Bargain. 50 different 10¢ with beautiful worldwide approvals. Stamps, Kennebunk, Maine.

PIPEX—Tipex-Cipex-Ashville. Four miniature sheets used for \$1.00 if you ask for our bargain priced U.S. approvals. Triboro, 38 Park Row, New York, New York 10038.

MILLION Foreign stamps! 2¢ each! Send for thrilling, giant approvals! ABC Stamps, Box 6000-MB, San Francisco 1, Calif.

NEW Issues — Free weekly illustrated list, Brooks, 2601N Avenue "U," Brooklyn 29, N.Y.

FREE Surprise collection sent with approvals. Gould, 1784 Union, San Francisco 94123.

FROM War torn Vietnam 50 scarce pictorials \$1.00. Approvals accompany. Merriam Stamps, PO Box 50, Somerville, N.J. 08576.

50 YEARS Old, fifteen different United States, over fifty years old—10¢ with approvals. Jaxon, Box 145-P, Brooklyn, New York 11230.

U.S. Overrun countries complete mint, \$1.00, approvals. Stamper, 2013 San Salvador, Fairfield, California 94533.

40,000 DIFFERENT. Amazing new plan builds your collection systematically, country by country. As low as 50¢ weekly. Ware, Monroe, Conn. 06468.

FREE Space collection with approvals. Tiquet, Box 1496, Denver, Colorado 80201.

"INVERTED Error." Dag Hammarskjöld 5¢ with Approvals. Belmont Stamps, Washington, D. C. 20015.

230 DIFFERENT U.S. commemoratives, \$1.00 approvals. H. Holub, 18 East 198th Street, Bronx, N.Y. 10468.

BREATHTAKING. 50 Mint Monaco pictorials. \$1.00. Approvals accompany. Stamp Exchange, Box 103, Fairfield, California 94533.

FREE 100 World wide stamps with request for mint pictorial approvals. Dept. PM, K & B Stamp Co., Box 70, Brooklyn, N.Y. 11223.

1027 DIFFERENT \$1.25 With approvals. Klondike, 682 Jefferson, Elgin, Ill. 60120.

NEW African Stamp Collection—including Burundi, Guinea, Mali, Rwanda, Togo and others. A colorful addition to your collection, 10¢ with approvals. Capital Stamps, Dept. #57B, Ferrysburg, Michigan 49409.

BEAUTIFUL Topical collection — includes Olympic sports stamps, wild animals, bicolor triangles, colorful birds, outer space stamps, Poland kitten stamp, and others. 10¢ with approvals. Sunny Stamps, Dept. #57-A, Fruitport, Michigan 49415.

EXCHANGE. Send 100-200 different stamps with 20¢. Receive different. Paterson, Lancaster, New York 14086.

65 DIFFERENT United States stamps only 10¢. Approvals included. Shelton, Box 187, Hempstead, New York 11551.

100 DIFFERENT Canada, 25¢ with approvals. Riverside Stamps, Box 1044, Riverside, California 92502.

DEFECTIVE U.S., Real bargains. Karl Swartz, Box 373, Venice, Florida.

SPORTS Sets: Three for 10¢, with quality foreign approvals. Ramco, Box 24007, Columbus, Ohio 43224.

AMERICANS On foreign stamps—Presidents Kennedy, Roosevelt, Lincoln, U. S. spaceman, Princess Grace & others. 10¢ with approvals. Roseland Stamps, Dept. #57, Spring Lake, Michigan 49456.

1500 FOREIGN \$1.00. 5000 \$3.00. 1000 prewar foreign from 1860 to 1940 \$3. 5000 \$12.00. 5000 USA-commemoratives, airmail, revenues, 19th century, high values, etc. \$3.00. 200 USA from 1873 to 1923 \$1.00. 700 \$3.00. 3000 \$12.00. 50 USA revenues \$1.00. No approvals. Meyers, 5321 Fleming, Richmond, California.

FREE Mammoth collection, \$10,000 airmail, world's smallest stamp, Scott's International, Master Global Albums given only approval buyers. Bargain Stamps, Tustin, California.

FREE Fabulous airmail collection, actual catalogue value over \$100.00 when you buy our approvals. Fairplay Stamps, 1411 Marlon Way, Santa Ana, California 92706.

RARE Stamp BARGAINS. FREE lists. Takagi, 1658 Chambers, Escondido, California 92025.

STAMP Album, 10¢. Collecting outfit, 25¢. Free lists. Drawer B, Buckland, Connecticut 06040.

1000's PENNY Approvals with better singles, sets on approval, discounts. Box 336, Naranja, Fla. 33030.

FREE—Valuable, mysterious, Formosan Collection given foreign approval buyers. Wesco, 1609 South Park, Santa Ana, California 92707.

1000 \$1.00, UNITED States or foreign, large variety. Mission Distributors, Box 386, St. Petersburg, Florida 33731.

FREE Mint Africa set. Approvals. Litho. Box 51, Canoga Park, Calif. 91305.

UNITED STATES Bargain list free. Bydahl, Box 1293-PMU Seattle, Washington 98111.

"COLORFUL" SET FREE! Worldwide approvals. GORLIZ, Drawer 388PM, Park Ridge, Illinois 60068.

FREE! Big Bargain Catalog—New Edition listing thousands of bargains including U.S. & B.N.A. stamps, packets, albums, accessories and supplies. Also, fine stamps from our approval service which you may return without purchases and cancel service at any time. Jamestown Stamp, Dept. E27PM, Jamestown, N.Y. 14701.

WOW! 110 All Different Germany 10¢ Commemoratives, airmails, high values, big catalog, bargain lists also, fine stamps from our approval service, which you may return without purchases and cancel service at any time. Jamestown Stamp, Dept. A27PM, Jamestown, N.Y. 14701.

"COLORFUL" Set Free! Worldwide approvals. GORLIZ, Drawer 388PM, Park Ridge, Illinois 60068.

FREE! Illustrated price lists. Discounts. Picture Stamps, Box 46193, Hollywood, California 90046.

JACQUELINE KENNEDY HONORED! Now, at last, Jacqueline Kennedy is honored on a Special Commemorative Envelope! Issued for the Dedication of the new \$2,270,000 JFK Memorial, this beautiful Envelope is officially postmarked at Arlington, site of the National Cemetery, on the 3rd Anniversary of the President's assassination. We'll send this valuable Commemorative Envelope to introduce you to Stamp Collecting—World's Most Rewarding Hobby. Also, selections of JFK and other fine stamps from our Approval Service for Free Examination. You may return selections without buying and cancel service anytime, but the Jacqueline Kennedy Commemorative Envelope is yours to keep. Send 25¢ today for mailing costs. KENMORE CO., Milford R-123, N.H. 03055.

70,000 VARIETIES. 1¢ and up. Premiums. Discounts. Penny Stamps, Orange, California 92669.

BIG Bargain—100 different Israel Stamps, regular price \$3.75, yours for only \$1.25 with approvals. Cornetta, P.O. Box 367, Olympia, Miami, Florida 33165.

105 SURPRISE Stamps, gift coupons, 10¢ Terrific worldwide approvals. Trio, Box 1806-PM, New York, N.Y. 10017.

DEALERS—Wholesale stamp list, 5¢. Frank, 5031 Queensberry, Baltimore, Maryland 21215.

ROUND GOLD QATAR Stamps 10¢ with approvals. Belmont Stamps, Washington, D.C. 20015.

TRIANGLES!! Twelve exotic birds, insects, flowers, animals!! 5¢. Approvals Accompany. Hamilton, 7150 Cyril, Chicago OE2, Illinois 60649.

FREE Mint set given collectors requesting approvals. South, Box 22092, Memphis, Tenn. 38122.

10 U.S. over sixty years old. 10¢. Robert Gallup, Albany, New York 12201.

FREE—Unused Queen Elizabeth stamps from Antigua, Bahamas, Cyprus, Gibraltar, Mauritius, Singapore, Cayman, Falklands, Pitcairn, Virgin Islands, to new approval applicants. Moulblow, 19M Cedarhill, East Northport, New York 11731.

BRITISH COLONIES 50 different 5¢, approvals. HIJOP, Box 505, Norristown, Pa. 19404.

ABSOLUTELY Free 25 different United States Commemoratives when requesting United States Approvals. K & B, Box 70, Brooklyn, N.Y. 11223.

FREE—Mint British Colonials from Antarctic Territory, Borneo, Brunel, St. Christopher, Nevis, Caymans, Trengganu, Pitcairns, Free with approvals. VIKING, Great Neck 8, N.Y.

12 HITLERS. Mint set. 10¢. Approvals. Galleries, Box 35291, Los Angeles 90035.

U.S.—Canada price list, 140 pages, 700 illustrations stamp identification, 10¢. Thom, 4808 15th Avenue, Minneapolis, Minnesota 55417.

UNITED States Mint 643-646 1.00, 740-749 2.00, 756-765 2.50. Cooper, Box 3751, Oak Park, Mich. 48237.

FREE—World's Greatest Premium—5000 all different stamps, actual catalogue value over \$100.00 given approval buyers. Thrifty Stamps, Grossmont, California 92030.

CANADA 50 Different including dollar totem 10¢ if approvals requested. Maritime, Box 662, Saint John, N.B.

CHURCHILL'S Paintings on 5 Giant Stamps, yours Free to introduce bargain approvals. Stampex, Box 47-CM, White Plains, N. Y.

WOW! 1000 Different world wide—value over \$20.00 only \$1.00 with quality approvals. Universal, Box 6, Kenosha 5, Wisconsin 53141.

450 FINE Mixed U.S. 15¢. Wright, Box 753-M Hagerstown, Maryland.



SEVEN Different 3¢ commemorative plate blocks \$1.00. Approvals. Gordon Davison, Henniker, New Hamp. 03242.

FREE 100 Different worldwide approvals included Hickey Stamps, P. O. Box 1242, New York, N.Y. 10008.

NEW! Liquid "Peel" removes glued stamps in seconds! 2 oz. \$1.00. Pineco, 1378M Blake Bldg., Gilroy, California 95020

FREE! 25 Egypt, 10¢ handling. Approvals. Bellet, Mapledale, Hazel Park, Michigan 48030.

CANADA Send 50¢ American mint stamps and receive 100 different nicely cancelled Canada. Stamp Bureau, Box 249, Outremont, Montreal, Canada.

240 DIFFERENT U.S. Commemoratives \$1.00. Limit—one—approvals. Carstamps, 739 Ordway, Freeport, Illinois 61032.

50 DIFFERENT Russia 10¢. Approvals. Iannuzzi, Box 76241, Los Angeles, Calif. 90005.

FREE U.S. Price list, Eberling, 105 Franklin Avenue, Staten Island, New York 10301.

RUSSIAN Space set 10¢. Russian approvals. Snedco, Box 68-P, Waldwick, N.J.

FREE 50 Worldwide. Request approvals. University Stamps, P.O. Box 326, Pompano Beach, Florida 33061.

50 DIFFERENT Canada 10¢. Joseph Myers, Route 5, Coldwater, Michigan 49036.

FREE! Triangle set, Scout Beauty, 25 others. Approvals. Cambridge, Box 411, Cambridge Ohio 43725.

STAMPS Free! New issues, new countries, triangles, rockets, Olympics, Scouts, birds, flowers, animals. Also old Canadian and U.S. stamps. Plus complete illustrated Canadian stamp catalog. Send 10¢ for mailing. Gray Stamp Co., Dept. PM, Toronto, Canada.

5000 SPECIAL grab bags \$1.00 each! Satisfaction guaranteed. Free catalogue. Stamp Service, 149802 Huntsville, Ontario, Canada.

50 DIFFERENT Iraq—5¢! Country pack- et approvals. Hurry! Julie's Packets, Box 507A, Holland, Michigan 49423.

ABOMINABLE Snowman, Bhutan's latest Multicolored Triangle Commemoratives—Free! Approvals, plus 101 Bonus Sets. William Deems, 226x Race, Ravenswood, West Virginia 26164.

BURUNDI OLYMPICS Set complete, 25¢. Approvals accompany. Hummel Stamps, Box 245, Manhattan Beach, Calif. 90266.

WOW! 427 Fascinating diversified worldwide stamps, 10¢ to approval applicants. Illustrated bargain lists free! Continental, 4-PM Grant, Dundas, Ontario, Canada.

CANADA Sports complete, 10¢. Canada approvals. Valley Stamps, Little Valley, New York 14755.

## COINS, TOKENS, CURRENCY

SPECIALS: Scarce date Lincoln cents. All good or better. Satisfaction guaranteed. 50¢ each 1916S, 1927S, 1939D, 1955S, 75¢ each 1915, 1915D, 1921S, 1924S, 1932, 1932D, 1933, \$1.00 each 1909VDB, 1913D, 1923S, \$1.50 each 1911D, 1912D, \$3.00 each 1913S, 1922D, 1931D, 1933D, \$4.50 each 1910S, 1915S, 1926S, \$5.00 each 1912S, 1914S, \$10.00 each 1911S, 1924D, Bryson Inc., 612A White, Toledo 5, Ohio.

SILVER Dollars uncirculated, 1878-79-80-81-82 S mint \$3.00 ea. Illustrated Catalogue 50¢. Shultz, Salt Lake City, Utah 84110.

LARGEST Coin magazine, 200 pages, 50¢. Scrapbook, 7320-J Milwaukee, Chicago 60648.

40 PAGE Illustrated United States and Canadian coin list 10¢. Stonery, 260 Washington, Boston 8, Mass.

FREE Coin supplies! Giant coin list 20¢ (refundable). Economy Sales, Mansfield Massachusetts 02048.

HIGHEST Prices paid immediately for coins. Send 10¢ for 1967 buying prices. Wilmot's, 1067-F Bridge St., Grand Rapids, Mich., 49504.

25 BEAUTIFUL Coins from 25 countries. Mostly uncirculated. Terrific assortment. \$1.00 Hindley, Box 708, Aurora, Illinois 60507.

30 DIFFERENT Worldwide coins, \$1.00 Newcomers, Box 91, North Quincy, Mass. 02171.

SILVER Dollars, uncirculated rolls of twenty, \$39.50 each. Circulated rolls \$29.50 each. Bill's Coins, 3166-M 16th St., San Francisco, Calif. 94103.

LINCOLNS: 15 Different "S", 95¢, 15 Different brilliant uncirculated, 95¢. Rare 1943PDS (steel)—1954P-1955S, all 95¢. All three packets, \$2.60. Bonanza, Box 4491-P, San Jose, California 95126.

SIXTEEN Page current listings COIN BARGAINS only 25¢. RARCOA, 31-A Clark, Chicago, 60602.

BRILLIANT Uncirculated 1965 Jefferson nickels, 5 for \$1.00. Hobbies, Box 3114-P, Des Moines, Iowa 50316.

LINCOLNS Good and better: Pick ten different \$2.00—1921S, 1955S, 1916D, 1954, 1917D, 1917S, 1918D, 1918S, 1919D, 1920D, 1920S, 1921, 1925S, 1926D, 1927D, 1928D, 1929D, 1929S, 1930D, 1930S, 1931, 1934D, 1935S, 1936D, 1943D, 1943S. Another bargain: 18 different uncirculated Lincoln \$1.00. (Catalog value \$1.95) Martin's, 36-M East Broadway, Tucson, Arizona 85701.

COINS Wanted. Pay cash. Selling \$20 gold pieces, \$48.75, Gabby, 4565 170 St., Lawndale, Calif. 90260.

RARE 1919VDB Cent, fine, \$1.00. Free price list. Edel's, Carlyle, Illinois 62231.

INDIANHEAD Cent with price list 35¢; Buying list 25¢. Fairway, 121-M, Rye, New York 10580.

INVESTORS — Brilliant uncirculated rolls cents, 1966 \$1.00, 1965 \$1.00, 1964P \$1.00, 1964D \$1.00, 1963P \$1.00, 1963D \$1.00, 1962P \$1.25, 1962D \$1.00, 1961P \$1.25, 1961D \$1.25, 1960P \$1.40, 1960D \$1.25, 1959P \$1.50, 1959D \$1.25, 1958P \$3.50, 1958D \$1.50, 1957P \$3.50, 1957D \$1.50, 1956P \$4.50, 1956D \$1.75, 1955P \$5.75, 1955D \$4.50, 1955S \$23.50. Ray's Coins, P.O. 604A, Streator, Illinois, 61364.

TEN Indianheads \$2.90; Five V-Nickels \$1.35; Silver Dollar \$1.90; Nelson Exchange, 346-M, Rye, New York 10580.

OLD TIME LINCOLN CENTS, 15 different before 1941 only \$1.00. Gene Carlton, Chandler, Okla. 74834.

LINCOLNS: 22 Different "S" including rare 1955S, \$1.60, 28 different before 1940, plus odd 1960D small date, \$1.60, 10 different "S" Jefferson nickels, \$1.60, All three \$4.50. Harris, 4335-P Stevenscreek, Santa Clara, California 95051.

ROMAN Empire B.C. Tokens \$1. Gibson's, Box 236, Ashland, Oregon.

6 BUFFALO Nickels, \$1.00; 3 Barber Dimes, \$1.00. Doktor, 5028 W. Pico, Los Angeles, Calif. 90019.

BUYING High! Catalog, \$1.00. Amalgamated, 9015 Wilshire, Beverly Hills, Calif. 90211.

LIBERTY Nickels—7 different \$2.00—Catalogue—10¢. Hubers, 200 Baker Building, Minneapolis 55402.

HUGE Coin bargain list free. Boncoin, Box 732, Sunnyvale, California 94088.

UNCIRCULATED, 1950-D Nickels \$10.25. Hundreds of other bargains. Free price list on request. L-N, Dept. PM-1, Box 9696, Hickman Mills, Missouri 64134.

KENNEDY 1964 Proof set, \$9.75. Treasury-sealed Mint Sets, \$5.75—1963, 1964, 1965, 1966, Each \$6.65. COINCO, Box 171, Silver Spring, Maryland, 20907.

3 LINCOLN Cents, 1929D, 1919, 1923 plus catalog only 10¢. Approvals. Littleton Coin Co., Littleton W1, New Hampshire.

"HOW TO MAKE MONEY selling US Silver Dollars" with no investment or risk . . . and "How To Make Money Investing in US Coins" . . . impossible to lose. All sent on approval for \$2.00—and you received Credit Certificate for the \$2.00. Unconditionally guaranteed. Write: Colonel Lewis, ANA, 2344 East Cactus Road, Phoenix, Arizona 85022.

BEAUTIFUL Uncirculated \$20.00 Gold \$56.50. Two different types \$106.50. 1964 Proof Sets \$9.85. Gigantic Bargain Catalogue \$1.00. Bebee's, Incorp., 4514 North 30th, Omaha, Nebraska 68111.

U.S. List plus 54¢ cent 10¢. Schultheis, (Devonshire) New Hyde Park, New York 11040.

## ANTIQUES, RELICS, INDIAN GOODS AND CURIOS

10 PERFECT Arrowheads \$3.00. George Smith, 9825 Conway Drive, Indianapolis, Indiana 46236.

ANTIQUES! Monthly magazine. Sample 25¢ or free circular. Antiques Journal, Uniontown, Penna. 15401.

TONS Of antique gun parts and supplies. All reproduction muzzle loading guns. Send \$1.00 for enlarged illustrated catalog No. 116. Dixie Gun Works, Union City 12, Tennessee.

SELLING 20,000 Ancient arrowheads, spearheads, etc. List free. Lear's, Glenwood, Arkansas 71943.

ANTIQUE Barbed wire catalog, 35¢. P. O. Box 6392, Bakersfield, California 93306.

ARROWHEADS, 10 for \$3.00. List free. Hyde's, Box 1788, Santa Fe, New Mexico 87501.

## MODELS—SHIPS, TRAINS, PLANES, ETC.

SHIP Model kits and fittings: clippers, frigates, etc. Catalog paint-tool list, book list, 40¢. Model Shipways, Box 65, Bogota, N.J. 07603.

ROCKETS: Real flying models—flights up to 2500 ft. New illustrated catalog 25¢. Single and multistage kits, cones, engines, launchers, trackers, rocket aerial cameras, technical information. Fast service. Estes Industries, Penrose 2, Colorado 81240.

SHIP and yacht model fittings: Pine construction hull kits: blueprints. Send 50¢ for illustrated catalog. A. J. Fisher, Inc., 1002 Etowah Avenue, Royal Oak, Michigan 48067.

SHIP Models. Kits, fittings, plans, books, tools, engines, motors. Big illustrated catalog, 50¢. James Bliss & Co., Dept. SM Route 128, Dedham, Mass. 02026.

LIVE Steam model engine kits. Fascinating hobby for model mechanics. Boilers, fittings, accessories. Pictured catalog 65¢. H.P.K. Models, Box 34, Centuck Station W. Yonkers, New York 10710.

SLOT Racers! Trains! 25¢ brings 48 page bargain catalogue. Thousands of Lionel, Gilbert, Varney, Strombecker, Eldon, Aurora, Scalextrix, Revell, etc. Trains, all gauges, racers all sizes. Hobby Surplus, P.O. 1106M, New Britain, Conn.

BUILDING Materials, 1/4" & 1/2" scale, windows, doors, siding, roofing, lumber and structural shapes. Send 35¢ for catalog with samples. Small Sales Co., 6025 Martway, Mission, Kansas 66202.

## GAMES, TOYS, NOVELTIES

THINK-A-DOT, Adult and children computer-age game \$2.00. Free catalog. Qualifine, Box 283, Syosset, New York 11791.

TRICKS, Jokes, big catalog, 50 samples, 25¢. Sell Friends, Dohn-25R-Marks, Broadview, Illinois.



## MAGIC TRICKS, PUZZLES, JOKER NOVELTIES

**WORLD'S** Finest professional magic tricks. Joker's Novelties, Giant illustrated catalog 10¢. Top Hat, Evanston, Illinois.

**MAGIC** Catalog. World's finest. 3000 tricks. (340) pages \$2.50. Beginners, amateurs, professionals. Kanter's, A-200 South 13th St., Philadelphia, Pa. 19107.

**VENTRILOQUISM!** Information free! Dummy catalog, 25¢. State age. Maher, Studio B, Box 36, Kensington Station, Detroit, Michigan 48224.

2600 **NOVELTIES**. Jokes, tricks, scientific gadgets, hobbies. Catalog 10¢. Johnson-Smith, D-146, Detroit Michigan 48207

**NEW EDITION**, 1967 Catalog of 500 Tricks, only 10¢. Fastest same-day service to magicians for 40 years. Send 10¢ today. **DOUGLAS MAGICLAND**, DEPT 21, Dallas, Texas 75221.

**LATEST** World famous giant surprise catalog!! 1000 Professional tricks, magic, jokers!! 164 pages!! 10¢. House of 1000 Mysteries, Dept. PM7C, Ft. Lauderdale, Florida 33308.

**BE A Magician!** Two booklets explaining sixty-eight tricks plus large professional catalog, \$1.00. Magic, Inc., 5082 Lincoln, Chicago, Illinois 60625.

**COMPLETELY** Illustrated catalog, 84 pages, 25¢. Manhattan Magic, Box 334-M, N.Y.C. 11.

## BOOKS, PERIODICALS

**INTERESTING** Books. Free Catalog. Postal PM, 2217 Lackland, St. Louis, Missouri 63114.

**CHALLENGING!** Different! Unusual books! Free catalog, Ruby's, D-26, Paradise, Pennsylvania 17562.

**BOOKS**, Free general catalog, 60 pages. Text, vocational, educational, instructional subjects. Millions of volumes, new and used. Bargain prices. Books bought, Est. 1902. Long's College Book Co., Dept. PM, Columbus, Ohio 43201.

**PROPHET** Elijah coming before Christ. Wonderful book free. E. Megiddo Mission, Rochester, New York 14619.

**FREE** List of low cost popular books. Success, happiness, personality, wealth, personal problems. Wilson Sales, P.O. Box 5025, Mobile, Alabama 36605.

**PEANUTS!** Mail \$2.25 for 5 funny books. Tower, Lafayette Hill, Pa. 19444.

**USED** Paperback books. Free lists. MBE, 1224 Ninth Avenue, San Francisco, California 94122.

**FREE** Book catalog; self-help, inspirational, business opportunities, instruction. Woodhull, Box 62PB, Hales Corners, Wisconsin 53130.

**OAHSPÉ:** Spiritual enlightenment for our times; convincing other-world revelations by other-world authors for the space age generation. Highly reasonable answers to many grave questions. Free information. 35¢ brings also first 96 pages Oahspe, worth \$1 toward purchase complete Oahspe later. Write: Oahspe, Box 17492, Los Angeles, Cal. 90017.

**FREE** Catalog self help books. Write Smith, 4804 48 St., Woodside, New York 11377.

**FREE**. "The Laws of Prosperity." Prosperity, Box 542, Oakland, California 94604.

**"UNUSUAL"** Books! Catalogue free! International, (PM), Box 7798, Atlanta, Georgia 30309.

**PUBLISH** Your book! Join our successful authors: All subjects invited. Send for free appraisal and detailed booklet. Carlton Press, Dept. PMN, 84 Fifth Avenue, New York 10011.

**FREE** Catalog. Self-help books. Write Wilshire, 8721 Sunset, Los Angeles 69P.

## PLAYS, STORIES, MANUSCRIPTS

**WANT** Your book published? Learn how we publish, advertise, promote, distribute. Many successes. Free booklet PM, Vantage, 120 West 31, New York City.

## BUSINESS OPPORTUNITIES

**SAWDUST**. Tin-cans, newspapers, 200 uses. Instructions \$1.00. Charles Company, 42-GPD, Norwood, Ohio.

**I MADE \$40,000.00** Year by Mailorder! Helped others make money! Start with \$10.00—Free proof! Torrey, Box 318-Y, Ypsilanti, Michigan 48197.

**MAKE \$46** from square foot plywood; jigsaw or bandsaw necessary. Free details. Woodar, Bridgewater, Mass. 02324.

**"MAIL-Order** plan of the month." New service for those wanting their own Mail-Order Business. Free details. Volz-UN, Ypsilanti, Michigan 48197.

**MAILORDER** Catalogs. No inventory required. Discounts 40% up, postpaid. Send 25¢ for 32 page sample catalog, featuring 150 unusual, fast-moving products and complete details. Satisfaction guaranteed. Gaylords, North Adams 7, Mass.

**BIG** Money raising fishworms and crickets. Free literature. Carter Farms, Plains, Georgia 31780.

**\$400.00 MONTHLY** Raising giant fishworms. Soilless method. Charlie Morgan, Bushnell, Florida 33513.

**COLORGLAZED** Concrete pottery made without molds. Patented method. Cemetery products, novelties, tiles. Basement leak-sealing. Money-making projects. Booklet, details free. Men only. National Potteries Company, Grand Rapids, Minnesota.

**BUILD** Custom cases at home for profit. Get orders by mail. We supply materials, instructions, everything. Free home business details. Customcase, 805PH Sunset Los Angeles 12.

**ADDRESSERS** And mailers needed. Send stamp for information. Lindbloom, 1508 West Erie, Chicago, 60622.

**VENDING** Machines. No selling. Operate a route of coin machines and earn amazing profits. 32-page catalogue free. Parkway Machine Corporation, 715 PMB Ensor Street, Baltimore, Maryland 21203.

**OPERATE** Home mailorder business. Vosacek Printing, 4444AI Ute, San Diego, Calif. 92117.

**\$60.00 DAY**, Manufacturing concrete posts. Carlayne, 1803 Fremont, Rapid City, South Dakota 57701.

**400,000 BARGAINS** Below wholesale! Many free. Liquidations... closeouts... job lots... single samples. Free details. Bargainhunters Opportunities, Box 730A, Holland, Michigan 49423.

**VENDING** Machine big catalog. Rake, 1214A West Girard, Phila., Pa. 19123.

**SELL** Advertising book matches. Write us today; we put you in business by return mail, handling complete line ad book matches in demand by every business right in your town! No investment; everything furnished free! Top commissions daily! Superior Match, Dept. MX-267, 7530 S. Greenwood, Chicago 19, Ill. 60619.

**SECRETS!** Secrets! Mail order success revealed by internationally famous expert who discovered how to make home business fortunes. Beginners: Get free copy "How to Make Money in Mail Order." Discloses free advertising, profitable products, everything! No obligation. Write Malico, 1554 Sepulveda, Dept. A702, Los Angeles 90025.

**PACKAGE** At home for profit! We supply everything. No "selling." Free home business details. H.P.C.-807HPG, Sunset, Los Angeles 12.

**\$200.00 DAILY** In your mailbox! Your opportunity to do what mailorder experts do. Free details. Associates, Box 136-A, Holland, Michigan 49423.

**BOOKKEEPERS** Earn \$1000.00 month. Operate simplified Bookkeeping tax service. Universal, Box 664-M, Springfield, Missouri.

**WANT** To make big money at home? \$10.00 profit in an hour possible with invisible mending. Make tears, holes disappear from clothing, fabrics. Steady year-round demand from cleaners, laundries, homes. Details free. Fabricon, 1585 Howard, Chicago, Ill. 60626.

**\$70.00 WEEKLY**—home, spare time. Simplified mail bookkeeping. Immediate income easy. Auditax, 34741A, Los Angeles 90034.

**RAISE** Rabbits for us on \$500 month plan. Free details. White's Rabbitry, Mt. Vernon, Ohio 43050.

**COPUBLISH** "Mail Sale Advertiser," leading mailorder paper. Copy and details 25¢. Vanroy Shirk, Lebanon, Pa. 17042.

**BAKE** New greaseless doughnuts in kitchen. Stores buy output. Start spare time. Profit 29¢ dozen. Small appliance. Free recipes. Montgomery Ray, Waseca, Minnesota 56093.

**BONSAI** Tiny trees. Home study course teaches you. Make beautiful prize artificial trees, arrangements. Grow valuable living miniatures too. Spare time—full time. Big profit. Free tree offer. Free fact pack. Minitree, Dept. DD, 12305 Hawthorne Blvd., Hawthorne, Calif. 90250.

**PLASTERCRAFT** Molds, liquid rubber, plasters, flocks, candle supplies. Catalog and manual free. Blue Rapids Supply, Blue Rapids, Kansas.

**VACUUM** Plastic molding & liquid plastic casting—At home! Make hundreds of full 3-D plastic products. Big profit in spare time. Free facts, samples. Nationwide Plastics, Dept. AX, 12305 Hawthorne Blvd., Hawthorne, Calif. 90250.

**EARN** Money raising fishworms for us! Write: Oakhaven-38, Cedar Hill, Texas.

**SELL** Books by mail. 400% profit. Royal, Box 450-X, Cleveland, Ohio 44127.

**BECOME** Tax consultant. Our students earn \$1,000—\$3,000 every tax season preparing returns evenings. Accredited. State approved. National Tax Training School, Monsey XA2, New York 10952.

**IMPORT-Export** opportunity, profitable world-wide, mail-order business from home, without capital; or travel abroad. We ship proven plan, for no risk examination. Experience unnecessary. Free details. Mellinger, Dept. A702 Los Angeles 90025.

**CONCRETE** Facts: Cement artists make big money at home. Simple equipment. Experience unnecessary. Unlimited unique pottery designs easily made without molds. Birdbaths, wishing wells, water falls, rustic gardens, patio items, formulated chemical coloring, marbled glazing. Free illustrated brochure. Hollywood Cementcraft, 602 Athens Street, Altadena, California 91001.

**EARN BIG MONEY** Growing fishworms, crickets, giant African crawlers. Free literature. Fain's Hatchery-26, Edison, Georgia 31746.

**HUGE** Profits! Mail order importing. Free information. ITIS-PM-2, Box 454, Hollywood, Calif. 90028.

**READ** Progressive Mailtrade, the magazine that tells how to make money by mail. Quarter brings sample and special offer. Mailtrade, P.O. Box 357, Sheboygan, Wis. 53082.

**DOLLS!** **DOLLS!** You learn to make, repair, dress and sell dolls. Study at home. Fascinating hobby, profitable business. Certificate awarded. FREE booklet. Doll Hospital School, Dept. D-237, 2251 Barry Avenue, Los Angeles, California 90064.

**PIANO** Tuning learned quickly at home. Tremendous field! Musical knowledge unnecessary. GI Approved. Information free. Empire School of Piano Tuning, Box 327, Shenandoah Station, Miami, Florida 33145.

**OPERATE** Restaurant or diner. Free booklet reveals profitable plan. Write Restaurant Business School, Dept. EC-27, 1920 Sunnyside, Chicago, Illinois 60640.



**START Your own business on credit.** Your own boss. Hundreds of dealers making \$100 to \$300 and more weekly. We supply stocks, equipment on credit. 300 home necessities. Sales experience unnecessary. Pleasant, profitable business backed by world-wide industry. Write Rawleigh, Dept. B-LL-PPM, Freeport, Ill.

**BIG MONEY MAKER!** Custom Furniture Upholstery plus Auto Trim, Slip Covers, Drapes. Tremendous spare-full time earnings. Men, women, all ages. No experience required. We furnish everything: Easy Home Instruction, Tools, Supplies to build roomful of beautiful furniture. Yours to keep-sell! Send for Big FREE Illustrated Book. Modern Upholstery Institute, Box 899-JV, Orange, Calif. 92669.

**CLIP Newspaper items.** \$1.60-\$5.00 each. Details free. Walter, Box 1360-PA, Erie, Pa.

**PROFITABLE Ideas for starting your own business.** Free details, McGlasson's, 315-B Reynolds, Edmond, Oklahoma 73034.

**MAILORDER Book tells how!** Free details. (M.O.) Methods Lab., 111 Forbes Rd., Westwood, Mass. 02026.

**EXPLOSIVE!!!** Moneymaking business opportunities—home methods—free literature. Livingston's, Box 5332, North Charleston 1, South Carolina 29406.

**TRAIN For solid high paying career in electrical repair.** Experimental kits included. Free fact pack, I.T.I. Dept. 65037, 815 E. Rosecrans, Los Angeles 90059.

**FREE "Franchise Profit Letter"** tells how unique NFR service is helping thousands seeking profitable businesses. Write today. National Franchise Reports, W-528, 333 North Michigan, Chicago 60601.

**LEARN Landscaping and the growing of plants.** Start a profitable business part or full time. Free information without obligation. Lifetime Career Schools, Dept. A-112, 2251 Barry Avenue, Los Angeles, California 90064.

**MAKE \$32.00 From 4¢ piece vinyl** PM-1834 Edgeland, Louisville, Ky. 40204

**100,000 PRODUCTS Wholesale!** Terrific bargains! Wholesalers, 1265-MC Broadway, New York, N.Y. 10001.

**MAILORDER "Bookkeeping Cards"**. Sell like wildfire. Repeat like mad. 200 for \$2.00. Samples absolutely free. Neil H. Tasker, Shamokin, Pa. 17872.

**EARN Big money invisibly reweaving damaged garments at home.** Free information. Eastern Reweaving, PM-72, Main, Hempstead, New York 11551.

**PROFITABLE Catalog mailorder business!** Vikari's, 835-PM, First Avenue, Salt Lake City, Utah 84103

**FREE Book "990 Successful, little-known businesses."** Work home! Plymouth-172T, Brooklyn, New York 11213.

**SELL Champion, AC, Autolite spark plugs.** Reconditioned, electroplated, guaranteed 10,000 miles, 100% profit. Free sample. Lee Plugs, 1608-A Roberts, Houston 3, Texas.

**DO It with "Floating—Henryburgers."** 500 million sold. P.O. Box 936, Wichita 1, Kansas 67201.

**START Own Import-Mailorder Business with \$10.** DonKar, 1914A La Cana, Hacienda Heights, Calif. 91745.

**IF You sincerely wish to brighten your future in mailorder send 20¢ to:** Dzielick, 52 Salisbury, Watertown, Mass. 02172. You won't regret it.

**FREE Catalogs.** Repair air conditioning refrigeration. Tools, supplies, full instructions. Doolco, 2016 Canton, Dallas, Texas 75201.

**HOW To make money in mail-order with profit up to 300%.** Start your own big profit Home Mail-order business with tested mail-order ads, which reach millions of customers. Experience not necessary. We provide step-by-step advice. L. Platt Advertising, Dept. M., 284 Delaware Avenue, Buffalo, N.Y. 14202.

**INSTALL Burglar alarms** without previous experience or costly equipment. Big profit. Free details. Nasco, 11071 Massachusetts, Dept. A702, Los Angeles 90025.

**"IT'S Fun to sell by Mailorder!"** Details, Methods, 1812, Lafayette Hill, Pennsylvania 19444.

**SELL Greeting cards**—Make extra money. All Occasion assortments, Easter, Stationery, Gifts, Wrappings, Toys, Jewelry. Experience unnecessary. Salable Samples on Approval. Free Catalog, Bonus Plan. Write Hedenkamp, 361 Broadway, Dept. PM-92, New York 10013.

**FREE! Money-making, money saving opportunities.** Kell, Box 812, Wichita, Kansas.

**FREE Report: "609 Unusual, Successful Business!"** Box 51-PO, Des Plaines, Illinois 60017.

**SELL Gifts and Gadgets—All Occasion Greeting Card assortments, Easter, Stationery, Wrappings, Toys, Jewelry.** Experience unnecessary. Salable samples sent on approval, free catalog, bonus plan. Write Hedenkamp, 361 Broadway, Dept. PM-93, New York 10013.

**READ "Your Own Mail Order Business,"** 50¢, Box 5-A1, New York City 10036.

**FREE Information.** Operate profitable mail order business. Donovan's, Dept. 27, 537 Cranbrooke, Toronto, 12, Canada.

**ABUNDANCE Is yours with the secret of achievement.** Details free. Treasures, 2653 Forbes, Jacksonville, Florida 32204.

**DIFFERENT! Outstanding Profits,** high quality mailorder businesses. Complete set-up service; not just instructions. Hermes Co., 152 West 42, New York City 10036.

**BE YOUR OWN BOSS** Own your own business . . . all you can make is money! Cash in on the Credit Card Boom with an exclusive franchise. This is a highly remunerative business. Renewals and bonuses insure permanent security. For information on how to do it, send \$1.00 to The President, Universal Credit Acceptance Corp., Box 1165, San Mateo, California 94403.

**IMPORT-Export business made easy.** Complete setup. Not just instructions. Hermes, 152 West 42, New York City 10036.

**GET Into Own "Instruction Manuscript" mailorder business!** New concept recipe, resell service! Fantastic Profits!! Garen's, Huron, Ohio 44839.

**GUARD Your Checks—"Complete Bank Kit"** \$1.00, Goodall, 68-N Joost, San Francisco 94131.

**MOLD Statuary, novelties.** Profitable part-time business. Marbleizing PM, Box 366, Edwardsville, Illinois 62025.

**AMAZING Profits from mailorder.** Guide written by expert shows how. Evergreen, Box 510, Osseo, Minnesota 55369.

**INSURANCE Agent, Broker or Adjuster.** Establish own business. Full or part time. We provide usual answers for State requirements. Everything needed in one book. Send \$3.00 and Zip Code. Sullivan Insurance Service, 714 East Avenue, Pawtucket, R.I. 02860.

**ESCAPE jobs forever! Retire securely now!** Free details. Thacker, Box 4-PM, Rossville, Georgia 30741.

**MAKE Money from old tires.** Operators clearing \$600 weekly. Equipment costs \$1000. Get facts. S & S Patents, Inc., 3911 N. Damon, Chicago 60618.

**EARN Up to \$1,000 monthly plus furnished apartment.** Live graciously. Exciting future. Learn at home from Approved School. Become qualified motel, hotel or resort manager. No special age requirement. Openings coast-to-coast - men, women, couples, V.A. Approved. Placement assistance. Free Facts, Motel Management Dept. 706, 2433 N. Mayfair Road, Milwaukee, Wis. 53226. No Salesman Will Call.

**PRODUCT DESIGN ENGINEERING COMPANY** Offers vast selection of ideas and designs, fully developed, drawings and specifications to starting, expanding companies. Send \$1.00 for list description. Ketchpel, Box 246, Bergenfield, N.J. 07621.

**HOW To Get Capital For Mail-Order, work-at-home, franchises, imports.** Giant directory. Free trial offer. Counselor-17, Harlingen, Texas 78550.

**"INTERNATIONAL WHOLESALE BARGAIN DIRECTORY."** 50,000 LOW COST IMPORTS. Only \$2.00 postpaid. NICOLAS ENTERPRISES, Dept. 27-PM, 8500 Garibaldi, San Gabriel, Calif. 91775.

**RADIO Mail order.** \$50,000 in one month possible. No cost percentage plan. Walthay Box 53-M-12, Los Angeles 90032.

**"HOW TO MAKE MONEY selling US Silver Dollars"** . . . with no investment or risk . . . and "How to Make Money Investing in US Coins" . . . impossible to lose. Unconditionally guaranteed. Complete details for quarter or stamps (refundable.) Write: Colonel Lewis, 234 East Cactus Road Phoenix, Arizona 85022

**MAKE Money by composing perfumes.** Internationally famous perfumer expert reveals professional secrets. Send for free details today. Orle, P.O. Box 4408, San Diego, Cal. 92104.

**PROFIT With Popular Mechanics' subscription plan.** No investment, no experience needed. Earnings began immediately when you obtain subscription for Popular Mechanics. Good Housekeeping and others. High commissions, bonus. No experience needed. Deal directly with the publisher. Write Popular Mechanics, Room 6B, 250 West 55th St., New York 19, N.Y.

## MONEYMAKING OPPORTUNITIES

**MINK Raising information free.** Lake Superior Mink Farm Inc., Superior, EE1, Wisconsin 54880.

**EARN \$240.00 a month at home,** spare time, doing only two \$5.00 invisible mending jobs a day. Big money paid for service that makes cuts, tears disappear from fabrics. Steady demand. Details free. Fabricon, 1532 Howard, Chicago, Ill. 60626.

**BIG Money raising fishworms and crickets.** Free literature. Carter Hatchery, Plains, Georgia 31780.

**SHARP \$\$\$ Opportunity!** One low-cost machine sharpens—serrated knives, scissors, pinking shears. Earn \$6-\$9 hourly in spare time. Professional results without experience. Free details. Beaver Machine, 237C, Nielsen Bldg., Eugene, Oregon.

**RAISE Rabbits and fishworms on \$500 month plan.** Free details. White's Rabbitry, Mt. Vernon, Ohio 43050.

**LEARN The secrets of repairing junk batteries.** "Fabulous Profits" at home. Details. The Batteryman, P.O. Box 477, San Marcos, Calif. 92069.

**VENDING Machines.** No selling. Operate a route of coin machines and earn amazing profits. 32-page catalogue free. Parkway Machine Corporation, 715 PMM Ensor Street, Baltimore, Maryland 21203.

**MAKE \$100.00 Fast,** assembling belts for profit. Redikut's, Loganville 40, Wisconsin.

**EARN Money evenings,** copying and duplicating comic cartoons for advertisers. Adservice, Argyle-1, Wisconsin.

**\$200.00 FROM Sheet 1/4" plywood (scrap).** 25¢ refundable. Novelties, 610 So. 24th, Elwood, Indiana 46036.

**EARN \$500.00 Monthly clipping ads at home.** No investment—experience. Free information, send stamp. American, Box 56, Muncie, Kansas.

**FORMULA—Enlarges, toughens worms overnight.** Sample, \$2.00. Literature raising worms soilless method. Samples smoking tobacco free. Three Oaks Ranch, Dresden, Tenn. 38225.

**CLIP Newspaper items.** \$1.00-\$5.00 each. Details free. Walter, Box 1360-PA, Erie, Pa. 16512.

**GET INTO CUSTOM UPHOLSTERY.** Turn Old Furniture into big \$\$\$ spare time. Reupholster chairs, divans like new. Make custom slip covers, drapes. No experience required. We supply everything. Write for Big FREE Illustrated Book on Easy Home Instruction and how we start you in big \$\$\$ home business. Modern Upholstery Institute, Box 899-JR, Orange, Calif. 92669.



**HOW To Make money** writing short paragraphs. Information free. Barrett, Dept. C-27-N1, 6216 N. Clark, Chicago 60626.

**MAKE Big easy profits** making costume jewelry at home, spare time! Quick, easy to make; easier to sell! Details free! Don-Bar, 2934 Fullerton, Dept. A-207, Chicago, Ill. 60647.

**"GAG" Cartoons for money!** Free sample lesson and details! Magazines spend over a million dollars yearly for funny ideas! Home study course trains you to cartoon your ideas professionally, how and where to sell. State age, Evans School, Box 57, Dept. PML, Brookfield, Illinois 60513.

**AMAZING Successes** through franchises! Become exclusive franchise holder in your territory. Information rushed. National Franchise Reports, WP-528, 333 North Michigan, Chicago 60601.

**FREE.** 206 Easy ways to make money taking orders for exciting new products—spare time. Send name, age, for 5 months free subscription. Opportunity Magazine, 850 N. Dearborn, Dept. 17-BM, Chicago.

**HOMEWORK Pays!** 75 Companies begging for sparetime workers! Complete instructions, list, \$1.00. Opportunities, Box 26034-RN, Indianapolis, Indiana 46226.

**MAKE BIG MONEY** Taking orders for Stark DWARF Fruit Trees. Everybody can now grow Giant Size Apples, Peaches, Pears in their yards. Also Shade Trees, Shrubs, Vines, Roses, etc. Outfit FREE. Stark Bro's, Desk 30127, Louisiana, Missouri 63353.

**SWEEPSTAKES CONTESTS.** How to win. Write for free particulars. General Contests, 1609-18 East Fifth, Duluth, Minnesota, 55812.

**INDEPENDENCE—New Sales Program.** Details \$2.00. Cecil, 4781-A Northeast 27 Ave., Ft. Lauderdale, Fla. 33308.

**MAKE \$5,000 yearly,** sparetime, raising mink, chinchilla, nutria, etc. Free booklet reveals proven plan. Write: Furs, Dept. R, Bewdley, Ontario, Canada.

**ADD TO YOUR FAMILY INCOME.** Pleasant, friendly opportunity to make up to \$20 in week showing friends food and household products, cosmetics. Free Trial Sales Outfit. Rush name, BLAIR, Dept. 31DB, Lynchburg, Va. 24505.

**WATCH REPAIRING.** Swiss and American watches. Develop skill step by step in spare time at home. Diploma awarded. Free sample lesson. Chicago School, Dept. YOA, Fox River Grove, Ill. 60021.

**"FOREIGN Forum Magazine"**—international new products, money making, information for importers, mailorder dealers, beginners. Details free. Franill Company, 512-PM O'Kelly Drive, Ingleside, Illinois 60041.

**COMPLETE Mail order facts \$2.00.** E. White, 179 E. Norman Ln., PMI, Wheeling, Ill. 60090.

**OPPORTUNITY Directory!** 100 companies begging for full and sparetime workers. \$1.00. L & K Enterprises, Box 27, Vermillion, So. Dak. 57069.

**MEN—Women "Everybody Likes Fine Candy."** Make professionally, details free. (Our 51st year.) Ragsdale Candies, B107, East Orange, New Jersey 67019.

**BIG Money** from paper scraps. Jackson, Box 7149, Oakland, California 94601.

**MAIL Order Do's and Don'ts.** 25¢, refundable. Aynee, Milford, New York 13807.

**MAKE Extra money** spare time—compile mailing lists, do addressing, become Notary Public. Particulars free. Smidt Addressing Service, 405-PM Richardt, Evansville, Indiana 47711.

**MAKE \$200 Week** in your own business repairing venetian blinds. Instructions \$1.00. Jay Hubanks, Hollis, Oklahoma 73550.

**MAIL And phone plan** sells dollar ads. \$5, hour easy. Best home business. Free details. Admart-4, Harlingen, Texas 78550.

**MY Advertisement** under "Sporting Goods" pays over double monthly! I'll detail how. \$1.00. "Easy", Box 192-A, Dunellen, New Jersey 08812.

**MAKE Millions.** You have the power. "The Dynamics of Luck", only \$1.00. Raven Publishing Company, Sparta, Wisconsin 54656.

## PROFITABLE OCCUPATIONS

**YOUR Own sign shop—Signs,** 1017 W. Mulberry, Springfield, Ohio.

**AUCTIONEERING—Resident & home study courses.** Veteran approved. Auction School, Ft. Smith, Arkansas.

**RAISE Rabbits** for us on \$500 month plan. Free details. White's Rabbitry, Mt. Vernon, Ohio 43050.

**BIG Money** raising fishworms and crickets. Free literature. Carter Wormery, Plains, Georgia 31780.

**BECOME A mortgage broker,** earn \$10,000 to \$50,000 a year. Details free. United, Box 6284-C, Marietta, Georgia 30060.

**BAKE New greaseless doughnuts** in kitchen. Sell Stores. Free recipes. Michael Ray, Waseca, Minnesota 56093.

**EARN \$240.00 A month** at home, spare time, doing only two \$5.00 invisible mending jobs a day. Big money paid for service that makes cuts, tears disappear from fabrics. Steady demand. Details free Fabricon, 1586 Howard, Chicago, Ill. 60626.

**SHARPEN Scissors, Pinkers,** inexpensive equipment, tools, supplies. Blackhawk's, Sheldahl, Iowa 50243.

**INVESTIGATE Accidents.** Earn \$750 to \$1,400 monthly. Car furnished. Expenses paid. No selling. No college education necessary. Pick own job location. Investigate full time. Or earn \$8.44 hour spare time. Men urgently needed now. Write for Free literature. No obligation. Universal, CPM-2, 6801 Hillcrest, Dallas, Texas 75205.

**RAISE Pheasants** on \$100 week plan. Little capital and space can make you independent. Free details. Great Central System, Columbus 1, Kansas.

**HOW To Make Money Writing Short Paragraphs.** Information free. Barrett, Dept. C-27-N2, 6216 N. Clark, Chicago 60626.

**MAKE Money** with your camera. Free report. Camera Arts' Exchange, Box 101-M, Hollywood, Calif. 90028.

**SCIENTIFIC MASSAGE: BIG EARNINGS** uncrowded profession. Learn spare time at home. Diploma awarded. Free catalog. Write: Anderson School, Dept. A-1C Princeton, Illinois.

**NET \$18.00** From a 50¢ sheet of window glass. Easy, interesting. Details, \$2.00. Frick, Box 535, Grand Blanc, Mich. 48439.

**FREE Book "990 Successful,** little known businesses." Work home! Plymouth-177, Brooklyn, New York 11218.

**FREE Facts** and descriptive bulletin. Be an air conditioning, refrigeration, and heating serviceman. High pay, jobs open everywhere, operate your own service business, no school or correspondence necessary. Write Doolco, Trouble Shooter, 2016 Canton, Dallas, Texas.

**CHROME Plating.** Instructions, equipment and supplies. Platers' Supply, P.O. Box 565, Lugo Station, Los Angeles, Calif. 90023.

## SALESMEN—DISTRIBUTORS

**JOIN An established firm.** Over 30 years with Calendars and advertising specialties. Bonuses—prizes—free pens. Fleming, 6535-A Cottage Grove, Chicago 60637.

**SELL Advertising book matches.** Write us today, we put you in business by return mail; handling complete line ad book matches in demand by every business right in your town! No investment; everything furnished free! Top commissions daily. Superior Match, Dept. M-267, 7530 S. Greenwood, Chicago, Illinois 60619.

**\$200.00 WEEKLY.** Every business and professional man has No-pay accounts. Send them to us for collection. We pay you for each name listed. No collecting. Dept. PM-12 General Finance Company, Pickwick Bldg., Kansas City, Mo. 64106.

**JOIN Moxy Industrial.** Division. Big pay. Box 8614, Jacksonville, Fla.

**MAKE Extra money** introducing new Runless Seamless Nylons at amazing low direct-from-mill price, 59¢ a pair! Friends snap them up by the dozen. Write for free sample stocking and kit. American Hosiery Mills, Dept. 135, Memphis, Tennessee 38101.

**LONG Needed invention.** Man to contact service stations. Huge profits. Cyclo Mfg., 3816 Dahlia, Dept. 107, Denver, Colo.

**GET New shirt outfit free!** \$90 weekly on 5 average orders a day. Famous quality made-to-measure dress and sport shirts at \$4.95 up, sell to all men. No experience needed. Full or part time. Write: Packard Shirt Co., Dept. 620, Terre Haute, Indiana 47808.

**EARN Big Commission** full or part time. Show America's largest line low priced Business Printing and Advertising Specialties. Plus calendars in season. No experience. No investment. No collections or deliveries. On-the-spot commissions. Big Free Sales Kit samples hundreds items used daily by businessmen. Merchandise bonuses for you. Free gifts for customers. Build profitable repeat business. Start now. National Press, Dept. 70C, North Chicago, Ill. 60064.

**ANYONE CAN SELL Hoover Uniforms.** Full or spare time. Unlimited money-making opportunities. Immediate top commissions. Big market. No investment. Send for FREE Sales Kit. HOOVER, Desk K-27, New Hyde Park, N.Y. 11040.

**FREE.** 206 Easy Ways to make money taking orders for exciting new products—spare time. Send name, age, for 5 months free subscription. Opportunity Magazine, 850 N. Dearborn, Dept. 17-BS, Chicago.

**SELL BALL POINT PEN INK REMOVER** to wholesale distributors—retail outlets. Good profits. Write for details. Ivec Industries, 4102 Aruba, Houston, Texas 77055.

**UP To \$200 or more weekly.** List accounts for collection. No collecting, selling or investment. Everything furnished. No experience needed. Full or parttime. United Financial Service, Merchandise Bldg., Dept. 287, Minneapolis, Minn. 55403.

**WILL You test** new items in your home? Surprisingly big pay. Latest conveniences for home, car. Send no money. Just your name. Kristee, 151, Akron, Ohio 44308.

**SELL America's biggest value** wedding line! Big 40% profit showing wedding invitations and over 50 exciting accessory items. Sideline for printing, Christmas card salesmen. Free display album, Elmcraft, 7201 S. Cicero, Dept. EW168, Chicago, Illinois 60629.

**MAKE Extra \$25 to \$75** spare time! Take orders for double air cushion Bronson Shoes. Amazing comfort. Terrific men's, women's line for dress, work, play. Highest commissions. Shoes for yourself. Big outfit free. Write Bronson, Dept. 546, Minneapolis, Minnesota 55408.

**\$1,000.00 A MONTH** For making dramatic 3-second demonstration of amazing lightweight Presto Fire Extinguisher. Chemical used by Airforce snuffs out fires instantly. Only \$4.95. Terrific commissions. Millions want it. Free Kit. Merlite, 114 East 32nd, Dept. P-66-H, New York 10016.

**PATENTED CONVERTER** Cuts fuel oil and service bills to 50%. Sell and-or install in homes. Make \$30.00 - \$50.00 per unit. Lee Manufacturing Company, Box 6131, Charlotte, N.C. 28207.

**MONEYMAKER!** Nameplates for mailbox and dozens more uses. Easy sellers. High profits. Established 1952. Write: Star-metal, Box 340P, Neptune, New Jersey 07753.

**NEGRO People** buy on sight. 100% profit. Nationally advertised cosmetics. Free sample offer. Valmor, Dept. AD, 2411 Prairie, Chicago 60616.



## AGENTS WANTED

MAKE \$50.00 Daily selling air operated vacuum cleaners to service stations. Free details. Inka Industries, 2401 Crocker. Houston, Texas 77006.

PRINTING. Advertising salesmen—Excellent moneymaking sideline selling decalomania name plates, small quantities. Automobile initials, sign letters. Free samples. Ralco, XL, Boston, Mass. 02119.

YOUR Own business—Used suits \$1.50; overcoats 65¢; mackinaws 35¢; shoes 12½¢; ladies coats 30¢; dresses 15¢. Enormous profits. Catalog free. Nathan Portnoy Associates, 2109-AA Roosevelt Road, Chicago 8, Ill.

250,000 NEW Mothers every month! Bonanza for Bronzed Baby Shoes! \$50.00 a day profit. No investment, no inventory. Full or spare time. Exciting details FREE. Sentimental, 1919 Memory Lane, Dept. 8B, Columbus, Ohio 43209.

WANT TO MAKE UP TO \$100 A WEEK spare time, and get free shoes for life, too? No investment. Rush card for free details. MASON SHOES, K-571, Chippewa Falls, Wisc. 54729.

FREE. 206 Easy Ways to make money taking orders for exciting new products—spare time. Send name, age, for 5 months free subscription. Opportunity Magazine, 850 N. Dearborn, Dept. 17-BA, Chicago.

EXCITING New product. Big profits! Exclusive! Test it yourself. Sample offer. Send no money. Just your name. Kristee, 121 Akron, Ohio 44308.

SELL Greeting Cards—Make extra money. All Occasion assortments, Easter, Stationery, Gifts, Wrappings, Toys, Jewelry. Experience unnecessary. Salable Samples on Approval. Free Catalog. Bonus Plan. Write Hedenkamp, 361 Broadway, Dept. CD-3, New York 10013.

AGENTS—300% Profit selling genuine gold window letters: stores and offices. Free samples. Metallic Sign Letter Co., 1217-D West Newport, Chicago.

START Making money now. Earn top commissions taking orders for all magazine subscriptions. Friends and neighbors are your prospects. No experience needed. Write for free money-making kit. McGregor Magazine Agency, Dept. OA7, Mount Morris, Illinois 61054.

ESTABLISH Your own business. Low prices on used clothing, shoes, household goods. Unlimited profits. Free catalog. Northwestern Distributors, 2129 No. Western Avenue, Chicago, Illinois 60647.

## EMPLOYMENT INFORMATION

FOREIGN Employment. Construction, other work projects. Good paying overseas jobs with extras, travel expenses. Write only: Foreign Service Bureau, Dept. PM, Bradenton Beach, Florida 33510.

AUSTRALIA Wants You! Good pay. Adventure, government paid transportation allowance! Send \$1.00 for Australian Opportunities Handbook. International Services, Box 12-A2, Greenfield, Indiana 46140.

JOBS, \$100 Weekly, beginners, men, women. "Work At Sea" Passenger ships, freighters. Enclose \$1.00. Information, Box 52, NYC 10016.

BOOMING Australia needs your skills! Government assisted passage. Details, \$1.00. Irv Heyer, 1117A S.W. Columbia, Portland, Ore.

TREMENDOUS OPPORTUNITIES U.S.A. Overseas. Choose jobs—locations, transportation. Free details. OCCUPATIONS, International Airport, Box 100-C10, Jamaica, N.Y. 11430.

AUSTRALIA Wants You! Unlimited opportunities. Latest Government Information \$1.00. Austco, Box 3623-E, Long Beach, California 90803.

FREE!! "How and Where to Top Jobs!" All occupations, Campaign, Box 6206-PM, Station J, Ottawa 13, Canada.

FOREIGN And USA job opportunities available now. Construction, all trades. Earnings to \$2,000.00 Monthly. Paid overtime, travel bonuses. Write: Universal Employment, Dept. C-1, Woodbridge, Connecticut 06525.

## HELP WANTED

OVERSEAS Jobs—Europe, South America, Far East, etc. 2,000 openings in all trades. Construction, Office Work, Sales, Engineers, etc. \$400 to \$2,500 month. Expenses paid. Free information, write Overseas Jobs, International Airport, Box 536-M, Miami, Florida 33148.

## FARMS—REAL ESTATE

CANADA'S Finest lands. \$4.00 an acre and up. Acquired through estate liquidations. Suitable for hunting, fishing, camps, cottages, farming, timber, minerals, investment. Small monthly payments. Free descriptive booklet. Canadian Estate Land, 2788-P Bathurst Street, Toronto, Canada.

\$1 ACRE—Canadian border—hundreds campsites, islands, farmlands, directly from tax authorities. (Non-profit). Lists, photographs mailed. Register, Room 303, 92 King St. E., Toronto 1, Canada.

CANADIAN Vacation lands: Full price \$385.00, 40 acres, \$10 month. Suitable cottage sites, hunting, fishing, investment. Free information. Land Corporation, 3768-O Bathurst, Downsview, Ontario, Canada.

FREE Fall-Winter Catalog! Bargains galore! Coast-to-Coast! Low prices, easy down payments! (Please include zip code). Safe-Buy Real Estate Agency, 712-PM, West Third, Little Rock, Ark. 72203.

FLORIDA CAMPSITES—Deep in the heart of the great Ocala National Forest—where few individuals have the privilege of owning land. Isolated yet accessible, with electricity. Good fishing, hunting, Warranty Deed, unrestricted, pitch tent, park trailer, build lodge. Free maps and photos. Howard Vernor, DeLand, Florida. AD66LS149

CANADIAN Lands, seized and sold for taxes. Our 50th annual series of lists, describe many choice properties, situated from coast to coast, acquired by us through Tax Sale. Priced as low as five dollars per acre, guaranteed perfect title, small monthly payments, no mortgage. Beautifully situated hunting and fishing camps, where there is real sport; summer cottage sites, heavily wooded acreages. Now is the time to invest in Canada's minerals, forests and farms. Write today for free twenty page booklet with full explanation. Tax Sale Service, Room 301D, 85 Bloor St., East, Toronto 5, Canada.

NORTH Florida lots \$69.00. Casper Corporation, 3970 N.W. 177th Street, Miami, Florida 33054.

GOVERNMENT Lands . . . Low as \$1.00 Acre! Millions acres! For exclusive copyrighted report . . . plus "Land Opportunity Digest" listing lands available throughout U.S., send \$1.00. Satisfaction guaranteed! Land Disposal, 222-PB Georgetown Building, Washington, D.C. 20007.

THE Only 'No-Risk Land Purchase Plan' in America—10 year money back-guarantee on any vacation, retirement or investment homesite in Boiling Spring Lakes—the multi-million, 14,000-acre development on the Carolina Coast. All facilities, electricity, roads, shopping center, motel, golf course, country clubs, already in. Private ocean beach, 1/4-acre home-sites as low as \$435.00; \$5.00 down. Write for free literature. (Not offered to residents of California, Florida, New York). Boiling Spring Lakes, Southport 1-D, North Carolina 28461.

SUNNY Blue sky Caboolture, Queensland! Australian garden land: 10&¾ acres only \$7,400.00. \$2,400.00 down. Empireland, Box 5580, Milwaukee, Wisconsin 53211 USA.

ABANDONED Timber leaselands! Choice 640 acre Sportsmen's paradises still available—\$20.00 plus \$6.50 taxes yearly. Maps, pictures, \$2.00 (Refundable). Director, Erindale 4, Ontario, Canada.

\$1.00 ACRE Government land in U.S. and Canada. Details \$1.00. Land Service, Box P4496, Washington, D. C. 20017.

FREE!!! New SPRING 1967 catalog! Compare exciting real estate ownership opportunities in 29 states coast to coast! Hundreds of farms, ranches, homes, businesses, vacation, retirement and waterfront properties described and PICTURED! Mention type property and location preferred. Zip code, please. UNITED FARM AGENCY, 612-PM West 47th St., Kansas City, Mo. 64112. PLaza 3-4212.

400,000,000 ACRES Government public land in 25 states. Some low as \$1.00 acre. 1966 report. Details \$1.00. Public Land, 422-PM-2, Washington Building, Washington, D.C.



## FLOWERS, PLANTS and NURSERY SUPPLIES

NEW Largest size peanuts—40 seed start, \$2.00. Free sample. Cary-B Nurseries, Inverness, Fla. 32650.

CARY'S Wonder tree. Exceptionally fast growing, freezeproof, hardwood shade, anywhere, anytime, comfort, appearance, improve investment fast. Free pictures. Interesting literature, 365 days return. Replacement guarantee. Write: Cary's-B Nursery, Inverness, Fla. 32650.

WANT Greatest cash crop working for you? Write Ginseng, Asheville 53, N. C.

600 ASSORTED Sweet onion plants with free planting guide \$3.00 postpaid. Topco, "home of the sweet onion", Farmersville, Texas 75031.

EVERGREEN — Everlasting - Bunching onions, \$1.50 qt. New-largest size peanuts—40 seed start, \$2.00. CaryB Nurseries, Inverness, Fla. 32650.

## HOME CRAFTSMEN

2512 PLANS. Patterns, things to make, do. Fun. Profit. World's greatest selection. Catalog 10¢. Craftplans, 18250-A Harwood, Homewood, Ill.

CABINETMAKING MADE EASY and "How to Make Formica Counter Tops," two excellent guides let you build kitchen cabinets and counter tops like professionals. Extraordinary guides bring master craftsmen's shortcut methods. Satisfaction guaranteed. Write: Japs, 126-P Seventh North, Hopkins, Minn. 55343.

101 PATTERNS Of smart gifts, novelties, shelves, action windmills plus "Make Money Jig Sawing." \$1.00. Mastercraft, 25M, 7041 Olcott, Chicago 60631.

WALNUT And Cherry tapered legs, lumber, gunstock blanks, picture frame moulding. Midland Lumber Company, Box 262, Savannah, Missouri 64485.

PLANS for pool table with extra two-face top for table tennis and model railroad. Blueprints B1209 and building instructions \$3.50. Popular Mechanics Service Bureau, 575-M Lexington Ave., New York, N.Y. 10022.

PLANS. Bird houses, feeders. Illustrated catalog 25¢. Yeager, 1665 Linden, Homewood, Ill. 60430.

WOODWORKING Catalog and Manual 25¢. Plus free "101 Project Ideas." World's most beautiful veneers, lumber, plywood! Wood finishing, upholstery supplies. Cane, Lamp parts. Furniture hardware. Animal whittling blocks. 2,000 workshop products. Constantine, 2051-A Eastchester Road, Bronx 10461.

PICTURE Frame moulding (wood)—original designs, inexpensive, guaranteed—write: Japs, 126-P Seventh North, Hopkins, Minnesota 55343.

SKIL-CRAFTS New 200-page '67-'68 Catalog. Largest selection of Leathercraft, Artist, Hobby and Craft Supplies from one source. Send 50¢ (refunded with first \$5 minimum catalog order). Skil-Crafts, Box 105-P, Joplin, Missouri, 64801.



## DO-IT-YOURSELF

**AUTOMATIC** Washer repair manuals any make, model. 13 Different manuals, \$2.75 each postpaid. Dryer repair manuals for G.E., Kenmore, RCA Whirlpool, \$2.75 each postpaid. Major Appliance, 13108 Caine Ave., Cleveland, Ohio 44105.

**FREE** Make 'Em and Save Leathercraft Idea Manual. Tandy Leather Co., 1001 Foch, C57, Fort Worth, Texas.

**PAINT** Your own wall mural! Inexpensive, easy paint-by-numbers pattern kit includes oils, brushes—everything! 35 Decorator designs. Color catalog 10¢. Muralart, 4401-A2W Birch, Newport, Calif 92660.

**WATER:** How to drill your own well for 2¢ per foot, \$1.00. Deeprock Drilling Company, 111 Trafco, Opelika, Alabama 36801.

**COMPLETE** Upholstery supplies. Leatherette, foam rubber, polyfoam, webbing, burlap, tools, etc. Write: Aanstae, 112 Harrison Ave., Harrison, N.J. 07029.

**BUILD** Concrete block machine. Easy. Inexpensive—motor or hand operated. Make block per minute. Write Clyde Lee, Mountain View-PM, Oklahoma.

**POUR** Your own liquid floor. Write for details or send \$10.00 for trial seamless floor kit. Dur-A-Flex, Inc., 269 Franklin Ave., Hartford, Conn. 06114 Dept. PS-1.

**EXERCISE** At home on build-it-yourself physical fitness equipment, including bicycle exerciser, rowing machine, belt massager, and abdominal board. Send \$2.50 for blueprints B1208 and instructions. Popular Mechanics Service Bureau, 575-K Lexington Ave., New York, N.Y. 10022.

**FREE** Check-list covering more than 300 classifications of projects, plans, instructions, service and repair information detailed in Popular Mechanics famous series of instructional booklets, books, patterns, and blueprints. List covers an extremely wide variety of do-it-yourself data on home remodeling, repair and improvement, hobbies, crafts, boating, games, lawn and garden, and hundreds of others. For your free copy of this helpful list, write: Service Bureau, Popular Mechanics, 575 Lexington Ave., New York 22, New York.

## ARTS AND CRAFTS

**2500 DIFFERENT** Plastic molds, figurines, crafts. Catalog 25¢. Steece Bros., Box 177-PM, Sioux Falls, So. Dak. 57101

**MAKE** Figurines, plaques, lawn ornaments. Molds, plastercraft kits, liquid rubber. Sample and catalogue 10¢. Wooley Company, Box 29-B, Peoria, Illinois 61601.

## BINOCULARS, TELESCOPES, MICROSCOPES, MAGNIFIERS

**BINOCULAR** Sale! Free color catalog 100 models \$9.95-\$250.00. Write, United, 9043 So. Western BCAT-6808, Chicago 60620.

**SCIENCE** Bargains! Lenses, telescopes, binoculars, microscopes, kits, parts, war surplus. Send \$1.50 for beginner's 10-lens kit with instruction booklet. Order Stock 2-CH. Request free 148 page Catalog CH, Edmund Scientific Co., Barrington, New Jersey, 68007.

**WORLD** Famous "DynaScope" Telescope. Build your own reflector telescope; mirrors, eyepieces, tripods, accessories. Request free brochures. Criterion Manufacturing, Dept. PP 3, Hartford, Connecticut 06101.

**BINOCULARS** Direct from manufacturer. Finest quality, tremendous savings! Request catalog. Koyu, 3860 Crenshaw Blvd., Los Angeles, Calif.



## CAMERAS AND EQUIPMENT

**TELL** The more than 1,550,000 avid readers of Popular Mechanics about your products and services. It costs very little to place your classified message in front of these proven mail order buyers. For further details, write: C. A. Martin, Dept. 49N, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

## PHOTO SUPPLIES

**TELL** The more than 1,550,000 avid readers of Popular Mechanics about your products and services. It costs very little to place your classified message in front of these proven mail order buyers. For further details, write: C. A. Martin, Dept. 50N, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

## PHOTO FINISHING

**A FREE** Kodak roll returned with each black and white or Kodacolor developed and printed, fast service, lowest prices, guaranteed quality send for free mailers. Economy Photo Service, Dept. P. M., Box 1111, Albany 1, N.Y.

**PHOTOGRAPHY FOR PLEASURE** o. profit. Learn at home. Practical basic training. Long established school. Free book. American School of Photography, 835 Diversey Parkway, Dept. 674-011, Chicago, Illinois 60614.

**ENLARGEMENTS** Custom quality 3-5X's, \$1.00. Valley, Box 38, Monclova, Ohio 43542.

**FAST, Hi-quality** finishing. Kodacolor rolls: eight jumbo prints \$1.98. Twelve \$2.49. Twenty \$3.49. Reprints 15¢. Also low B&W prices. Custom Quality Studio, Box 4838-PM, Chicago 60680.

**CAMERA** Fans! Expert photofinishing and free film returned: 8MM Kodachrome \$3.10; 8 Exp Kodacolor \$3.10; 35MM Kodachrome, 20 slides, \$2.85; 8 exp black & white 90¢. We give you free photo stamps to redeem for gifts. Satisfaction guaranteed. Send exposed film or request mailers and complete price list. Direct Mail Photo, Box 8352-PM, Pittsburgh, Pa. 15218.

## COLOR SLIDES

**35mm COLOR SLIDE** Catalogue, illustrated 10¢ postpaid plus free beautiful foreign slide! Free "Travelogue Fun Tins"! Wolfe Worldwide, Dept. 14-27, Los Angeles 90025.

**NY WORLD'S FAIR** 50 Color Slides (official, 35mm 2x2) \$4.50 postpaid. All different colorphotos. Free viewer. Send check or MO to Abbe, 8 Winding Brook Rd., New Rochelle, N.Y. 10804.

## MOTION PICTURES AND SOUND EQUIPMENT

**FREE** Catalog! Save on 8/mm.-16mm. film and supplies. Superior, 448 N. Wells, Chicago 10.

**16MM** sound-projectors, films, new, used for sale. Free catalog. National Cinema, 333 W. 57 Street, New York City, N.Y. 10019.

**8MM. MOVIES—2"x2"** Color Slides—biggest selection anywhere! Hollywood classics, great comedians, railroads, automobiles, trolleys, wars, travel, wild life, circuses, many others! 16mm. films also. Big catalog free! Blackhawk Films, 86 Eastin-Phelan Bldg., Davenport, Iowa 52808.

**5,000 8-16 MM.** Movie films. Free catalogues. International, Greenvale, N.Y.

**16MM** Sound films features and shorts. Bedner, 5300 So Talman, Chicago.

## RADIO, TELEVISION AND HAM EQUIPMENT

**33¢** RADIO & TV tubes. Free list. Cornell, 4213-17 University, San Diego 5, California.

**FM** Alert Emergency Receivers. Outstanding value for business, fire, police communications. Free folder. Griffin's, 322 West State, Ithaca, New York 14850.

**POLICE - FIRE - AIRCRAFT - AMATEUR** CALLS on your broadcast radio! Economical, practical! Free catalog. Salch Co., Dept. P-2 Woodsboro, Texas 78393.

**TELEVISION** Camera kits, Easy-Economical-Exciting! Catalog 10¢. ATV Research, Box 396-PM, South Sioux City, Nebraska 68776.

**FREE** Electronics catalog. Tremendous bargains. Send postcard. Electrolabs, Department C-659B, Hewlett, New York 11557.

**HOME** Electronics course only \$26.95. Free literature. Send postcard. Edu-kits, Department 660B, Hewlett, New York 11557.

**BEGINNER** Kits, crystal radio \$1.95, solar radio \$4.95, transmitter \$3.95, amplifier \$1.50, others. Electronix, Box 42, Madison Heights, Michigan 48071.

**ELECTRONICS SLIDE** RULE with handsome leather case. Solves electronics and conventional problems easily... even if you find math difficult. Excellent tool for technicians, engineers, students, hobbyists. Free book gives full details. Write today: CIE Slide Rule, Dept. PM 105, 1776 E. 17th St., Cleveland, Ohio 44114.

**BRAND** New tubes. World's lowest prices on radio, TV-industrial, special purpose tubes. Write for free parts catalog. United Radio, Newark, N.J.

## HIFI, RECORDS AND ELECTRONICS

**FREE — Free — Free — Free — Free** —Free — Free. Send in for your Free one year subscription to Olson Electronics' fantastic value packed catalog—unheard of low, low prices on brand name speakers, changers, tubes, tools, stereo amplifiers, tuners, CB and other values. Credit plan available. If you have a friend interested in electronics send his name and address for a Free subscription also. Olson Electronics, Inc., 573 S. Forge St., Akron, Ohio 44308.

**STEREO** Tapes. Save up to 60% (no membership fees, postpaid anywhere USA). Free 60-page catalog. We discount batteries, recorders, tape accessories. Beware of slogans "not undersold," as the discount information you supply our competitor is usually reported to the factory. Saxitone, 1776 Columbia Road, Washington, D.C. 20009.

**RECORDS!** Discounts on all LP's. Free details. Citadel Record Club, 545 Fifth Ave., Dept. 2, New York 17, N.Y.

**TAPE** Recorders, hi-fi components. Sleep learning equipment, tapes. Unusual values. Free catalog. Dressner, 1523C Jericho Tpk., New Hyde Park, N.Y. 11040

**EXCLUSIVE** Free catalogue; extraordinary hard to find hobby party records. Record Suppliers, 300 Chelsea, Louisville, Kentucky 40207.



## MUSIC AND MUSICAL INSTRUMENTS

**SONG** Ideas wanted. Write with active professional songwriters with publisher contacts. Records made. Share royalties. Send ideas—free examination. Songwriters' Associates, 236 W. 55th, N.Y. 19-P.

**PIANO** Self-Teaching Book. Includes popular classical harmony, theory, chords, scales. Price \$5.00. LaFont Publishing Company, Box 606-P, Franklin, Michigan 48025.

**GUITARS.** \$11.95. Electric double pickups with tremolo bar, \$49.95. Accordions, \$125.00. Concertinas, \$350.00. Drums pearl set, \$99.00. Wind instruments \$39.95. Free catalogues. EZ, Terms, Melody Music, 4951 W. 95th St., Oaklawn, Ill. 60453.

**POEMS** Wanted for new songs and records. Send poems. Crown Music, 49-C West 32, New York 1.

**ACCORDION** Top brands. Buy direct. Tremendous discounts. Trade accepted. Free brochure PM. Accordion-O-Rama, 874 Broadway, NYC.

**DRUMS.** Electric guitars, amps, organs. Free catalog M: A.L.A.S. Import Company, 31 East 18th Street, NYC.

**SONGS.** Poems wanted! Accepted songs published, recorded at our expense! Talent, 17-PM Longwood Road, Quincy, Mass. 02169.

**INCOME** Guaranteed two years for song-poems accepted! Free public releases! Castle's, 203PM West 46th Street, New York City 10036.



**VIOLIN** And guitar makers, send for latest Free catalogue of woods & accessories. International Violin, PM-2, 414 East Baltimore St., Baltimore 2, Md.

**ELECTRIC** Guitars, amplifiers, wholesale. Free catalog. Carvin, PMM, Covina, Calif. 91722.

**GUITAR.** Banjo Making books Plans, woods, necks, tools. List 20¢. Satinwood, 510 East 11th Street, New York, N.Y. 10009.

**POEMS** Wanted for new songs and records. Send poems. Five Star Music, 6M Beacon, Boston 8, Mass.

**ACCORDION** Manufacturing. 6343-P South Ashland, Chicago, Illinois 60636. Piano Accordions, Chromatics, Hohners, Concertinas, Guitars, Drums, Band Instruments. Wholesale catalogs free.

**PLAYER** Piano books. Free catalog. Vestal Press, Vestal 11, N.Y. 13850.

**ACCORDIONS, GUITARS, BAND INSTRUMENTS!** Save to 50%. Famous makes. Easiest terms. Trades accepted. Free home trial. Free discount catalog. Mention instrument. **INTERNATIONAL MUSIC MART**, 5535-R Belmont, Chicago 80641.

**SONGPOEMS** Wanted. Send poems for offer. Nashville Music Institute, Box 532-PM, Nashville, Tennessee.

**SONGWRITERS WANTED!** Send song material for recording consideration. Tin Pan Alley, 1650 Broadway, New York 10019.

**GUITAR** 78 Lesson book. Includes 50 photos, 216 chord charts, 144 slide chords, and transposing chart: \$3.00. Hendrickson Publications, Studio A, Box 5024, Borger, Texas, 79007.

**GUITARS** Amps, discounts catalog. Lee Music, Box 162, Burton, Tex. 77835.

**BANJO** Parts, new items. Sweeney, Box 5104, Dept. PM, Long Beach, Cal. 90805.

## EDUCATION AND INSTRUCTION

**LEARN** Auctioneering. Term soon. Free catalog. The Reich American School of Auctioneering, Inc., Box 850, Mason City 1, Iowa.

**FREE!** "Learn Fast As Geniuses!" Castle's, 203 (Q) West 46th, New York City 10036.

**DETECTIVE** Training—for free information write to: 1917M, North Kenneth Ave., Chicago, Illinois 60639.

**COMPUTER** Fundamentals at home. Pay as you learn. Course designed to meet the demand for trained personnel in the nation's fastest growing industry. Pennies daily can prepare you for higher pay. Write Gulf Computer Institute, Inc., PM1, Box 68, 1013 Caillavet Street, Biloxi, Mississippi 39533.

**PIANO** Tuning pays. Big money in spare time. Learn at home. No musical knowledge necessary. Phonograph, records, tools and instructions furnished. Electronic tuning also taught. Free catalog. Capital Tuning School, 3160 S.W. 16th Court, Ft. Lauderdale, Fla.

**MISSOURI** Auction School. Free catalog! 1330-03 Linwood, Kansas City, Mo. 64109.

**DETECTIVE** Course. Free information. Universal Detectives, Box 8180-F, Universal City, California, 91608.

**SWEDISH** Massage and Physical culture pays big profits. Learn at home. Diploma. Free catalog. National Institute, Dept. E27, 307 North Michigan, Chicago 1.

**LEARN** Asleep or awake! Records, tapes, equipment! Free catalog! Drawer, PM-400, Ruidoso, New Mexico 88345.

**AUTOSUGGESTION.** Sleep-learning headquarters! Tapes, records, books. Gigantic catalog free. Research Association, Box 24-PM, Olympia, Washington.

**PIANO** Tuning quickly learned with home study course. Diploma granted. American Tuning School, Gilroy, Calif.

**USED** Courses! Books! List 10¢. Smith's, 124 Marlborough, Salem, Mass. 01970.

**FREE** Bible course. Degree. PM. 143 South Gregg, Charlotte, N.C. 28208.

**GET A** British degree. Divinity, Philosophy, Radionics, 35 courses. Prospectus free. Brantridge Forest School, "Lodge" Brantridge Forest, Balcombe, Sussex, England.

**HIGH** School diploma at home. Licensed teachers. Send age, highest grade completed for free detail. No salesman will call. Southern States Academy, Professional Bldg., Dept. 16, Decatur, Ga.

**PENMANSHIP** Corrector. Improve poor penmanship quickly. Details free. Ozment, Box 665-34, St. Louis, Mo. 63188.

**INVESTIGATOR'S** Course. Credentials, diploma. Free information. Southwestern Institute Criminology, Box 201, Geronimo, Oklahoma.

**SWEDISH** Massage. Foot technique. Post graduate. Home study, Residential. Diploma. Dr. Swanson's Illinois Licensed School, 3809-PL Alta Vista, Chicago 60613.

**MEN** Wanted. Earn \$125 a week and up. Master a trade with a future. Learn auto diesel mechanics in our shops. You learn with tools on real equipment. Earn while you learn. Many of our graduates earn \$125 a week and up. Write for free bulletin: Dept. 256, Auto Diesel College, Nashville 3, Tenn.

**OWN** Collection agency. "Little Gold Mine!" Franklin Credit, Roanoke, Virginia, 24004.

**BOOKKEEPERS.** Operate your own "Dollar-A-Week" system. Ellis, Box 200, Cedar Grove, North Carolina.

**PIANO** Technology—Electronic organ servicing, learned easily at home. G.I. Approved. Free booklet. Niles Bryant School, Dept. P, 3631 Stockton, Sacramento, California 95820.

**PENMANSHIP** Manual: Improve ornamental, flourishing, business writing. Details free. M. Tevis, Chillicothe, Mo. 64601.

**NAVIGATION:** Start your study of this ancient science with our two simplified booklets "Position Finding With The Sextant" and "True Course Setting With The Pelorus." Just \$1.00 each. Send to Davis Instruments Corp., Dept. PM3, P.O. Box 1543, Oakland, Calif. 94621.

**USED** CORRESPONDENCE courses and books sold and rented. Money back guarantee. Catalog free. (Courses bought.) Lee Mountain, Pisgah, Alabama.

"**STAMMER**—Stutter—no more." (Dr. Young.) Write: Gaucho, Box 9309-S7, Chicago 60690.

**PRE-PATENT** IDEA WRITING: Editing service. Details \$1.00, self-addressed-stamped envelope. Clifford Johnson, 1345 4th Avenue, Pm, Rockford, Illinois 61108.

**COMPLETE** YOUR HIGH SCHOOL at home in spare time with 70-year-old school. Texts furnished. No classes. Diploma. Information booklet free. American School, Dept. X245, Drexel at 58th, Chicago, Illinois 60637.

**PASS** Civil service examinations. Alena, 1513 64th Street, Brooklyn, New York 11219.

**BE A** Real Estate Broker. Big earnings. Free catalog. Weaver School of Real Estate, 3519-P Broadway, Kansas City, Missouri 64111.

**LEARN** Civil and criminal investigation at home. Earn steady, good pay. State age. Institute Applied Science, 1920 Sunnyside, Dept. 162, Chicago, Illinois 60640.

**LEARN** TECHNICAL WRITING—Qualify at home for high paying prestige career not requiring college. Growing demand in all industries for tech writers now. Low monthly tuition. Easy to understand. FREE career book, sample lesson. American Technical Writing Schools, Dept. PMC-17, 5512 Hollywood Blvd., Hollywood, Calif. 90028.

**ADVANCED** Police-Investigative training. Write: Criminology, Box 5014-M, Eugene, Oregon 97403.

**YACHT** Captain School trains you for professional command, 10 weeks—practical—classroom—cruises. Write Holiday Harbor, 7740 S. Trail, Sarasota, Florida 33581.

**GAME** WARDEN, Government Hunter, Forestry, Park and Wildlife Services announce job openings regularly. Prepare at home for outdoor work, good pay, security. Complete information Free! Write North American School of Conservation-AZW, Newport, California 92660.

**CORRESPONDENCE** COURSES—B.Sc., Engineering, Electronics, Catalog \$1. Canadian Institute of Science & Technology, 263A Adelaide St. W., Toronto.

**BECOME** A Detective. Modern home training methods. Diplomas awarded. Men and women urgently needed in industry and government positions. Write Alabama School, Box 185-P, Fairfield, Alabama 35064.

**WIN** Financial, professional, vocational, social success through voice power. Bold, new 90 day home training course by world famous teacher. Free literature. Payne's, 14 Benjamin, Clark, N.J. 07066.

**MINISTERIAL** Extension courses. Send for entrance examination. Soms, 887 West Spruce, Ravenna, Ohio 44266.

**WATCH** REPAIRING. Learn to repair American and Swiss watches in spare time at home. Tuition \$5 monthly. Diploma awarded. Free sample lesson. No obligation. Chicago School, Dept. YO, Fox River Grove, Illinois, 60021.

**REFRIGERATION** And air conditioning training at home in your sparetime. Details free. Terrysam, Box 798, Miami Springs, Fla. 33166.

**LEARN** Expert cake decorating, candy making. Free details on home instruction method. Candy & Cake Institute, Dept. APV, 1600 Cabrillo Ave., Torrance, Calif. 90501.

**SELF-HYPNOSIS** For super memory, concentration, power, success! Easy manual, \$2. Meridian, Dept. PM-2, Box 5091, San Mateo, Calif. 94402.

**IMMEDIATE** Future, from Science and Bible, for \$1. Humanitarian, Box 203P, Neah Bay, Washington.

**LATEST** Bricklaying bibliography. Full details. Send 5¢. The Pretlo Services, P.O. Box 114, Durham, N.C. 27701.

**DRAFTING** (Electronic, Mechanical, Architectural, Art). Home courses \$25.00. Send \$2.00 first lesson. Prior, Inc., 23-09 169 Street, Whitestone 57, New York.

## FOR INVENTORS

**INVENTORS:** Your ideas and inventions (patented; unpatented) expertly searched, developed for commercial appeal and cash/royalty sales to manufacturers by professional invention Developer with excellent record of experience. B.S., Industrial Engineering; United States Patent Office former Patent Examiner United States Government former Patent Advisor. Second decade reliable service! Member: United States Chamber Commerce. Free "Invention Record" and "Recommended Protection Procedure". Airmailed! Write: Raymond Lee, Invention Developer, 130-N West 42nd, New York City 10036.

**PATENT** Searches, including copies of related U.S. patents, \$6.00. Inventors, attorneys, manufacturers use my "world-wide" airmail service! "Invention Record" form and "Information Every Inventor Needs." sent free! Miss Hayward, 1029P Vermont, Washington 5, D.C.

**U.S. Patent** Office Searches, 234 Broadway, Room 3615, New York. Free invention certificates.

**PATENT** Searches including Maximum speed, full airmail report and closest patent copies, \$6.00. Quality searches expertly administered. Complete secrecy guaranteed. Free Invention Protection forms and "Patent Information." Write Dept. 15, Washington Patent Office Search Bureau, 711-14th, N.W., Washington 5, D.C.



**PATENT** And invention development, by licensed professional patent engineer and U. S. Patent Office former examiner, and engineering specialists. Your inventions and ideas engineered for patent protection and commercial value. Inventions developed by us negotiated for cash or royalties with our nationwide contacts. Send for free protection "Invention Certificates" and further interesting, valuable patent information. George Spector, Licensed Professional Patent Engineer, Woolworth Building, New York.

**PROFESSIONAL** Patent searches, \$6.00 including official U.S. Patent Office copies of related U.S. patents! Prompt, dependable service. Certified, airmailed! For free "Invention Record Folio" and important patent information every inventor should have, write: United States Inventors Service Company, 501-P Thirteenth Street NW, Washington, D.C. 20004.

**PATENT** Application Financing. Free patent search plan. Global Patent Division, 2420 77th, Oakland, Calif. 94605.

**INVENTORS!** Get your "Little Piggy" to market via tested, most direct route. Highest cash or royalties. Financial assistance available. New York Invention Service, Dept. 1, 160 Broadway, New York, N.Y. 10038.

**INVENTORS!** Don't sell or license your invention for cash or royalties until you receive our offer. Financing available. Free analysis. International Invention Institute, Dept. 25, 160 Broadway, New York, N.Y. 10038.

**INVENTIONS** Needed immediately for manufacturers. For additional information write Kessler Corporation, C-52-FI, Fremont, Ohio.

**IMMEDIATE** Cash, for patent applications. Free patent searches. Write for details. Universal Patents, 184-D, Marion, Ohio.

**YOUR** Ideas may be worth a Million Dollars, but . . . if they stay in your head they're not worth a nickel! Now through membership in the International Idea Club, Inc. you can sell your ideas and get maximum cash rewards. Legally protected, your ideas are consistently exposed to interested parties. Send only \$1.00 today for big illustrated book "Millions For Your Ideas" showing how you can profit by membership in one of the nation's most dynamic organizations. International Idea Club, Inc., Dept. PM, 135 Columbus Ave., Boston, Mass. 02116.

### INVENTIONS WANTED

**INVENTORS!** Don't sell your invention, patented or unpatented, until you receive our offer. Eagle Development Company, Dept. H, 79 Wall Street, New York 5 N.Y.

**INVENTORS!** We will develop, sell your idea or invention patented or unpatented. Our national manufacturer-clients are urgently seeking new items for highest outright cash sale or royalties. Financial assistance available. 10 years proven performance. For free information write Dept. 47, Wall Street Invention Brokerage, 79 Wall Street, New York 5, N.Y.

**INVENTORS** Wanted: Manufacturers need new items! Your inventions, ideas developed for cash/royalty sales. Free "Invention Record": Information, Raymond Lee, 130-P West 42nd, New York City 10036.

**INVENTORS!** Outright cash sale or royalties for your inventions. Patented. Unpatented. Active demand from our client manufacturers. Financial assistance available. Write Dept. 36, United States Invention Brokerage, 78 Wall Street, New York 5, N.Y.

**INVENTIONS** Wanted. Patented: unpatented. Tremendous manufacturers lists. Global Marketing Service, 2420G 77th, Oakland, California 94605.

**INVENTIONS** Wanted immediately by blue-chip companies. Top cash or royalties. Do nothing 'til you hear from us. Write, wire, phone: Wall Street Promotions, Inc., Dept. 42, 99 Wall Street, New York, N.Y. 10005. (212-425-2280)

**INVENTORS!** Thousands have gone from "Rags to Riches" this safe, sure way. Custom-tailored, personalized program. Contact the organization with "Know-How." Pioneer Invention Service, Dept. 83, 150 Broadway, N.Y. 10038.

**INVENTORS!** Sell your invention for cash or royalties! Our client manufacturers eagerly seek new items. Patented. Unpatented. Financial assistance if needed. 25 Years proven performance. For free information, write Dept. 15, Gilbert Adams, Invention Broker, 80 Wall St., New York 5, N. Y.

**INVENTORS**—If you have an invention for sale, patented or unpatented, wire for free brochure outlining manufacturer's requirements. Royalty rates. Kessler Corporation, C-52-IW, Fremont, Ohio.

**WE** Either sell your invention or pay cash bonus. Write for details. Universal Inventions, 298-E, Marion, Ohio.

**INVENTORS:** Protect your ideas! Free "Recommended Procedure." Washington Inventors Service, 422F, Washington Building, District of Columbia 5.

### PATENTS FOR SALE

**PAT. 3,191,471** Stewart toolholder. Does everything. Box 387, Benicia Calif. 94510.

### MANUFACTURING

**YOUR IDEAS DEVELOPED. ALL INVENTOR'S SERVICES.** Models, research, manufacturing, sales. Free brochure. William Parker, 32 Westminster, Worcester, Mass. 01605.

**BIRCH** Plywood—Any size, shape, specification. Violette Plywood, Lunenburg, Mass.

**PRECISION** Machining, tools. Metal nameplates. Tool Manufacturers, Box 13020, St. Louis, Missouri 63119.

**MODELS**—Small lot manufacturing. Metals, plastics, etc. Milburn, Burlington, Kentucky 41005.

### BUY IT WHOLESALE

**NEW 6-Color Deluxe** below wholesale catalog. Automobile catalog and others. Housewares, clothing furs, furniture, rugs, appliances, refrigerators, washers, dryers, vacuum cleaners, polishers, cookware, dinnerware, strollers, cribs, radios, stereos, phonographs, records, recorders, cameras, film, projectors, musical instruments, organs, typewriters, books, binoculars, luggage, sporting goods, bowling, golf, game tables, power/rider mowers, garden tractors, boats, motors, bicycles, clocks, watches, diamonds, jewelry. Huge discounts, hundreds name-brand products. For free list (factory prices) postcard: Selbyco-5, Decatur, Illinois 62522.

**TREMENDOUS** Wholesale bargains. Half-million nationally known products. Rockbottom prices. Closeouts, bankrupts. Dropship merchandise. Automobiles. Worldwide imports. Hongkong clothes. Free details. International Buyers, 216-MM West Jackson, Chicago, Illinois, 60606.

**100,000 BARGAINS!** Wholesale! Closeouts! Imports! Wholesalers, 1265-MP Broadway, New York, N.Y. 10001.

**ELECTRIC** Guitars, amplifiers, wholesale. Free catalog. Carvin PMW, Covina, Calif. 91722.

**HEARING** Aid batteries wholesale. National Wholesale Battery Company, P.O. Box 825, Wichita, Kansas 67201.

**WHOLESALE** Promotions every type merchandise. Amazing Free catalog. Department 40, 100 North Greene St., Baltimore, Maryland 21201.

**BARGAINS.** Buy below wholesale. Name brand merchandise. Save money, also discounts up to \$1000.00 on new automobiles. Free catalogue. Gaycraft, Dept. PM-WC, Box 826, Niagara Falls, N.Y. 14302.

### EXPORT-IMPORT

**CULTURED** Pearls direct through major Japanese distributor. Save 50%. Free particulars. Torii Trading, DP Box 25, Salt Lake City, Utah 84110.

**JAPAN:** 1200 Products Directory, Illustrated. Manufacturers' names, addresses: \$3.00. Mail-Order Catalog. Novelties, \$1.00. Send Cash. Yamagata Office, 814 Togin Bldg., Marunouchi, Tokyo.

### FOR THE HOME

**TELL** The more than 1,550,000 avid readers of Popular Mechanics about your products and services. It costs very little to place your classified message in front of these proven mail order buyers. For further details, write: C. A. Martin, Dept. 63N, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

### OF INTEREST TO WOMEN

**HOME** Typing . . . \$95 weekly possible. Instructions with employers list, \$1.30. Eaton Company, 543-A, Hopland, California 95449.

**\$100 WEEKLY** Possible assembling our products! United, Box 55392-D, Indianapolis, Indiana.

**\$45.00 THOUSAND.** Home addressing! Longhand, typewriter. Information, send stamped, self-addressed envelope. Brewster, Box 1626-J, Clearwater, Florida 33515.

**MAKE** Extra money. Introduce new Micro-film seamless nylons which can't run downward. Amazing low direct-from-mill price, 49¢ pair! Write for free sample stocking and kit. American Hosiery Mills, Dept. 138, Memphis, Tennessee 38101.

**\$100.00 WEEKLY** Possible sewing, assembling, products! Charmers, Warsaw 9, Indiana 46580.

**\$400.00 Monthly** Possible . . . Home typing! Guaranteed profitable methods, Instructions, \$1.00. Pulse, Box 18177-PB, Indianapolis, Indiana 46218.

**EMBED** Real flowers, butterflies, photos, coins in New Liquid Plastic. Sets hard like glass without heat. Make beautiful things at home, sell at big profits. Illustrated Booklet shows How. Send 25¢, Dept. 67-101AW, Castolite—Woodstock, Illinois 60098.

**WOMEN!** Make big money at home. \$10.00 profit in an hour possible with invisible mending. Make holes, tears disappear from clothing, fabrics. Steady year-round demand from cleaners, laundries, homes. Details free. Fabricon, 1533 Howard, Chicago, Illinois 60626.

**QUICK** Way To Spare Time Money. Learn how to create exclusive millinery at home. Exciting facts free. Academy Millinery Design, Dept. 2222-027, Little Falls, N.J.

**RAISE** Rabbits for us on \$500 month plan. Free details. White's Rabbitry, Mt. Vernon, Ohio 43050.

**MAKE MORE EXTRA CASH!** World's biggest line, everyday greeting card assortments, gifts. Show friends, neighbors over 150 assortments, 500 big money-makers. Up to 100% profit plus cash bonus. Free giant color catalog, samples on approval. Arrow Greetings, 513 Fourth Avenue, S., Dept. 39X2, Minneapolis, Minn.

**FREE** Gift catalog. Hobbs House, P.O. Box 1217, New Britain, Connecticut 06050.

**DRIVE** New car, wear new clothes, buy color TV. Get daily cash income. Put spare hours to work. Write for 5 months free subscription Opportunity Magazine; see hundreds easy ways to make money. Opportunity, Dept. 17-BO, 850 N. Dearborn, Chicago.

**HOUSEWIVES.** Teachers, students, office workers. If you need extra cash each week but household or other duties prevent you from taking a part-time job learn how you can earn by accepting orders to Popular Mechanics, Good Housekeeping and all other magazines. No experience needed. Write Popular Mechanics, Room 6-W, 250 West 55th St., New York 19, New York.



## WATCHES, OLD GOLD, JEWELRY

USED Pocket watches—as is—5 for \$25.00. Joseph Bros., 5 South Wabash, Chicago 60603.

WANTED, Gold, silver, platinum, scrap (any form), coins. Information free. Wilmoth's, 1067-D Bridge St., Grand Rapids, Michigan 49504.

CASH Immediately for old gold, jewelry, gold teeth, watches, diamonds, silverware, spectacles, platinum, mercury. Free information. Rose Industries, 29-A East Madison, Chicago 2.

INSTANT CASH For sterling silver, in any condition, \$12 per lb. Mercury \$5.00 per lb. Universal, 299 Bridge St., Salem, Massachusetts 01971.

WATCHES! Airmailed from Switzerland. Over 1000 different models available. Catalog 25¢. Preston's, 511 Glenwood, Buffalo, N.Y. 14208.

HIGHEST CASH for Gold, Jewelry, Gold Teeth, Rings, Diamonds, Watches, Silver, Platinum, Mail Articles Today. Free gift with information. Chicago Gold & Precious Metals, 6 E. Monroe, Dept. 658, Chicago 60603.

USED Elgin, Bulova, watches \$5 up. Free list. Southern Watches, 5-PM South Wabash, Chicago 60603.

WATCH And clock repairing books. Free catalog. North American, Box 77-AB, Fox River Grove, Illinois 60021.

## WEARING APPAREL

GENUINE "Joe Hall" handmade western boots, jodhpurs, elastic sidegore, western clothes. Catalog, Box 17246M, El Paso, Texas 79917.



## SCIENCE AND CHEMISTRY

CONTACT Explosive. Easily make torpedoes—thrown down, they explode. Complete formulas, directions, \$1.00. Technitome, Box 22, Berlin, New Jersey 08009.

FIREWORKS Supplies, casings, end caps, plugs, chemicals, fuse, do-it-yourself kits, send 35¢ for samples and catalogue—Ecco, Box 189, Northvale, New Jersey 07647.

SEARCHING For economically priced chemicals and apparatus? Gifts with catalog, 25¢. Starr Scientific, Manitowoc, Wisconsin 54220.

ROCKETS, Single, multi-stage kits, parts amazing Accelerometer, Illustrated catalogue 25¢ Rocket Supply, Box 51B, Tappan, New York 10983.

ILLUSTRATED Catalog: Chemistry, mineralogy, biology 25¢. Tracey Laboratories, Evanston, Illinois 60204.

PROFESSIONAL Firecracker fuse, burns, underwater, 75 feet, \$1. Fireworks, explosives formulas, free information, Edcolabs, Box 99, Berlin, New Jersey 08009.

FIREWORKS—Explosives—detonators. New manual reveals formulas, preparations, only \$2. Free with order, \$2 certificate for fuse. Pyrochem, Box 169, Berlin, New Jersey 08009.

ROCKETS: Real flying models—flights up to 2500 ft. New illustrated catalog 25¢. Single and multistage kit, cones, engines, launchers, trackers, rocket aerial cameras, technical information. Fast service. Estes Industries, Penrose 7, Colorado 81240.

SKYROCKETS, Firecrackers, fireworks—Make your own! 60 simple formulas \$1.00; 30 smoke formulas, 15 colors \$1.00; 10 fuse formulas 50¢. Paloma Pyrotechnics, Box 247, Auburn 5, California.

ROCKETS! Flight kits, testing equipment. Catalog 25¢. Rocket Development Corporation, Route 3, Seymour, Indiana 47274.

FREE Periodic classification of elements and conversion tables with catalog 25¢. Chemicals, apparatus, biology. Mid-States Scientific, 7053 N. Clark, Chicago, Ill.

SCIENCE Fair booklet—experiments, information, suggestions, \$1.00. Hagenow Laboratories, Manitowoc, Wisconsin 54220.

AMAZING New book of science experiments, formulas, and catalogue of laboratory supplies. Only 35¢. National Scientific Co., 18 S. Park Avenue, Dept. PM-2 Lombard, Illinois.

CHEMICALS And apparatus for industrial, analytical, and private laboratories. Catalog 35¢. Dept. M-50, Biological Supply Co., 1176 Mt. Hope Ave., Rochester 20, N.Y. 14620.

CANNON Fuse 3/32" diameter, waterproof, 25 feet, 2 pull wire fuse lighters, instructions \$1.00. Postpaid. Samples 35¢. Free brochure. American Fireworks, Box 1086-C, Fairfield, Conn. 06431.

FIREWORKS! Rocket fuels! Explosives! Easily prepared formulas \$1.00. U.S. Pyrotechnics, Box 0234, Cedarhurst, N.Y. 11516.

EXPLOSIVES! NITROGLYCERIN! Plastic! Contact! Water! Thermite! Ten complete super formulas—\$1.25. Pyrotechnico., 380 Mentor, Pasadena, California, 91106.

DON'T READ: Fireworks—all types. Detailed procedures, formulas, illustrations, etc., \$1.00. Pyros Limited, Box 656, Salem, New Hampshire 03079.

CONTACT Explosive. Explodes with touch of feather. Handled safely wet. Powerful. Applies like paint. Made from Household chemicals. Results guaranteed. Complete instructions for making both kinds only \$1.00. Franks Scientific Company, P.O. Box 156, Martelle, Iowa 52305.

EXPLOSIVE—Looks, acts like ordinary flour. Can be baked into bread, etc. Powerful as TNT. Used by O.S.S. Formula, \$1.00. Bylina, 5115 S. Campbell, Chicago, Illinois, 60632.

FIREWORKS, Kits, fuse, chemicals, rockets, instructions 25¢. Pyronews, Soquel Calif. 95073.

CHERRY Bomb fuse, water proof 25 feet with formulas, instructions \$1.00; 125 feet \$4.00 Postpaid. Free catalog, Zeller, Box 368, Hudson, Michigan 49247.

LOWEST Prices! Free circular slide rule with catalog 35¢. Specimens, chemicals, apparatus, science fair supplies. Dissect-A-Kit, Box A56, Wantagh, N.Y. 11793.

HIGH Altitude balloons. Filled from your own hydrogen generator. Easily made at low cost. Instructions \$1. Metx Laboratories, Box 10211, Denver, Colorado 80210.

FIRECRACKERS—Complete plans, formulas, instructions for all sizes, types. All for \$1.00. ZEBRA, Box 865, Bellevue, Washington.

FREE! Over 75 formulas for skyrockets, flares, smokes, whistles, fuses, propellants, tear gas. Get them all free with our 50¢ catalog. Franks Scientific Co. P.O. Box 156, Martelle, Iowa 52305.

EXPLODING Booby traps, contact explosive, fireworks, Formulas \$1.00. Import, P.O. Box 71, Pottsville, Pennsylvania 17901.

1/8" DIAMETER Underwater fuse 40 feet \$1.00; 3/32" diameter 75 feet \$1.00; 1/4" diameter 10 feet \$1.00; Pyrotechnical casings, all sizes, at lowest prices ever. Box of 17 assorted samples plus list \$1.00; Kaseco, Box 77, Riverdale, New Jersey 07457.

SKYROCKETS, CONTACT EXPLOSIVES, Aerial displays—Exciting new manual: 28 types (complete, detailed instructions), diagrams, 75 formulas—rocket construction, roman candles, fountains, stars, streamers, fireballs, colored flares, smokes, fuses, propellants, flaming balloons, contact explosives (explode with slightest touch) \$1.00. Sentece-GD, 433 Ellis, San Francisco 94102.

FIRECRACKERS, skyrockets, salutes. Huge illustrated catalog 60¢, with samples \$1.00. American, Box 1086, Fairfield, Connecticut 06431.

ROCKETS! 3 Solid fuel aluminum rockets—smoke trail, safety chlorate fuel. Complete, ready to launch—\$1.00. Pyrotech, Box 701-K, Manchester, Vermont.

EXPLOSIVES BOOK. Ever wonder what that putty stuff is that all the spys and green berets use? Plastic explosives, just as powerful as depicted on T.V. HIGH-LOW-BOOM!, copyright 1966 U.S., nazi, foreign, explosives, preparations, both industrial, and military. Powders, dynamites, detonators, nitroiodide, RDX, TNT, Tetryl, nitroglycerin, blasting caps, . . . all the whys and hows. Blasting technique, ammunition components, diagrams, everything up to fireworks, design and preparation. Over 200 separate formulas contained in the text. You don't have to be a college chem major to understand the text, but only the most current, technical data is used. Multi-color printed. Clip this ad, special \$5.50 postpaid. Free color illustration on book cover and contents, sent upon request. Mail today! Bridgeview Gun Sales, 8917 Southfield Drive, Oaklawn, Illinois 60455, Dept PM.

FOR Sale, Weingarts book "Pyrotechnity, \$6.95. Christy, Box 85, Bergenfield, N.J. 07621.

ASTRO-EXPLORER Easily identify 135 stars and 45 constellations with battery operated starfinder. Only \$2.95. Free details. Postshop, Box 1574, Pittsburgh, Pa. 15230.

## FORMULAS, PLANS, ETC.

PRODUCT Formulas. Send \$1.00 Toni chemist, 5540 Hollywood Blvd., Hollywood, California 90028.

ENCYCLOPEDIA Of formulas, processes, recipes. Details free. Cassill, Box 1535, Eugene, Oregon 97401.

LATE. Modern manufacturing formulas. List free. Moon Chemical, Martville, New York 13111.

FOR Proof of what you can do in specialty manufacturing get our literature. It's free! Miller, Chemist, 1517-P, Tampa, Florida 33601.

## PLASTICS

NEW Liquid Casting Plastic sets hard like glass without heat. Clear, Colors. Embed real flowers, butterflies, photos, coins. Make beautiful things at home, sell at big profits. Illustrated Booklet shows How—Send 25¢. Dept. 67-101B, Castolite—67-101A, Woodstock, Illinois 60098.

PLASTICS for arts & crafts, fun & profit. See how easy it is to work with liquid plastics. Turn your plastics hobby into \$ for you. Send 50¢ for catalog to PMI, 1644 20th, Santa Monica, California.

LUCITE Sheets, rods, tubes. Clear, colored, every thickness. Cut to size or pattern. Martin Plastics, 52 River Ave., Providence, R.I. 02908.

## TREASURE FINDERS

NUCLEAR Locators! Coins, relics! write Howe, 811-C Kansas, Atchison, Kansas.

POWERFUL Metrotech locators detect gold, silver, coins, relics. Moneyback guarantee, terms. Free information. Underground Explorations, Dept. A, Box 793, Menlo Park, California.

SAVE! Build transistorized treasure finder. Details free. Del Research, Box 436B, Centerville, Georgia 31093.

NEW Revolutionary selective transistorized metal detector. Push button tuning, automatic tuning, etc. Many models. Free catalog. Gardiner Electronics Co., Dept. 9, 4729 N. 7th Avenue, Phoenix, Arizona 85013.

TREASURE. Gold, silver, relics. New 1967 detectors now available. Free information. Rayscope, Box 715, North Hollywood, California 91603.

FIND Buried coins, treasures, relics. New supersensitive, low priced detectors for land or underwater use. Free information. Sensitronix, 2225-C Lou Ellen, Houston, Texas 77018.



**TREASURE.** Find gold, silver, relics with super, powerful Detectron locators. Free information. Detectron, Dept. PM-2, P.O. Box 243, San Gabriel, California.

**FREE 84 Page detector catalog.** General Electronic Detection Co., Box 67, Bellflower, Calif. 90706.

**COIN-Comber transistor treasure detector.** Free information. Racom, Box 13469-P, Orlando, Florida 32809.

**NEW 1966 Goldak treasure, coin, gold, silver locators.** Goldak, Dept. PMC, 1544 W. Glenoaks, Glendale, Calif. 91201.

**PROVEN Sensitive M-Scopes locate coins, relics, gold, silver, etc. Guaranteed.** Terms. Free fascinating booklet. Fisher Research, Dept. PM7, Palo Alto, California 94302.

**URECON Metal finder, 8" head, transistorized, \$37.50 delivered.** Urpa, 6304 Beechwood, Sarasota, Fla. 33581.

**COMPLETELY New prospecting technique developed by Relco.** New transistor models detect buried gold, silver, coins, treasures. \$19.95 to \$129.50. Write for free catalog and "guide for beginners". Relco-A40, Box 10563, Houston 18, Texas

### PRECIOUS STONES AND MINERALS

**SEMI-Precious uncut gems.** Ten different for \$1.00. Request list 30. Prospectors Shop, 201 San Francisco, Santa Fe, New Mexico 87501.

**EARTH Science Rockhound Magazine.** Subscription \$2.50. Sample 35¢. Box-550-PM, Downers Grove, Ill. 60515.

**GOLD NUGGETS, \$4.00.** From miner. Moneyback guarantee. Lea, Box 1125, Mt. Shasta, California 96067.

**GET Free catalog no serious rockhound, gem cutter, jewelry maker, hobbyist or craftsman can be without.** Full of bargains, exclusive items, low prices from largest suppliers and authorities in the field. Free new catalog just off the press. Yours for the asking. Write Grieger's, Dept. C-12, 1633 E. Walnut, Pasadena, California.

**15 POLISHED And 15 rough gemstones \$2.00.** Do-it-yourself jewelry kit, \$2.98. Mineral sets \$1.00 and \$2.00. Catalog 25¢. Hill's, PO Box 7364-A, Salem, Oregon 97303.

**JADE COLLECTION:** Large hand specimens 12 different jades, labeled, \$5.00. Free brochure. Wilderness Originals, Canyon, California 94516.

**PETRIFIED Wood, Half pound postpaid \$1.00.** Arnold Exline, Clay, W. Va. 25043.

**100 COLORFUL, Polished gemstones, \$1.00.** Tumblecraft, 5401 James North, Minneapolis, Minnesota 55430.

### CARTOONING, COMMERCIAL ART, SHOWCARD & SIGN PAINTING, TATTOOING

**"HOW To Make Money With Simple Cartoons"**—Everyone who likes to draw should have this book! Free. Send name, zip code. Cartoonists Exchange, 912 Pleasant Hill, Ohio 45359.

**SIGN Painting.** Fascinating system. Straley, 410 South Western, Springfield, Ohio.

**YOU Can entertain with chalk talks.** Catalog 10¢. Balda the Cartoonist, Oshkosh, Wis. 54901.

**LEARN Sign painting at home.** Free talent test. Ben Kerns, Box 812-PM, Greenville, S.C. 29601.

**PROFESSIONAL Cartooning instruction by mail.** Free booklet "Successful Cartooning" gives course details and opportunities. National School of Cartooning, Studio-H, Box 8958, Cleveland, Ohio 44436.

**COMPACT 23 Lesson Cartoon Course and Cartoonist's Magazine, \$1.00.** Hartman, Box 3097, Lincoln, Nebraska 68510.

**SIGN Tricks (Deluxe Edition) \$1.00.** Harris, Box 1567-J, Portland, Oregon 97207.

**SIGNS—Easy method used.** Ellis, 105 1/2 721-Ave., Largo, Florida 33540.

**CARTOONERAMA Teaches you cartooning in a 24 lesson course.** Free brochure. CFA, Box 263-3B, Brandford, Connecticut 06403.

### ADVERTISING AGENCIES, ADV. SERVICE, MAILING LISTS

**ADVERTISING Ratebook** leading newspapers, magazines, free. Chicago Advertising Agency, 28-E Jackson, Chicago 4.

**EXTREMELY Productive mailing list—Guaranteed 14 kt. names that really pay off!** \$5-1000. HERNANDEZ ENTERPRISES, Postbox 536, West N. York, N.J. 07093.

**MAILING Lists** most all kinds 1000 \$5.00. Free folder. Your circulars mailed \$4.00 1000. Dixie Mailers, King, N.C. 27021.

**MAILORDER Record Book, 30 pages.** Records inquiries, orders, advertising expense, etc. Most complete. Just send dime for postage and handling. C. A. Martin, Popular Mechanics, Dept. RB7, 575 Lexington Ave., New York, N.Y. 10022.

### TYPEWRITERS, DUPLICATORS, OFFICE EQUIPMENT

**OFFSET, Letterpresses, vartypers, typewriters, mimeograph, multigraph machines.** Bargains. DixieGraph, King, North Carolina 27021.

### RUBBER STAMPS AND OFFICE SUPPLIES

**SEND Copy for quotation, information.** Signet Stamp Company, Riverhead, N.Y. 11902.

**FREE Catalog rubber stamps, supplies.** Bilmar, 11117-Ewing, Minneapolis, Minnesota 55431.

**FREE Catalog: Rubber stamps, printing.** Dowling Products, Dept. PM36, Pitts-town, N.J. 08867.

**DESK Name Plates, Door Signs, Free Catalog.** Engraving, 34 Cora Avenue, Wil-liamstown, New Jersey 08094.

**FREE! Illustrated catalog.** Writewell Co., 512 Transit Bldg., Boston, Mass. 02115.

**FINEST Quality Stamps, three lines, \$1.00.** Dee's, Box 14004, Phoenix, Arizona.

**CATALOG: Rubber Stamps, daters, printing.** Martin, 1425 Major, Jefferson City, Missouri 65101.

**FREE Rubber Stamp—Printing Catalog.** Harfmann, Box 443 Owatonna, Minn. 55060.

**FREE 32 Page rubber stamp catalog.** Signature stamps \$3.50. Youngers Stamp Shop, Princeton, Iowa 52708.

### PRINTING, MULTIGRAPHING, MIMEOGRAPHING, GUMMED LABELS

**AMAZING Business printing values.** Samples. Print Shop, Box 576, Greenville, R. I. 02828.

**QUALITY Printing: Lowest prices.** Samples. Dowling Press, Dept. PM-36, Pitts-town, N.J. 08867.

**1000 GUMMED Address labels, \$1.00.** Walt's, Box 966-A, South Bend, Indiana 46624.

**EMBOSSSED Business cards, \$2.99—1000, free samples.** Gables, 405A Clifton, Glen-shaw, Pa. 15116.

**FREE Literature: 1000 name, address labels \$1.00, 1000 business cards \$4.95.** Printing, rubber stamps. Satisfaction guaranteed. Jordan's, 552 West O'Connor, Lima, Ohio 45801.

**100 TWO Color Porcelain Business Cards \$1.25.** Eslick's Craft Studio, Delavan, Wis-consin 53115.

**BUSINESS Printing.** Catalog free. Bill's Press, 531-P Rosewood, Kirkwood, Mis-souri 63122.

**1000 GUMMED address labels, 75¢, 3 sets \$1.50.** Money refunded on \$15 reorder from catalog. Box 36114, Los Angeles, Cali-fornia.

**FREE Booklet—"Secrets of Cutting Printing Cost."** Cisco's, Atlanta, Illinois 61723.

**MICR Encoding.** Post Office Box 190, Franklin Park, Illinois 60131.

**1000 ADDRESS Labels, 50¢.** Three sets, \$1.25. MAILMAG, Milford, New York 13807.

**OFFSET Printing 25 to 5,000 copies 24 hour service.** Low prices, Cisco's, Atlanta, Illinois 61723.

### PRINTING & RUBBER STAMP OUTFITS—SUPPLIES

**TYPE And supplies for rubber stamp makers.** New wholesale price list No. 4 free. Star Stamp Supply, 732 Federal, Chicago, Ill. 60605.

**RUBBER Stamp outfits, supplies.** Kiewiet, 2025 Barney Road, Kalamazoo, Mich. 49007.

**RUBBER Stamp manufacturers supplies.** New products. Low prices. Catalog, Jackson Supply, 1433 Winnemac, Chicago, Illinois 60640.

**MAKE Your own self-molding rubber stamps and printing cuts.** Plexirubber, Argyle 1, Wisconsin.

**PRINTING Presses, type, supplies, Lists, 5¢.** Turnbaugh Service, Mechanicsburg, Pennsylvania 17055.

**DO Your own printing.** Save money. Simple rules. We supply everything. Print for others: good profit. Raised printing like engraving too. Have home shop. De-tails free. Kelsey Presses, V-11, Meriden, Connecticut, 06450.

**RUBBER Stamp presses, hydraulic operated, electrically heated.** Sizes 5" x 8", 8" by 12", 10" x 15". Starting outfits, sup-ples. Printing Presses. Orders presses, supplied shipped day received. 1966-67 cat-alog low supply prices. Custom Manufac-turing, 402-P East Elm, Springfield, Mis-souri.

**TYPE Catalog No. 11, 96 Pages.** Send One Dollar. Deductible First Order. Acme Type, 732 Federal, Chicago, Illinois. 60605.

### REMAILING SERVICE

**SECRET Mail receiving system.** Hedg-peth, 406-M South Second, Alhambra, California 91802.

**SECRET Receiving and remailing.** Dis-creet and confidential. Remail 25¢ single. 6050 S. Main, Houston, Texas. 77025.

**LOS ANGELES, Hollywood, San Fernan-do Valley—25¢ single; \$3.00 monthly.** Con-fidential. 10437 Lanark Street P, Sun Val-ley, California 91352.

**SO AMERICA Registered re-airmails, \$1.00.** Confidential. Genaro, Box 360, Guay-aquil, Ecuador.

**MIAMI Confidential remailing 25¢ per letter.** William's Box 161, Miami, (Uleta) Fla. 33164.

**SWEDEN Air mail! Send addressed with \$1.50.** N.J. 25¢. Box 192, Dunellen, N.J. 08812.

**HAWAII Remails, fast, confidential, 25¢.** 1509 G-4 King St., Honolulu, Hawaii.

**REMAILS.** Forwarding, receiving. Since 1958. Ellis, 407-PM Washington, Fairfield, Illinois 62837.

**ALASKA Remails, \$1.00.** Dawn Service, Box 853, Juneau, Alaska 99801.

**REMAILS Telephone answering offices in Hawaii, Los Angeles, Las Vegas, Texas, Chicago, Miami, Washington, Montreal, Italy, Saudi Arabia, Australia, Mexico.** Susan, 305 E. 24 15JB, New York City 10010.

**MIAMI Remails 25¢.** Monthly rates. Area View cards 5 for \$1.00. You stamp them. We Remail them free. Marie, P.O. B. 1266, Coral Gables, Florida 33134.



**SECRET** Address in romantic Hawaii. Remailing, forwarding 25¢. Monthly \$3.00. Cards, Hawaiian perfumes. Upple, Box 984-E, Kailua, Hawaii 96734.

**SAN** Antonio remails, 25¢ each. Brown, 331 IRA, San Antonio, Texas 78209.

**NEW** York Confidential mailing address. Worldwide remailings. Valies, Box 375-A, New York 10036.

**FROM** Fabulous Las Vegas. Unexcelled, fast, dependable, confidential service. Remails, 25¢. Monthly rates. Colorful cards. Ruthie, 558 Oakley Blvd., Las Vegas, Nevada 89105.

**CALIFORNIA:** Remailing 25¢. Monthly \$3.00. Details, Daltons, Box 6033, Los Angeles 90055.

**MIAMI** Remails 25¢ each, monthly. \$3.00. PM Charles, Box 3377, Miami, Florida 33101.

**MEXICO** Re-airmails. Forwarding, receiving, \$1.00. Postcards. Kaylu, Apartado 669, Guadalajara.

**FAST.** Professional Remailing. Many services. Write: Rucker, 909 Buena, Chicago 60613.

**TIMELY** Remailing 25¢. Unlimited Monthly \$3.00. Confidential Postcards. Schoen, Box 1963-P, Chicago, Illinois 60690

### REPAIRS AND SERVICING

**TELL** The more than 1,550,000 avid readers of Popular Mechanics about your products and services. It costs very little to place your classified message in front of these proven mail order buyers. For further details, write: C. A. Martin, Dept. 79N, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

### SPECIAL SERVICES

**INFORMATION** On anything. Ferguson Research Specialists, 83-45 Vietor Ave., Elmhurst, N.Y. 11373.

**WE** Locate anything you need for a reasonable fee. NBARS, 9325H, Menard, Oaklawn, Ill. 60453.

**AUSTRALIA:** Remailing \$1.00. Souvenirs, coins, stamps, special assignments, business representation. Professional Services, Box 73, Crows Nest, NSW, Australia.

**INFORMATION** Any subject. Product and book search, \$2.00 A. Hickman, Box 5996, Reno, Nevada 89503.

**PERSONALIZED** Professional counseling on buying or selling homes, lots, businesses or mortgages. Send \$5.00 for personal reply to your question or problem. Richard Du-Deck, Box 606, Malibu, Calif., 90265.

**WE** Locate any manufacturer or product in nation. \$2.00. Tucks Treasures, PM486, Pickwick Dam, Tenn. 38365.

**EYEGLASSES!** Wholesale laboratory established 25 years. Mail eyeglasses or prescription for quote. Global Opticians, 36 East 23 St., New York, N.Y. 10010.

### TOBACCO

**TELL** The more than 1,550,000 avid readers of Popular Mechanics about your products and services. It costs very little to place your classified message in front of these proven mail order buyers. For further details, write: C. A. Martin, Dept. 81N, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

### RAZORS

**YOUR** Ad in this space will be read by more than 1,550,000 active mail order buyers. Join the march to greater profits, place your products and services in front of them today with a small low cost classified ad. For further details, write: C. A. Martin, Dept. 82N, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

### WANTED—MISCELLANEOUS

**STAMP** Collections, accumulations. Eagle Stamp Co., 2221 Romine, Pittsburgh, Penna. 15226.

**MERCURY.** Gold, Silver, Platinum: Ores assayed Wholesale Terminal, Norwood, Mass. 02062.

**PROMINENT** Toy Mfg. seeking new toy ideas suitable to nationwide television promotion. Financial arrangement open. Write: Toys, Box #574, Norwood, N.J. 07648.

### PERSONAL

**NEED** Money? Your debts too big Solutions to all financial problems. Amazing results. Free details. Licensed and bonded. Write Financial Consultants, 28 E. Jackson, Suite 1204-PM, Chicago 60604.

**BLITZ** Reducing! 5 pounds overnight! Guaranteed! Bijou, Box 1727-BM, Hollywood, California 90028.

**BIBLE** Questions answered. Stamped envelope. Bylon, 17167 Bentler, Detroit, Michigan 48219.

**SUBCONSCIOUS** Conditioning remakes personality while you sleep. Free details Sleep-Learning, Box 24N, Olympia, Washington.

**LOW-COST** LOANS BY MAIL. \$6.00 monthly repays \$104.50; \$56 monthly repays \$1,321.39. Borrow any amount. Guaranteed fast, confidential. Write today! Bankers Investment, 67-A, Box 1648, Hutchinson, Kansas 67501.

**LOANS** By mail. \$100-\$1000. Anywhere. Confidential. Write Union Finance, Dept. PM, 222 W. Osborne, P.O. Box 7457, Phoenix, Arizona 85011.

**INVESTIGATORS.** Free brochure. latest subminiature electronic surveillance equipment. Ace Electronics, 11500-P NW 7th Ave., Miami, Florida 33168.

**SURVEILLANCE** Equipment. New 1966 models. Free details. Write: Security Electronics-PM, 11 East 43 Street, N.Y.C. 10017.

**BORROW** \$1,205 AIRMAIL! Repay \$47 for 36 months. State licensed. Postal Finance, Dept. 17-A, 200 Keeline Building, Omaha, Nebraska 68102.

**BORROW** \$100 to \$1000 by mail. Quick, easy, private. No Co-Signers. Repay in 36 small monthly payments. For the amount you want write today to Dial Finance Co., 410 Kilpatrick Bldg. Dept. 2-214, Omaha, Nebraska. 68102.

**BILL** PROBLEMS? Poor credit no trouble. Not a loan company. Send for free application. Automatic Acceptance, 318PM Broadway Blvd., Reno, Nevada or 307PM Pocasset Ave., Providence, R. I.

**"SLEEP** Learning tapes". Write for free brochure. "What's it all about." Personalized Tapes, Box 190-PM, Quincy, Massachusetts 02169.

**CUSTOM BUILT PROFESSIONAL SURVEILLANCE EQUIPMENT!!!** Finest on the market. Schematics for the "Build it yourself." Brochure \$1.00. Tri-Tron of Dallas. 330 Casa Linde Plaza, Dallas, Texas 75218.

**KNOW** Yourself. Send a sample of your handwriting and \$1.00 for a personal analysis to: J. Katzenmaier, 3020 Tomahawk Pl., St. Paul, Minn. 55119.

**FREEZE** Your debts. Pay them off when you get good and ready. Plan used by Business Industry. Banks. Governments. For complete plan send \$1.00 to: Good, 84-PM Charlotte, St. Augustine, Florida. Dollar refunded instantly if not pleased.

**DEDUCT** Expenses for your hobby. \$2.00. Evergreen, Box 511, Osseo, Minnesota 55369.

**\$100,000.00** Eight years. Without working, selling. 6,000,000 Earning. How. \$1.00. Brietenfeldt, B-106, Marathon, Wisconsin 54448.

**SECRET** Plan wipes out your debts! Easy to use. Immediate relief. Free details. Counselor-7, Harlingen, Texas 78550.

**RUPTURED.** Relief and comfort. No understraps, elastic or steel. Write Hand-Lock Products, Preston 4, Ont., Canada.

### MISCELLANEOUS

**BIRTH** Certificates, Marriage Certificates, Diplomas! 2 blank forms \$1.00. Sample 10¢. Standard Forms, Box 482-M, Washington, D.C. 20044.

**KILL** Mosquitoes, crop destroyers. Electronically. Free information. Box P. 204, Metamora, Michigan 48455.

**YOUR** Name sent to 1000 importers, publishers, mailers, wholesalers, etc. on our mailing list. Year \$1.00. Dixie Mailers, King, N. Car. 27021.

**WINEMAKERS.** Free illustrated catalog of yeasts, equipment. Simplex, Box 7208, Minneapolis, Minn. 55412.

**HEARING** Aid batteries wholesale. Free list. Habs, Box 51, York, Penna. 17405.

**SUPER** Memory overnight! Success guaranteed! Bijou, Box 1727-M, Hollywood 28, California. 90028.

**ORNAMENTAL** Iron designs. Book of 1600 beautiful, practical designs for railings, columns, etc. Free literature. Cunningham, 3881 South 3200 West, Salt Lake City, Utah 84119.

**FREE** Gift catalog. Pera, Box 1837 P, San Francisco, Calif. 94101.

**U.S.** And Brazilian land . . . Low as 40¢ acre! Free details. Land Digest, Box 26034-PB, Indianapolis, Indiana 46226.

**WINEMAKING** . . . Grape, Elderberry, Dandelion, Frozen Juices, etc. Brewmasters' secrets revealed! Powerful methods! Instructions, recipes, and supplies catalog. \$1.00. Continental, Box 26034-PB, Indianapolis, Indiana 46226.

**HANDWRITING** Analyzed 50¢, 5 for \$2.00. Box 36114, Los Angeles, California.

**SPECIAL NOTE**—Make your own riding mower, golf or fun cart or tractor with our complete drive gear and steering assy. manufactured by major mower company. Cost \$69.50, your price \$14.50. Send for list of parts, clutches, sprockets, wheels, gear boxes, tires, fenders, steering assy., etc. Parts for most all engines and lawnmowers. Rocky, Galveston, Indiana. 46932

**CARMEAN** Martin houses. Entices Martins. Free illustrated instructions. Hutchinson, Kansas 67501.

**REVOLUTIONARY** Discovery for steamed eyeglasses, bathroom mirrors; fogged car and store windows. Send \$1.00 to Miracle Cloth, 1013 Hedge Avenue, Marysville, California 95901.

**HOME** Made beer—unusual method, no guesswork, sketches, recipes and instructions. \$1.00. Ajax, P.O. Box #3, East Lynn Station, Lynn, Mass. 01904.

**WINEMAKING.** Beer, Ale, Brandies. Strongest methods. Illustrated. \$2.20. (Supplies. Hydrometer Headquarters.) Eaton Company, 543-A, Hopland, California.

Hearing aids, batteries, discount. Free list. Fiston, Box 1444, New Preston, Conn. 06777.

**BURGLAR** Alarm supplies—Complete line—Catalog \$1.00. Sootin's, 321 North-west Third Avenue, Miami, Florida.

**TAX** REFUNDS—Get your full share! Instructions reveal how. \$1.00. Refunds, Box 2972-M, St. Louis, Missouri 63130.

**PLASTIC LAMINATING** Photos—Social Security Cards, Identification Cards, etc. Free Literature. L & D Plastic Laminating, 5041 N. Natoma, Chicago, Ill. 60656.

**HOW TO BUILD A STILL.** Humorous, factual, illustrated, 50 pages. Includes distillation, fermentation, wine, homebrew, taxes, etc. Over 25 recipes. \$2.00. Buze, Box 490A, Norman, Oklahoma 73069.

**WAR** Medals—Illustrated listing 10¢. Rarities, Box 413-P, Torrance, California 90508.

**LOANS** By mail. \$100-\$1000. Anywhere. Confidential. Write Union Finance, Dept. PM, 222 W. Osborne, P.O. Box 7457, Phoenix, Arizona 85011.



# REVEALED!

## The Underground World of Supermen Discovered by Admiral Byrd . . . Under the North Pole . . . and Kept Secret by U. S. Government

Dr. Raymond Bernard, A.B., M.A., Ph.D., noted scholar and author of "THE HOLLOW EARTH," says that the true home of the flying saucers is a huge underground world whose entrance is at the North Polar opening. Dr. Raymond Bernard believes in



the hollow interior of the Earth lives a super race which wants nothing to do with man on the surface. They launched their flying saucers only after man threatened the world with A-Bombs.

Admiral Byrd, says sources quoted by Dr. Bernard, led a Navy team into the polar opening and came upon this underground region. It is free of ice and snow, has mountains covered with forests; lakes,

rivers, vegetation and strange animals. But the news of his discovery was suppressed by the U.S. government in order to prevent other nations from exploring the inner world and claiming it.

Now Dr. Bernard in his book "The Hollow Earth" leads you through this subterranean world to meet the civilization which occupies an underground area larger than North America! Beneath the 800 mile crust of the Earth is the greatest discovery in human history inhabited by millions of super intelligent beings. If you are ready for information that not many people can handle, order this book today. Fill out the coupon and send \$3.50 for the Soft Bound Edition. Books sold on 10 Day Money Back Guarantee. Limited Edition. Order Now! ▶

### CAN YOU EXPLAIN THE FOLLOWING?

- Why does one find tropical seeds, plants and trees floating in the fresh water of icebergs?
- Why do millions of tropical birds and animals go farther North in the wintertime?
- If it is not hollow and warm inside the Earth at the Poles, then why does colored pollen color the Earth for thousands of miles?
- Why is it warmer at the Poles than 600 to 1000 miles away from them?
- Why does the North Wind in the Arctic get warmer as one sails North beyond 70° latitude?



This sparkling book will make you wonder and think about the many things that Dr. Raymond Bernard clearly and plainly reveals. The edition is limited, first come first served, money back guarantee.

**ACT NOW!!  
DON'T HESITATE!!**

Fieldcrest Pub. Co., Inc., Dept. PM10

210 5th Ave., New York 10, N.Y.

Please send me "The Hollow Earth"

by Dr. Bernard.

I enclose \$3.50. Ship postpaid soft cover edition.

I enclose \$4.95. Ship postpaid library edition.

NAME.....

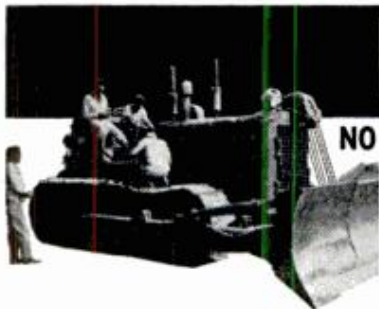
ADDRESS.....

CITY..... STATE..... ZIP.....

I enclose \$1 deposit. Ship C.O.D. for balance plus postage and handling.



# LEARN TO EARN!



NO CORRESPONDENCE • NO HOME STUDY • CONTRACTOR OWNED • VA APPROVED

- Students train on the machines they will operate
- All training by fully qualified instructors
- Students live at the school
- Western's graduate students are readily accepted for employment
- Many courses of study are offered

WRITE TODAY FOR FREE SCHOOL CATALOG

## WESTERN SCHOOL

OF HEAVY EQUIPMENT OPERATION

Associate member of Associated General Contractors and A.R.B.A.

BOX 510 • WEISER, IDAHO

Dept. M-1

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_



### BIG MONEY in BURGLAR ALARMS

~~\$188.50~~  
~~\$225.00~~  
~~\$411.50~~

Secret for years—now I reveal inside facts! Beginners discover how to start spare time without mechanical experience or costly equipment. My step-by-step plan starts you to prestige career installing burglar alarms. Huge market—factories, homes, stores. Steady income business. Get your \$12,000 profit story. **NASCO, 11071 Massachusetts Dept. A252, Los Angeles 25, Calif.**

Write for **FREE** Plan now!

## BILL PROBLEMS? WE CAN HELP YOU

NOBODY REFUSED UP TO \$18,000  
Bad Credit No Problem • Not a Loan Co  
Send your name and address for FREE application

**NATIONAL ACCEPTANCE, dept. M-8**

5133 N. Central Ave., Phoenix, Ariz. 85012  
or 119 Ann St., Hartford, Conn. 06103

## be a TAX CONSULTANT

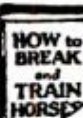
Income unlimited in ever growing profession. Our students are earning lucrative fees in dignified full or part time home-office business preparing income tax returns during busy tax season. Many operate profitable Business Tax Service with steady monthly fees of \$10-\$50. No bookkeeping experience necessary. We train you at home and help you start. Licensed by N.Y. Education Dep't. No agent will call. Write for free literature. Accredited Member NHTC. Approved For Veterans.  
**National Tax Training School, Monsey, 20XA, N. Y. 10952**

## RUPTURE!

An amazing Air-Cushion Invention allows body freedom at work or play. Light, neat, cool, sanitary. Durable, cheap. Day and night protection helps Nature support weakened muscles gently but surely. No risk. Sent on Trial! Write NOW for free Booklet and Proof of Results. All correspondence confidential.



**Brooks Company, 346-D State St., Marshall, Mich.**



HOW to BREAK and TRAIN HORSES

SEND FOR THIS **FREE!**

Make money. Know how to break and train horses and ponies. Send name and zip-code for this free booklet with special offer of a course in Animal Breeding. If you are interested in Gaiting and Riding the saddle horse check ( ) Do it today! Write to **BEERY School of HORSEMANSHIP 1102-D, Pleasant Hill, Ohio 45359**

## FALSE TEETH

That Loosen  
Need Not Embarrass

Many wearers of false teeth suffer embarrassment because their plates drop, slip or wobble at just the wrong time. Don't live in fear of this happening to you. Just sprinkle a little **FASTEETH**, the alkaline powder, on your plates. **FASTEETH** holds false teeth firmer so they feel more comfortable. Checks "denture breath." Dentures that fit are essential to health. See your dentist regularly. Get **FASTEETH** today at all drug counters.

## Live Longer And Better in NEW MEXICO



THE HEALTHIEST SUNNIEST CLIMATE

In All America

The fortunate people who live in New Mexico wake up to sunshine 355 days out of each year. They don't know what it is to be oppressed by humid heat in the summer or by winter's cold, damp clutch. They know that in New Mexico the rate of cancer and heart disease is only half of what the Nation as a whole faces. They work and play in a climate called America's healthiest!

Deming, New Mexico is in the southwest corner of the state, away from the rigors of winter. A boom has begun here and Deming's 8,000 population should accelerate vigorously during the next few years. Situated where it is, **DEMING RANCHETTES** should prosper from this boom. We have fertile soil, pure underground water and gorgeous mountains. The complete price of a half-acre Ranchette is only \$299, \$5 down and \$5 a month. Write for **FREE** color portfolio, including actual photographs of homes that Ranchette owners are already living in. No salesman will call.

"A statement and offering statement has been filed with the Department of State of the State of New York. The filing does not constitute approval of the sale or lease or offer for sale or lease by the Department of State or any officer thereof or that the Department of State has in any way passed upon the merits of such offering. A copy of the offering statement is available, upon request, from the subdivider."

**DEMING RANCHETTES, Dept. DS-669**  
112 West Pine St., Deming, N. M. 88030  
Please tell me your story. Send your **FREE** portfolio including maps, color brochure **AD651-1**

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_  
Zip Code \_\_\_\_\_





**126  
WORLDWIDE  
STAMPS**  
just released  
**ONLY  
10c**

RUSH REPLY and get 126 colorful stamps. From ancient Africa, romantic Europe, the Far East — **NEW ISSUES**: religious, animal, bird stamps from Colombia, Surinam, Nigeria, many others. **OLD ISSUES**: Monaco, Maldive Island, more. Pictorial, airmail — odd shapes, sizes, everything. Plus exciting selections of stamps to examine. Buy any — or none — return in 10 days. Cancel service anytime. Plus color souvenir, story of World's Rarest Stamp. Send 10c today.

**GARCELON STAMP COMPANY**, Dept. PM-23, Calais, Maine  
Enclosed is 10c. Rush 126 Worldwide Stamps and other offers.  
(PLEASE PRINT)

..... Zip .....

# How to repair a busted lamp before your wife finds out about it.

Weldwood® Contact Cement lets you work fast. No clamps, no hours waiting for it to dry. It bonds on contact—gets that lamp fixed before it's missed. Or 'fess up. Show your wife how simple gluing can be. She may be so interested, she'll forget to be mad.



**U.S. Plywood Corporation**  
777 Third Ave., New York, N.Y. 10017



## COLORCRETE FASTEST GUN for Profits!

**NEW MASONRY SURFACE IN SECONDS** — just spray on creamy, penetrating Colorcrete. You make good money beautifying and protecting block, stucco, etc., inside and out. Own your Colorcrete equipment, be your area specialist in resurfacing homes, garages, stores, factories. Wide choice of colors. Modest investment puts you next to real money-making opportunities. Write for **FREE BOOKLET**.

**W. E. DUNN MFG. CO.**, 570 Ottawa, Holland, Mich. 49423

**MAKE**

**MONEY...**

in your own spare-time engraving business. Low-cost kit puts you in this profitable, fast growing field right away. Write for details. Dept. PM 267  
**Scott Machine Dev. Corp.**, 215 Prospect Ave., Walton, N. Y. 13856.

**"\$33,000 LAST YEAR" OPERATING AUTO RADIATOR SHOP**

—Mercier Bros., Lowell, Mass.

**START SHOP OR ADD TO BUSINESS.** Market growing. More cars each year. Packaged radiator shop incl.: equipment, training, 98-page manual, initial supplies. Proven merchandising attracts business. Pay-as-you-profit plan. Write.



**INLAND MFG. CO.**, Dept. PM-2, 1108 Jackson St., Omaha, Neb. 68102

## GET INTO ELECTRONICS

V.T.I. training leads to success as technicians, field engineers, specialists in communications, guided missiles, computers, radar, automation. Basic & advanced courses. Electronic Engineering Technology and Electronic Technology curricula both available. Assoc. degree in 29 mos. B.S. obtainable. G.I. approved. Start Feb., Sept. Dorms, campus. High School Graduate or equivalent. Catalog.

**VALPARAISO TECHNICAL INSTITUTE**  
DEPARTMENT D. VALPARAISO, INDIANA



### HOW MANY HANDY DANDYS DO YOU NEED?

Handy Dandys are sturdy, plastic caps that snap into 1/8" pegboard and securely hold any quarter-twist glass jar, such as used for baby food and other products. Everyone knows someone who knows loving parents who are throwing away these empty jars. They'll give them to you.



Then, with Handy Dandys you can make your workshop neat and clean. Perfect for storing nuts, bolts, cotter pins, washers, screws, fuses, small tools and other important items needed around the house and shop. Handy Dandys positively keep contents dustproof. Unlike anything you've ever seen before. Put a pegboard on the back of a door for mama with Handy Dandys for buttons, pins, rubber bands, clips, stamps, etc. With Handy Dandys, the cost of having the thing you need at your fingertips is CHEAP! Sample order 10 for \$1.00; 36 for \$3.00; 72 for \$5.00; 500 for \$32.50. Shipped USA postage prepaid. Order enough, you'll want more when you start using Handy Dandys. Available from manufacturer only.



**WICKLIFFE INDUSTRIES, INC.** P.O. Box 244, Dept. A-9  
Wickliffe, Ohio 44092

POPULAR MECHANICS



## PORTABLE ELECTRIC ARC WELDER!



**ELECTRIC  
WELD BRAZE,  
SOLDER, CUT  
ALL METALS**



**New 1967 Model**

Works on ANY 110 volt "Plug In." Welds up to 1/4" steel with 3/32" rods. SPECIAL EXTRA twin ARC TORCH (shown) develops terrific heat for BRAZING—SOLDERING—HEATING etc. A MILLION uses—Thousands in use for CAR—HOME—FARM. No experience needed—FREE welding book tells HOW! Sturdy Design—Should last for YEARS! If it EVER "burns out"—just return for free repair.

SEND ONLY \$3.00 (Cash, Ck. MO) and pay postman \$16.95 COD pkg. or send \$19.95 for PP del. in USA. COMPLETE—READY TO USE with generous supply of ALL materials needed. "DARK" eye goggles given, if you order from this ad. COMPARE with ANY other welder costing up to TWICE as Much.

MIDWAY WELDER

Dept. LPM-2

Kearney, Nebraska

## BILL TROUBLES?

**NOBODY REFUSED UP TO \$15,000.00**

**Bad Credit ■ No Problem ■ Not a Loan Co.**

Send your name and address for FREE application to nearest office for faster service

**ATLANTIC ASSOCIATES, Dept. 54**

146 Westminster St., Providence, R. I.

3312 N. Central Ave., Phoenix, Arizona

## HEAVY DUTY BALL-BEARING PUMP

IRRIGATE  
DRAIN SPRAY  
CIRCULATE



Famous, all-metal, rust-proof XB pump with stainless shaft. Use 1/4 HP or larger. 1 HP for up to 5,200 GPH 60' high or 3,000 GPH from 25' well. 1 1/4" inlet. 1" outlet. For belt or direct drives. Only \$12.95

Famous Type P won't rust or clog. Bronze bearing. Hundreds of thousands in use. Up to 2,400 GPH. 1" inlet. 3/4" outlet. Only \$8.95

Postpaid cash with order.

Money Back Guarantee. LABAWCO PUMPS Belle Mead 104, N. J.



ALL FAMOUS  
BRANDS!

**FARM  
TRUCK  
AUTO**

AT LESS  
THAN  
WHOLESALE

SAVINGS NEVER LESS THAN 50% up to 70% OFF REG. PRICE!

HEADQUARTERS for ALL SPORT CAR TIRE SIZES

FREE - SEND FOR YOUR FREE CATALOG - FREE!

RELIABLE TIRE DIST., 1111 Chestnut St., Camden, N. J.

## BOAT KIT Catalog FREE

FIBERGLASS OR PLYWOOD



Low Down Payment  
EASY TERMS

Save \$1000 to \$2500 on 18', 20', 22' Luger Luxury Cruisers... save to \$4000 on 22' Houseboat and 26' and 30' Cruisers... to \$500 on speedy 14' or 16' Molded Fiberglass Runabouts! Over 50 Models! Easily assembled. Every part and every section pre-cut, pre-assembled or precision molded. Just put together! 3 Years to Pay! MONEY BACK GUARANTEE! Rush name, address for full color catalog—48 pages—FREE!

LUGER BOAT KITS, Dept. B-27,  
9200 Bloomington Freeway, Minneapolis, Minn. 55431



PELLET FIRING  
"45" AUTOMATIC

- Fires 8 Rounds
- Magazine Clip
- 8 Moving Parts

ONLY  
**\$1.98**

Most authentic full-size model of a 45 we have ever seen. A pull on the trigger fires it and automatically works the slide to reload just like a real automatic. Comes with full instructions for easy assembly, a generous supply of pellets and scoring target. Full money back guarantee. Send \$1.98 plus .27¢ shipping charges. N.Y. State residents please add .04¢ sales tax.

HONOR HOUSE PROD. CORP. DEPT. 96AU26  
LYNBROOK, NEW YORK 11563

## THE FAMOUS CHILTON AUTOMOTIVE HANDBOOKS



Not even the manufacturers provide service guides so detailed, so thoroughly illustrated, so easy to follow!

Use this form to order. Please enclose payment. Return book(s) within 10 days if not delighted. Full refund guaranteed.

- Glenn's Auto Repair Manual 1967 (U. S. Cars), \$9.95
- Glenn's Foreign Car Repair Manual (Revised Ed.), \$17.50
- Glenn's Auto Troubleshooting Guide, \$2.95
- Glenn's Foreign Carburetors & Electrical Systems Guide, \$8.50
- Automatic Transmissions. By Walter B. Larew, \$7.95
- Automotive Engineering Drawing for Technical Students. By E. B. Weston, \$6.50

### GLENN'S REPAIR & TUNE-UP GUIDES:

- Alfa-Romeo, \$5.50
- Peugeot, \$4.50
- Austin, Austin-Healey, \$4.50
- Renault, \$3.95
- Fiat, \$4.50
- Sunbeam Hillman, \$5.95
- Jaguar, \$5.95
- Triumph, \$4.50
- MG, Morris, Magnette, \$4.50
- Volkswagen, \$3.95
- Volkswagen (Spanish Ed.), \$3.95
- Mercedes-Benz, \$6.95
- Volvo, \$4.50

### CHILTON'S REPAIR & TUNE-UP GUIDES:

- B.M.C. Minicar. By Staton Abbey, Paperbound, \$1.95
- Honda. By OCee Ritch, \$4.95
- Mustang. By OCee Ritch, \$4.95
- Chilton's Motorcycle Troubleshooting Guide. By OCee Ritch, \$4.95

### DELIGHTFUL AUTOMOTIVE HISTORIES:

- My Days with the Diesel. By Clessie L. Cummins, \$5.95
- My Father Mr. Mercedes. By Guy Jelinek-Mercédès, \$5.95

### CHILTON BOOKS

Dept. PM 2-7  
401 Walnut St., Philadelphia, Pa. 19106

Name .....

Address .....

City ..... State ..... Zip .....

Check  Money order enclosed.  
(N. Y. and Pa. residents please add sales tax.)

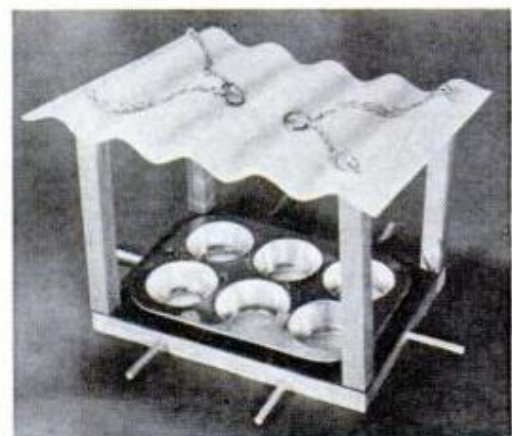
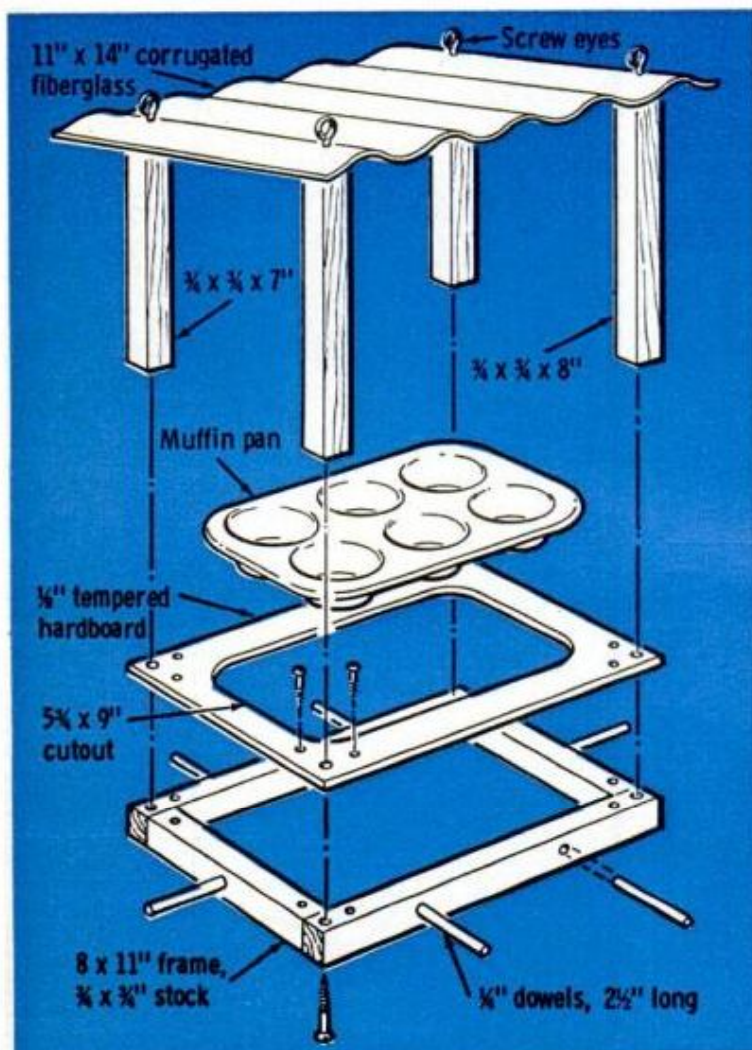
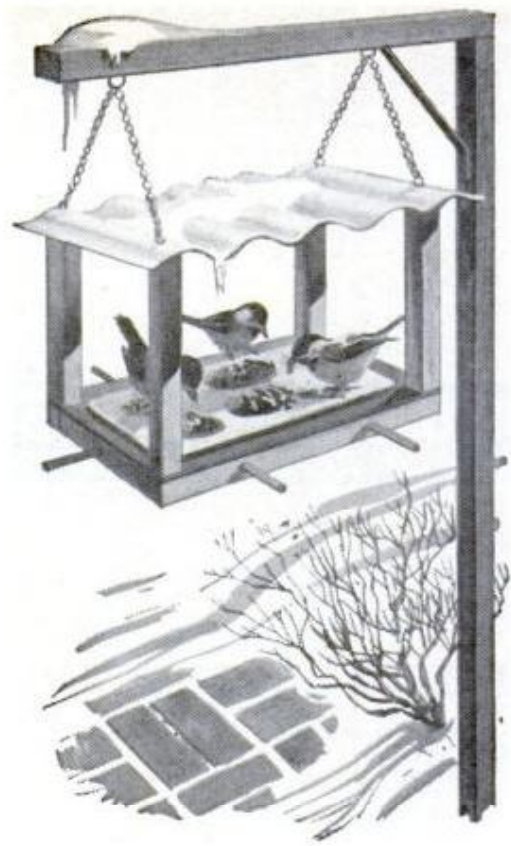


# BIRD CAFETERIA

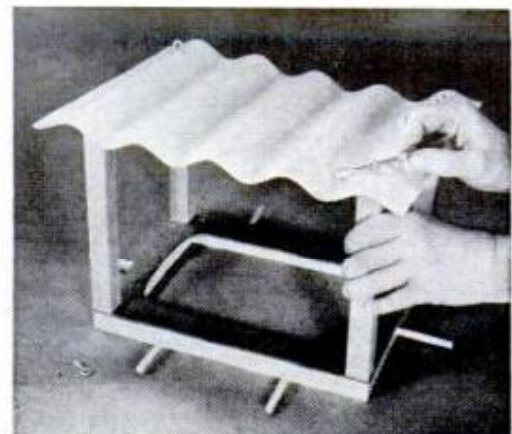
WHETHER YOU HANG IT from a bracket outside a window or from a pole in the yard, this economy bird feeder will give bird watchers hours of winter pleasure. The key to the whole design, of course, is the use of a low-cost muffin tin to provide half a dozen separate feeding cups which can be filled with a smorgasbord of different treats to suit any bird's taste.

Dimensions listed in the drawing below are designed to accommodate a specific six-cup muffin pan. However, the cutout in the hardboard platform must fit the cup area of the pan you use, so check this carefully before you begin cutting. If you wish to use an eight or 12-cup tin, simply enlarge the platform accordingly, but don't change the length of the uprights.

Fasten the platform to the framing strips with countersunk flathead wood screws. Then fasten the uprights to the frame. The screw eyes used to secure the corrugated fiberglass roof to the uprights do double duty as anchors for the 12-in. lengths of chain used to hang the feeder. Give it a coat of paint, fill with goodies and watch the fun.—Willard and Elma Waltner



SCREW EYE on each corner secures roof to uprights and anchors the hanging chains



SPLIT RING slipped through center link of each chain can be slipped over a hook





# R-R-RUN

**New MerCruiser 160 outperforms competitors' 200-HP stern drives.**

For 1967, MerCruiser adds the six-in-line MerCruiser 160 to the widest range of stern drive power. In extensive tests under identical hull and load conditions, this new 160-HP powerhouse matches or outruns competitive 200-HP stern drives—on less fuel!

The MerCruiser 160 features an optional new Power Trim hydraulic system that also functions as shock absorbers and electric tilt—enables you to trim your boat for any speed and load conditions while under way. And, of course, the new 160 has MerCruiser exclusives like Jet-Prop exhaust,

shearproof drive, rugged one-piece lower unit housing and traditional MerCruiser economy.

The MerCruiser 160 is the newest reason why more boat-builders and boat-buyers choose MerCruiser *than all other stern drives combined!* '67 MerCruiser—engineered to stay ahead! 60, 80, 110, 120, 150, 160, 225, 325, 475 HP—including 60-HP diesel. See your MerCruiser dealer—or write for information to Dept. PM-2A, Kiekhaefer Corp., Fond du Lac, Wisconsin.

Kiekhaefer Corp., Fond du Lac, Wisc.  
 Kiekhaefer Mercury of Canada, Ltd.  
 Kiekhaefer Mercury of Australia Pty., Ltd.  
 Subsidiary of Brunswick Corp.



WORLD LEADER IN MARINE PROPULSION

# MERCUISER

STERN DRIVES





Find a mean chuck hole. Then drive our new GMC Handi-Van across it. Test how much more stable our ride is. When we built our bigger van, we didn't just tack on some more

metal back of the rear axle. Instead, we engineered a brand new van with a longer 108" wheelbase. This gives better weight distribution all around—a difference you'll

**If you think vans are pretty  
one on a road like this.**



MARK OF EXCELLENCE





notice the first time you load up a new GMC Handi-Van. The way we build this baby, you'd expect to pay more for a GMC. But all vans are priced pretty close. The difference

is GMC gives you more for your dough. As one visit to your GMC Truck dealer proves. (It's the kind of difference that makes good business sense. And good trucking.)

# much alike, drive our new



The Truck and Coach Division of General Motors

# GMC

**What a difference a name makes**



DETROIT

# LISTENING POST

BY BOB IRVIN

**AN ANTISKID SYSTEM THAT MAY SELL FOR UNDER \$50** is being developed by Kelsey-Hayes. It's electronic, unlike the mechanical system used on Britain's \$15,000 Ferguson Formula car. "We're very close to an application for passenger car brakes," says one Kelsey-Hayes engineer. The system would include an electronic speedometer and cruise control device. The system is being developed for the rear wheels, would later be broadened for all four wheels. K-H already has sold the new anti-skid device to several fleets and is approaching truckmakers to win wider acceptance. By operating the brakes over and over in a sequence timed in milliseconds, the system can keep vehicles from skidding out of control.

**GENERAL MOTORS' "F" BODY**, developed for the Chevy Camaro and adapted quickly by Pontiac for the Firebird, may also be used by Oldsmobile and Buick. Word is that those two divisions would like to bring out sporty cars of their own.

**LINCOLN MAY HAVE A PERSONAL CAR OF ITS OWN IN 1968.** Prime mover behind the project is Lee A. Iacocca, Ford group vice-president and man behind the Mustang and Cougar. He's trying to increase Ford's market share by building up the Lincoln-Mercury Div. Other signs: He installed E. F. (Gar) Laux, former colleague at Ford Div., as L-M general manager and gave Leo Beebe, former Ford Div. racing boss, the green light for a similar program at Mercury.

**QUOTABLE QUOTES:** Bob Anderson, Chrysler-Plymouth boss, on sporty cars: "We may have missed the boat but Chevy never even saw the dock." (Note: The new Barracuda seemingly puts Anderson at the right pier at last.) Dr. Jack Goldman, director of Ford's scientific lab, on electric power: "I guess I proved gasoline is more dangerous than a sodium-sulphur battery." (Goldman was almost killed when his Lincoln crashed into the rear of a stalled car on the Indiana Toll Road. The gas tank ruptured and both cars were engulfed in flames.)

**POLYESTER CORD IS FAST BECOMING STANDARD CORD ON GOODYEAR** original equipment tires. Conversion to polyester started quietly last year. Goodyear claims the cord is stronger than rayon and does not have the flat-spotting problems of nylon. The cord first reached the replacement market in April 1962 with the "Vitacord" trademark.

**TO BUILD GAS TURBINES FOR THE INDUSTRIAL MARKET**—including big trucks—GM's Detroit Diesel Div. says the main problem is designing an engine to be assembled on a production line. But it expects to have that solved in another year. It hopes to have some turbines ready for test by 1969 and public evaluation by 1970. Ford's on the same timetable.

**CHEVY'S 396-INCH, 325-HP V8 IS BEING ADDED AS A CAMARO OPTION.** Biggest previously was the new 350-incher. Camaro needed the extra kick to compete with Mustang and Cougar, which have a 390, and the 383 Barracuda. Are the 427s up next?

**AMC WILL TRY TO CRACK THE AUTO MARKET BEHIND THE IRON CURTAIN** by sending a team of export officials to the Soviet Union this year. American Motors Corp. export sales have remained firm despite its problems in the domestic market. The team, headed by William Pickett, hopes to work out a barter deal with the Com-

(Continued on page 88D)





**This is a GM Original:  
It can turn 12 volts  
into 25,000.**



**This is a GM Replacement:  
It performs  
the same feat.**

GM Originals have an act that's tough to follow. But not for GM Replacements. Because they're the same in every way.

Good thing, too. Especially if you ever have to replace anything as important as the ignition coil. That's the rugged part that takes regular battery voltage and steps it up to the voltage necessary for good engine performance. Which could be up to 25,000 volts!

You can get GM Parts, in GM and United Delco packages, just about everywhere. Go where they use them. Good service goes with good parts.

## **GENUINE GENERAL MOTORS PARTS**



CHEVROLET • PONTIAC • OLDSMOBILE  
BUICK • OPEL • CADILLAC • GMC TRUCKS

United  
Delco

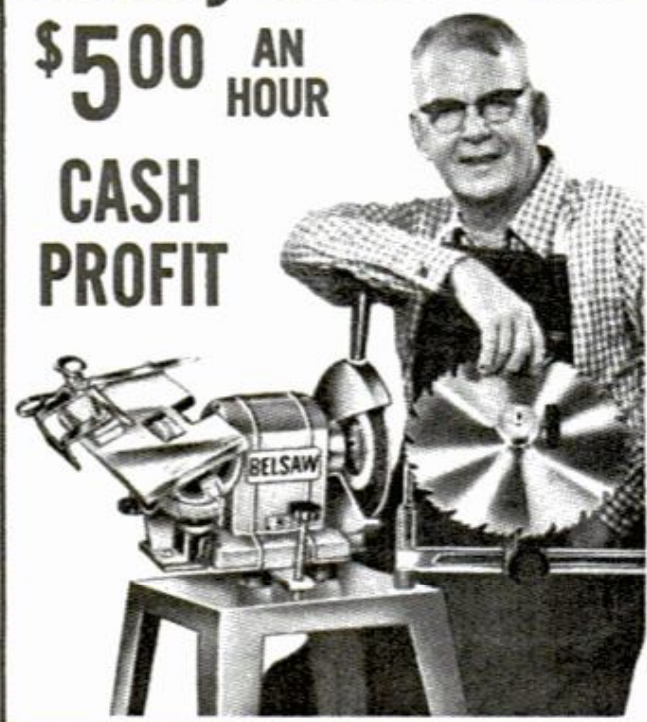




# My Spare Time Hobby Makes Me

**\$500** AN  
HOUR

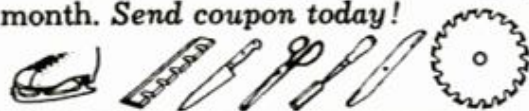
**CASH  
PROFIT**



## Here's How You Can Start Your Own Spare Time Business!

You can turn your spare time into Big Cash Profits with your COMPLETE SHARPENING SHOP! Grind Saws, knives, scissors, skates, lawn mower blades... all cutting edges. Your own CASH BUSINESS with no inventory...no selling...no experience needed...and you work the hours you want!

**FREE BOOK** tells how you can start while you are still working at your regular job. Low cost—time payments only \$15.00 a month. *Send coupon today!*



**FREE  
BOOK**

No Obligation... No Salesman Will Call

**BELSAW SHARP-ALL CO.**  
Stan Field, President  
7174 Field Bldg., Kansas City, Mo. 64111

Send Free Book "LIFETIME SECURITY"

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

## DETROIT LISTENING POST

(Continued from page 88B)

munists, maybe Ramblers for steel. He's done it before, once traded Belgian-built Ramblers for Colombian coffee, sold the beans and made AMC a neat profit.

**COLLAPSIBLE STEERING COLUMNS** really work. First documented case of their lifesaving value came when a diabetic blacked out and rear-ended a parked truck at 60 mph. The steering column on his '67 Rambler collapsed 5 $\frac{3}{8}$  inches and he didn't even have bruises on his chest. The truck's tailgate shattered the windshield, however, and his face was cut by glass.

**SAFETY STANDARDS** to be published by the U.S. General Services Administration in February or March may be tip-off on what you'll find on all cars in 1969. Standards for '68 cars were based on the GSA's requirements for its 1968 purchases. GSA has three priorities for its '69 standards—better visibility, improved driver-to-driver communications, more protection for occupants. GSA has a "shopping list" of 67 items and it's sure to use some of them in drawing the '69 standards. List includes padding the entire roof to minimize injury and relocating the transmission lever or redesigning it as a dial or button arrangement. Tricolor tail-lights are also getting serious study.

**THE J-CAR**—Ford's third generation sports racer, lighter and with somewhat different lines than the Le Mans-winning GT MK IIs, will finally see some action in 1967. It's the same car in which Ken Miles was killed during tests at Riverside last summer. Ford has been unable to find anything wrong with it, has since built two more and hopes they'll see action in the 24-hour Daytona Continental.

**MORE ON THE ELECTRICS.** Ford, which this spring will begin testing its battery-powered "city car," already has a larger version on the drawing boards. Called a commuter car, it would have a 330-mile range and a 73-mph top speed.

**AUTO RUSTPROOFING** at the factories doesn't do the job, according to Roger F. Waindel. He's president of Ziebart, a Detroit firm with an after-production rustproofing process considered so good it's widely used by military and private fleet owners. He puts industry's standard five year, 50,000-mile warranty on the car bodies he rustproofs. In 1966 he handled about 120,000 vehicles.



# Get extra flavor: Pipe tobacco in a filter cigarette!

**Taste the one cigarette that  
can give you extra flavor  
and lots of it.  
Half and Half—the cigarette  
made from pipe tobacco.  
Once you sample that rich  
tobacco flavor and aroma,  
you'll never be quite satisfied  
with any other cigarette again.**

© *The American Tobacco Company*







THE CHRYSLER CREW COMES THROUGH FOR YOU!



New Chrysler 55—in a power class by itself!



**EASY STARTING.** Chrysler has the broadest range of electric-start outboards (from 9.2 to 105 hp.) in the business.



**QUIET GOING.** Special silencing chambers and fiberglass hood make Chrysler a leader in quiet performance.



**CARE-FREE,** dependable performance comes naturally to a Chrysler outboard. And, Chrysler's famous two-year warranty\* gives extra protection.

Chrysler hp. ratings are certified in writing by Outboard Boating Club of America. Be sure your outboard is "certified."

## Fun-engineered outboards... for your kind of fun!

The 1967 Chrysler outboards are here . . . 27 fun-loving, carefree motors and they're new as new can be.

New features? The spanking new Chrysler 55 is loaded with them. It's the world's first and only 2-cylinder, 2-cycle, 55-hp. outboard. It has improved carburetion and timing . . . new full-length silencing . . . compact, lightweight (only 134 lbs.!) . . . and beautiful new styling. And you'll find advanced fun-engineering in our brand-new 35 and 45, too.

In fact, you'll find it in every Chrysler outboard. Our 9.2- and 20-hp. Autoelectrics offer turn-key starting. Our 105 is the first outboard to develop more than 25 hp. per cylinder. Our 75 can quietly pull several skiers with ease. Our 3.5-, 6-, 9.2-, and 20-hp. fishing engines are extra light and economical.

Let the Chrysler Crew show you new boating fun. See your Chrysler Outboard dealer (listed in the Yellow Pages). Chrysler Outboard Corp., Hartford, Wisc.



\*Chrysler Outboard Corporation warrants Chrysler Outboard motors to the original purchaser against defects in materials and workmanship for twenty-four months after delivery to the original purchaser and will repair or replace any parts thus defective at an authorized Chrysler Outboard Motor Service Facility, excluding only normal maintenance services such as adjusting breaker points, spark plugs or carburetor, checking gear housing grease, etc. Warranty limited to one year after delivery to the original purchaser if outboard is used for commercial or rental purposes.

SEE CHRYSLER OUTBOARDS IN ACTION ON NBC-TV'S "TODAY" AND "TONIGHT" SHOWS



**CHRYSLER  
OUTBOARD CORP.**

CHRYSLER MARINE PRODUCTS: BOATS, TRAILERS,  
OUTBOARDS, INBOARDS, AND INBOARD/OUTDRIVES



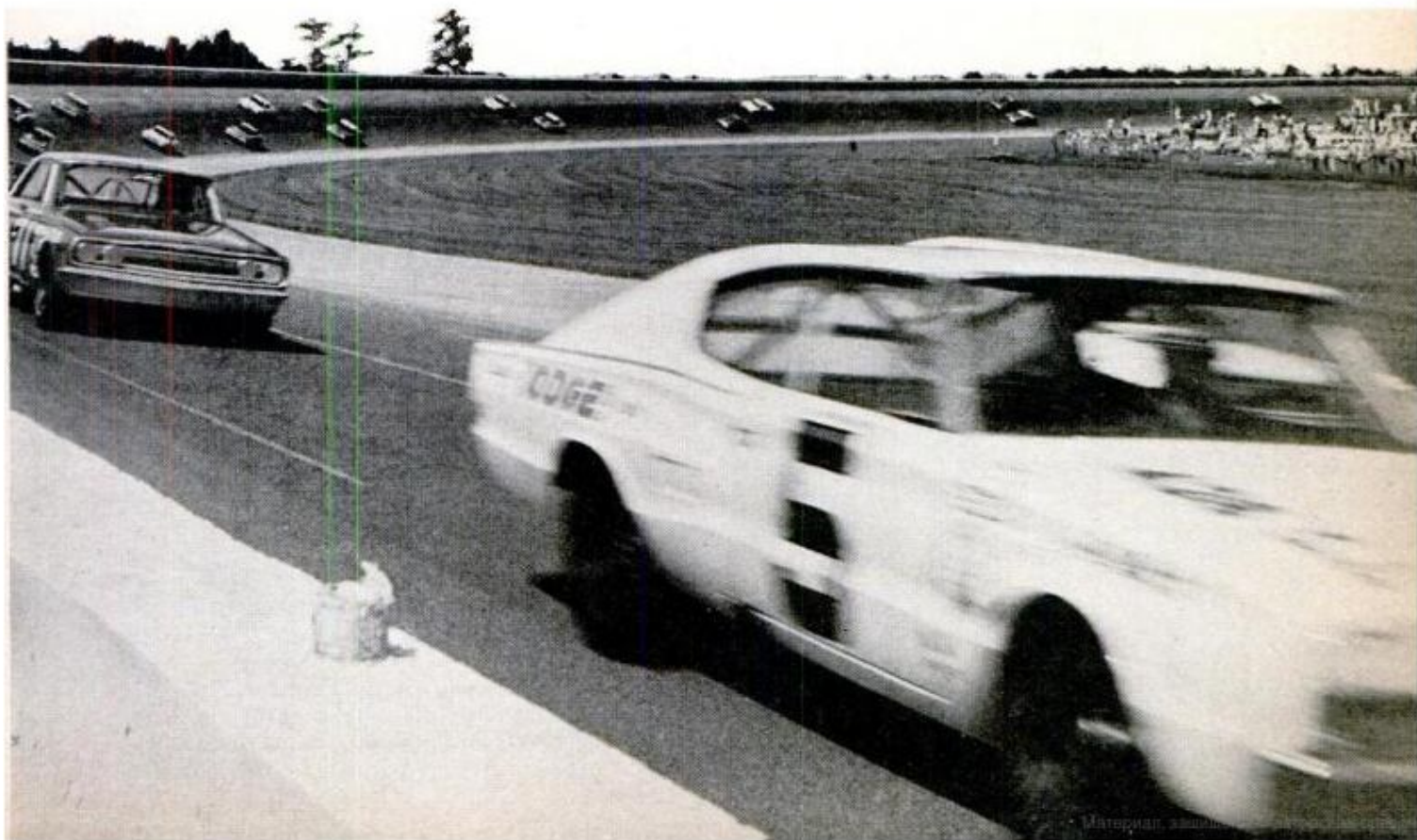
AUTOMOBILES

# Can the Independents Win at Daytona?

Are they really giving stock-car racing back to the little guy? PM visited NASCAR's major 'training camps' to find out. The answer: 'Just like they've given the World Series back to the Little Leaguers.'

**I**T'LL TAKE 185 MPH to win the pole for the 500," said Lee Roy Yarbrough as he climbed through the window of a Dodge Charger after running a tire test on the super-swift Daytona Speedway. Lee Roy should know. He had just turned a lap at 183.

His prediction will probably come true this month, when practice and qualifying begin for the world's fastest, richest and most important stock-car race, the ninth annual Daytona 500 on Feb. 26. A few years ago there

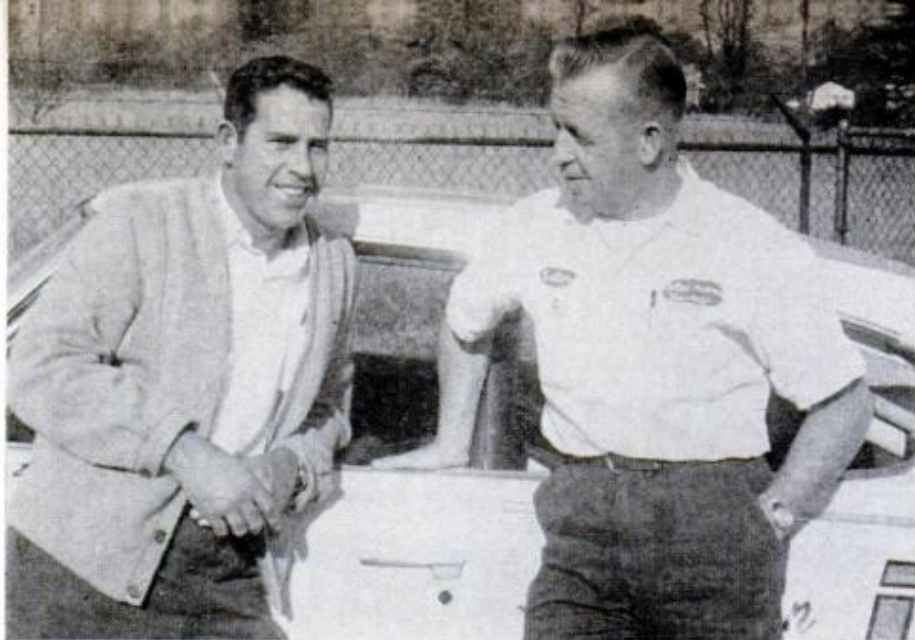




was \$10,000 awaiting the first driver to circle Daytona's 2½ miles of 31° banks and long straight-aways at 180 mph. Art Malone finally won it, driving a specially modified, supercharged Indianapolis roadster. Now stock cars are going that fast! In Daytona's first year, 1959, the lap record was 143 mph. Over 35 mph have been added in just nine years.

Much of this performance boost has been due to participation in stock-car racing by major automakers. Today Ford and Chrysler are battling for supremacy; until General Motors said no in 1963, Chevrolet and Pontiac were top contenders. No question, Detroit has changed stock-car racing until it has become one of the most rapid and most *expensive* forms of motor sport.

In fact, it has become so expensive



that the little guys, the independent car-owners, mechanics and drivers, have been pretty well frozen out of the big-time races. Some of the best, of course, made deals with Ford or Chrysler or joined a factory team like that of Holman-Moody in Charlotte, N. C., (Ford) or Ray Nichels in Griffith, Ind. (Chrysler).

For several years everyone has been shedding tears for the independents who try to compete on the National Assn. for Stock Car Auto Racing (NASCAR) and United States Auto Club (USAC) circuits without any northern comfort from Detroit.

This year it's supposed to be different. Both Ford and Chrysler have announced they are going to give independents a better break against the so-called factory drivers like all-time money winner Fred Lorenzen, two-time Daytona winner Richard Petty and NASCAR champion David Pearson. NASCAR and USAC have drawn up uniform rules supposed to make it easier for a non-factory-affiliated, low-budget operator to compete. It looks like the year of the independents. But is it?

Does a small-time racer have a chance to win a big race like the Daytona 500 or campaign successfully over the long Grand National season? Put



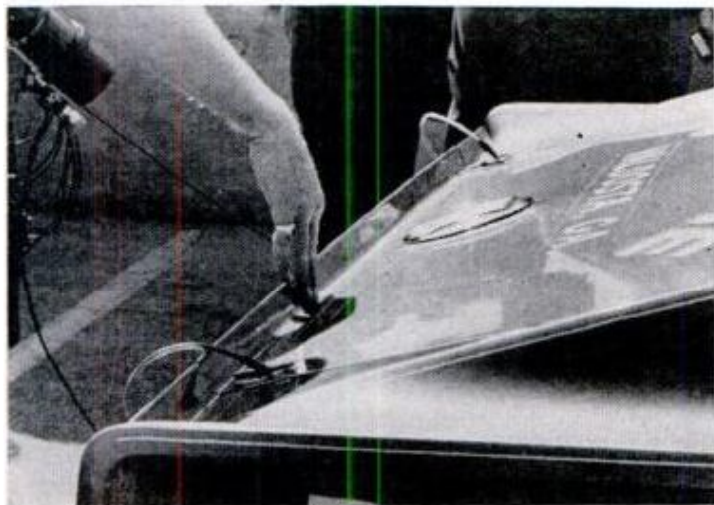
**JOHN HOLMAN** stands by pile of Fairlane bodies. Ford stars will run Fairlanes instead of Galaxies—well, not quite; the front half of chassis will be Galaxies



▶ **DAVID PEARSON** (left), Grand National champ, will defend title in Dodge Charger prepared by Cotton Owens

▶ **LEE ROY YARBROUGH** turned fastest lap in Daytona history last November in Charger owned by "independent" Jon Thorne. No shoestring operator, Jon got car from Ray Nichels, spent over \$30,000 in 1966. Now talk is that Lee Roy may drive a Ford in "The Big One" on the 26th of this month

▼ **1967 RULES** prohibit cutting and re-shaping bodies, but permit one-inch spoiler on trunk to improve stability



as succinctly as possible, he doesn't have a prayer.

His plight is not as grim as in previous years, but the fact remains that most big races are going to be won by a half-dozen cars and drivers. Perhaps another six will pick up a win apiece. All the others have to be viewed as real dark horses. Regardless of what Detroit says, the 12 or so who pick up big money will be driving factory-sponsored cars.

Take the Pettys. Set back on a grassy acreage off a country road near Randleman, N. C., is the racing headquarters of this celebrated clan, which has won the Daytona 500 three times out of eight. Lee Petty, former NASCAR champion and winner of the inaugural 500 in 1959, is boss. His sons, Richard and Maurice, form the other two-thirds of the team. Maurice is chief mechanic on the electric blue Plymouths that Richard steered to victory in two of the last three Daytona 500s.

"Things are a little uncertain with Chrysler," Richard told *PM* late in '66, "but I think it will work out. We want to run Plymouths because it's a tradition with us, and we will if we can."

Actually there are several levels of "factory support." Big operators like Nichels and Holman-Moody work directly for the auto companies, taking production-line cars and rebuilding them into racers. They race some cars themselves and, naturally, command top drivers. They sell others to smaller, but by no means little, operators like the Pettys, the Wood Brothers, Cotton Owens, Bondy Long and others, who add further modifications to engine and chassis.

This year anyone is supposed to be able to buy first-class equipment if he can pay for it, but an outsider might find Detroit's credit terms stiffer than would some of the "old customers." And it wouldn't be surprising if the latter heard first about new developments and got first crack at technical advice.

Originally, all stock-car racers were independents. The arrival of Ford, General Motors and Chrysler in the 1950s changed that almost overnight. Suddenly the most successful drivers and builders were under contract and supplied with money and specially designed parts that turned hopped-up sedans into thoroughbred racing machinery.

All this provoked some monumental hassles between NASCAR and the ma-



major factory participants. Chrysler quit racing during 1965 when NASCAR banned its ultrapowerful 426-cu.-in., 550-hp "hemi" engines, which had blown Ford off the track at Daytona in 1964—after Ford had swept the first five places in '63. The hemis were legalized again last year after Chrysler agreed to produce them in quantity and offer them to the public. Chrysler competed in 1966, but Ford sat out much of the season because its single overhead camshaft was outlawed.

This year Chrysler will run the hemis, while Ford has said it will race with its old "wedge" engine installed in intermediate size Fairlanes.

The Fairlanes will be constructed by Holman-Moody and assigned to teams for operation within a complicated, confidential financial and technical-aid program. The probable Ford lineup includes a car entered by Holman-Moody themselves for Fred Lorenzen; a car for Cale Yarborough, surprise second-place finisher at Daytona last

February, to be prepared by the crack Wood Brothers team; a Bondy Long Ford for Dick Hutcherson, who will replace former NASCAR champ Ned Jarrett, now retired; and a car for hard-charging Lee Roy Yarbrough. (No relation to Cale; their names are spelled differently.) Lee Roy's Ford will be entered by the retired moonshiner and 500 victor, the legendary Junior Johnson. (This was the early dope; after Lee Roy's 183 mph, Dodge may try to hang onto him.) There may be a fifth Fairlane assigned to the Banjo Mathews team; it may end up being driven by USAC star A. J. Foyt. USAC drivers Mario Andretti, Billy Foster and Gordon Johncock will probably be in Fairlanes too.

Though Chrysler's budgets may not be quite as generous as in the past, it's a good bet the hemis will again operate from the pits of Ray Nichols, Cotton Owens and Lee Petty. Nichols' drivers will again be Paul Goldsmith, in a Plymouth, and Sam McQuagg, winner of last year's Daytona Firecracker, in a Charger. Owens will field a Charger for Grand National champ David Pearson. Petty will, of course, have Richard as his No. 1 driver in a Plymouth. Jim Hurtubise will probably run a Plymouth for Norm Nelson in most of the big races, and Buddy Baker, son of all-time-great Buck Baker, will drive a Charger for Ray Fox, of Daytona Beach.

*(Please turn to page 209)*

**TOP CONTENDERS** in 500 include Richard Petty (top), two-time winner in Plymouth hemi; Cale Yarborough (left), second-place surprise last year; Fred Lorenzen (center), 1965 victor; Paul Goldsmith (right); Rookie-of-Year James Hylton (bottom)







# THE NEXT FIVE YEARS IN SPACE

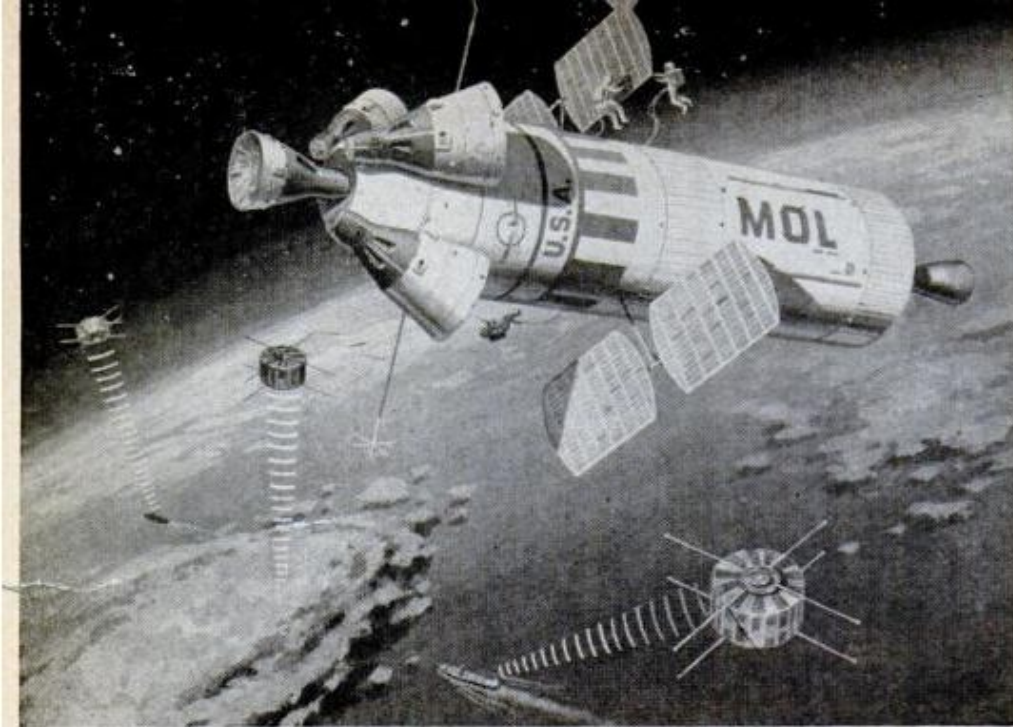
John Glenn rocketed into orbit just five years ago this month. Since then we've successfully launched two-man crews, completed rendezvous and docking maneuvers. What will the *next* five years bring?

By WILLY LEY

**F**IVE YEARS AGO, on Feb. 20, 1962, Col. John Herschel Glenn became the first American to orbit the earth. His Mercury capsule, *Friendship-7*, went around three times. The flight is remembered vividly for the trouble he had. Toward the end, an indicator light falsely announced that the heat shield was loose.

Five years ago the main question was whether the flight could be done. For the next five years, with all eyes focused on the moon, the question is *when* it will be





## 1968

**FIRST MOL** (Manned Orbiting Laboratory) will be orbited. Air Force astronauts, first military men in space, may stay aloft 30 days. In background are unmanned navigation, weather and communications satellites

done. How attitudes change so soon!

The best guess is that the LEM (Lunar Excursion Module) of the Apollo spacecraft will touch down late in 1968 or early in 1969.

Saying that there will be a base on the moon or that a large manned space station will orbit the earth is no longer a "prediction." It is simply a statement about things to come.

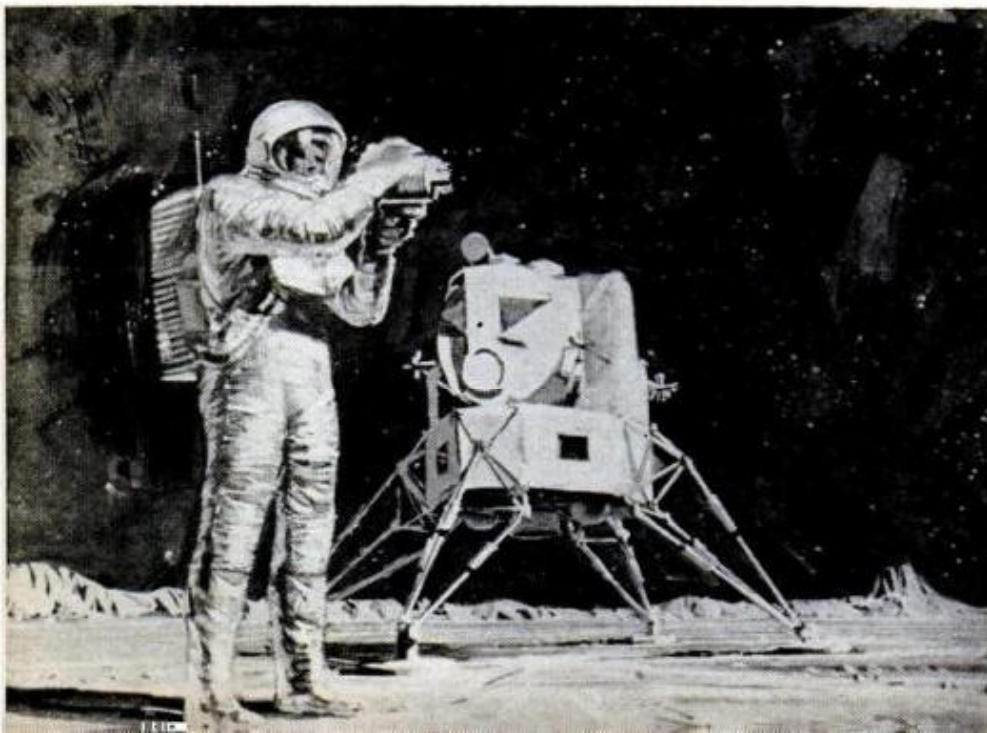
The build-up for all these events began 10 years ago when the first artificial satellites went into orbit. Since then, many things have been accomplished. The U.S. Navy reported in 1966 that its system of navigation with the aid of satellites is both operational and accurate. Communication satellites are operational and so are weather sat-

ellites. The Armed Forces have satellites in orbit that will report on the takeoff of large missiles, and they have other satellites that will report on atomic explosions in space.

In the years to come many more unmanned satellites and space probes will be put into space, but the big events will be manned space flights.

Considered "impossible" by many critics as late as 1960, manned space flight has proceeded smoothly to rendezvous and docking in orbit. The only drawback so far is in the space suits; they are not versatile enough. There may have to be at least three kinds of space suits: for inside the capsule, outside the capsule and on the moon.

One would be a general-purpose suit



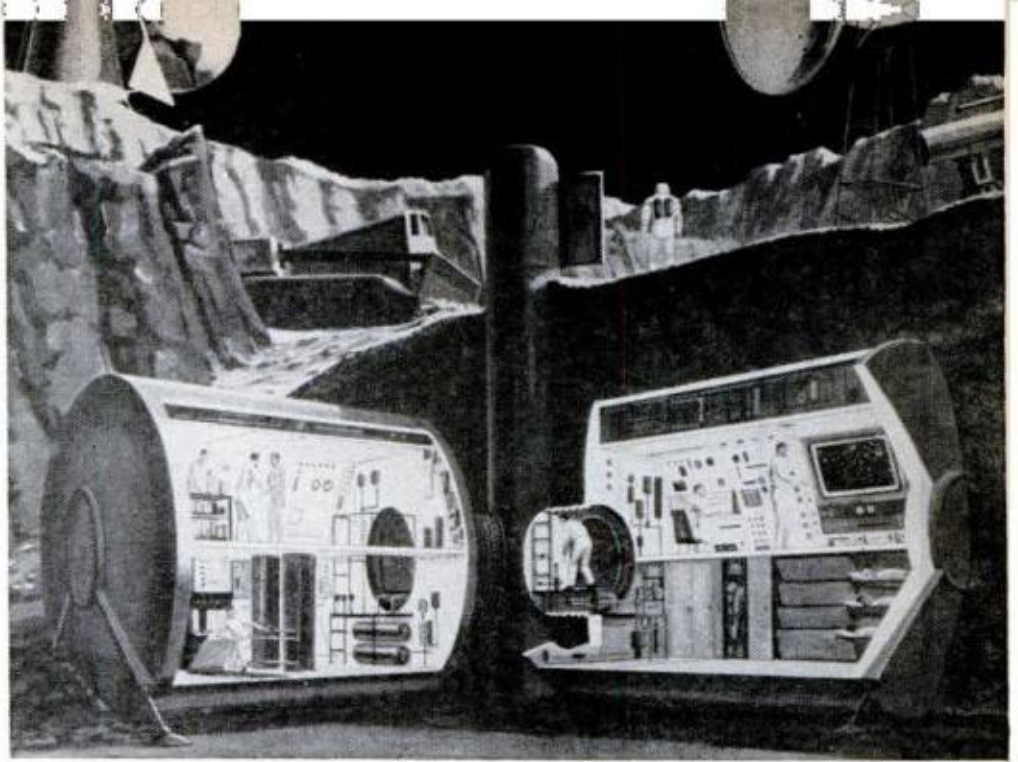
## 1969

**FIRST LANDING** on moon by American. One astronaut will leave LEM (Lunar Excursion Module) and explore surface, collecting samples and photographing area. After four hours, another astronaut will relieve him



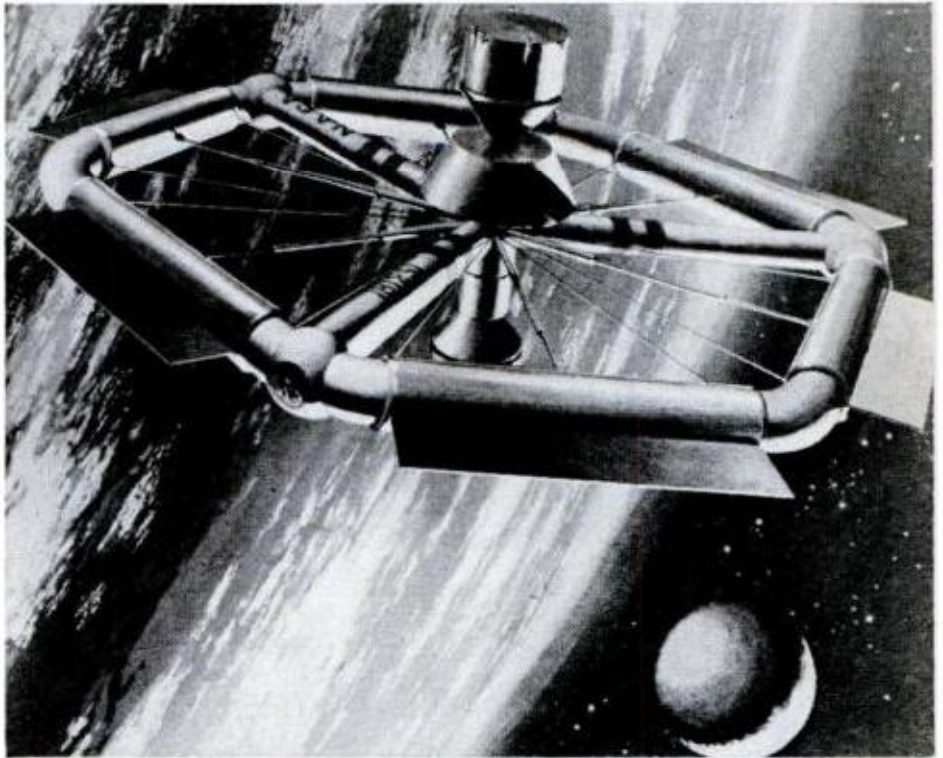
## 1970

**LUNAR RESEARCH LAB** operates. Here experiments under lower gravity conditions and complete vacuum can be carried out. U.S. industrial firms have already prepared list of projects they'd like to try on moon



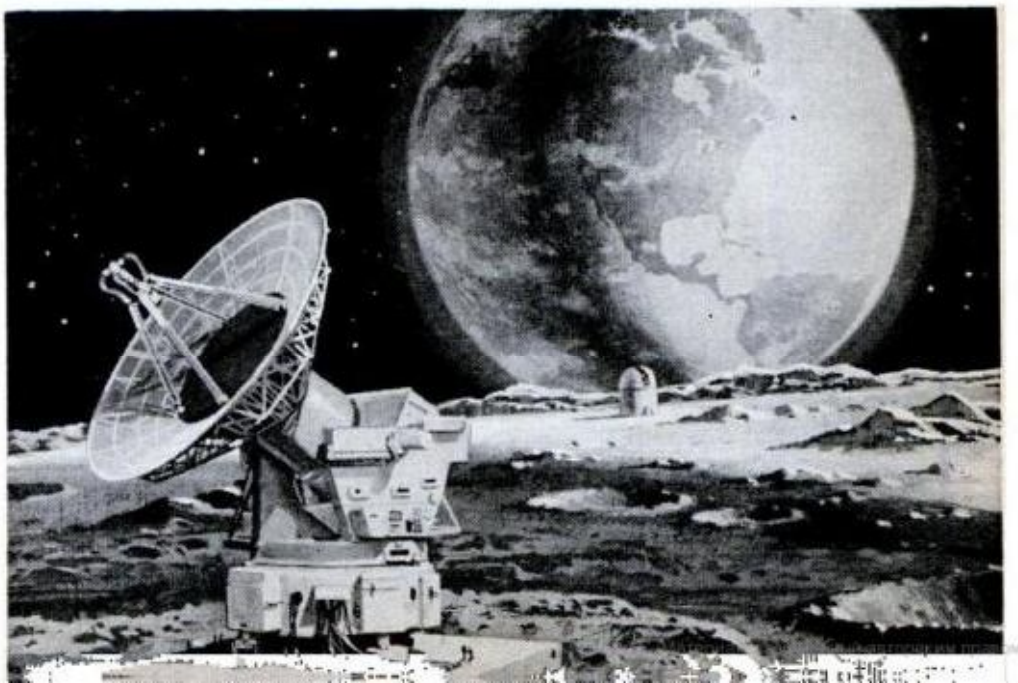
## 1971

**SPACE STATION.** First large manned station may be mongrelized from spent stages of rocket boosters or created new for permanent orbit where manned "earth-watching" or other experiments can be carried on



## 1972

**RADIO TELESCOPE** and astronomical observatory will be established on moon. They may, under lunar conditions, discover things that would be impossible to find by observation from earth due to gravity, atmosphere





to be worn while in flight. The second type would be designed for assembly work in space. It would not be body-fitting but might be spherical or cylindrical in shape, with a large number of different tools mounted on the outside.

The "moon suit" has to be something different again, because conditions on the moon are not the same as in orbit. First, there is gravity. (The pull at the moon is one-sixth what it is on earth.)

Second, there is no atmosphere on the moon.

Third, the temperature of the lunar surface is probably *minus* 150° F. in the middle of the lunar night, while it will be around *plus* 200° F. at noon.

The last two points are the most important. A man on the surface of the moon will be exposed to about three times more radiation from the sun, because of the lack of an atmosphere, than a man on earth on a cloudless day. It is of utmost importance that a moon suit not be heated up by the sun's rays—which means that it must reflect close to 100 percent of the radiation.

But what would these men be doing on the moon?

First of all they would build a base. It would be nice if a cave could be found, but on the moon—which never had much air and probably never had freely running water—caves are not very likely. Therefore, the first building of the lunar base—which will be mostly underground—would be a structure against the side of a cliff.

Once a lunar base has been constructed, researchers will have a laboratory with features enabling them to carry on projects that are nearly impossible on earth. The reduced gravity is one. There is no way we can construct a laboratory on earth where the gravitational pull is different from the norm.

A second important feature is the near-perfect vacuum on the lunar surface for laboratory experiments of any desired extent, free of charge. A poll among industrial firms found a surprisingly large number of companies already have projects in their files (of course they did not say what these projects are) for which they would gladly rent space on the moon.

At times, laymen ask whether lunar

*(Please turn to page 212)*

---

## THIS WAS JUST FIVE

IT DOESN'T SEEM THAT LONG, but it was five years ago that John Glenn climbed into Friendship 7 and became the first American to go into an Earth orbit



GLENN ROCKETED from the pad at Cape Kennedy (then Cape Canaveral) on Feb. 20, 1962, and took his place beside Lindbergh as an American pioneer





## Statistics on 14 Manned Orbital Flights by U.S. and 8 by U.S.S.R.

Astronaut	Nation	Date	No. Circuits	Flight Time	Craft Name
Gagarin	U.S.S.R.	Apr. 12—Apr. 12, 1961	1	1 hr. 48 mins.	Vostok I
Titov	U.S.S.R.	Aug. 6—Aug. 7, 1961	17.5	25 hrs. 18 mins.	Vostok II
Glenn	U.S.	Feb. 20—Feb. 20, 1962	3	4 hrs. 55 mins.	Friendship 7
Carpenter	U.S.	May 24—May 24, 1962	3	4 hrs. 56 mins.	Aurora 7
Nikolayev	U.S.S.R.	Aug. 11—Aug. 15, 1962	64	94 hrs. 22 mins.	Vostok III
Popovich	U.S.S.R.	Aug. 12—Aug. 15, 1962	48	70 hrs. 57 mins.	Vostok IV
Schirra	U.S.	Oct. 3, 1962	6	9 hrs. 13 mins.	Sigma 7
Cooper	U.S.	May 15—May 16, 1963	22	34 hrs. 20 mins.	Faith 7
Bykovsky	U.S.S.R.	June 14—June 19, 1963	81	119 hrs. 6 mins.	Vostok V
Tereshkova	U.S.S.R.	June 16—June 19, 1963	48	70 hrs. 50 mins.	Vostok VI
Feoktistov	U.S.S.R.	Oct. 12—Oct. 13, 1964	16	24 hrs. 17 mins.	Voskhod I
Komarov					
Yegorov					
Belyayev	U.S.S.R.	Mar. 18—Mar. 19, 1965	17	26 hrs. 2 mins.	Voskhod II
Leonov					
Grissom	U.S.	Mar. 23, 1965	3	4 hrs. 53 mins.	Gemini 3*
Young					
McDivitt	U.S.	June 3—June 7, 1965	62	97 hrs. 48 mins.	Gemini 4
White					
Cooper	U.S.	Aug. 21—Aug. 29, 1965	120	190 hrs. 56 mins.	Gemini 5
Conrad					
Schirra	U.S.	Dec. 15—Dec. 16, 1965	16	25 hrs. 52 mins.	Gemini 6
Stafford					
Borman	U.S.	Dec. 4—Dec. 18, 1965	206	330 hrs. 35 mins.	Gemini 7
Lovell					
Armstrong	U.S.	Mar. 16, 1966	6.5	10 hrs. 42 mins.	Gemini 8
Scott					
Stafford	U.S.	June 3—June 6, 1966	46	72 hrs. 21 mins.	Gemini 9
Cernan					
Young	U.S.	July 18—July 21, 1966	44	70 hrs. 47 mins.	Gemini 10
Collins					
Conrad	U.S.	Sept. 12—Sept. 15, 1966	45	71 hrs. 17 mins.	Gemini 11
Gordon					
Lovell	U.S.	Nov. 11—Nov. 15, 1966	59	94 hrs. 33 mins.	Gemini 12
Aldrin					

\*First two Gemini flights were unmanned.

## YEARS AGO

**THE FLIGHT**, except for a problem with the heat shield, was as near perfect as it could be. Splash-down was routine, within few miles of pickup carrier



FEBRUARY 1967

**NOW YOU KNOW** how long ago it was. John Kennedy was president—a year and a half away from death—and inspected capsule with Glenn after flight





Jackie Stewart tests...



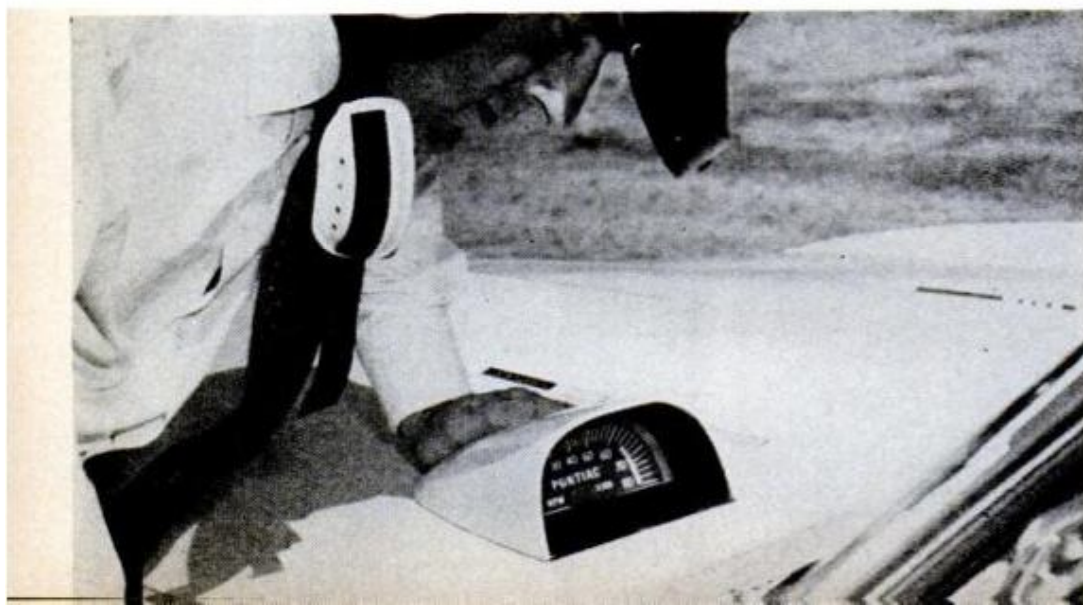
# Pontiac's Flashy Firebird

... and he tests it right up to the limit. He says that during high-speed runs "one of my passengers asked politely to be let out, thank you"



**TAKING 90° TURN AT HIGH SPEED** on GM's Desert Proving Grounds, Stewart says, "There is quite a lot of roll in the corners," but this is something most drivers taking turns around 15 mph never experience. Stewart tested both a Six and Eight

**HOOD-MOUNTED TACH** made big impression on Stewart, from race-driver's viewpoint. "For most cars," he says, "this is where the speedometer belongs. The driver need not take his eyes from the road to read the dial—an important safety feature"





Scotland's 27-year-old Jackie Stewart has zoomed to the top of professional racing in three years. In 1966 he won the New Zealand-Australian championship, the Monaco Grand Prix, the Mount Fuji international race in Japan, was leading at Indy when his car was forced to "retire" with only ten laps to go

By JACKIE STEWART

**P**ONTIAC'S NEW FIREBIRD isn't just another entry in the "long-hood, short-deck" class of personal cars that seemingly have caught America's car-buying fancy. To the contrary, it's an interesting car on its own merits, possibly because of several unique design features. But more about these later. Right now, let's talk tests.

I drove two Firebirds, both convertibles, one powered by a high-performance version of Pontiac's 230-cu.-in., overhead-cam Six, the other by a 400-cu.-in., pushrod V8. The ohc engine is rated at 215 hp at 5200 rpm, the V8 318 hp, also at 5200 rpm. Both engines had single four-barrel carburetors.

The Six had a fully-synchronized manual four-speed gear-changer, manual steering and manual front disc brakes. The V8 had an automatic transmission, power steering, and power brakes (also front discs).

I tested the cars on a hot November day at the General Motors Desert Proving Grounds near Mesa, Ariz. The course set aside for *PM* included a banked, circular five-mile track (making possible some rather dazzling speeds, by the way),







**FOLD-UP TIRE THAT INFLATES WHEN NEEDED** is Pontiac's unique solution for Firebird "mini-trunk," which otherwise would be eaten up by spare tire

a straightaway ideal for acceleration and braking tests and a "traffic" layout featuring left and right-hand corners typical of both street and highway intersections. So I had ample opportunity to try just about all types of driving during the tests.

In acceleration trials I found the V8 Firebird a very good performance car. Despite a full tank of fuel and one passenger, I averaged 0-30 in two seconds, 0-60 in 7.4, 0-100 on 17.1.

The smaller Six wasn't nearly as quick, but it was running under handicaps that hardly allow a proper comparison—I had two passengers aboard and the carburetor was badly out of adjustment, causing the engine to run roughly at all speeds. In fact, during the cornering tests I made later on, I found that the fuel was cutting out completely. But, for what they are worth, here are the acceleration results with the Six: 0-30 in four seconds, 0-60 in 11.8, 0-100 in 35.

Both cars did quite well in a series of panic stops from 70 mph. On the first panic stop with the Six's manual brakes, the offside front brake at first appeared to be locking. But then it equalized itself, the kind of recovery that can be expected from disc brakes in that they improve as they heat up. Also, a characteristic of discs is quick recovery from brake fade. Required

pedal pressure was not too heavy.

The brakes on the V8 gave me the impression I wasn't getting as much feel of the road as I'd like. My tests were made on dry pavement, yet I think it would be difficult to apply the power brakes on a panic basis under wet road conditions without locking the wheels. This is not a criticism of any one car, but of most American cars fitted with power-braking systems. Called for on such systems, I think, are antilocking devices.

On the Six, I found the manual steering to be a bit heavy, which could be tiring in traffic. It may be that this condition is augmented by the big-footprint tires. On the other hand, the power-steering system on the V8 was too active, too insensitive, in my opinion, to road feel.

Again, however, I personally think this applies to all U. S.-made cars with power steering. I believe power-assisted steering, rather than full power, would be more acceptable to most drivers. Power-assist provides easy maneuverability at low or parking speeds, but reduces its effect at higher speeds, providing a much better feel of the road. This system is used on large, heavy trucks and, I think, belongs on passenger cars as well.

Both cars handle quite well, affording neither oversteer nor understeer. I think a slight understeer is best for the average motorist in that it tends to warn him in time to slow down or even apply brakes when taking a turn. I found quite a bit of roll in both cars during high-speed cornering. Keep in mind, however, I was attempting to push the cars through the sharply angled corners as fast as I could; so fast, in fact, that at one point one of my passengers asked politely to be let out, thank you.

One thing I am unhappy about in the Firebird is the somewhat clumsy manual gear-changer. It tends to make difficult what should—in a car of this type—be a smooth, easy run through the gears. But I have this complaint

*(Please turn to page 221)*



PM Owners' Report . . .



# Dodge Charger

Popular Mechanics asks the men who own 'em, tallies up their praises and gripes and concludes that the average Charger owner is a happy one—fastback styling gets big votes and beefs are few

By BILL KILPATRICK, *Automotive Editor*

**N**EVER LET IT BE SAID Detroit's marketing men don't know *exactly* what they're doing. As takers of the car-buying public's pulse, they've gone to bat with their employers on behalf of the so-called "youth/performance" market, the result being a whole lot of hot-selling, sporty, personal-type cars frankly styled and powered for the young-at-heart.

The Dodge Boys elbowed their way into this lucrative market about a year ago with a snappy '66½ fastback called Charger. And if the ages given by Charger owners replying to *PM's* survey questionnaire prove anything, they prove Dodge's marketing minions were right on the money.

Over 50 percent (55.2, to be exact) of the owners reported their ages as ranging from 20 to 34. The largest segment within this group (24.8 percent) said they were between 20 and 24. The conclusion to be drawn, apparently, is that Dodge is selling the car for bubble-gum wrappers. Either that, or—as anyone selling anything can verify—today's young people have money to spend. In this instance, lots of it—the Charger's basic price being about \$3200.

What do these "kids" think about the Charger? They love it. They like



**HANDLING CHARACTERISTICS** of Charger were specifically praised by a high 47.5 percent of owners





**CHARGER'S STANDARD TACHOMETER**, although used little, if at all, by great percentage of owners, rated high as troublemaker; replacement took months

the way it looks and handles, like its comfort, ride, features and performance. Typical of the raves expressed by owners is this comment by a 26-year-old Wisconsin salesman:

"It's a beautiful car inside and out—well engineered and well put together."

A 22-year-old Army lieutenant calls his Charger "the best road car I've ever owned."

All isn't sweetness and light, however. Youth not only will be served as a matter of course, it speaks right up when it thinks things aren't right.

After terming the Charger "the best of any car in its class," a 24-year-old New Jersey lab technician reported "many, many rattles and squeaks, road and wind noise is high, the windshield and rear window leak, the speedometer ticks and the needle bounces, and I've lost various pieces of chrome off the car at highway speeds."

A 22-year-old Minnesota appliance repairman commented that the "paint and chrome are on the cheap side" and added that "quality on the whole could be improved quite a bit."

Other owner complaints pointed to poor rear visibility, high gasoline consumption, an awkwardly placed front ashtray and mediocre-to-indifferent dealer service.

Almost half (47.2 percent) of the owners replying to *PM's* questionnaire said their Chargers were powered by the 383-cu.-in. engine. Reported mileage with this engine was 13.9 mpg. The next most popular engine (34.2 percent) was the smallest



**REAR-PASSENGER REACTIONS** to styling were overwhelmingly favorable with only few complaints on legroom, plenty of praise for fold-down rear seats

offered throughout the line, the standard 318-cubic-incher. Mileage here averaged 15.8 mpg, highest of all engine choices. Other engines reported were the 361 (16.5 percent), the 426 "Hemi" (1.7 percent) and the 440 (0.4 percent). Mileage for the 361 was 14.8, 11.1 for the 426, and a flat 10 mpg for the 440. Mileage overall for all engines averaged 14.6 mpg.

A whopping 87.9 percent of the Charger owners reported having console-mounted automatic transmissions. Remaining transmissions were divided, 7.6 percent having the four-speed manual, 4.5 percent the three-speed manual.

A summary of the likes, dislikes, opinions and general driving and ownership experiences of Charger owners replying to *PM's* survey appears on the opposite page. Percentages listed reflect the frequency with which owners mentioned specific items. The summary is based on a total of 1,206,637 miles of both around-town and cross-country driving.

Charger owner comments pertaining to likes and dislikes about their cars are listed below in order of frequency mentioned. The boldface asides are mine.

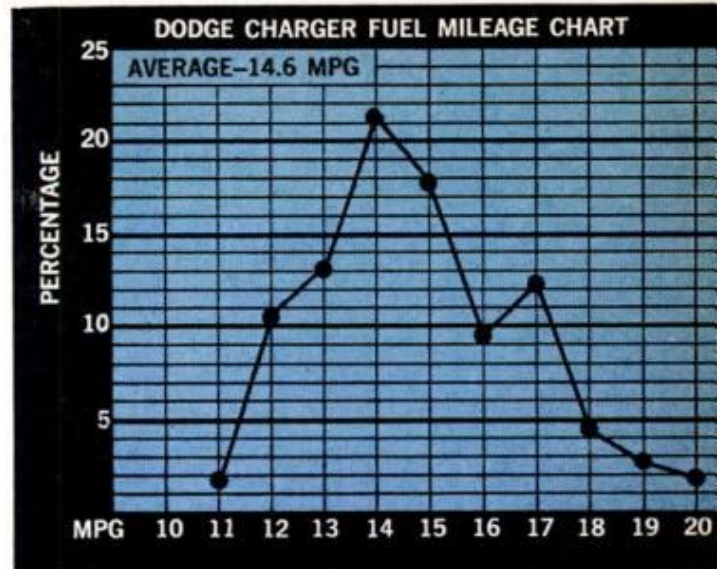
*Heading the like list with a percentage of 52.9 are praises for the Charger's styling and appearance.*

"Have had more compliments on its looks and styling than any car I've ever owned."—Nebraska salesman.

"Nice style, more luxurious than comparable cars in the same price range."—Wisconsin general serviceman.

"A sharp-looking car."—Air Force,





**VERSATILE LUGGAGE AREA** running from trunk to front seat is used for everything from stowing hunting and camping gear to an area for sleeping

New Hampshire.

Following styling and appearance, 47.5 percent of the owners had kind words for the way the Charger handles.

"Has a firm feel on the road, corners well, isn't tossed about by ruts or bumps."—New Jersey graduate student.

"Handles very well for a large car."—Kansas electronic technician.

"Wonderful maneuverability in traffic."—Virginia secretary.

Next on the list of praises at 45.2 percent were raves for the Charger's ride and comfort.

**FUEL CONSUMPTION** averaged out to 14.6 miles per gallon for all owners polled. For small percentage of owners with 440 Magnum engine, figure fell to 10

"Provides an easy, relaxing ride."—Florida sheriff.

"A nice ride and very comfortable."—Iowa minister.

"Hard to beat the Charger ride."—Tennessee factory worker.

"Very smooth and stable."—North Carolina student.

Many Charger owners (20.2 percent mentioned it) had nice things to say about the car's power. Most who commented accordingly reported feeling they had plenty to spare.

(Please turn to page 228)

## Summary of Charger Owners' Reports\*

<b>Total Miles Driven</b> ..... 1,206,637	Excellent ..... 18.7	<b>Bucket seats?</b>
<b>Average mpg</b> ..... 14.6	Makes no difference .... 8.8	Like ..... 95.2
<b>Specific Likes:</b>	<b>Fastback window?</b>	Dislike ..... 4.8
Looks/styling ..... 52.9%	Rear vision impaired .... 27.8	<b>Is Charger your only car?</b>
Handling ..... 47.5	Looks good ..... 15.4	Yes ..... 51.3
Comfort/ride ..... 45.2	Okay/no trouble ..... 15.4	No ..... 48.7
Power ..... 20.2	Makes back-up difficult... 8.1	<b>Other cars owned:</b>
Fold-down rear seats ..... 14.8	Okay when used to it .... 6.1	Dodge ..... 21.9
Interior styling ..... 13.0	Distortion ..... 6.0	Chevrolet ..... 20.2
Good mileage ..... 10.8	Too flat (dirt, snow) .... 5.6	Plymouth ..... 10.5
All-'round performance ... 10.8	<b>Tinted back window?</b>	Volkswagen ..... 8.8
<b>Specific Dislikes:</b>	Good, like it ..... 65.2	Ford ..... 8.8
Finish, workmanship, leaks 23.8	Excellent ..... 11.0	Pontiac ..... 4.4
Poor rear visibility ..... 9.9	Necessary ..... 7.0	Rambler ..... 4.4
Poor economy ..... 9.4	Could be darker ..... 4.8	Buick ..... 4.4
Front ashtray location ..... 8.5	Relaxing ..... 2.6	Chrysler ..... 3.5
Standard tires (too small) . 7.6	<b>Use of fold-down seats?</b>	Others ..... 13.1
Rattles ..... 7.2	As station wagon ..... 47.4	<b>Age distribution of owners:</b>
Dealer service ..... 6.3	Sleeping ..... 15.5	15-19 ..... 3.5
Wind noise ..... 4.5	For children ..... 12.1	20-24 ..... 24.8
<b>Specific features:</b>	For children sleeping .... 7.8	25-29 ..... 16.1
<b>Tachometer used?</b>	For camping ..... 5.6	30-34 ..... 14.3
Little/don't use it ..... 34.3	For luggage ..... 5.2	35-39 ..... 10.9
Check rpm/speed ..... 26.5	<b>Like retractable headlights?</b>	40-44 ..... 9.6
Manual shifting ..... 11.7	Yes ..... 97.4	45-49 ..... 8.7
Performance check ..... 7.8	No ..... 2.6	50-54 ..... 3.9
Check economy ..... 7.4	<b>Had trouble?</b>	55-59 ..... 3.5
Check auto. trans. .... 4.3	No ..... 83.8	60-64 ..... 2.1
<b>Tachometer location?</b>	Yes ..... 16.2	65 plus ..... 2.6
Okay, good ..... 62.2		

\*Where applicable, percentages may not add to 100 percent due to rounding and/or insufficient sample.





**WEIGH-IN FOR KART AND DRIVER** after winning a fast, tough race at Riverside, Calif. This Bultaco-powered kart goes onto scales to make sure that total weight conforms with the track's regulations



**VITAL PARTS ARE EASY TO GET AT;** simply lift the one-piece body with fingertips. Lightweight fiberglass makes streamlining a snap. A McCulloch 75 engine powers this baby. Bodies are custom-made

**UNUSUAL ENTRY** is this wedge-shaped kart with saddle gas tanks installed on each side. Tanks and front panel are made of aluminum. Two Chrysler engines power this machine. The big tires are 8x16s



# Glassy, Klassy Karts

**Sporting five forward gears, 300-cc engines and fancy GP or formula bodies, these streamlined little bombs are burning up Western tracks.**

By DANIEL C. FALES

Photos by John E. Boykin

**W**ITH FIBERGLASS BODIES, motorcycle engines and speeds topping 100 mph, these snappy little karts are no longer kid stuff. The tiny terrors are fast and fun to drive, although mishaps occur as in any high-speed sport. But drivers feel these new karts are safer than other types because of protective wheel and engine coverings.

These coverings are made of "glass" for three reasons: (1) karts are speeding up; thus, the need for streamlining; (2) karts used to look unfinished; but sleek hoods and bodies turn the ugly ducklings into beautiful racing machines; (3) fiberglass is light in weight.

Like racehorse and jockey, kart and driver must weigh in before and after each race. Kart and driver must not weigh more than track rules specify.

Some karts use two engines for a total capacity of 250 to 300 cc. Engines turn up 10,000 rpm. These mighty mites use 8x16 tires with tread pattern suited to particular kart specs. Racing them is becoming big-time sport. ★★★

POPULAR MECHANICS

Материал, защищенный авторским правом



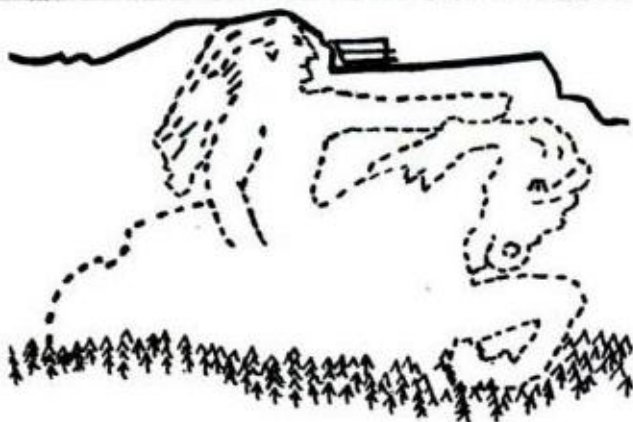






**Army digs through 10,000 years of ice**

By drilling completely through the Greenland ice sheet—a distance of almost a mile—Army researchers were able to take a core of gravelly soil (left) that is believed to have been Greenland's surface 100 centuries ago. The Army kept its drilling equipment in a subsurface trench (right) as protection against severe arctic weather. Most of the penetration of the ice cap was done with a thermal drill that melted its way through.



**Movable sculptor**

Working on a 27-ton movable platform (top), sculptor Korczak Ziolkowski drills holes for dynamite—then backs the rig away for the explosion—as he works on the Crazy Horse Memorial in the Black Hills. Diagram shows platform in relation to monument.

**Mountain makers**

The Bavarian mountain police built a plaster mountain recently so they could demonstrate how they go about rescuing stranded or injured mountain climbers. The rescue demonstrations took place during an exhibition given by police in Hannover, Germany.



# Helicopters in Vietnam



Here is Popular Mechanics' salute to our fighting whirly-birds, including a two-page painting of them in action

By Kevin V. Brown

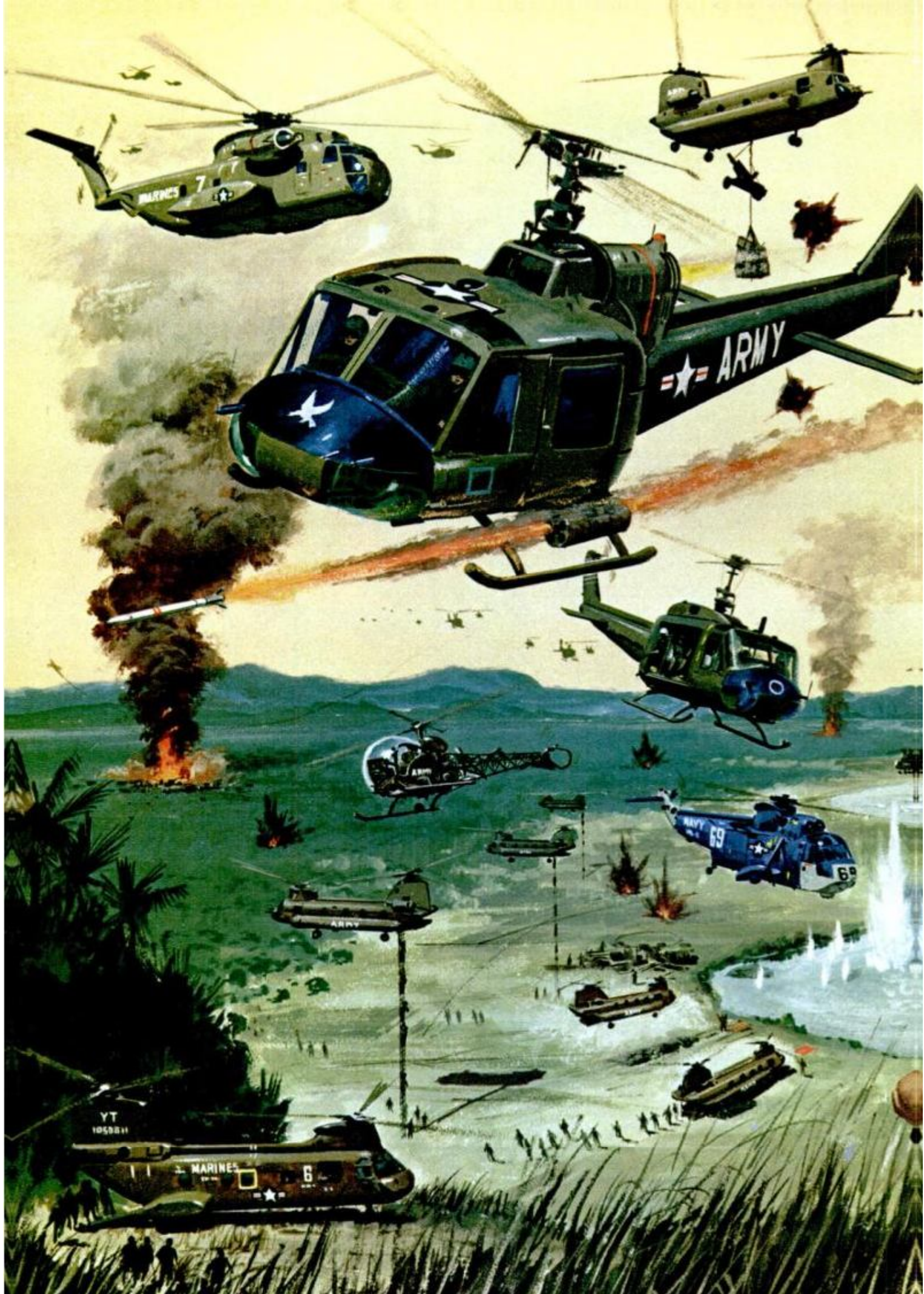
**T**HEY WERE STILL in swaddling clothes in World War II. They were baptized (in blood) in Korea. Today, in Vietnam, they are fully grown, and our war effort would be getting no-

where without them. They are the helicopters, the awkward, ugly ducklings of aviation.

They are many things to military  
*(Text continues on page 110)*

**FULL-COLOR ACTION PAINTING**, done expressly for PM by the famous aviation artist, Ed Valigursky, appears on pages 108-109. See how many choppers you recognize, then turn to page 227 for identification





U.S. Helicopters in Vietnam





VALIGORAKY





**CH-47 CHINOOK** opens up and unloads heavy artillery close to front-line action in Southeast Asia

men. They carry troops or cargo, to safe, spacious airfields or to small, isolated clearings hacked out of the jungle within sight of the enemy. They hover over the fighting, spotting targets for the faster, heavily armed jets to strike. They also carry arms and, when the jets aren't around, they go in themselves with machine guns firing and rockets blasting.

If the helicopter did none of these things, it would still be indispensable. Never in the history of warfare has there been such an efficient angel of mercy. It can deliver medics and medicine to the very scene of the action. Once there, it can pick up the wounded and carry them away from battle.

Further, it can go behind enemy

lines to pick up stranded flyers forced to bail out or crash-land, and reel them in from swamps, from treetops and from the sea.

All services use helicopters—which alone is a testament to their universal value—in a variety of configurations for a variety of duties.

Choppers are doing the job, and probably the one that's doing more than any of them—if for no other reason than sheer numbers—is the ubiquitous UH-1 Iroquois. It's the most widely used helicopter in Vietnam, and is probably the most versatile. The UH-1B is armed, usually with machine guns and rocket pods, and in most cases works organically with ground units. That is, it is an integral part of

**CH-46 SEA KNIGHTS** unload Marines amidst clouds of dust before going back again for more







**UH-1D IROQUOIS**, usually troop carrier, doubles as ambulance here, hoisting wounded soldier aboard the ground action as much as tanks and artillery.

Its sister ship, the UH-1D, is usually used as a troop carrier, and the Marines use the UH-1E as an assault weapon like the 1B with machine guns, rockets and grenade launchers.

What makes the Iroquois so popular, even though it's one of the slowest and smallest choppers in Southeast Asia, is that it presents a smaller target and its quick reactions can get it in and out of smaller areas with less hazard.

An updated version of the 1B, the Huey-Cobra (see cover), will soon make its bow. Its streamlined body carries more firepower and it has more speed (180 mph.) and greater range.

The CH-47 Chinook may be the workhorse of Vietnam, carrying troops and cargo in a wide variety of missions. One spectacular duty is to trans-

port artillery to keep up with the action. Where these heavy weapons would otherwise move slowly overland by truck, the Chinooks airlift them in minutes. There is one case of Chinooks moving an artillery unit four times in one day to keep it in a battle.

The new CH-54 Skycrane has appeared, too. Awkward looking, it can easily lift a CH-47 which has been doing most of the heavy lifting in Vietnam. A unique feature is a detachable pod, which could be left in the battle zone, rigged as a hospital unit or command post.

Other cargo troop carriers include the new CH-53 Sea Stallion, CH-46 Sea Knight, the venerable bananalike H-21 Workhorse now being phased out, CH-37 Mojave and UH-34 Choctaw.

All helicopters can be used for observation or reconnaissance; two have this as a specific duty. The older OH-13 Sioux will soon be phased out by the new bubble-bodied OH-6.

The HH-43 Huskie has a unique chore: to drop firefighters over landing areas and douse fires in crashes.

The HH-19 Chickasaw and UH-2 Seasprite are primarily rescue aircraft, although any chopper can fill this role, but the most famous is the SH-3 Sea King, or "Jolly Green Giant." It is building up legends in its own time.

All in all, a beautiful panorama of ugly ducklings. ★★★

(To identify helicopters, turn to page 227)

## YOUR OWN PRINTS OF PM'S VIETNAM COMBAT PAINTINGS

Beautifully printed in full color on heavy paper suitable for framing. (Size 18"x24".)

Both for **\$1.95** Postpaid



Popular Mechanics, 575 Lexington Ave., New York, N.Y. 10022. Please send me a set of large prints of PM's two paintings: U.S. Warplanes in Vietnam and U.S. Helicopters in Vietnam. Enclosed find \$1.95.

Name \_\_\_\_\_

Street \_\_\_\_\_ City \_\_\_\_\_

State \_\_\_\_\_ Zip Code \_\_\_\_\_



# **Anyone can climb a mountain**

*It isn't dangerous and it's not hard. The secret is expert instruction—and once you learn the basics at a good climbing camp, you'll find yourself perched on a pinnacle and rappelling down a sheer wall with the greatest of ease*

By **STUART JAMES**

**LONG TREK** across the glacier behind him, a novice mountaineer at Larry Williams Climbing Camp slowly works his way up an ascent of Palisades Crest.





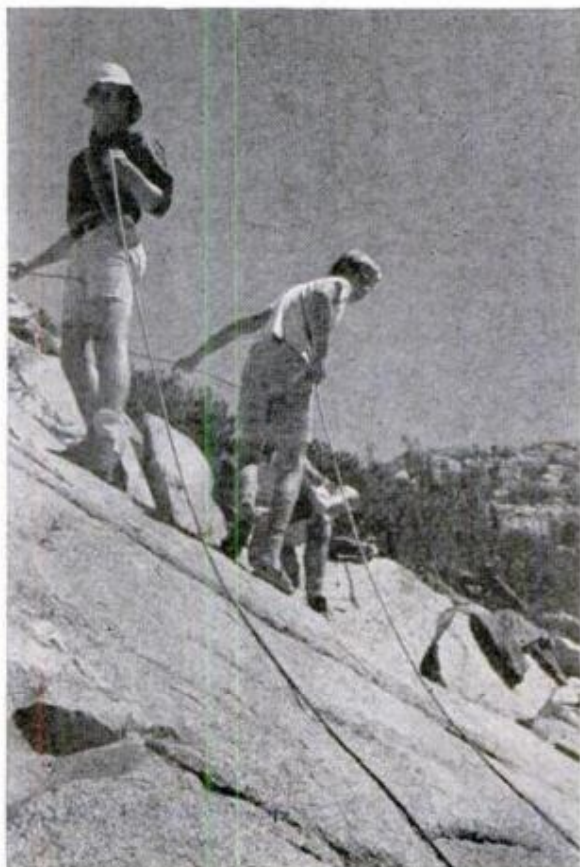
**YOU DON'T HAVE TO BE RUGGED** to climb a mountain. I climbed a 13,768-foot peak on the Palisades Glacier last summer, and I'm neither young, strong nor brave. It was my first climb; I did it on my 40th birthday, and I'm the guy who cannot bear to stand near the railing of a high terrace.

Frankly, the hardest thing about climbing a mountain is getting to the mountain. After you have hiked 13 miles—all uphill—with a 50-pound pack to get to the climbing camp, and then trudge another five or six miles—all uphill—to get to the base of the mountain, the actual climbing is just a series of nice long rests.

Like any complete novice who wants to try his hand at mountaineering, I was concerned about getting expert instruction. There are three excellent climbing schools in the United States; the National Park Service operates schools and camp sessions at Mount Rainier in Washington and Grand Teton National Park in Wyoming. I chose a private camp operated by Larry Williams Mountaineering Guide Service in Big Pine, Calif.

I had my doubts about this venture. By the time I reached the climbing camp at Sam Mack Meadow I was ready to forget the whole thing and go back to a nice, sensible sport like dominoes or basket weaving. I was completely exhausted, I felt at least 70 years old, and I was surrounded by mountain peaks that were very high—and straight up and down. The young, muscled college-age boys strutting around the camp did nothing to cheer me up, but when I saw a little five-year-old girl who had hiked effortlessly up the same trail with her own little pack, and her 110-pound mother who had done the same thing with a big pack, I was absolutely dismayed.

Surrounding Sam Mack Meadow are precipitous rock walls. The college boys kept eyeing them with relish, while I stared at them in disbelief. I felt a moment of panic on the morning of the first session when Larry Williams



**RAPPEL TECHNIQUE** of sliding down a stationary rope is first practiced on an easy rock face



**REAL THING** is accomplished the same day, and after basic training it is a simple maneuver



came forward with great coils of rope over his shoulders, but it passed when I was told that all basic instruction would be held on flat ground.

I was heartened considerably when the entire morning session was devoted to safety.

Bespectacled and soft-spoken, Larry Williams exudes confidence. A high school science teacher during the winter and mountaineering guide in the summer, he teaches with a blending of technique and philosophy. "Climbing a mountain is not a combat," he says, "not man against nature. It is true that the mountain is a challenge, but this is only because it is an obstacle that can be overcome by human technical

knowledge. When it is done correctly there is never any danger in mountain climbing."

### First lessons

The first lessons were in handling a rope, tying a few knots such as the half-hitch and figure-eight, and how to belay. Each climber has a 10-foot length of  $\frac{3}{8}$ -inch nylon rope which he ties snugly around his waist. Attached to this is a carabiner, an oval-shaped aluminum ring with a snap link. To tie into a rope, the climber simply makes a loop in the rope with a figure-eight knot and snaps this into the carabiner that is attached to his waist rope.

Learning the belay really takes the terror out of climbing. In a practice



**HOW TO TIE KNOTS** and handle a rope is the first lesson at climbing camp where safety is emphasized



**CRAMPONS** are long steel spikes that are strapped to the boots for hiking across slick ice and snow



**STRENGTH AND SAFETY** of the friction belay is demonstrated on flat ground by two men using all their power in an attempt to pull the belayer from position. It took five men finally to dislodge him



session, the belayer sits down with feet solidly braced against a rock. He passes the rope behind him, letting it run over his hips and guiding both ends through his hands. As many as three men grip one end of the rope. The man on belay grips this rope firmly in his right hand; the loose end is slack in his left. As one of the young men shouts "Falling!" the belayer crosses his left hand over the right, creating a "friction lock," and the others try to pull him out of his position behind the rock. He cannot be budged.

The next thing to learn is the rappel, a way of lowering yourself down a sheer cliff on a rope looped over a well anchored object on the top. This,

*(Please turn to page 203)*

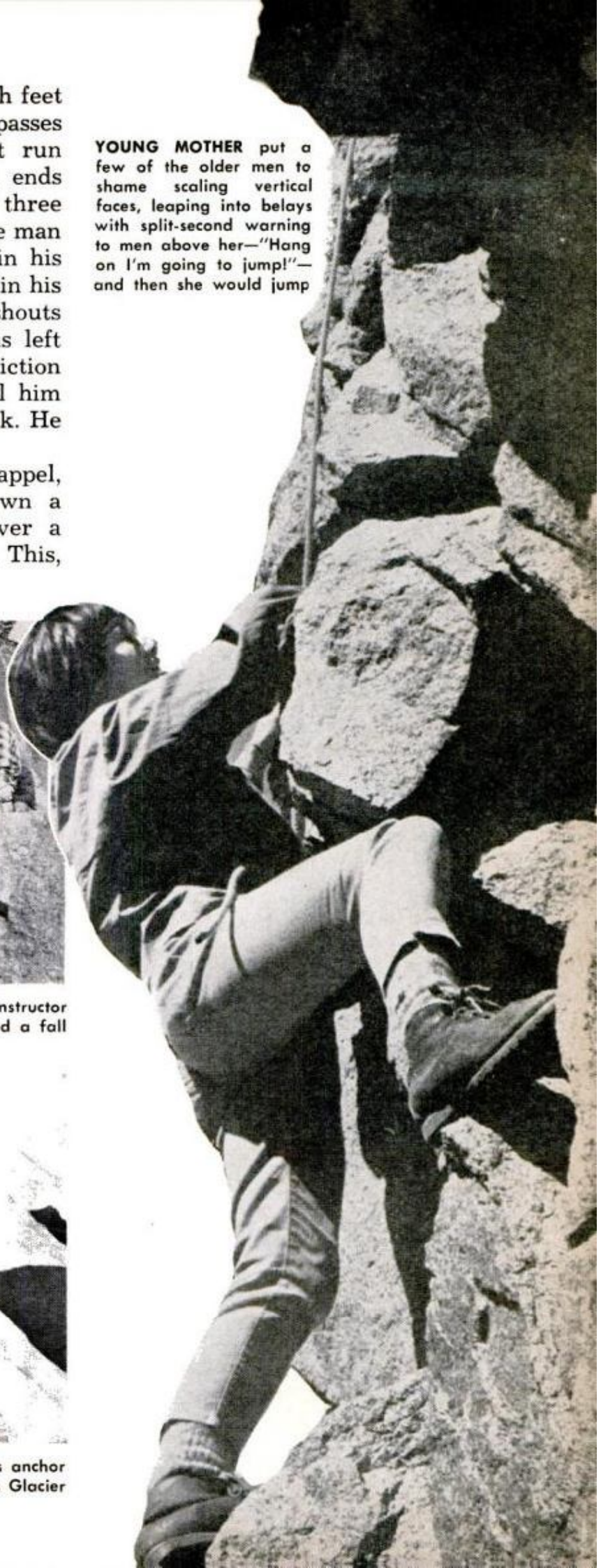
**YOUNG MOTHER** put a few of the older men to shame scaling vertical faces, leaping into belays with split-second warning to men above her—"Hang on I'm going to jump!"—and then she would jump



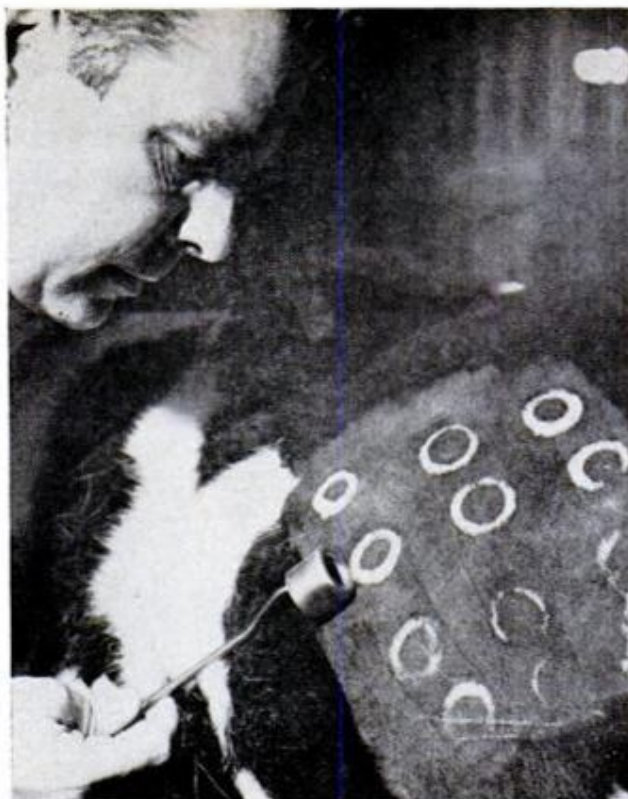
**CLASS IN BELAY TECHNIQUE** watches instructor Larry Williams hold a climber who simulated a fall



**ICE AND SNOW BELAYS** using the ice ax as anchor are practiced on a gentle slope of Palisades Glacier







## No damage to hides with cold branding method

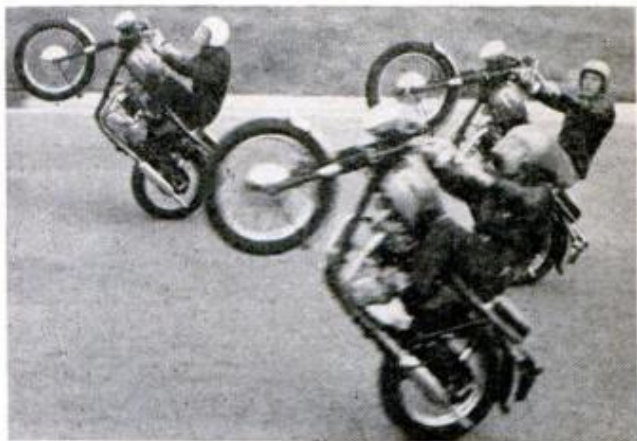
New way to brand cattle employs intense cold rather than heat. Main advantages, says the Department of Agriculture scientist who developed the method, are that the hide is not damaged and the animal suffers no pain. Branding irons are cooled (as shown in left photo) in liquid nitrogen or in a bath of dry ice and alcohol to temperatures as low as minus 69° F. Applied for about 30 seconds, the iron kills cells that produce pigment in skin and hair. Hair falls out where the brand is made, but a new growth appears in about three weeks. Containing no pigment, the new hair is white. Brand marks seen in second photo were made in testing the effectiveness of irons composed of various metals. Because it is painless, the method has been successfully used in branding cats, dogs and even sea lions.



## New high-speed mountain highway

Drivers in the Swiss Alps won't have to negotiate the nerve-racking hairpin turns of the Old St. Gotthard Pass after this spring. In July it will be replaced by a modern road—the new Tremola Pass. A nearly completed section of the new highway is shown.





## Wheel wizards put on show in California

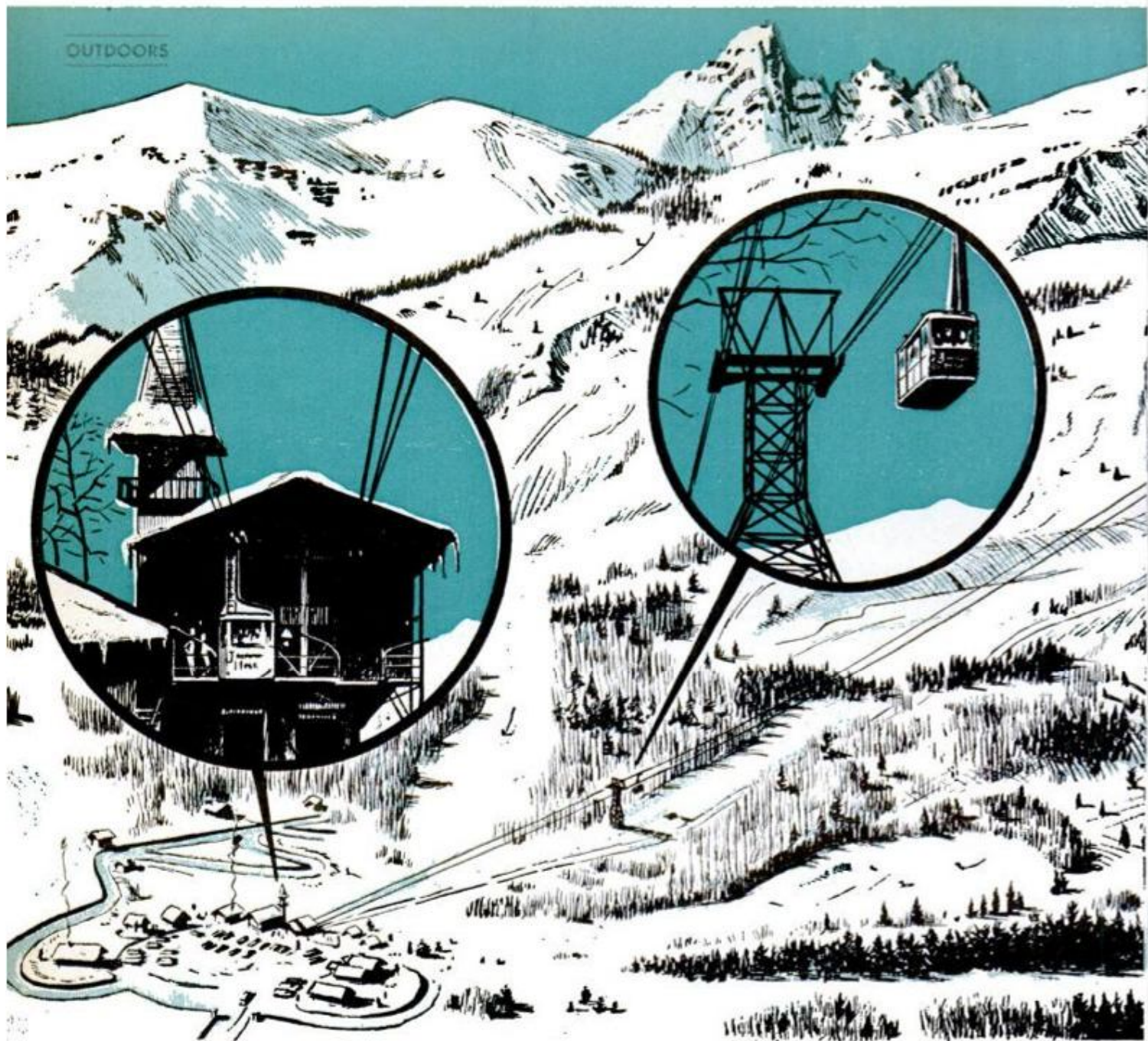
This trio of Los Angeles daredevils can lay claim to being the champ "wheel walkers" in the country. With their big bikes precariously balanced on their rear wheels, they can go through all the gears and hit speeds of 50 mph. They often go in for drag races. The trio's leader is so adept that he can maintain a one-foot stance for distances up to a quarter of a mile. A well coordinated rider can become an accomplished wheel walker in about a year, the three experts say, "if he tries hard and has enough nerve."



## Coast Guard's new high-endurance cutter

The twin-screw **Hamilton**, first of a new class of Coast Guard cutters, will operate at speeds up to 28 knots. Scheduled for recent completion, the 2800-ton vessel is the first major United States ship to have a combined diesel and gas turbine propulsion plant. A closed-circuit TV system allows men on the bridge to see what is happening in various parts of the ship and to transmit data visually. All bridge equipment is mounted in consoles for ease of operation. In addition to combat hardware, the **Hamilton** carries oceanographic equipment, including depth sounders, special graphic recorders and a bow-mounted, wave-height sensor.





## AMERICA'S LONGEST AND HIGHEST

High in the Tetons, Jackson Hole's new aerial tramway is an alpine adventure

**S**OARING AMONG the lofty peaks of the majestic Teton Range in western Wyoming, the new aerial tramway at Jackson Hole Ski Area is a major engineering feat.

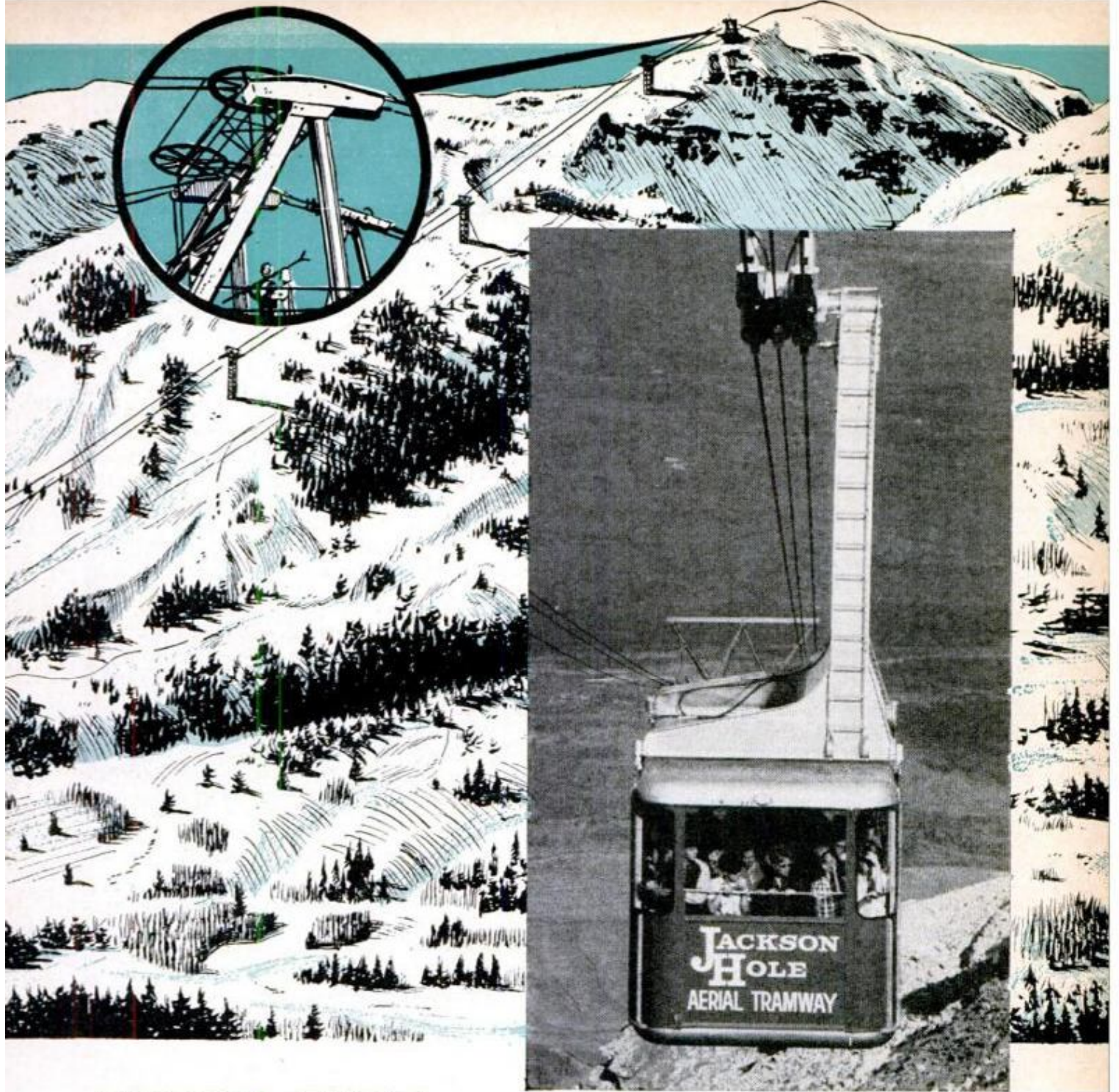
Five steel towers, from 45 to 165 feet high, were constructed on incredibly rugged terrain. These towers support the electric-driven cables from which

two 63-passenger enclosed cars are suspended. It took two years and \$2 million to complete the installation.

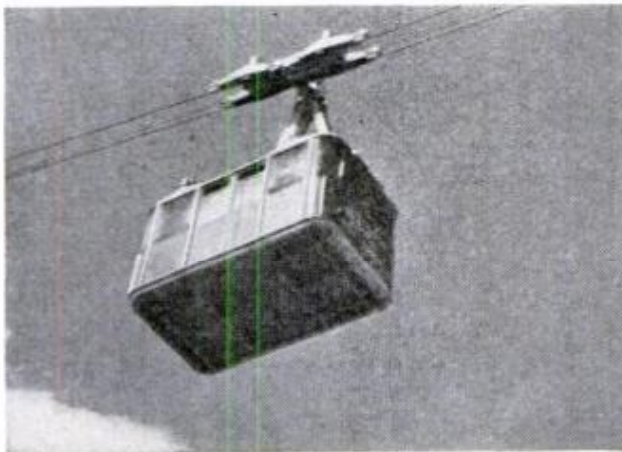
Now in full operation, the tramway whisks tourists and skiers to the top of 10,924-foot-high Rendezvous Peak in 20 minutes, giving them a dramatically intimate view of the mountain peaks.

—Stuart James





## THRILL RIDE

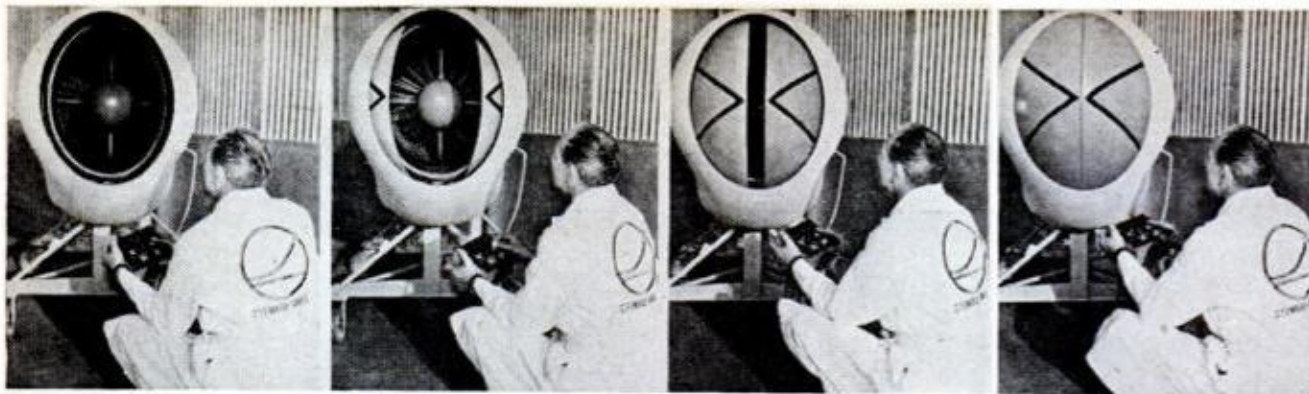


**SUSPENDED** from cables, the 63-passenger car "flies" smoothly toward a major peak in the Teton Range  
**FEBRUARY 1967**



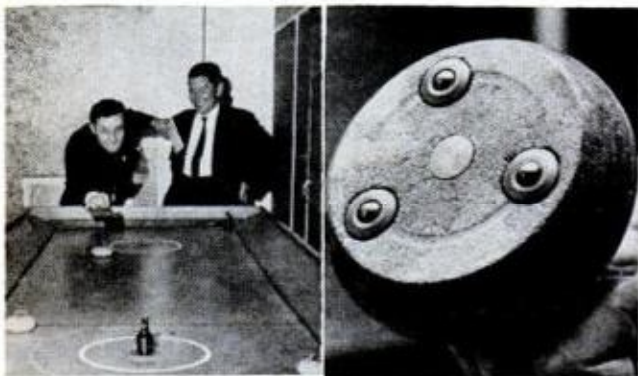
**AWED BY SPLENDOR** of the lofty peaks, passengers leave car for half hour of sightseeing at the top





## Clamshell doors 'feather' jet engines

Flame-out or power failure in one engine of a multiengine jet aircraft is no more serious than power failure in one engine of a prop plane, but it can be a nuisance. Props can be feathered but the jet turbines go right on windmilling, creating drag. Now, new clamshell doors, which lie flush with the engine walls when open, close off the inlet when the engine fails, reducing drag by as much as 30 percent and minimizing damage to the engine mechanism. The doors are operated by an auxiliary powerplant, called the Jet-Pak J3402.



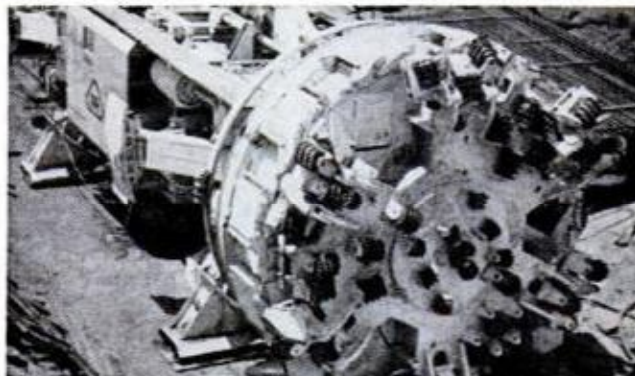
## Table curling

Played on ice by Scots and others, curling has now achieved table manners. Miniature curling stones, using ball bearings to glide on, are slid across a plastic-topped table rink. The new version of the old game is called Minocriet and follows the same rules; the closest stone to the tee wins.



## Single-wing racer

Mounted at the rear, an airfoil "wing" keeps Jim Hall's new Chaparral racing car on the road at high speeds, forcing the car down so all four wheels maintain contact with the pavement. Hall has one foot operating the accelerator, the other the wing.



## Biggest bore on earth

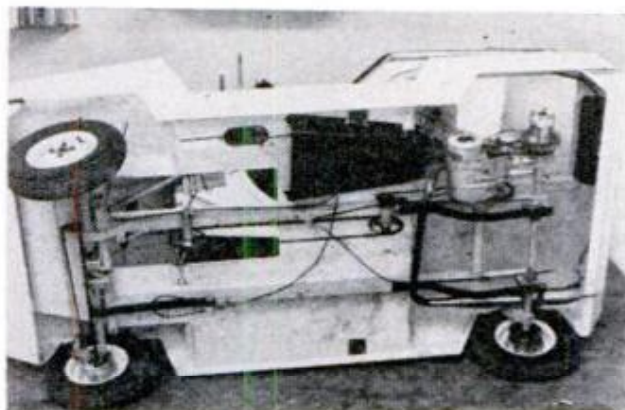
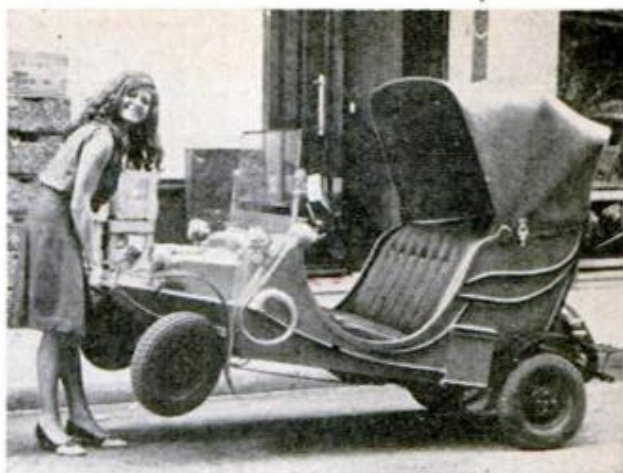
Betti bites and she's a big fat bore. So big, in fact, she bored a 20-foot diameter hole through a New Mexico mountain in record time. Kept on course by a laser-beam guidance system, the 64-foot-long machine has 43 cutting bits. As Betti drills ahead, a series of buckets moves the chewed rock to a belt.



## Floating trailer home

To get the best of both worlds, an English family who liked their trailer home converted it to a houseboat by removing its wheels and mounting it on a floating hull. The hull is powered by a Ford V8 engine which drives a stern-mounted paddle wheel.





## Out of gas? Then pedal

Ah, the French! A new miniature car, weighing less than 200 pounds and measuring only 6½ feet long, has bicycle pedals and a chain drive, but this is only a front—or an underneath. It's just to get around French regulations. The car really has a three-hp engine which speeds it up to 28 mph, but the pedal-drive classifies it as a "cyclomoteur" so it does not need a license. It comes in two versions, a modern open-top for \$1000 and an old-fashioned "fin-siecle" for \$1200.



## Offshore office

To relieve congestion in urban areas for new construction, an architect proposes to erect a multistory office building 200 feet off Jersey City in the Hudson River. It may start a trend to submerged building lots.

FEBRUARY 1967



## Wall-to-wall mirror

Five mirrors, set at angles, give British drivers a wall-to-wall rear view of the road. The full 180°-vision system has been fitted in police cars in several British cities. They say it promotes safer driving.

121



# The big pile-up of 1966

The snow was a mile-a-minute river of blinding white as 100 cars rammed together in the biggest chain-reaction wreck of all time.

By E. D. FALES JR.

SOMETHING WAS CLEARLY WRONG with drivers that day. When snow swept down and they should have been crawling, many seemed possessed by madness. Section Foreman Lew Farrell thought it was storm hypnosis. Others saw it as fear—fear of the storm, and fear of being run over from behind.

It wasn't the drivers in the westbound track. They were bucking the storm, blinded by snow, and going cautiously. It was the eastbound drivers who were running wild.

"Whatever the cause," says Farrell, who is now a supervisor on the New York Thruway, "we could see them overtaking our plows at 50 and 60 miles an hour. Their eyes had a funny fixed look."

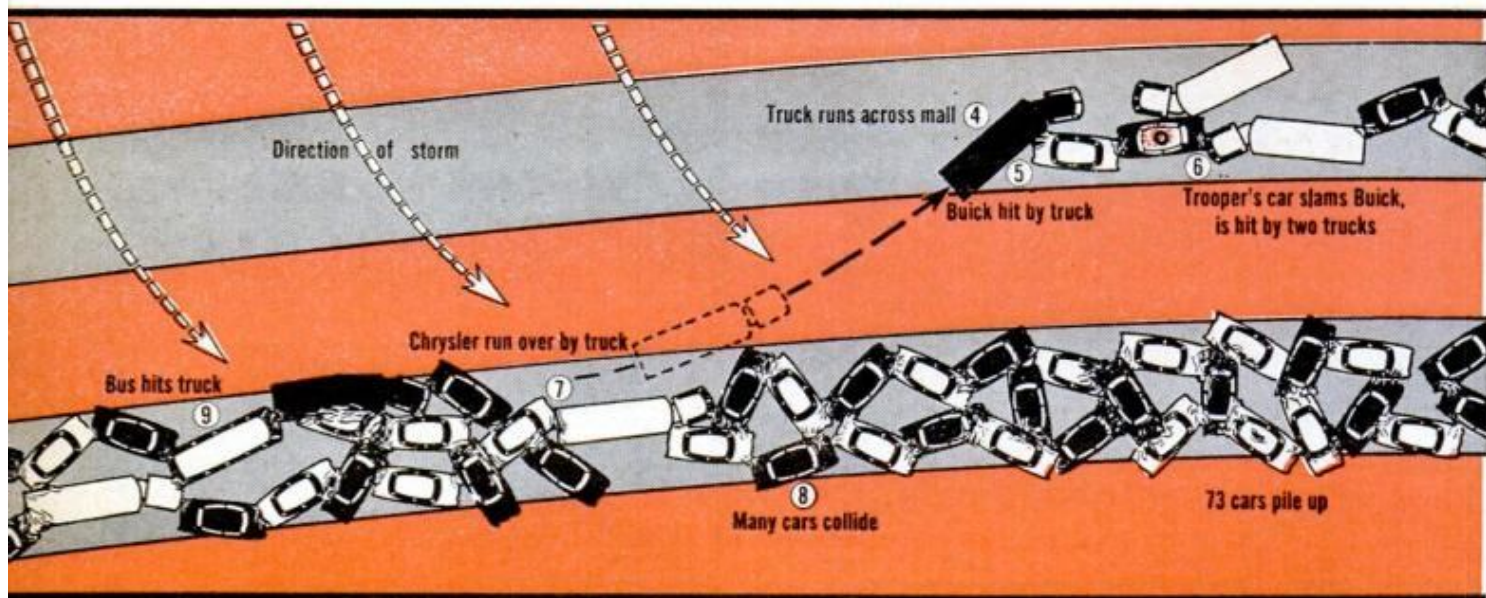
The day was a Sunday: Jan. 30, 1966. In the morning a storm buried Washington, D.C. It spun north, paralyzed Pennsylvania, killed 20 in New York State and injured hundreds. Syracuse, Rochester, Buffalo were buried. Some who dared leave their stalled cars were choked to death by snow. At noon the storm hit the Thruway and the big plows began to lose power. The strange, fine snow that choked drivers also blew into engines. It smothered breathers, raised the oil











**HOW PILE-UP IN ROCK CUT GREW:** It began at 3:58 p.m. when '63 Ford convertible (1), overtaking plows,

**At 1 p.m., near Milepost 208, death struck. A westbound Volkswagen carrying two honeymooners hit a wreck.**

level and choked the carburetors. The Thruway, one of the world's best run roads, was jammed with students returning to classes, sailors returning to ships. There were frightened families from California, New Mexico, Canada, Florida.

At 1:00 p.m., near Milepost 208, death struck. A westbound Volkswagen carrying two honeymooners hit a wreck. When the young bride stepped into the snow, a tractor-trailer knocked her down. After that, the wrecks drifted in. The road became plugged. All along the 559-mile system wrecks, jams, spin-offs now came thick and fast. In the bright "war room" at Thruway headquarters in Albany, 20 of the nation's best operations men listened in disbelief to calls from patrol cars, plows and wreckers.

At 2:15 p.m. someone said, "Can't we close the road?" But closing to avoid one disaster can touch off another. How do you strand 20,000 travelers, many without warm clothes, medicine, food—or money? There was no "right thing to do." A decision was made: Keep the plows fighting as long as possible.

At 2:30 Buffalo Div. control called Albany: "Wind is up again. Visibility has dropped to zero."

As night came, the Albany duty officers had three worry spots: First, Indian Castle, 60 miles west, where 1400 were trapped in a restaurant. Suppose fire started, or heat went off? Next: Weedsport, N.Y., 200 miles west, where one of the Thruway's best supervisors was lost and feared dying in the drifts. Finally, there was Batavia Rock Cut.

**One man, left behind, found it impossible to get out. The wind built a tomb 25 feet high over his car.**

On the Batavia section, between Buffalo and Rochester, the storm was causing sheer havoc. On one side road a few miles from the Thruway, a father and daughter left a stranded car. The wind knocked them down, stuffed their throats. Another group of motorists got to safety, but one man, left behind, found it impossible to get out. The wind built a tomb 25 feet high over his car.

Into such havoc, late in the day, rushed hundreds of mo-



**CARS BATTERED** beyond repair are examined by trooper. Some wound up in this condition when they cracked up. Others folded when plows, of necessity, hurled them aside to clear highway

Photo by Charles Sellers—  
N.Y. Thruway



**A westbound trooper, L. D. MacConnell, reported:**  
**"I'm at Milepost 387½. I've been hit and shoved into a car ahead. And they're piling up all around."**

**"All of a sudden—I never saw it; I just heard the noise—a truck was on me."**

flame barriers a half mile west of the cut. Continuing, they dropped off a flare every 100 feet. As they topped the grade at the entrance to the cut, their radio brought the urgent cry of a trooper calling Buffalo control: "Red flash!"

A red flash is like an SOS. It stops all radio talk. Then came the message. A westbound trooper, L. D. MacConnell, was reporting: "I'm at Milepost 387½. I've been hit and shoved into a car ahead. *And they're piling up all around.*"

An ominous silence followed. Then came one more call: "Buffalo, this is *awful.*"

Farrell jumped into the pickup, put it in gear. His heart sank. Milepost 387½ was in the heart of the cut itself. Both the east and westbound tracks were plugged. And motorists were racing into danger from both directions.

Drivers whistling into the cut that day hit a half-solid river of snow moving on the wind. Engineers call it a "snow pinch." In blizzards, snow does not lie. It *flows* in an enormous river. When the wind is pinched off by forests, hills or cuts, this river tumbles straight down. The cut was starting to fill up.

When the red Ford spun out, a woman in a following car hit her brakes. So did a frightened young woman in a Chrysler, and a college boy in a Volkswagen. So, too, did the driver of a big meat truck from Sioux City.

The meat truck hit a car. The trucker climbed down, ran back lighting flares. He heard a roar, saw another truck come up, front wheels turned, skidding. It jackknifed, slid past him out of control. A motorist heard a sound "like having an airplane come down at you. All of a sudden—I never saw it; I just heard the noise—a truck was on me. I felt my car being shoved. We slid to a stop. I ran to the rock wall. For 10 seconds there was dead silence."

Then, pandemonium. A tractor-trailer pushing two cars



got through on the left. The cars hit the wall and folded like accordions. The tractor-trailer jackknifed. A truck spun into the center mall, then headed for the west lane, directly toward a line of 30 oncoming cars.

Back in the east lane there was the ugly, flat sound of a body being hit. The meat truck driver from Iowa was struck, run over twice and sent bouncing through the snow. Thirty feet away a truck came by skidding *on top* of two cars. The college boy from the VW, running back with a flare, was hit. Then his VW was smashed. A driver-education teacher stopped his car and ran to help.

"I heard a roar and saw a truck skidding toward me," he told police. "When I came to, people were throwing coats over me. I was pinned under a trailer axle. All around me people were groaning. I could hear cars still colliding."

A cross-country bus came to a stop, brakes screeching. A truck hit it, hurled it into a truck ahead. The back window of the bus blew out from air compression. The whole front end fell open. People poured out, some in pain. Cars began to be tossed up the cliff, leaving chrome hanging from the rocks. In one place cars were piled two deep, with people in them. In other places they were three deep. As collisions occurred, some were knocked around like tenpins. Hoods flew up, windows exploded, wheels went rolling.

A young woman sobbed hysterically: "That's *my* car!" She pointed to a pile of metal 2½ feet high, the Chrysler, run over by a truck.

Over on the westbound track the driver of a Buick got his toll money ready. He told his family, "If we can get through this cut . . ."

Just behind him, Trooper MacConnell, in Patrol Car 7164, saw a shadow fall across the road. Out of nowhere came the runaway truck from the eastbound lane. MacConnell saw the Buick's brake lights flash. Then there was a sickening thud. The Buick humped up and fell back. The truck had hit it head-on.

MacConnell himself was hurled against the seat. His car, rammed from behind by another truck, flew forward and hit the Buick. Then a third truck came up on his right side, creasing his doors. All at once there was a third hard jolt.

The truck behind him had been hit by a car.

Then, in rapid order, came 24 more collisions behind him. "You could feel each one," he reported. As soon as his car held still he sent his red flash to Buffalo.

Not until he tumbled out did he realize the force of wind. A 30-mile snow wind is impossible to face. This one was 60. In the Buick a man and boy were moaning. The truck driver was bleeding. From the other track he began to hear sounds like explosions, but he could see nothing. He ran back to his radio. "Buffalo," he pleaded, "send me ambulances. It's happening *all over*."

When eastbound Trooper Owen Bowers heard the red flash,

*(Please turn to page 224)*

***"All around me people were groaning. I could hear cars still colliding."***

***A bus came to a stop, brakes screeching. A truck hit it, hurled it into a truck ahead. The back window of the bus blew out from air compression.***





# HOW GOOD IS THAT GUARANTEE?

Some are excellent, some are misleading and some are frauds. It will pay to know exactly what your guarantee means each time you buy

By CLIFFORD B. HICKS



**FULLY GUARANTEED!** Auto crash victim was happy to learn that faulty tie rod, which caused crash, was cheerfully replaced by automobile manufacturer

**SO YOU'RE SIZZLING MAD!** You want to clobber the dealer who sold you a "fully guaranteed" gadget that turned out to be a lemon. Or maybe it's the manufacturer who won't back up his guarantee.

Wait.

Before you indict anybody, consider the number of products you've purchased that have far outlived their guarantees. And consider the number of dealers and manufacturers who *have* backed up the promises they make on those impressive little "diplomas."

Occasionally you may honestly feel you're being taken. Before you touch off the fireworks, *make sure you have a clear understanding of what the manufacturer has promised.*

Today's automobile guarantees, for example, are excellent; but do you know precisely what yours says?

Consider the case of a man who bought a new car recently, and proudly drove it out of the dealer's showroom. Less than 100 miles down the highway, the end of a tie rod snapped. The car swerved off the road and bashed into a tree. The owner reread the guarantee in his hospital bed.

According to the guarantee, he was entitled to receive, absolutely free, a brand new tie rod. Period.

A guarantee or warranty (today the terms are used interchangeably) can be worth a big fat nothing to you, or can be as valuable as a fistful of \$100 bills, *depending upon what it says and how well the guarantor backs up his promises.*

Here are some of the questions that rear their pointed heads as soon as customers and dealers start yammering at each other over the terms:

● *Did you read the guarantee before you bought?*

That's the time to understand a guarantee. "The customer should not rely on the words 'guaranteed' or 'fully guaranteed,'" explains Kenneth B. Wilson, president of the National Better Business Bureau. "It is the guarantee itself which counts. This he



should read and fully understand.”

Before you buy a guaranteed product, read the fine print and find out:

*Who* guarantees the product. (Dealer? Manufacturer?)

*What* he guarantees. (Entire product? Sealed components?)

*How long* he guarantees it.

*What he will do* if the product fails to live up to the claims he makes for it. (Replace it? Repair it? Refund?)

*What it will cost you*, if anything. (Service charge? Labor charge? Postage or freight?)

● *Why is postage or freight a consideration?*

It depends on the product. Recently, power mowers sold by mail order were guaranteed (repairs would be made free) but the purchaser had to pay freight charges both directions. One owner discovered that it would cost him \$16 freight for “free service.”

Service charges can also be sleepers. One customer bought a section of garden hose “guaranteed for 10 years.” When the hose failed, he discovered that it not only had a prorated guarantee, but that he had to pay mailing costs and a \$1 “service charge.” The hose had cost him 99 cents.

● *Have you faced the fact that you—the customer—may be wrong?*

An irate homeowner frequently will attempt to return a guaranteed air conditioner because it fails to bring the temperature down to the anticipated level. There’s nothing wrong with the conditioner; the customer tries to save dough by purchasing a unit too small for the space.

Remember, too, that guarantees apply only to *defects* in the product, not to *how* the product is used. Your wife hollers that your new washing machine is a lemon; you call a serviceman and he finds that a nail has clobbered up the works. He is fully entitled to charge you for the service call and the repairs, and you are entitled to holler at your wife that she’s a lemon for not discovering the nail you left in your pocket.

When some customers get a lemon that is guaranteed, they feel they are entitled to a brand new replacement. Usually they are wrong. Most manufacturers do not promise a replacement, but only that the product will be kept operating for a stated period. This may mean replacement, but it more often means repair.

Occasionally a guarantee, when you angrily haul it out of the files, will provide a pleasant surprise. If your freezer goes on the fritz within its guarantee period, you *may* find that all the food stored inside also is guaranteed.

● *When does a guarantee begin?*

Usually on the date of purchase, although in the case of major home appliances it may be the date of installation. Often you register the date yourself by mailing in a registration card.

● *Can the customer cheat at least a little by holding the registration card a few months before mailing it?*

Shame on you. If you expect the manufacturer to be honest with you, be honest with him. Anyway, you’ll have trouble getting away with it;



**NO SWEAT?** Yep, lots of sweat if you purchase air conditioner too small for room you want cooled. Guarantee does not cover your poor judgment



most manufacturers key their guarantee-registration cards by color or number. They can easily determine from their files whether your card was mailed within a reasonable time of purchase. If in doubt, they can ask the dealer to check his sales records.

● *Must you fill out the questionnaire on the registration card?*

No, not in the view of the National Better Business Bureau. Some manufacturers use the registration cards as tools of market research, and their cards are almost as prying as income-tax forms. All that you're required to provide to validate the guarantee is your name, address and the date.

● *If you buy on the installment plan, is the dealer more likely to live up to his guarantee?*

This is a common fallacy. When you buy a high-priced item on time payments, the retailer usually sells your papers to a finance agency, which thus becomes the lender. The agency doesn't give a hoot about the guarantee—that's a problem between you and the dealer. Some finance companies are collecting, right now, on three-year contracts for shoddy products that gave up the ghost within the first year.

● *If repair work is performed under a guarantee, is it, too, guaranteed?*

Sometimes; sometimes not. Often

you won't find out without asking. If the sealed unit of your refrigerator breaks down within a four-year guarantee period, the replacement unit may be guaranteed for another four years. If it is, insist that the serviceman note it in writing.

Many major appliances are sold with a one-year guarantee and an "extended warranty." This glamorous phrase merely means a service contract. Whether you will make or lose money on it is as much of a gamble as pulling the lever of a slot machine.

● *What is a "lifetime guarantee"?*

The Federal Trade Commission takes a dim view of lifetime guarantees, unless that phrase is backed up by clear and specific language.

The most frequent question about lifetime guarantees is: Whose life? Is it the life of the product? (If it is, the guarantee is meaningless, because as soon as the product breaks down its life is over.) Is it the life of the purchaser, or of the car or home upon which the product is installed? "Lifetime" alone means nothing.

For still another reason, the NBBB and the FTC take a leery look at anyone offering a "lifetime guarantee." How, they ask, can the current management of a firm bind some future

*(Please turn to page 202)*

**GUARANTEED BONANZA!** Guarantee on freezer may also replace spoiled food if freezer quits and ruins it

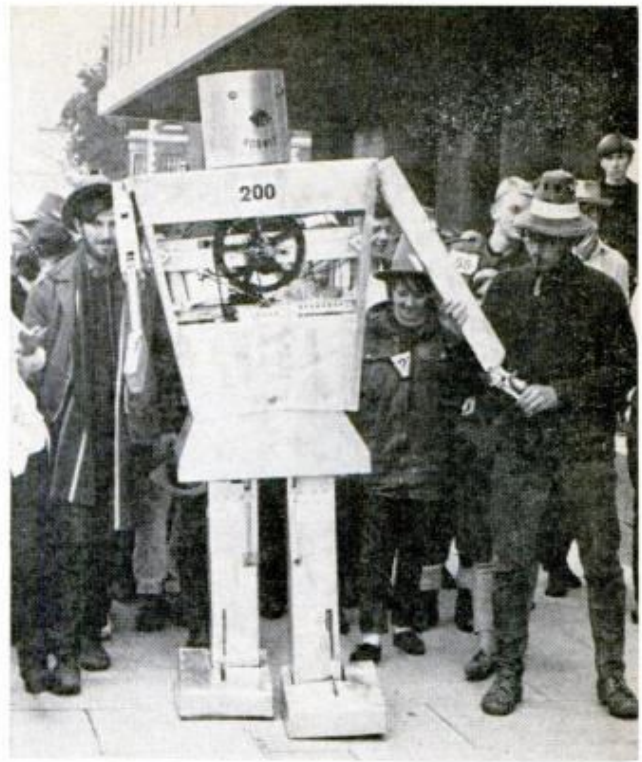






### Underground resistance

Though it may look as if it belongs in space, this 6000-gallon tank will spend the next 20 years underground storing gasoline for a filling station. Fiberglass and polyester resin give the new tank excellent corrosion resistance, says Owens-Corning, the manufacturer.



### Rambling robot

Rodnee could hardly expect to go for a walk without gathering a crowd—which he did in London's Whitehall. Rodnee is a 140-pound robot who can move his arms and head. He also "enjoys a walk," according to his inventor, Chris Southall, an engineering apprentice.



### It gets easier and easier—going up

Lifts for the Mount Snow, Vt., ski slopes are taking the look of futuristic spacecraft. The automatic telecabine (left) allows skiers to ride with their skis on while it carries them 8000 feet up the mountain. The six-passenger aerial tramway cars (right) carry passengers from Snow Lake Lodge to the base of the ski runs. The two cars on the tramway operate at a speed of 1000 feet per minute. Both lifts were built for Mount Snow by Savio-Carlevaro Co. of Italy.





## British show new tank

Britain's new heavy tank, the Chieftain, sports a rotating turret that provides the tank commander with 360° vision. Chieftains are scheduled to be sent to Germany to replace the Rhine Army's Centurion tanks.



## Clear view into hold

New ways of stowing grain are tested by the Coast Guard in this Plexiglas model of a ship's hold. Tilting the model simulates lists that occur in ships when the tricky cargo shifts at sea. New safety requirements may result.



## Laser gyroscope for ships

New application for the laser is in three-axis gyroscope, the first operational device of its kind, that is now being tested by the Navy. The gyroscope senses the roll, pitch and yaw of a ship—motions that affect accuracy of search radar and weapons systems.



## Rolling onion packer

To speed the shipment of onions to market, an Arizona farmer built a 45-foot mobile shed that can be rolled right into a field. Onions picked by hand are brought to the shed where they are sorted, washed under high-power sprays and crated for loading on truck.





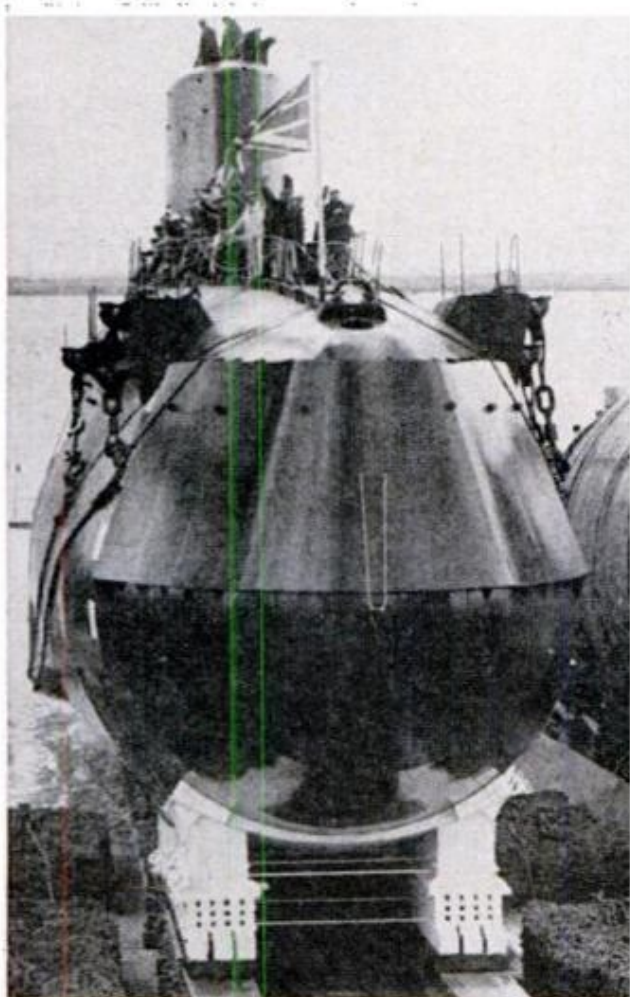
## Slow roll in big wheel

Motor pulls large outside wheel of "moon wheel," as inventor calls it. Built strictly for fun, it moves slowly on level grade but, says its builder, it really rolls downhill.



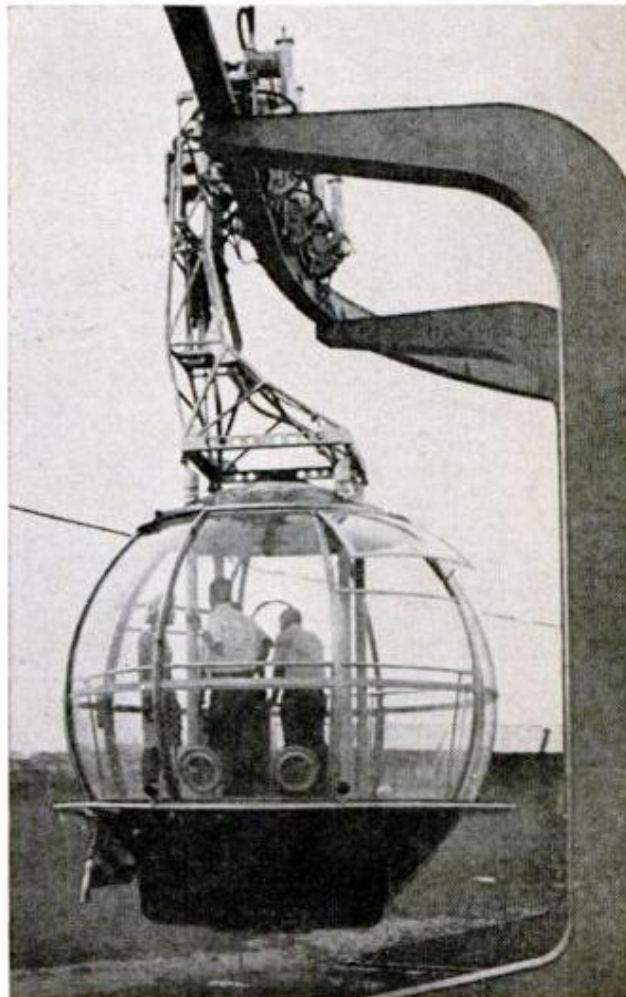
## Autogyro uses air for power

Compressed air through jets at tips of hollow rotor blades power this German test vehicle in vertical takeoffs and landings. Conventional engine is used for forward flight.



## Polaris sub in British navy

Newest vessel to join Britain's naval fleet is the H.M.S. **Resolution** whose blunt hull is seen sliding down a slip in a shipyard at Barrow-in-Furness. The staunch-looking ship, which was named and launched by the Queen Mother, is Britain's first Polaris sub.



## New sightseeing system

Diesel engine underneath gondola provides power for this Japanese sightseeing monorail, eliminating the need for power-supply stations. Instead of a fixed rail, the system uses cables. One car is designed to hold about 30 passengers.



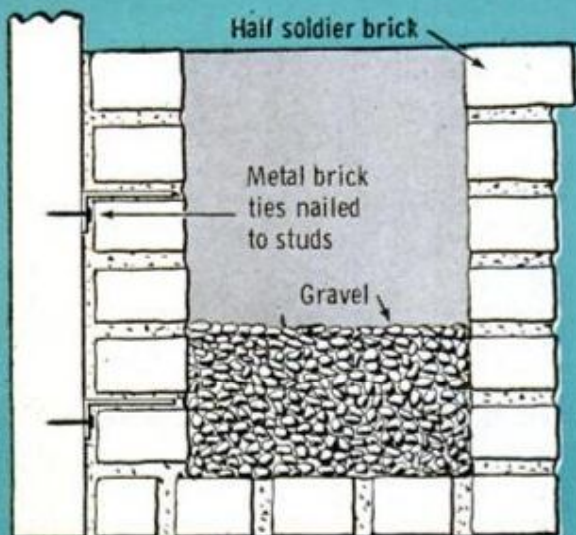
# Bweekend projects

Bagful of ideas for do-it-yourselfers that will add

By JOHN CAPOTOSTO



## 1 Brick planter



Greenery adds a smart decorating touch to a foyer, particularly when grown in a brick planter. Half bricks are used to make a curved one like this, full bricks to make a rectangular one. Start with a base of brick and build the courses on it.

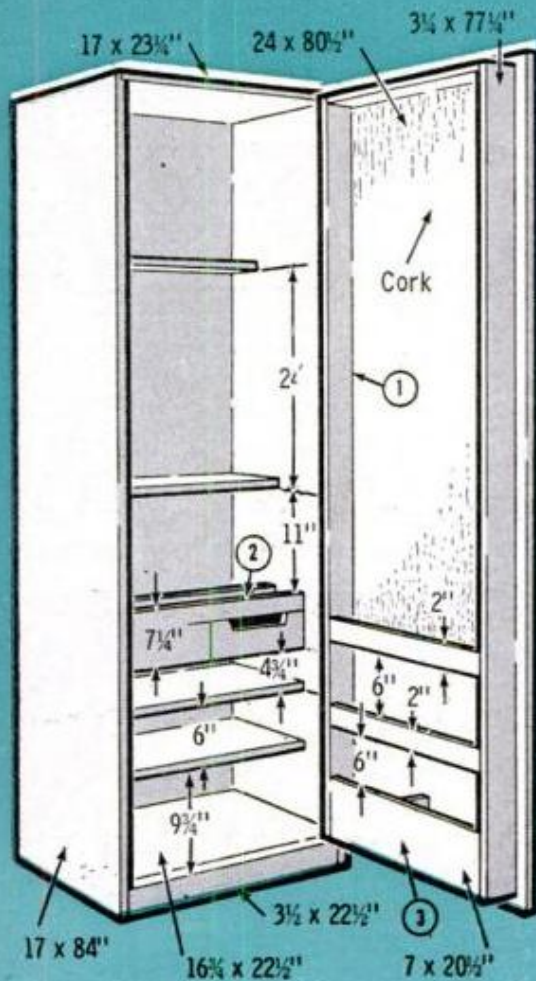
Note how the back wall is tied to the studs with metal wall ties which are nailed to them and then embedded in the mortar. Mortar joints can be raked or struck with a joint iron. Bag mortar mixes are perfect for a brick job of this size since all you need to add is water and you're ready to go.



# to improve your home

both convenience and eye-appeal to their home sweet homes

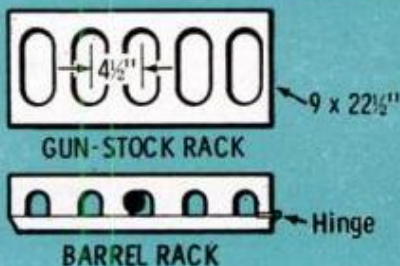
Technical illustrations by Will Eisner Associates



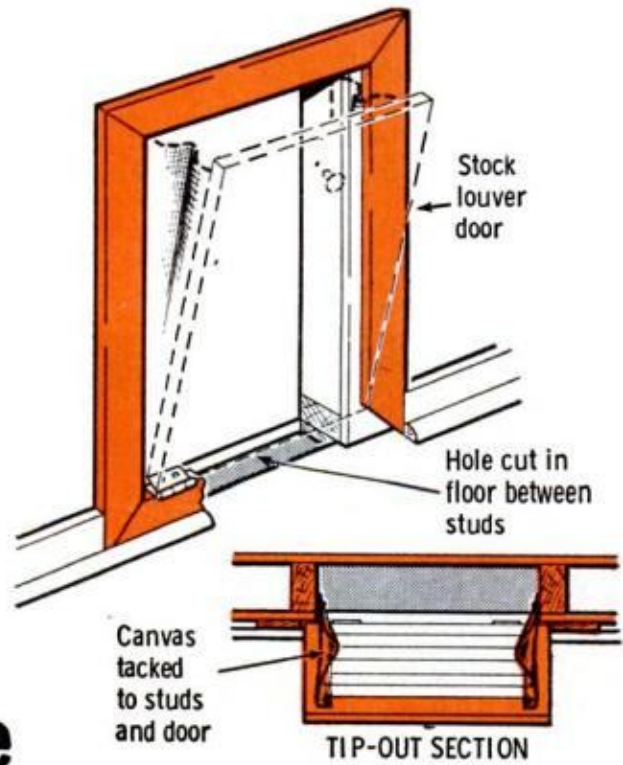
## 2 Hunting-gear closet

Your home arsenal is safely off limits to the family when kept padlocked in this handy free-standing locker. It has a rack for five rifles, there's a drawer that can be locked for storing your hand guns and ammunition and there are shelves aplenty for the rest of your hunting paraphernalia.

Most of it is made from 3/4-in. Douglas fir plywood; the back, shelf fronts and drawer bottoms are 1/4 in. The one thing to remember in building the door is that there has to be 1-in. clearance all around for it to close properly when hinged.

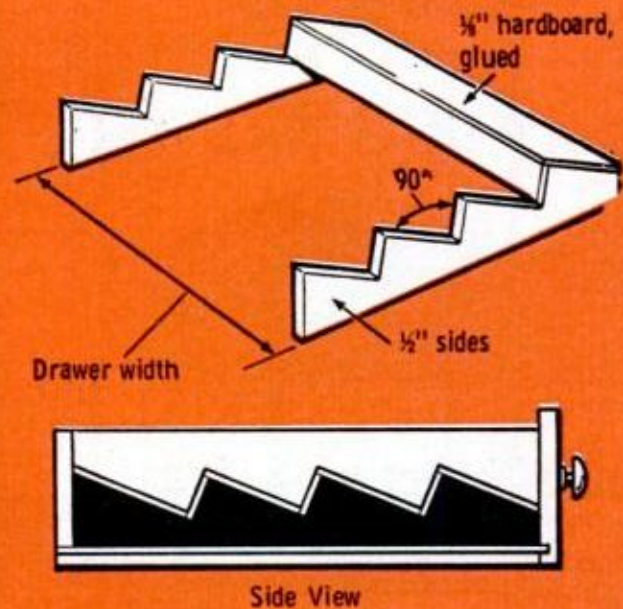
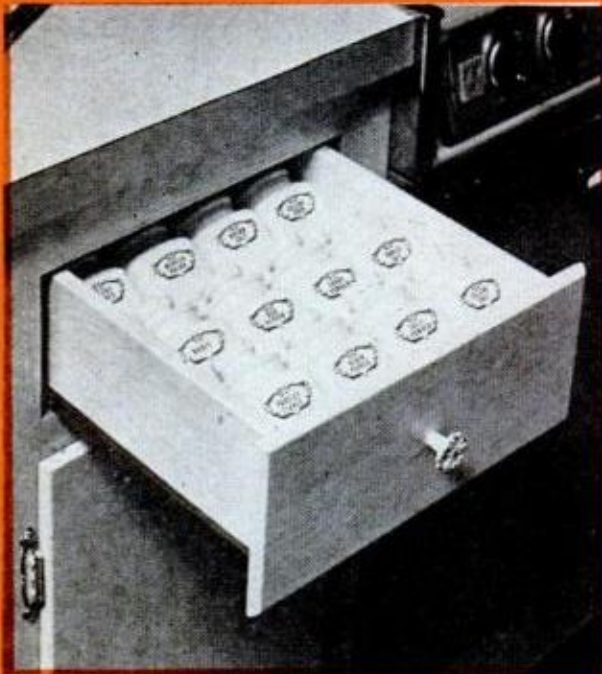






### 3 Kitchen laundry chute

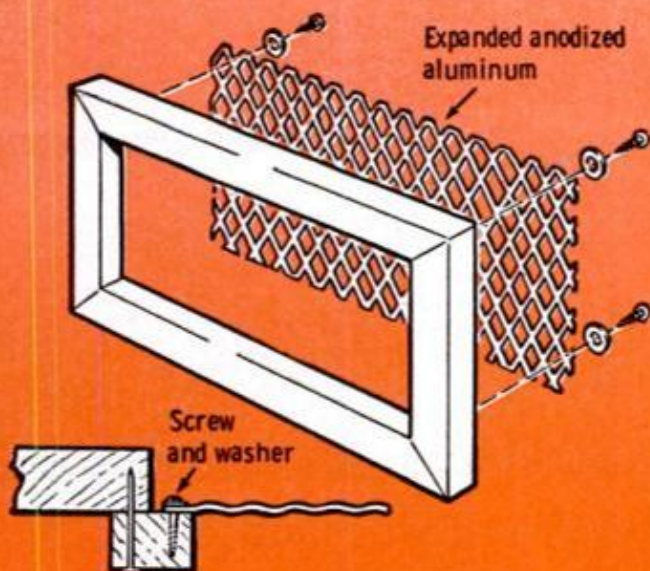
A tip-out laundry chute direct to the basement can be a real stepsaver in the kitchen for tossing dish towels into a hamper. After cutting the opening in the wall and sawing out part of the plate, cut the hole through the floor. Hinge a louvered-shutter door to the bottom member of trim framing the opening. Triangular-shaped pieces of canvas tacked to the door and studs form the sides of the chute when the door is tipped out.



### 4 Spice-rack drawer

Your jars of spices are all in plain view for quick selection when you make a stepped rack to fit a kitchen drawer. The rack is simply a couple of notched side members joined with hardboard strips. Jars determine the size and depth of notches.





## 5 Sink-cabinet vent

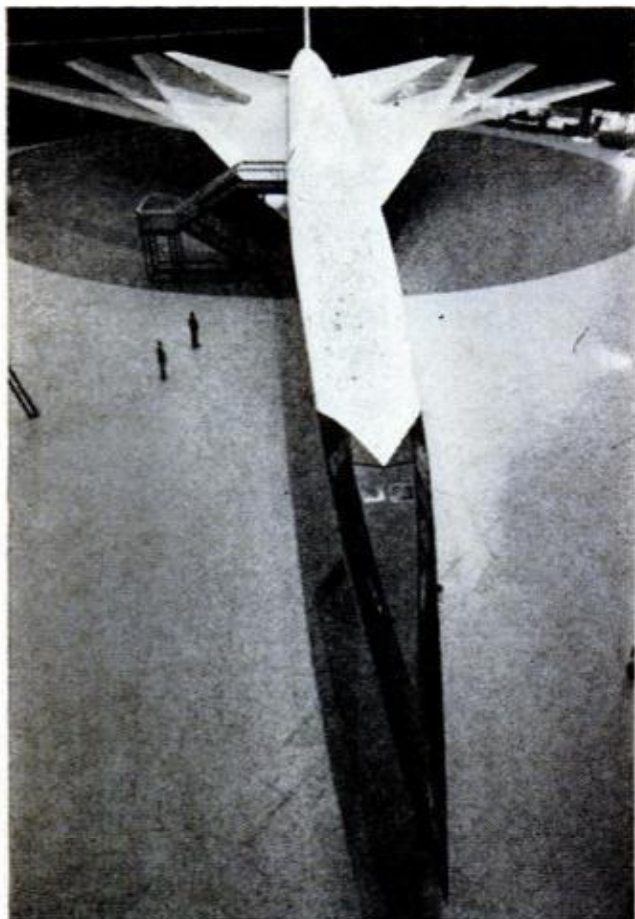
To vent a sink cabinet and keep the contents dry, cut through the apron, then back opening on the inside with a decorative, expanded metal grille and trim the outside with a mitered frame of wood.



## 6 Radiator enclosure

An ugly radiator, tall or short, can be camouflaged in summer by an attractive enclosure resembling a storage cabinet. The doors—a couple of ready-made shutters—are dummies. Plastic counter laminate applied to the top adds a slick surface. Although they can be used, wood enclosures are not too practical for use the year round.





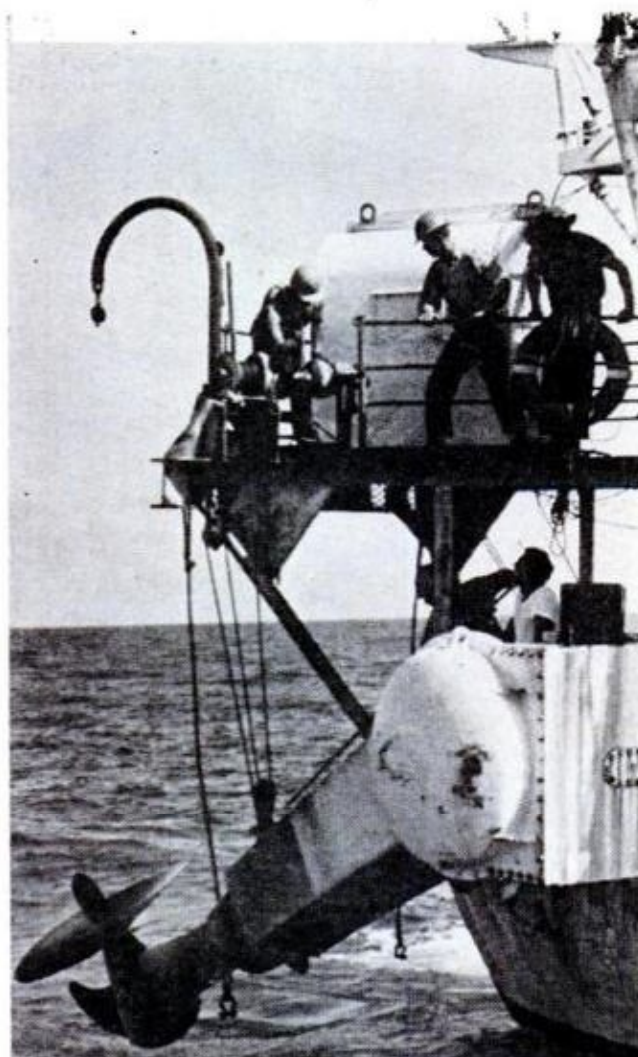
**SST—inside and out**

Mock-up of proposed supersonic transport demonstrates variable-sweep wing for subsonic, transsonic and supersonic flight and long, slim fuselage which will seat up to 350 passengers. Overhead rack will store carry-on luggage, which now must be placed beneath seats. Also planned in this version are wider seats for, Boeing says, the wider passengers who will be traveling the air lanes in the 1980s.



**A deep record**

Using computers to start and stop four outboard propellers (like the one shown momentarily out of the water at the right), an exploratory drilling ship maintains its position directly over the hole in waters too deep for conventional anchors. It has set drilling records of up to 4354 feet in the Gulf of Mexico.





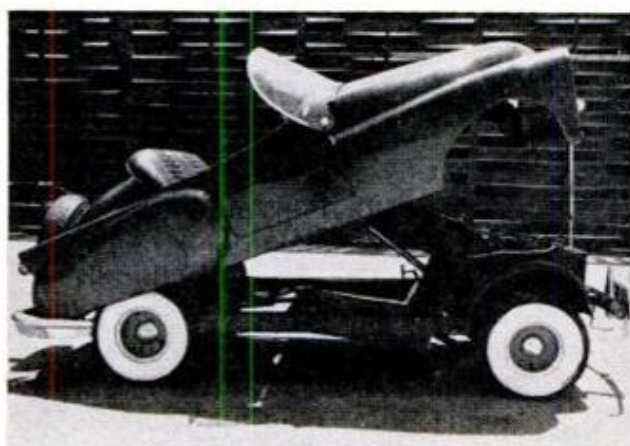
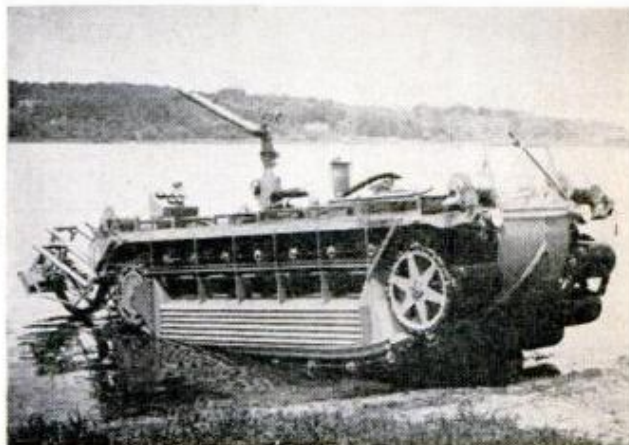


## Watercycle

Part speedboat and part motorcycle, a unique watercraft was designed by a motorcycle mechanic primarily for running the rapids in Oregon's Rogue River. The high position gives better visibility. An old Ford V8 engine powers a jet unit for operating in shallow water and is controlled by an accelerator on the handlebar grip.

## Go-anywhere vehicle

Mounted on an endless track, pneumatic tires carry a utility vehicle over any kind of surface, soft or hard, by rolling, floating or paddling. Primary uses will be in exploration or maintenance in remote areas or in military and rescue work. It was built by the Development Div. of Clark Equipment Co., Cassopolis, Mich.



## An electric auto—and only \$53,000!

Actually, when it's mass-produced, the maker hopes to market this electric car for \$2300. The one shown here was built to a special size, then gold plated. Called the BMW (not to be confused with the Bavarian car) for Boulevard Machine Works of North Hollywood, Calif., the machine consists of a chassis, a glass-fiber body (which lifts up entirely to reveal the works), eight three-cell batteries and two two-hp motors, one on each rear wheel. The batteries have a special electrolyte solution which BMW prefers not to discuss. But with it they claim the little auto will go 75 miles on one four to eight-hour "refueling"—a recharging at any 110-volt outlet—and the batteries will last five years with two changes of electrolyte.



# 15 ways to cure ROUGH IDLE

The problem's in the fuel or ignition system or in the engine itself. Here's how to find and fix it

By MORT SCHULTZ

**D**IFFERENT DRIVERS call it different things: "rough idle," "rolling," "lopping" or "missing."

Whatever you call it, pinpointing the cause of your car's jitters is easy. Most readers of *Saturday Mechanic* can do it themselves.

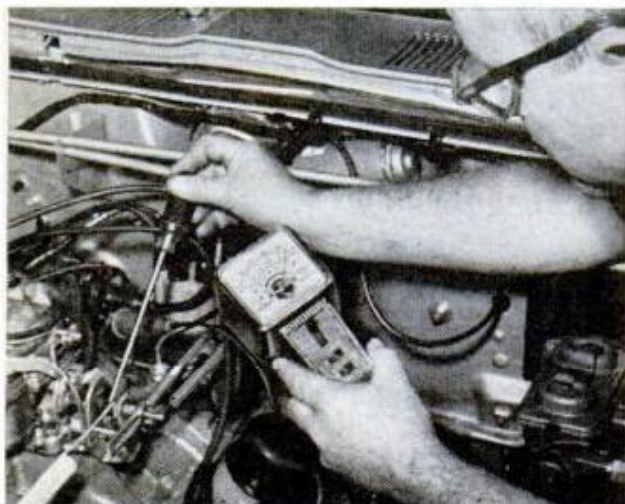
There are at least 15 different ills. To cure some, you'll need a tachometer, a dwell meter and a vacuum or compression gauge. But for the most part, you'll only need various inexpensive gauges and tools. You'll also want to know certain tune-up specifications for *your* car. Ask any good mechanic or look them up in an auto manual (Motor's or Chilton's, for example) in a library or gas station.

1. *Dirty air cleaner.* If idling gets rough and you haven't replaced your air cleaner in the last 10,000 miles (less if you drive

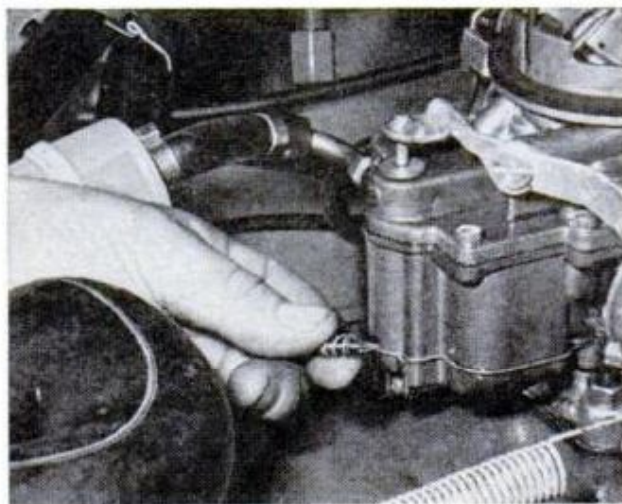
dusty roads) look for the trouble in the air filter. Air to the carburetor passes through this cleaner. A clogged filter limits air intake, upsetting the air-fuel ratio. A simple test is to remove the filter and see if idling smooths out. If it does, spend a few dollars for a new one.

2. *Wrong adjustments.* The throttle stop screw and the idle mixture screw sometimes get out of whack. The throttle stop screw controls idling speed, while the idle mixture screw governs the amount of fuel that mixes with the air inside the carb. To make these adjustments, you'll need a tach, your car's idling rpm specs and a warm engine.

Hook up the tach and adjust the throttle stop screw until the tach reads midway in the idling speed rpm specs. For example, if the specs call for an idle of 500 to



**SMOOTH IDLE IS AFFECTED** by carburetor throttle and mixture adjustments. Both can be screwdriver-adjusted using tachometer to determine correct rpm



**IDLE MIXTURE SCREW** that is damaged is sure source of rough idle; it's a sneaky one that's too often overlooked when you're troubleshooting carburetor





**NEW AIR CLEANER** seems too simple a way to smooth out rough idle, but it restores proper fuel-air ratio

550 rpm, you should set the stop screw so that the tach reads about 525 rpm.

Keep the tach connected. Turn the idle mixture screw *clockwise* until engine speed falls off because of a reduced fuel mixture. Then turn the screw *counter-*

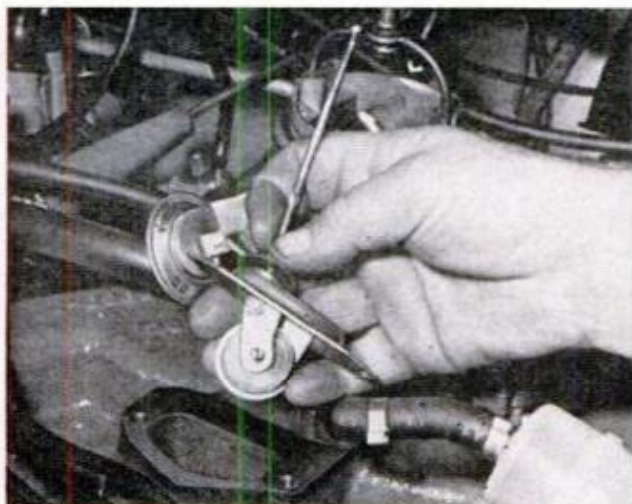
*clockwise* until speed again falls off, this time because of an enriched mixture. Do this slowly and count the number of turns from "reduced-mixture" fall-off to "enriched mixture" fall off. Now turn the screw *clockwise* again until it's midway between the extremes.

If you have a second idle mixture screw, give it the same treatment. One-barrel carbs have one idle screw; two- and four-carbs have two.

Check the tach. If the engine speed is now above specs, turn throttle stop screw *counterclockwise* until correct idling speed shows on tach.

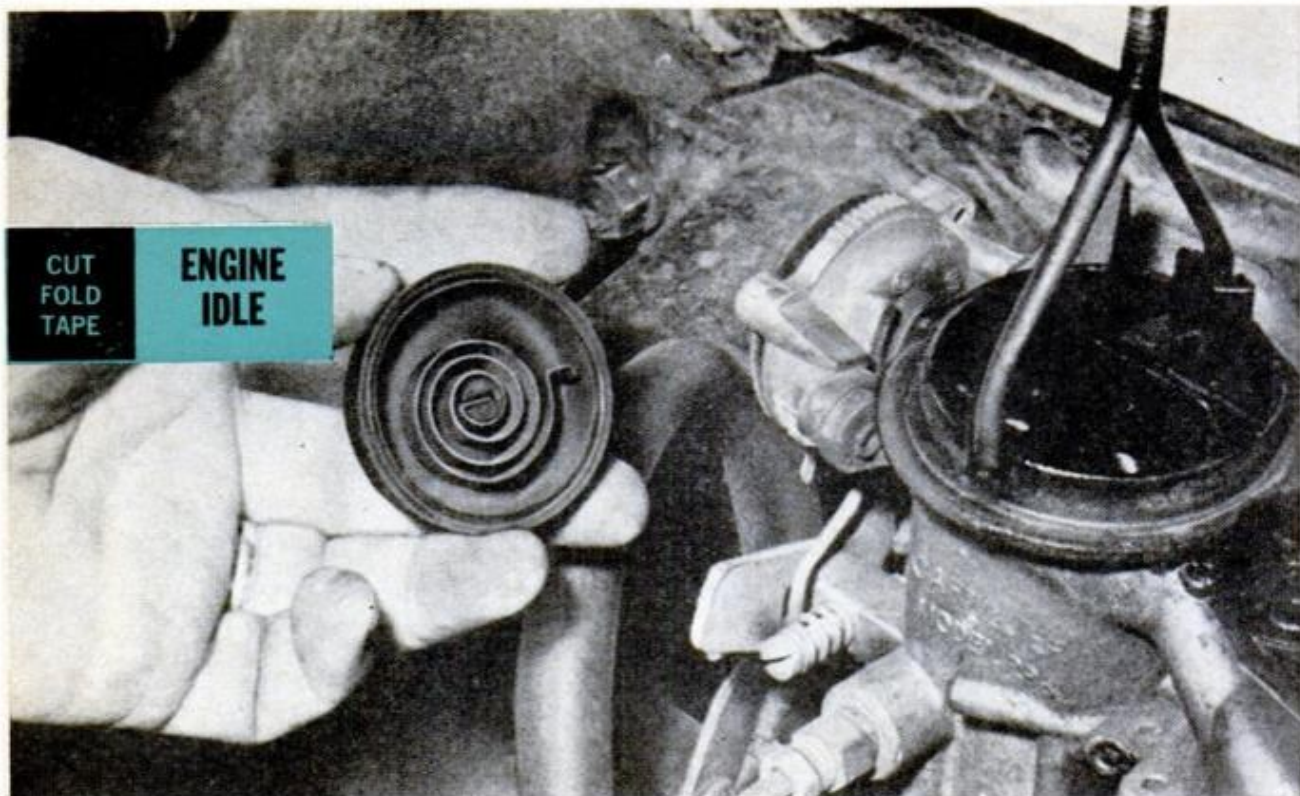
3. *Damaged idle mixture screw.* If you can turn the screw all the way in and the engine still won't stumble and stall, remove and inspect the screw. If bent or grooved, replace it.

4. *Bad fast-idle adjustment.* A cold engine needs a faster idling speed to avoid stalling. But a fast idle that's too fast wastes gas, and stresses cold engine parts. If it's too slow, the engine will lope and



**AUTOMATIC CHOKE MALFUNCTIONS** can cause fast idle and stalling, as well as rough idle. Here, thermostat spring is removed from housing in manifold



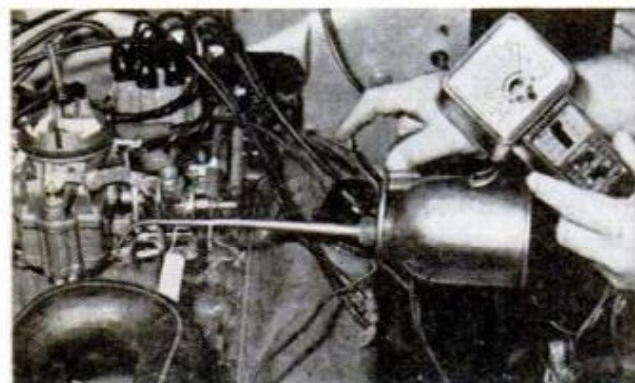


**THERMOSTAT SPRING** of carburetor-mounted automatic choke is set in the end cap. Here, the choke valve is actuated directly by a shaft through carburetor casting rather than by rod as in manifold-mounted type

stall. So, check your fast-idle specs, and hook up your tach. Start your cold engine and adjust the fast-idle screw until rpm is up to specs.

5. *Poorly adjusted choke.* The automatic choke allows a butterfly plate in your carburetor to close, then open, as the engine warms. In a cold engine, the plate is closed, cutting the air intake and providing a rich mixture for starting. But if the choke is set so the mixture is *too* rich, the plate won't open fast enough after starting, thus causing the engine to flood and "roll." A too-lean choke set will cause starting problems for lack of gas.

Every manufacturer gives a choke-set spec, such as "on the center index mark,"



**AIR LEAKS**, an insidious cause of rough idle, affect fuel-air ratio. You'll know you have one if use of an oil and kerosene mixture causes an increase in rpm

"one notch rich" or "two notches lean." Because there are two different types of automatic chokes, there are two ways to make this adjustment.

One type, used on most Ford and Chrysler cars, works through a thermostatic coil spring inside the intake manifold. This spring is connected to the butterfly plate in the carb by a choke rod. Unhook the choke rod from the choke-shaft lever. Unbolt the thermostatic spring housing from the manifold. Loosen the mounting-post locknut. Now, turn the mounting post until the index marker on the disc is positioned to specs.

The other type, used in most General Motors cars, has the thermostatic spring mounted right on the carburetor. It's enclosed by a cap usually held by three screws. To adjust, loosen the screws and turn the cap to the correct index mark.

After adjusting the choke, make sure it's not damaged by checking its operation. With engine cold and off, hit the accelerator pedal once. The butterfly plate should close. Now start your engine. The plate should slowly open until it's completely open (vertical) when the engine has become warm.

If the butterfly valve doesn't close and open, look for dirty or damaged parts in the choke assembly. You may find a bad



thermostatic spring, a bent choke rod (in Ford and Chrysler chokes), a bad heat tube (in GM chokes) or even a binding choke piston.

6. *Air leaks.* This sneaky little problem is overlooked by many mechanics: yet checking for it is child's play. A hidden air leak can lean out the air-fuel ratio and in extreme cases cause burned valves.

Mix a 1 to 1 ratio of SAE-10W oil and kerosene. Squirt it around the carb base and intake manifold. Hook up your tach and start the engine. If speed increases (tach needle will show it and you may hear it) you have an air leak, temporarily sealed by the mixture. You may even be able to see the oil mixture drawn in through the leak. Tighten all mounting bolts and try again. If the same thing happens, suspect bad gaskets or, in extreme cases, a warped casting.

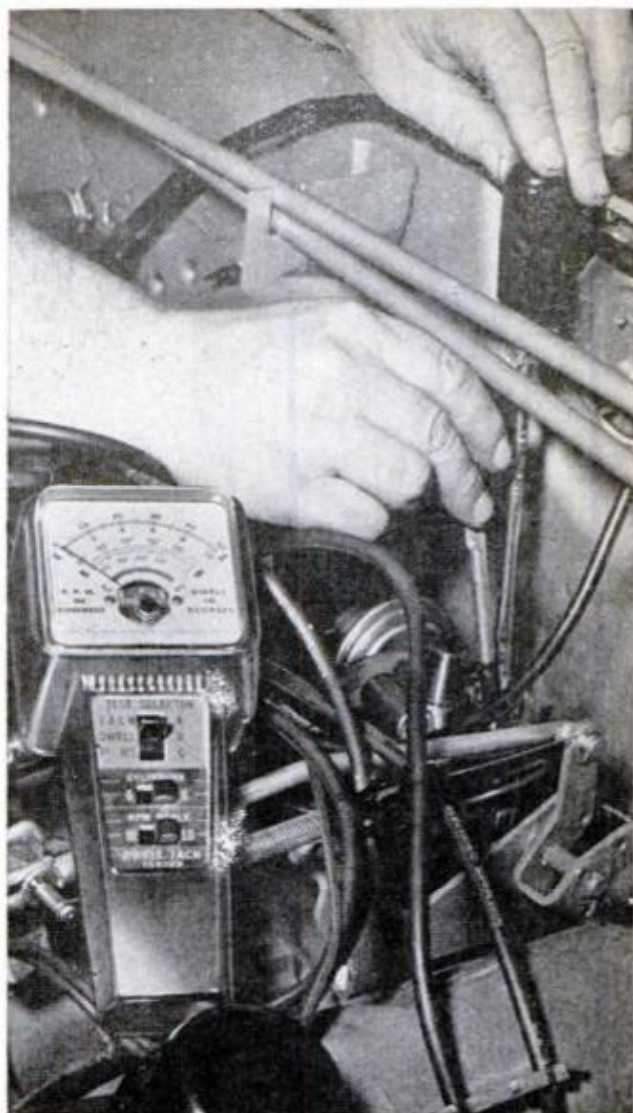
7. *Stuck float.* A carb float level set too high admits too much gas. One set too low starves the engine. Either way, the air-fuel ratio is upset. A stuck float means the carb must be removed from the car. You can then make sure the float is free to move, and check its level setting with a float gauge.

8. *Dirty carb.* If, after all other checks on your carburetor and after checking your gas line filter, your engine still doesn't seem to be "taking" the gas, you face the prospect of dirt in your carburetor. This means you'll have to remove the carb, rip it apart and clean it. If this is necessary, it is a good idea to rebuild the carb while you're at it. There are many rebuilding kits available in the auto supply stores.

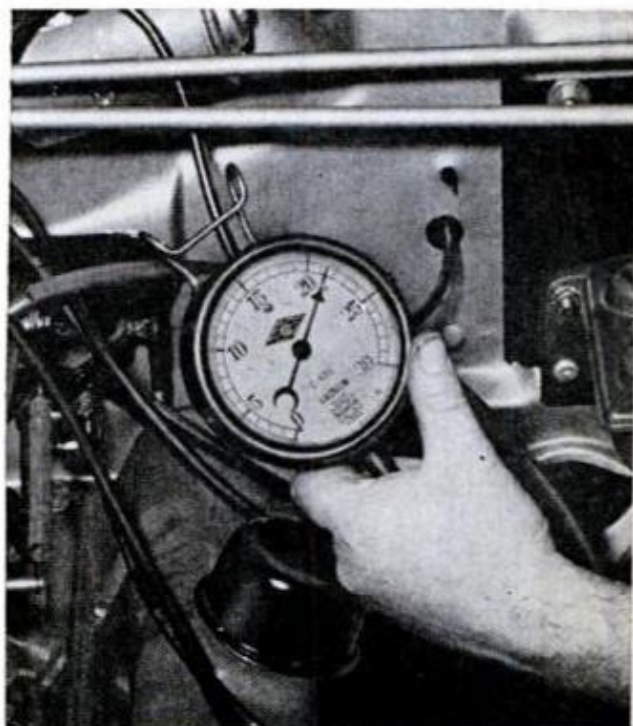
9. *Bad dwell angle.* If ignition spark is getting to your plugs too early (or late), you'll have the roughest idle in town. Timing the ignition spark is directly related to the "dwell angle"—the number of degrees of distributor cam rotation during which points remain closed. If points open too soon, the spark comes early; if too late, spark is retarded. To check dwell angle, you'll need a dwell meter and your car's specs for "dwell angle at idle speed." This is usually given as a range in degrees, such as 22° to 24°. The best setting for idle is smack in the middle, though anywhere in the range will do.

Hook the dwell meter into the ignition primary circuit, between breaker points

*(Please turn to page 211)*



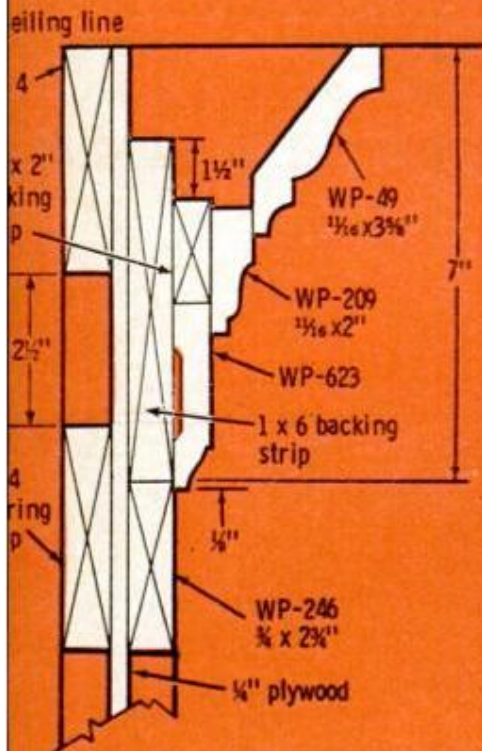
**ENGINE IGNITION TIMING** is determined by distributor components. Here, point gap is adjusted and dwell angle is checked to insure right timing



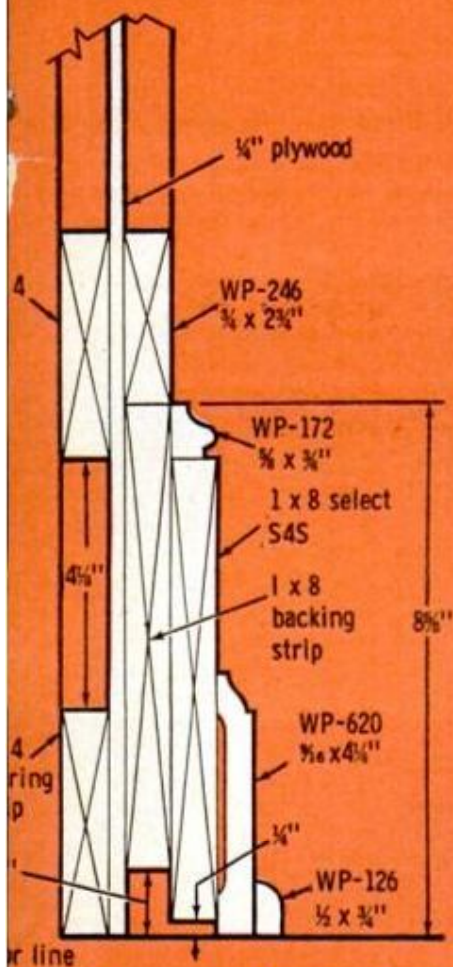
**STEADY VACUUM-GAUGE READING** taken on engine with hydraulic valve lifters indicates properly closing valves; leaky valve would cause reading to pulsate



## PLANS FOR PANELED WALL



SIDE VIEW, TOP SECTION



SIDE VIEW, BOTTOM SECTION

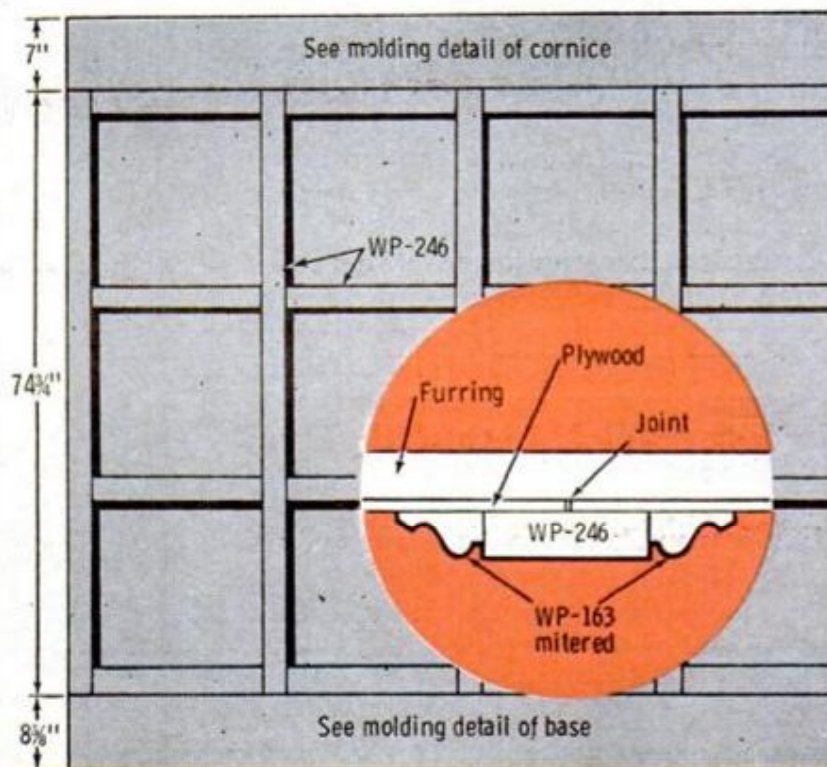


PLAIN WALL takes on elegant appearance, as pictured at the right

Plain wood paneling can't match the beauty of this built-up wall of lumber, plywood and molding which anyone can install.

By WAYNE C. LECKEY

# How To Mold







## Character Into Drab Walls

**H**ERE'S ELEGANCE PLUS when it comes to a wood-paneled wall. To look at it you'd say it's a custom mill job. But that's where you're wrong. It's nothing more than a combination of plywood panels, lumber and standard moldings assembled in a manner that makes it a cinch for the handy homeowner to install.

You start by applying 1x4 furring strips horizontally to the existing wall, placing two along the ceiling, two along the floor and two in between on 24-in. centers. Next, figure the number of full 4-ft.-wide plywood panels that can be placed along the wall's length. There's little likelihood you'll come out even, so whatever space is left is simply divided equally at the ends by centering the full panels.

Now you cover the entire wall, floor to ceiling, by nailing the plywood to the furring with 1½-in. brads. The starting panel is placed in the exact center of the

wall, and the brads are kept in areas where they'll be covered later.

Standard screen stock is used to form the recessed squares. Center the vertical members over the joints of the plywood and cut the horizontal ones to butt between. Now, stock cap molding is mitered like a picture frame to fit inside each recess and nailed with brads.

The section views show the order in which the cornice and base parts of the wall are built up. Common boards provide the backing for the three moldings which are used to create the cornice. The backing member at the base is faced with a clear 1x8, then capped and faced with the white-pine moldings specified.

Finish your wall with stain plus a coat of clear sealer, then stand back and admire it. ★ ★ ★

A large plan, plus additional information for building the wall, is available for 50 cents from Western Wood Moulding Producers, 2041 S.W. 58th Ave., Portland, Ore.



# The 1967 Boats: Fast

Spectacular new hulls, new big-push power, a gaggle of new gad-

**GLASTRON SWINGER**, a 17-ft. open-bow tri-hull comes in both outboard and 120-hp stern-drive models. Watch for PM's test of this in the March issue



**LUND K-20 NEW YORKER**, a 120-hp stern-drive run-about, is a monocoque-type design of thick, .080-in. aluminum. An outboard New Yorker is also available

**DONZI F-14** is a scaled-down 14-ft. version of the Donzi deep-vee ocean-racing hulls designed for fishing. With 120 hp, it does an economical 40 mph





# bottoms, more push

gets and gear—it's going to be a great year to get out on the water

By ART MIKESELL, PM's Boating Editor

**YOU'RE NOT ALONE** if you're confused by the tremendous variety of boats available this year. Practically everyone else feels the same way.

Never have so many radically different hull shapes been offered in any one year. Every company seems to have at least one sophisticated new bottom design, sometimes even two or three. Some of them are illustrated on the following pages, but this is only a small sampling. I just ran out of space.

Also, most of the familiar labels used to describe a hull have gone out the window, for all practical purposes. You'll see a great number of tri-hulls this year, but the word is less specific than it used to be. The most noticeable thing about today's tri-hulls is how different each one is from the next. (Incidentally, remember when the cathedral was the only design with three bows? When somebody mentioned cathedral, you knew pretty well what he was talking about. Life used to be so simple.)

The same goes for vees. You'll find them in all degrees of deadrise, from deep to shallow. Some are smooth, some have a few strakes and some have many. The strakes may be wide or narrow, run parallel to the keel or follow a curve. Some have horizontal surfaces, some are set at an angle. The number of possible combinations is almost unlimited.

Even sail, that most conservative section of boating, is beginning to show more variety and far-out thinking, especially as more and more manufacturers of powerboats are adding sailboats to their lines.

The best way to get an idea of the variety this year—I'd call it the "great hull explosion," but that sounds a little negative—is to take a random look at what a few companies are offering.

Starcraft has a total of 51 different models in the 1966 line, ranging from

**FJORDLING** made by Lauderdale Marina, Inc. has lines of a sea-going dory, but in place of oars, it's powered by a modern 110-hp Volvo stern drive. Fiberglass throughout, it will top 30 mph





## Runabouts

a 9-ft. pram up to a 21-ft. cruiser. Included in that 51-boat line are no less than five separate powerboat bottoms, plus canoes, sailboats and fishing boats. Last year, Starcraft sold over \$25 million worth of boats, so it must be doing something right.

Thunderbird, the old-timer in the tri-hull business, has four models in either stern-drive or outboard versions and two models available only with stern drive. The biggest T-Bird in the line is the 22½-ft. Iroquois with 225-hp MerCruiser for \$6620.

Formula, a division of Thunderbird, offers two outboards and four stern drives. I would have included a picture of its little No. 170 outboard, but none was available at press time. I haven't had a chance to try it, but the bottom lines looked clean and promising.

I ran into the same problem of photos vs. deadlines with Traveler. Its new 15-ft. Panther has an interesting bottom configuration which designer Doug Van Patten describes as an "acrofoil"—a combination of Greek and Middle



MFG CORVETTE II, a new 15-ft. runabout rated at 80 hp, has a refined CV (cathedral-vee) hull described by the designer as "the only deep-V cathedral hull form that utilizes the 25° of deadrise that has proven so successful in the deep-V hull form." The high-riding sponsons come into play only when the hull starts to list, thus limiting unnecessary bottom drag





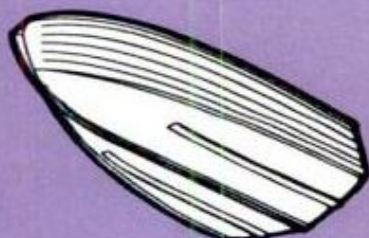
GLASSPAR FLYING V-175 is a hard-chine deep-V—a basic V shape which slices through rough water with longitudinal steps to provide greater lift and faster planing. The outboard model sells for \$1595. Equipped with 120-hp MerCruiser, this 17-ft. beauty goes for \$3695. Incidentally, Glasspar now offers full five-year warranty



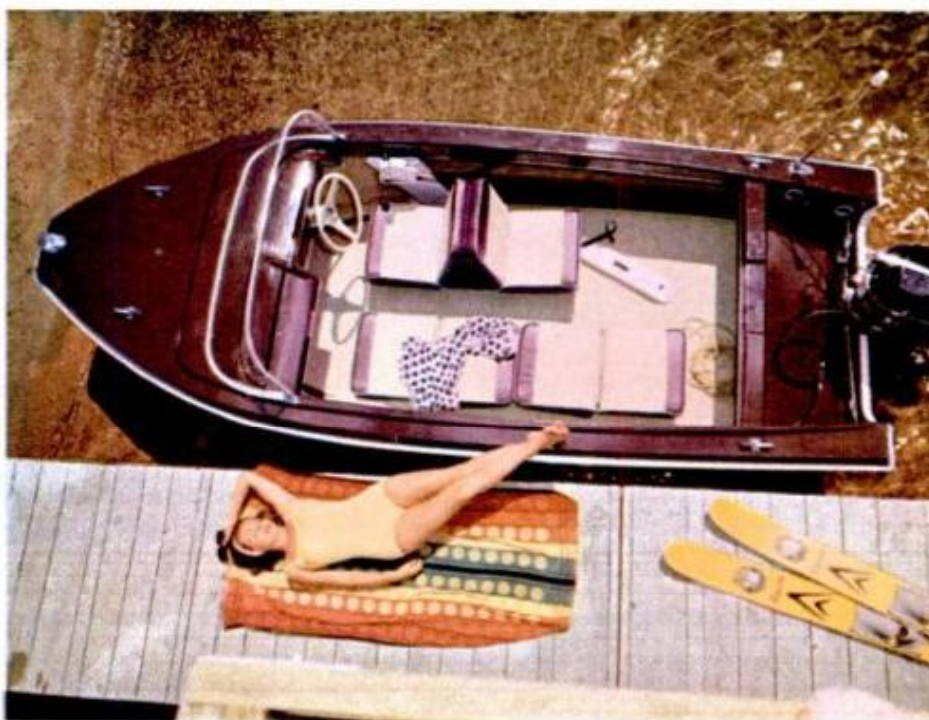
BUEHLER CABALLERO, a 16-ft. propless "ski jet" deep-V, comes equipped with a floor-mounted throttle and a stretched engine box which is padded for sunbathing. You can buy this jet boat in either 175-hp or 210-hp versions for under \$5000



CHRYSLER CHARGER 151 is a 15-ft. deep-V with two longitudinal strakes and a flat delta keel for extra lift. The two forward "step-sponsons" provide stability and cushion downward entry into water when the going is rough



CRESTLINER MARAUDER features a "Stabilized Vee" hull—another V-step combination to achieve top performance and a smooth ride in rough water. Rated to 65 hp, it's just over 14½ ft. long and carries a price of \$895. The interior hull sides, floor and side panels are all color-styled with a vinyl covering. Flotation provided is a gas-resistant plastic foam





English meaning "high planing." Doug spent 20 minutes explaining it to me at the Marine Trades Show, using terms like "polyparaboloid" and "edge effect." It looks something like a deep vee with short strakes (risers, they're called) running from the chine and curving slightly in toward the keel. The idea is to improve the ride and seakeeping abilities, but it would take pages to go into the theories involved. Outside of the Panther, Traveler is sticking with last year's highly successful line.

Glasspar is another company carrying over last year's line, with minor style changes and improvements.

Lund has a new 20-ft. New Yorker model in both stern drive and outboard power, but the rest of the line is just about the same as in 1966.

Century introduced a wild new boat at this year's New York show. Dubbed the Trident, it's a skin-divers' special with a bow that opens down to form a water-level diving platform. Photos weren't available at press time, but check future issues for more on this '67 wonder.

Glastron has four new powerboats and a new "super-sailboard" in its 21-boat line for 1967. The tri-hull Swinger pictured on page 146 comes in stern drive and outboard versions. (You'll find a test article on this one in next month's *PM*). The others are a 15-ft. Swinger-like runabout and a 14-ft. vee-hulled runabout. Even more important to many dollar-minded shoppers, Glastron is announcing a number of price reductions for this year.

Crestliner's vice-president and general manager, Darrell Cameron, recently announced that "in the under-20-ft. class, Crestliner has in its 1967 line a type and style of boat to meet every buyer's needs, desires, preferences." With 27 basic models from 12-ft. fishing boats to 19-ft. cruisers, he can't be too far wrong.

Four new ones this year are: a 16-ft. "family cruiser" with open cabin; a 15-ft. runabout; a longer, beamier version

## Sailboats



**LARSON-REGATTA 132** is 13 ft. long, has a beam of 55-in. and carries 85 sq. ft. of Dacron sail. Completely cartoppable, it still offers a cockpit that is large enough for more than just your feet. The mast, boom, rudder and centerboard are aluminum

## Cruisers



**BUEHLER BAR HARBOR**, 24 ft. of V-bottom jet "day cruiser," features streamlined styling by Virgil Exner. This jet-set dreamboat is propelled by a three-stage Turbopower unit with engine options of 290 to 325 hp, carries 60 gal. of fuel and has foam flotation





**GRUMANN BALLERINA** is one of several all-aluminum sail models in the company's 1967 line. The 12-ft. hull features foam-in-place flotation between the cockpit sole (floor, to all you non-salts) and the hull. All in all, a lot of sport crammed into 12 ft.



**GLASTRON ALPHA** is billed as a "super-sailboard." The lateen rig has 98 sq. ft. of sail, and in case you get too enthusiastic, the cockpit is self-draining after a knockdown. Rudder and centerboard are mahogany. You have a choice of blue or red deck



**CHRIS-CRAFT SEA HAWK** clipper, a new trunk cabin 25-footer, sleeps two and sells for under \$8000. Galley unit and head are options, and either a soft top or hardtop may be specified. With power choice of 185 or 210 hp, it will do either 32 or 34 mph



**OWENS' MARAUDER** is a beamy 27-ft. fiberglass express cruiser with full living accommodations for four. Galley includes large ice chest, full-size sink and two-burner alcohol stove. The dinette converts to a double berth; two others sleep in vee berths



of the 18-ft. Raider; and a stern-drive model of the 15-ft. aluminum Dane.

MFG goes into '67 with 34 models, four of them new: a 16-ft. runabout with a "tri-glide" hull; 15-ft. and 18-ft. runabouts with "cathedral-vee" hulls, and a 13-ft. hard-chine runabout. William E. Pearson, vice-president and general manager, states: "MFG offers one of the most diverse lines of hulls in the industry, with a hull design for any and every purpose."

This something-for-everyone philo-

sofy seems to be shared by most of the larger boat manufacturers, and it's one of the main reasons for the unprecedented variety of boats available today. Every company has its own ideas about the kinds of boats everyone might want.

The only sure winner in this big popularity contest is you. Somewhere in this avalanche of wild new design concepts, styling and technology, you're pretty sure to find the ideal boat for you. ★★★

## More runabouts

LARSON SHARK is 16 ft. of "the best fishing platform ever invented," according to company's modest description. It's an extra-stable "bihedral" hull equipped with twin bait wells, storage shelves and bow storage compartment, all dressed up with vinyl trim and floor mat. The Shark 160 sells for \$1025, the more deluxe 162 (with convertible top) for \$1195



TROJAN 24-FT. BIMINI, a rugged sport fisherman in the \$5000 class, is available with either conventional in-board or stern drive. It's small enough to be trailered, yet large enough to take you out to the best fishing grounds. The cockpit layout is simplicity itself—two bow bunks, a stern seat and lots of open cockpit for fishing

STARCRAFT DAYTONA, at top, a new 17-footer in the company's line of trihedral lapstrake "sportabouts," is rated to take a 110-hp outboard and sells for \$1525. It's shown here with the 14-ft. Explorer, a smaller, less plush model rated to 40 hp and priced at \$555. Both are "big" boats with maximum of useable space





# HOW TO BUY

# Your First Boat

**How do you tell a good boat from a not-so-good boat? Here's some expert advice backed up by a total of 100 years' experience with all kinds of boats.**

**S**HOPPING AROUND for a boat is one of those pleasant springtime things. You thump hulls, talk boats with the dealers, possibly take a test ride. Maybe you buy, maybe not. Either way, it's been a fun day.

It's even more fun if you know what you're looking for. The following how-to-buy articles on five special types of boats were written by experts. They're packed with specifics which will be helpful even if your boat has to be a compromise design.

For lack of space, we've omitted the pros and cons of aluminum, fiberglass and wood. It's important, though, so read up on the arguments before you start shopping.

Remember, somewhere there's a boat that will suit your needs and pocketbook. The problem is finding it, and that's not really a problem. It's fun.—Art Mikesell

FEBRUARY 1967



## How to buy a **RUNABOUT**

By JACK SEVILLE

ANYONE IN THE MARKET for a runabout today had better forget yesterday's criteria of just what a fun boat should look like.

First of all, your boat may not have a foredeck. Some of today's best runabouts use the space for another cockpit. You'll get more out of it as a seating area than as a rope locker. It also makes a first-rate place to stand when casting a plug.

No matter what the configuration, though, never buy a boat without taking it out for a test run. While you're finding out what kind of a ride it has and how well it handles, you can check out some of the other important features from the cockpit.

The steering, for instance. Be sure the wheel gives positive control without too much play or too much travel. Otherwise, when maneuvering at any speed you'll have to make like a pretzel bender.

A firm seat that holds you erect and gives good visibility in all directions is a must. So is a footrest.

Today's runabout may or may not have a windshield. If there is one, it should be sturdy enough to support a passenger who might grab it when thrown off balance. And if it's fitted with glass, rather than Plexiglas, it should be shatterproof.

A full set of gauges is a good deal, but only as good as the instruments themselves. If there's a tach, ask the dealer to

*(Please turn to page 156)*





## How to buy a **SAILBOAT**

By JOHN WESTLAKE

IF YOU'RE THINKING of buying a sailboat, it's probably safe to assume you've been sailing at least once or twice with a friend and know a little something about his boat. This is a good starting point, but when shopping for your own boat, you really ought to familiarize yourself with some of the hundreds of other sailboats available today.

You can divide all these sailboats into two main groups—keelboats and center boarders. I'm leaving out catamarans (twin-hulled) and trimarans (three-hulled), because I wouldn't recommend either of these as a first boat for a beginner. Their sailing characteristics are unique. Learning to sail on a multihull is a little like learning the glockenspiel as a first musical instrument. To a certain extent, the same objection applies to small sailing "boards"—surfboards equipped with a mast, sail and centerboard.

A keelboat has a fixed fin (ballast keel) projecting down below the hull to grip the water and prevent the boat from sliding sideways. This fin is weighted with lead or cast iron which lowers the center of gravity.

A centerboarder has a movable fin of wood or metal which can be pulled up through a slot in the keel into a "well" or "trunk" inside the boat. The top of this well is above the waterline, so water rises inside but can't enter the boat. As a rule, the fin has no extra weight.

Generally, keelboats are slower and  
*(Please turn to page 156)*



## How to buy a **FISHING BOAT**

By PAT RICHARDS

AS A FISHERMAN, you have a lot going for you when picking out your first boat. Almost any boat will do a fair job for fishing, so you can't go too far wrong. More important, though, you've probably used dozens of boats—rented or owned by friends—before you set out to buy one for yourself.

If you're like most first-time buyers, you'll already have a pretty good idea of what you want or need before you do any serious shopping. In case you haven't reached that point yet, here are a few suggestions to mull over.

If your fishing is done with finesse—with flies or light tackle on small, quiet waters—you'll want a shallow-draft boat that will slide quietly along a shoreline or drift easily down a stream. Your best bet would be a canoe or a "johnboat-type" cartop boat, the first if you want delicate maneuverability, the latter if you want to stand and cast, as most fly fishermen do.

The canoe will take more skill to operate and will be more expensive. An 8 to 12-ft. aluminum cartopper johnboat is the lightest, most stable and least expensive of fishing craft.

If your fishing runs more to general types on a variety of inland waters, and if you like to take someone along, you'll want more boat than that.

Best bet for general use, then, is a more conventional hull in the 12 to 16-ft. area. They're light enough to carry on a cartop, yet big enough to take a 10-hp outboard

*(Please turn to page 156)*





## How to buy a **SKI BOAT**

By PAT CALLAN

WITH MORE THAN 9 MILLION water skiers in America today, there are bound to be a number of different opinions on just what characteristics the ideal water-ski boat should have. However, every skier agrees that a good towboat is extremely important, especially for beginners. With first-time skiers, it can make the difference between a fun-packed introduction to an exciting new sport and a discouraging failure.

The American Water Ski Assn. has been working with boat manufacturers on developing suitable tournament rigs for quite some time. Some of the most frequently mentioned requirements are:

- Broad, flat planing surface for quick planing, clean wake, and high-speed capability.
- Responsive steering for good performance on turns.
- Low freeboard for maximum visibility and easy boarding.
- Ample storage for skis, belts and line.
- Nonskid cockpit floor.
- Proper equipment (rear-facing observer seat, rear-view mirror, a sturdy tow pylon and a water speedometer).
- Sufficient power to pull the skier.

A good ski towboat answering this general description is a hull in the 16-ft. class with a 60-hp outboard. Such a combination will give you a chance to advance from the beginner stage—riding on two skis inside the wake—to slalom runs and even simple tricks.

*(Please turn to page 156)*



## How to buy a **CRUISER**

By JACK SEVILLE

JUST ABOUT ANY BOAT that provides sleeping space, sanitary facilities and cooking equipment, all under shelter, can be called a cruiser. When shopping for one of these boats, you'll have to measure your pocketbook against how much cruising capability you want. To go farther and cruise in comfort for longer periods, independent of shoreside facilities, you're going to want to be able to stand up to your full height, stretch out on full-size beds and enjoy most of the other comforts of home.

Naturally, big boats with all these comforts cost more than smaller cruisers with fewer comforts.

One escape from this dilemma is to buy a houseboat and use it as a combination vacation home and a cruising boat. Another is to put up with sitting headroom in the cabin of a small cruiser and do your leg-stretching in the open cockpit, letting that area serve double duty by adding a canvas cover and side curtains.

Before you make your decision, however, go over all the manufacturers' literature you can lay your hands on. Hit the boat shows and check your local dealers.

Note the equipment listed as standard. How many necessities are listed as optional extras? For example, does the base price include all the safety equipment required by the Coast Guard? If not, you're going to have to buy it separately.

Then, try before you buy. Go over the boat with a fine-tooth comb, noting the

*(Please turn to page 156)*



## RUNABOUT

check the calibration before you buy. Give the speedometer a two-way scrutiny on a measured mile. On four-cycle engines, you'll also want an oil-pressure gauge and an engine temperature gauge.

If there is a forward deck, make up your mind now that there are going to be occasions when you'll have to get out on it to

tie up, or to drop or retrieve an anchor. Don't settle for a deck that isn't going to give you sure footing. If it bends underfoot, look out. If it is slippery, turn thumbs down.

Most manufacturers install a label indicating maximum safe load and maximum safe speed.  
*(Please turn to page 220)*

## SAILBOAT

heavier, harder to take out of the water for servicing and harder to trailer. They usually draw more water than centerboarders, so there's more danger of running aground. And once aground, a keelboat is harder to sail free.

On the other hand, they're safer because of the lower center of gravity. Be-

ing heavier, keelboats have more momentum and won't stop dead in their tracks when meeting an oncoming wave, as many centerboarders do. They have the feel of a big boat. Finally, there's no centerboard well, which is not only an obstacle but a source of leakage.

*(Please turn to page 220)*

## FISHING BOAT

and carry two or three men with their gear. In addition, they're seaworthy enough to be comfortable on a choppy day, or to run home through a squall.

A compromise possibility, with shallow-draft delicacy but enough hull and freeboard for most inland waters, is a bigger johnboat hull, anywhere from 12 to 18

feet. Even at that size, they're light enough to be easily handled, and still the least expensive boat for the size.

If your favorite water is a big lake, a rough stream, or shoreline salt water, you'll need still more boat. With heavier gear, a bigger outboard (or possibly two)

*(Please turn to page 220)*

## SKI BOAT

It's true that you can pull a skier with a smaller outboard than this, and with children it's even possible to give a good tow if the proper propeller is used. With adults, however, more power is required.

Trying to learn to ski behind an underpowered towboat is a frustrating experience, and if the beginner is easily dis-

couraged, his first time out may well be his last.

The reasons for the other requirements are obvious. A quick-planing bottom cuts down the amount of time the skier has to hold against that strong pull of the boat, before he reaches a plane and stands up;

*(Please turn to page 220)*

## CRUISER

provisions for creature comfort, but also being super critical about safety features.

Your cruising range is going to be dependent upon fuel capacity and fuel consumption. Your aim should be sufficient power to obtain comfortable speed at  $\frac{3}{4}$  throttle. Does the boat of your choice carry enough fuel to cover your local

cruising conditions? How about the fresh-water capacity? And is there stowage space for normal needs of "house-keeping," plus a little extra?

Look for good access to the forward deck. The hatch should be large enough to allow you to get through, and it should

*(Please turn to page 220)*



## BE SURE TO CHECK . . .

- Flotation:** sufficient to keep boat afloat when filled with water and maximum load. (Check specs.)
  - Fuel and engine compartment:** vented according to latest Coast Guard regulation. (Read it before you go out shopping.)
  - Stowage space:** adequate to hold skis, fishing tackle or anything else you plan to carry.
  - Fuel capacity:** related to fuel consumption of engine used to give desired cruising range.
  - Deck hardware:** through-bolted.
  - Engine:** properly matched to hull to give desired running speed at  $\frac{3}{4}$  throttle.
  - Driver's seat:** should have footrest and permit good visibility in all directions.
- 
- Standing rigging:** stainless steel and without kinks.
  - Turnbuckles:** heavy enough for boat to be heeled over  $90^\circ$  by hauling on the main halyard when boat is afloat.
  - Running rigging:** Dacron or some other non-stretch synthetic.
  - Centerboard trunk:** completely rigid.
  - Keel bolt heads:** bear on large washers.
  - Cockpit:** large and deep enough for adults to move fast (especially in centerboards).
  - Dimensions:** must be correct if boat is a "one-design" you intend to race. (The class secretary can supply you with specs.)
  - Sails:** Dacron, properly fitted (when main is hoisted fully, boom should be horizontal).
- 
- Seating arrangement:** matched to the type of fishing you do most.
  - Capacity:** adequate for your normal fishing group. (If three or four, consider going together on a couple of small boats.)
  - Motor:** sufficient to power hull properly, yet small enough for trolling. (On large boats, consider using two—one for each.)
  - Hull shape and size:** takes roughest kind of water in which you'll be using the boat. (If you have to cross a big lake to reach your spot, buy a hull for lake crossing.)
  - Portability:** judged realistically, if it's important in your fishing. (Can you and a friend really get it on and off a car easily, or do you need a trailer?)
- 
- Hull:** large enough to take safely an engine with adequate power for skiing.
  - Transom:** wide and flat-bottomed for quick takeoff and clean wake.
  - Freeboard:** low for easy boarding and maximum visibility.
  - Seating arrangement:** include at least one rear-facing seat for an observer.
  - Storage compartments:** large enough to hold belts, line and other gear. (If they won't take skis, you can sometimes add racks inside the cockpit if space is there.)
  - Cockpit floor:** nonskid textured surface.
  - Engine:** powerful enough for full range of skiing activities from beginner stage to slalom or trick runs.
- 
- Power:** sufficient to give comfortable speed at  $\frac{3}{4}$  throttle.
  - Engine compartment:** well-vented and large enough to give access for service.
  - Fuel tanks:** located in a well-vented area, equipped with shutoff valves.
  - Foredeck:** easily accessible and free of unnecessary obstructions; nonskid surface.
  - Fuel capacity:** to provide the desired cruising range. (Divide it by mpg.)
  - Electrical fuses:** should be accessible; system should be wired for shore current.
  - Hull configuration:** suited to water conditions in which you'll be using boat. (Get some ideas by wandering around your local yards and marinas.)



## YOUR OUTBOARD MOTOR...

# Those new black box ignitions

Foolproof starting, smoother operation, more miles per gallon—these are just a few advantages of the new CD ignition systems. Here's how they work

By HENRY B. NOTROM

**C**APACITOR-DISCHARGE ignition is the hottest current development in outboard engineering, and from all reports, this is only the beginning.

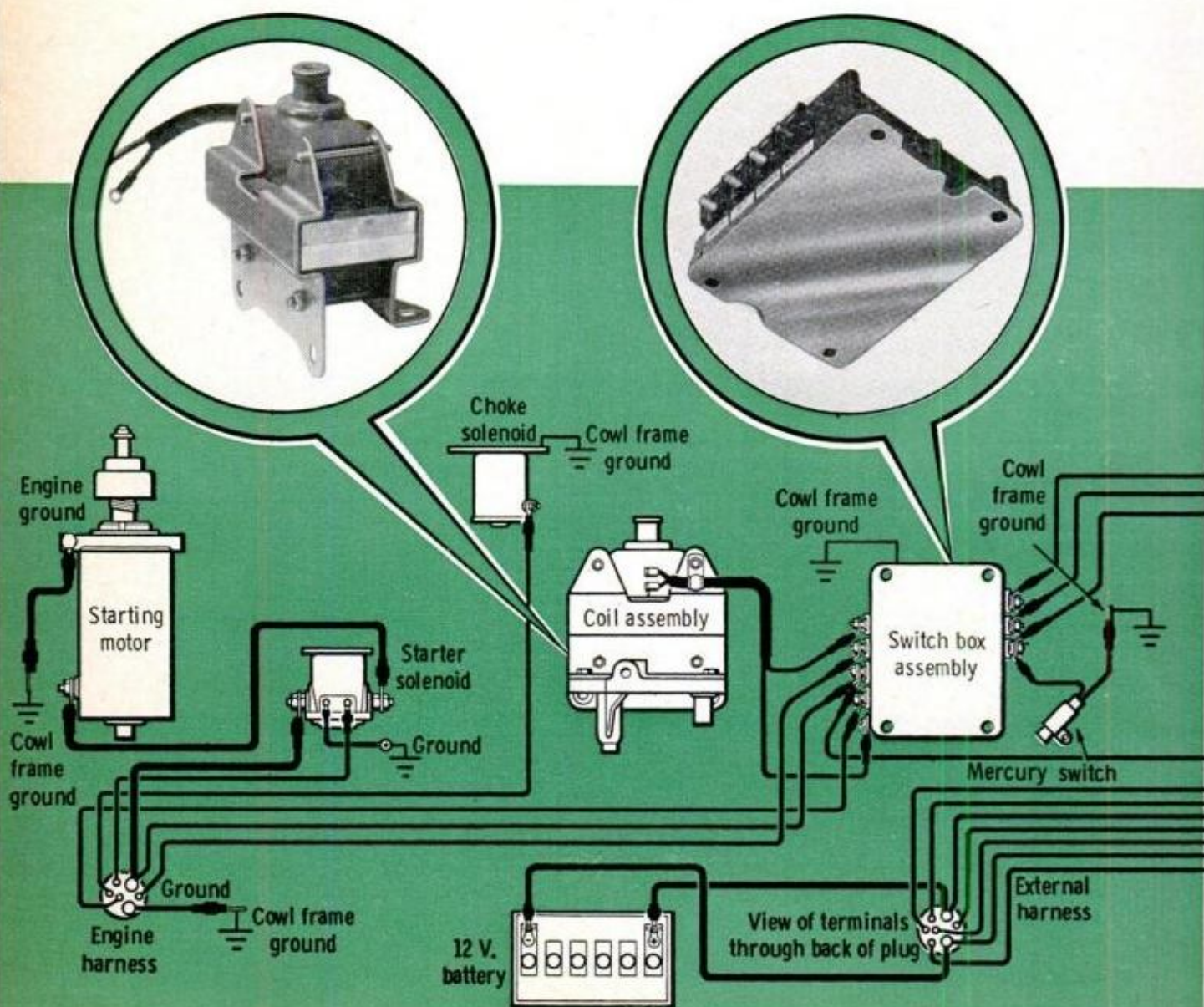
First introduced as standard equipment on two Mercury engines last year, it's now available on four Mercs, one Johnson and one Evinrude. The reasons for this growing popularity are immediately obvious when you take a look at the unique advantages of CD ignition:

- It eliminates conventional breaker points and condenser, along with all the

maintenance required by such parts.

- Sparkplug life is dramatically extended. With CD ignition, you measure plug life by seasons rather than hours. (A Mercury demonstration engine equipped with CD ignition has run plugs with more than 700 hours on them. They still fire like new.)

- Operation under adverse climatic conditions is no problem. CD ignition can operate an engine at temperature extremes you'll never encounter (low as minus 100° F., high as 260° F.). In addition, high humidity and pouring rain will not affect





performance. Neither will a dousing by salt spray.

- Operation with a rundown battery is no longer a problem. CD ignition will start an engine that has a dragged-down battery as long as the battery can put out enough juice to let the starting motor turn the engine over.

- CD ignition maintains an even output under all conditions of boat speed, load and battery charge. It won't, for example, be burned out by a battery that gets a dose of overcharging under day-by-day operational conditions.

- Operation under adverse engine conditions is no problem either. Capacitor-discharge ignition will fire an engine that has an excessively lean or rich fuel mixture, or one that is running on an improper gas-to-oil ratio.

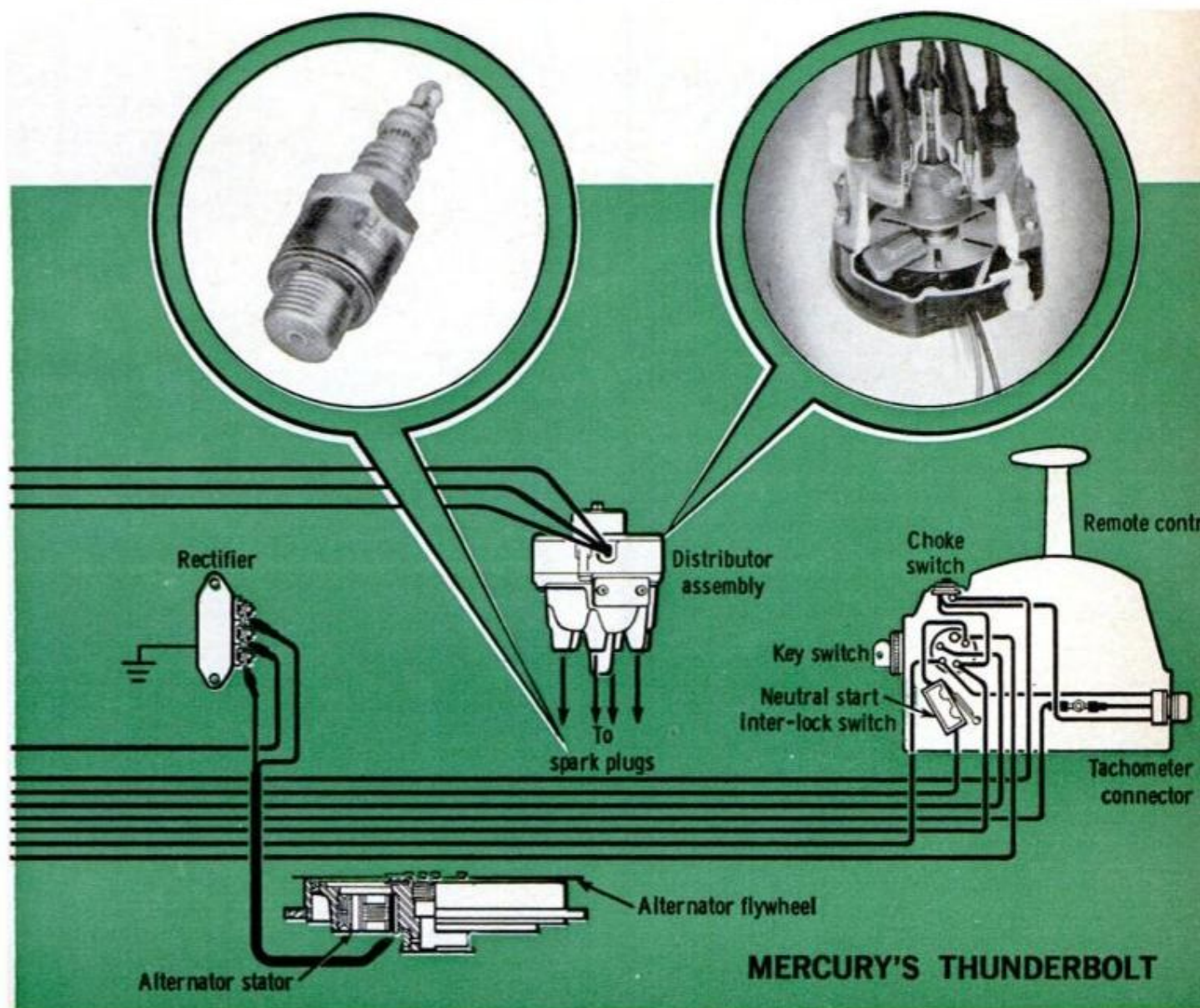
- CD ignition allows lower idling speeds, as much as 100 rpm below that of a comparable engine equipped with convention-

al distributor with breaker points and condenser.

- Preignition and all its consequences are things of the past. Peak bearing loads are minimized, and so are abnormally high piston temperatures.

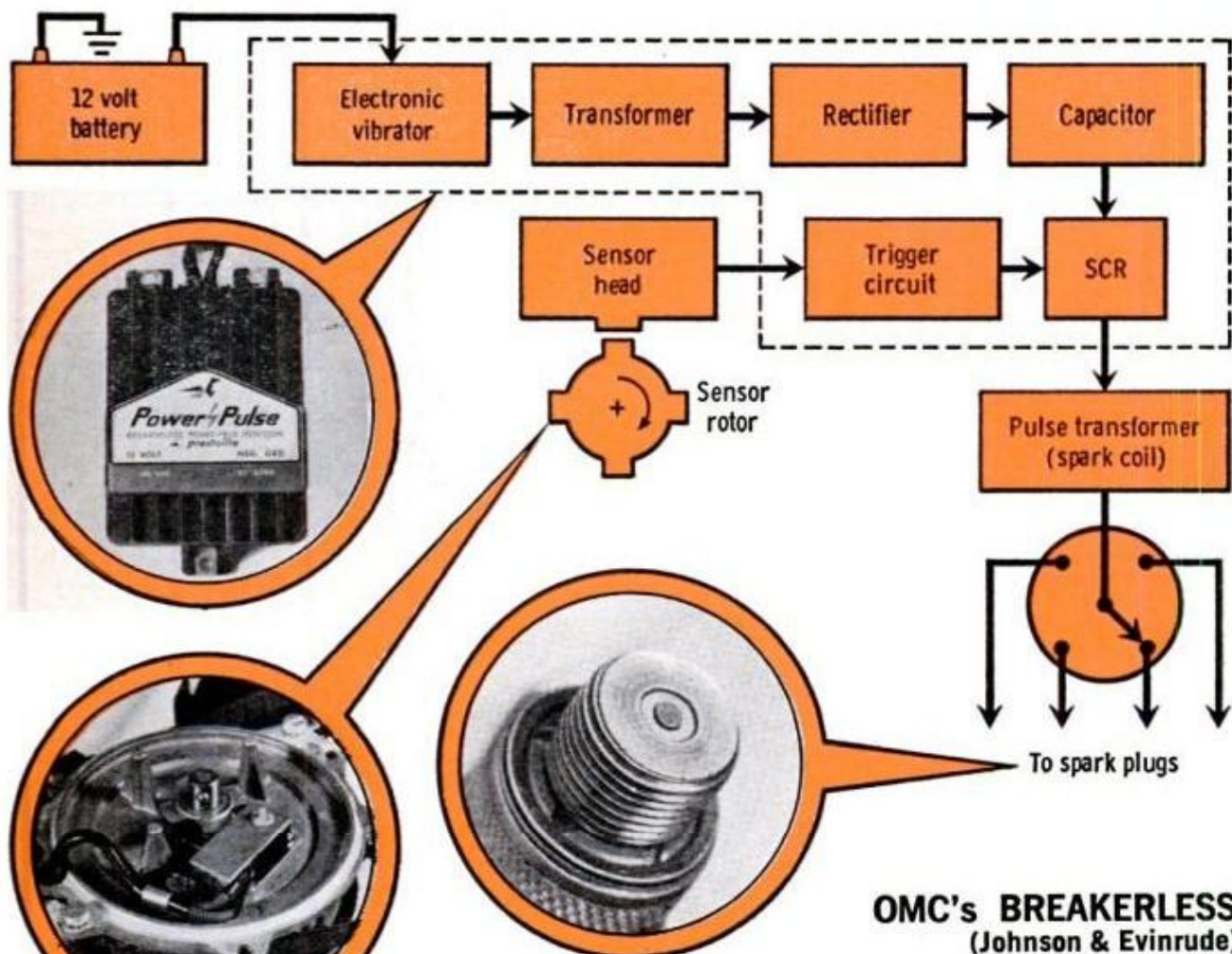
- Spark timing is permanently set at the factory and never varies, because there are no breakers in the distributor. If disassembly and reassembly become necessary, re-establishing correct timing is a cinch.

For example, with Mercury six-cylinder models having CD ignition, you rotate the flywheel until the timing mark—a straight line stamped on the side surface with a white dot above it—is in a straight line with the center of the crankshaft and distributor pulley center. An arrow on the pulley is pointed at the timing mark on the flywheel. After the timing belt, plate, cap, washer and screw are reinstalled, the



MERCURY'S THUNDERBOLT





**OMC's BREAKERLESS**  
(Johnson & Evinrude)

screw is tightened to 60 in.-lb. Spark advance is then adjusted by means of a timing light in conjunction with the timing decal on the cowl support.

Don't get the idea that capacitor discharge, as such, is new. It has been around on the fringes of the automotive industry for about five years. Kiekhaefer had CD ignition on some Mercury military engines back in World War II.

Although none of the manufacturers are talking in specific terms about how their

latest CD systems operate, we can get a general idea by examining wiring diagrams. (According to the manufacturers, the reason they can't get too specific is because patents are pending on several of the components and disclosure might jeopardize the patent agreement.) We can also fall back on our knowledge of automotive CD ignition systems.

Let's peek at the system used by Johnson and Evinrude. Johnson's CD ignition is  
*(Please turn to page 206)*

**WHAT THE COMPETITORS SAY ABOUT CD**

**McCULLOCH.** "We looked at systems like this during the past several years, but we are in no hurry to come up with one. It isn't really needed in McCulloch engines. Most of our outboards are two-cylinder motors. Our top engine is a three-cylinder 75-hp job. When you get into four and six-cylinder motors, such as Mercury, Johnson and Evinrude, need for CD ignition would exist."  
—William B. Burkett, vice-president, engineering.

**HOMELITE.** "We have no plans for a capacitor-discharge ignition system, because our engines are different than others. Ours are four-cycle engines, as you have in automobiles, while other

outboards are two-stroke. I think CD is a good system for the two-cycles, but we just don't need it in our motors."  
—A spokesman for Fisher-Pierce.

**CHRYSLER.** "Chrysler views overall performance as the prime requisite in engineering outboard motors. Emphasis at Chrysler Outboard has been on reduction of weight, enhancing overall engine strength for maximum endurance and on the provision of new model choices for the consumer each year. Our ignition system has performed dependably in both normal use and high-endurance applications and will satisfy consumer performance demands."  
—A company spokesman.



# How to avoid getting in trouble with your boat

The Coast Guard's chief of search and rescue pulls some grim case histories from his files to illustrate what can happen when weekend boaters grow careless

By CAPTAIN JOHN M. WATERS JR.\*

Illustrated by Edward W. Hanke



Official Coast Guard Photo

"Boating is a great sport, and with normal precautions, a safe and relaxing one. Yet last year, 1360 Americans died in pleasure boating accidents, most because they didn't use life preservers. Half the people in the United States can't swim 50 feet. With a life preserver, however, anyone can stay afloat indefinitely. Of course your best insurance is to avoid accidents by observing these 10 common-sense rules of safety: 1. Know your boat

- |                           |                          |                     |
|---------------------------|--------------------------|---------------------|
| 2. Carry proper equipment | 5. Respect the weather   | 8. Don't overload   |
| 3. Run at safe speeds     | 6. Secure boat correctly | 9. Take enough fuel |
| 4. Keep good lookout      | 7. Keep boat in shape    | 10. Obey the law."  |

—Capt. John M. Waters

**T**HE ALL-TIME RECORD for lost craft may well be held by an ill-fated Long Beach to Catalina motorboat race in the late '50s.

Over 100 boats set out for the run, but fog set in, unexpected and heavy. En route from Yuma, Ariz., to San Diego on a routine flight, we were given orders to divert to the Catalina Channel. There were, said the San Diego controller, "some boats lost."

As we were approaching the channel, San Diego advised that 55 boats were missing. Soon the figure was upped to 70. There was considerable doubt, for the race committee, supposed to be checking in the arrivals at Catalina, got tired of waiting and went on up to the planned barbecue.

As we flew over the channel in the fog and darkness, the sight was weird. Flares were being fired all over and several Coast Guard cutters were towing strings of boats which had run out of fuel.

All boats were recovered, but the last

was not picked up for three days. It had overshot Catalina by 40 miles.

In 1964, Coast Guard Search and Rescue (SAR) units responded 41,666 times to requests for assistance. Five years before, only 21,337 sorties were made.

At first, the reason seemed simple: too many amateurs on the water. But the Coast Guard analyzed its investigation reports on fatal accidents and came up with some disquieting facts. From hundreds of grim case histories, the operation analysts created a composite "corpse."

He (literally correct, for men outnumber women nine to one) was 35 and no rank amateur. He had spent at least 500 hours operating small boats, had no physical handicaps, was in the prime of life and a family man.

The typical accident occurred in mid-afternoon in coastal waters during a July weekend. Avoiding the coast would not have helped him, however, for his chances of disaster would have been almost as great on inland lakes and rivers. The holiday notwithstanding, he was sober.

He had nothing or no one to blame but himself. The weather was good, winds

\* Condensed from *Rescue at Sea* by Capt. John M. Waters Jr., Van Nostrand, \$5.95.



light and seas smooth. Neither the 15-foot boat nor the 40-hp motor had any defects.

Suddenly, he capsized. His boat was overloaded, passengers were not seated properly, and he was cruising at an excessive rate of speed. In not paying enough attention to other nearby boats, he had probably violated the Rules of the Road. Faced with a collision, he made a sharp turn and the boat went over.

In the water, he found himself and his passengers without lifesaving devices. Though he was a fair swimmer, some of his passengers were not, and they drowned quickly. He lasted only a short while longer. Some of the victims were members of his family.

Being human, pleasure boatmen usually avoid the subject of accidents. Recreational boating is for pleasure; why spoil it with unpleasant subjects? But case histories are like vaccinations—a mild exposure may prevent serious consequences later.

Even professional seamen are not immune. In Hampton Roads, a heavily loaded Navy liberty boat swamped in high seas with a heavy loss of life. A Coast Guard boat, servicing buoys in Alaska, capsized and two men drowned. Dozens of other reports prove that experience is no guarantee against the sea.

The files contain hundreds of other cases, but capsizing is only one cause of death. Second place goes to falling overboard. This does not always happen in a 10-foot sea.

A cabin cruiser was tied securely to a pier in good weather when, after cocktails and dinner, a guest noted that the flag was still flying from the stern. He jumped up on the stern, grasped the staff and tugged. It popped loose, and the guest went into the drink. He did not come up.

When the body was recovered, an autopsy revealed that the guest had struck his head as he fell, probably knocking himself unconscious.

Most deaths from falling overboard occur because life jackets are not worn. Presently approved life vests are rather heavy and bulky, and are uncomfortable in hot weather; but regardless of discomfort, life jackets should be worn by non-swimmers. Children should never be in a boat without one on.

Foundering takes a regular annual toll. Though often caused by rough water, it

can occur in smooth seas if the boat is overloaded. In July, 1933, the 63-foot launch *Sno Boy* was reported overdue on a fishing trip out of Kingston, Jamaica. On this small boat were 55 people, 50 bundles of bamboo poles, 99 drums of gasoline, 68 drums of water, and 19 tons of ice. A wide search finally turned up only a few pieces of debris. The boat was believed to have foundered with all hands. No bodies were ever recovered.

Fire at sea is a terrifying thing, even on a large vessel. In a small boat, there is literally no place to go but overboard. In most cases, fire is caused by fuel leaking into the bilges, where the vapors mix with air to form a highly explosive mixture. Boats are supposed to be equipped with flame arrestors on the exhaust and with bilge ventilating systems to clear out these fumes. With reasonable care an explosion need not occur.

A fuel explosion like the one off Miami Beach is not easy to forget. The telephone



call came in from a guest at the Eden Roc Hotel, reporting an explosion on a boat offshore. We were airborne in less than three minutes, and sighted the column of smoke as we passed over the coastline. Arriving on scene, we could see small pieces of debris scattered for several hundred yards. The explosion had been shattering. A fishing boat had arrived, and I brought the big Sikorsky chopper to a hover over it. An injured man was floating by the stern, held up by lines tended by two men on the boat.

He was still alive but so badly burned that the rescuers were unable to lift him into the boat. The rescue basket was lowered from the helicopter into the water, and they gently eased him in. After a fast flight, the basket was lifted out of the helicopter and carried into the emergency room at Mercy Hospital.

How did it happen? He had started the



engine without checking the bilges. Gasoline vapor had accumulated there and a spark from the starter, or a backfire from the exhaust, had ignited the explosive mixture. TNT could not have done more damage.

As waters become more crowded, collisions between boats, or between boats and swimmers, become more frequent. The seriousness is compounded by the high speed at which many boats travel. Several tragic accidents have occurred when boats towing water skiers ran among



swimmers. A boat propeller turning at high speed is a lethal butcher tool.

On inland lakes and rivers where many boating accidents occur due to speeding, Coast Guard forces are meager, and are likely to remain so until the coasts and oceans can be adequately protected. The Coast Guard has encouraged the states to take over some of the responsibility for boating law enforcement, but they have, with a few notable exceptions, been extremely reluctant to take over any federal activity unless it has a revenue-producing potential. We do know, however, that strict enforcement of safety regulations will make boating safer.

All the education, enforcement and coaxing in the world can do little to prevent the incidents caused by extremes of human behavior. Melvin West of Jacksonville, N.C., was an example. Despite warnings by the Coast Guard of the inadequacy of his boat, equipment and lack of navigation gear, he set out in October, 1957 for Bermuda in a 17-foot, 30-hp outboard boat. The distance was nearly 700 miles, and that area of ocean is often rough in the autumn.

On the 19th, when he was overdue, a search was launched. Two days later, a merchant ship located him and gave him supplies after he refused to be picked up. He had no idea of his position. On the 24th, his family requested further search, and on the 27th, he was located by Coast

Guard aircraft, out of fuel. He wanted to continue but was refused further fuel, and he and the boat were taken aboard the C.G.C. *Rockaway*.

Several months later, he tried again. This time, despite extensive search efforts, he was never located.

In midsummer 1965, Robert Manry set sail in his 13-foot boat, the *Tinkerbelle*, to sail the Atlantic alone. Solo crossings had been made before, but probably never in so small a boat. After a number of narrow escapes, he arrived safely in Plymouth, England, and was greeted as a hero. Prior to his sailing, we had alerted our European Search and Rescue colleagues that it was probably just a matter of time before we would start getting the overdue reports and requests for search. Fortunately, we were wrong in this case, but in most of these ventures, we aren't.

While Manry was en route to Europe, another solo amateur sailed up the Pacific Coast for Sitka, Alaska. Several weeks later, his boat was found drifting 200 miles off California, and there has never been a clue to his fate.

The week that Manry arrived at Plymouth, a 30-foot sailboat was sighted



drifting helplessly in the Pacific by the Japanese freighter *Kiyo Maru*. The lone occupant, John Kennaugh of Oakland, Calif., told a harrowing tale.

He had attempted to sail from Seattle to Oakland, but was becalmed and drifted helplessly for 20 days. Then a series of storms hit, ripping off the sails and disabling the boat. When he was sighted by the freighter, Kennaugh said that he was "completely shot physically. I just couldn't have survived another storm."

Occasionally, there are incidents where it is difficult to decide whether to laugh or cry. In September 1965, a yachtsman was

(Please turn to page 213)



# New Gadgets and Gear For Your Boat

**YOUR DEALER'S SHELVES** will be bulging with new products this year, so before you tackle the job of fitting out for next season, stop in and look them over. You'll probably end up buying something that will make the job easier.

For instance, Tempo has an extensive line of reconditioning items packaged in aerosol cans, everything from upholstery cleaner to gasket cement and battery cleaner. Also, if your boat doesn't conform to the new Coast Guard ventilation requirements, take a look at Tempo's fuel and engine compartment ventilation kit. Installation is simple.

A more offbeat item previewed at the Marine Trades Show is a do-it-yourself windshield-tinting kit. It's an acrylic coating in an aerosol can, and while it may scratch, the maker claims repairs are simple. It's from World Glass Tinting, Inc., Box 7847, Houston, Tex.—*Art Mikesell*



**BRIGHT-WORK KIT** is a three-step system for care of hardware—polish to remove oxidized material, cleaner to prepare for finish and clear coating to protect surface. It's manufactured by Turco Products, Inc., Div. of Purex, 24600 S. Main St., Wilmington, Calif.



**TWO-IN-ONE LIFE JACKET** has two flotation systems, a foam-plastic lining and air chambers which can be inflated by CO<sub>2</sub> cartridge or mouth. From Sears

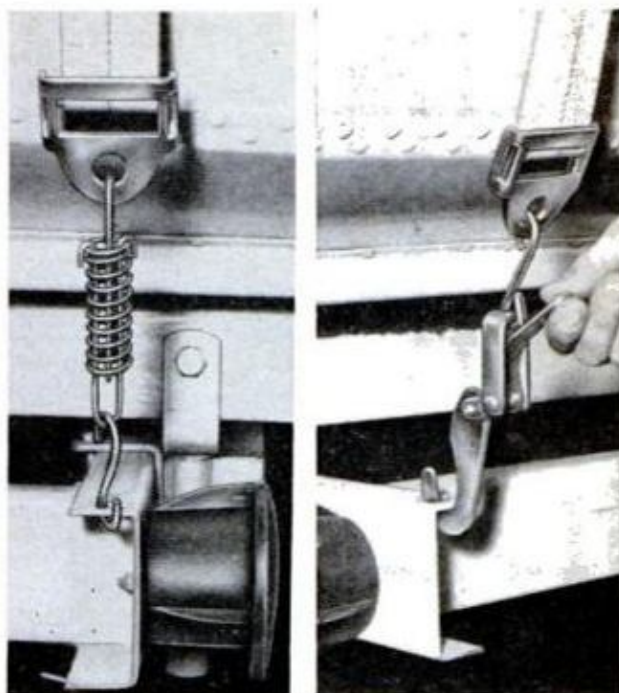


**HANDEE HITCHES** from Peters and Russell are synthetic rubber straps with stainless-steel clips molded in each end. Four 10-in. hitches sell for \$3.25

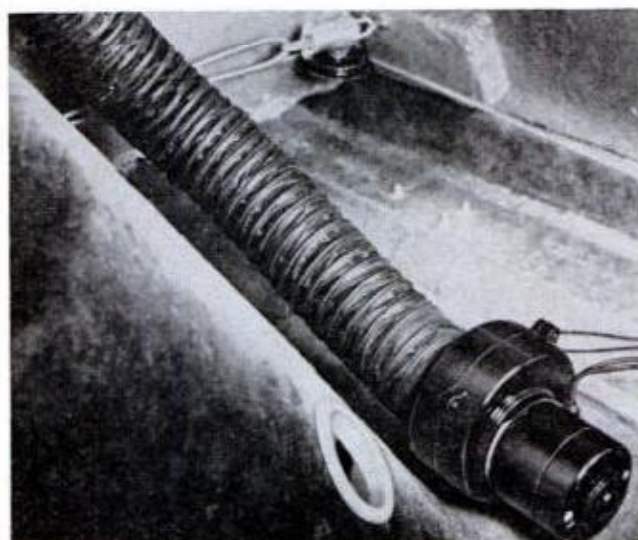




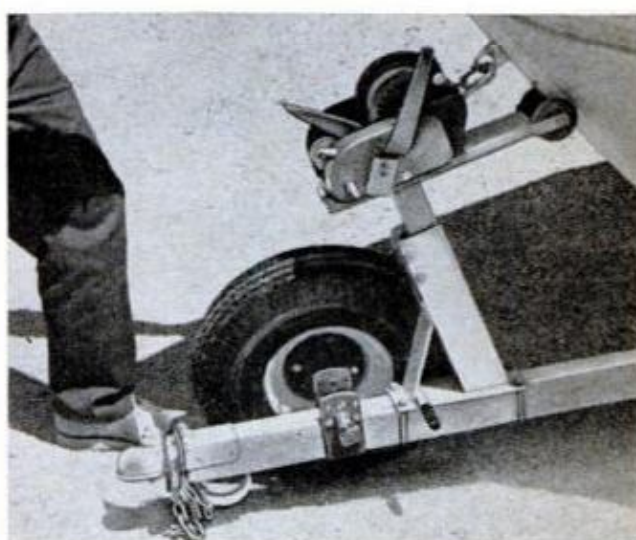
**ULTRALIGHT FUEL TANK** from Chrysler Outboard is made of polyethylene, weighs 50 percent less than steel tanks. Standard equipment with Chrysler motors



**TRAILER TIE-DOWN** has tension spring on one end and cam-action lock on the other. Priced at \$4.35 to \$5.35 from Dutton-Lainson Co., Hastings, Neb.



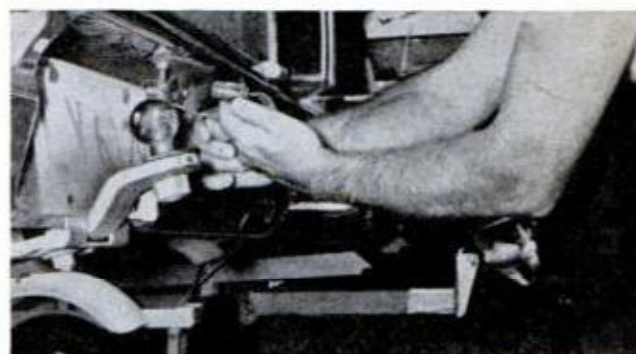
**SELF-CONTAINED BLOWER** unit moves 150 cu. ft. of air per minute to clear engine and fuel compartment of explosive vapors. Sold as "Breezie Junior" by Peters and Russell, unit operates on 12-v. d.c.



**SPARE-N-DOLLY** is a dual-purpose, spare-tire mount which also serves as a dolly to simplify moving boat and trailer. Available in many sizes, it sells for \$6.50 and is made by Dutton-Lainson Co., Hastings, Neb.



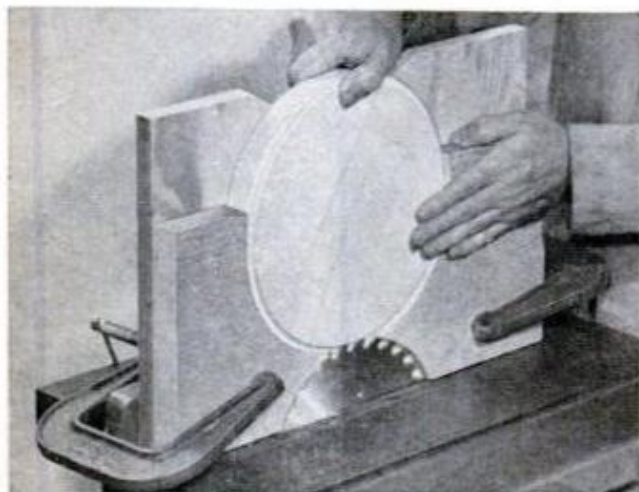
**SPRAY-ON TEFLON** lubricant for use on sliding hatches, chocks and controls is clean and durable. Called "Skipper's Glide," a handy 6-oz. aerosol can sells for \$1.98 from Saber Products Corp., Mamaroneck, N.Y.



**CONNECTOR KIT** for hooking up trailer lights to car wiring includes connector, bracket, color-coded wiring and three splice connectors. It costs \$4.75 from Valley Tow-Rite, Inc., 27 E. Vine St., Lodi, Calif.



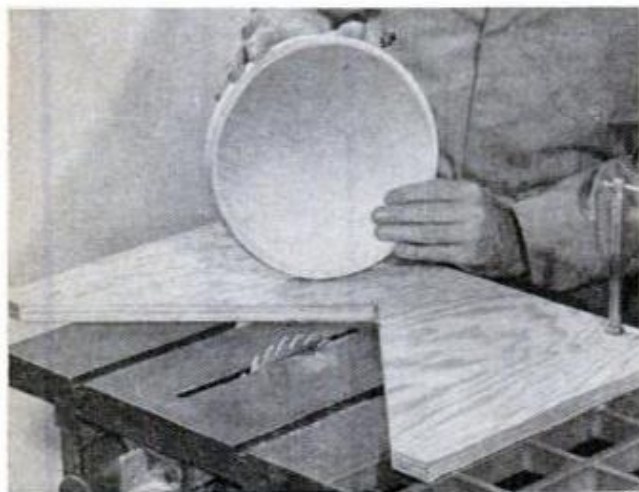
# Don't Sell Your



Far from limited to just plain ripping and cross-cutting, your table saw is full of hidden talent when teamed up with wooden jigs and fixtures.

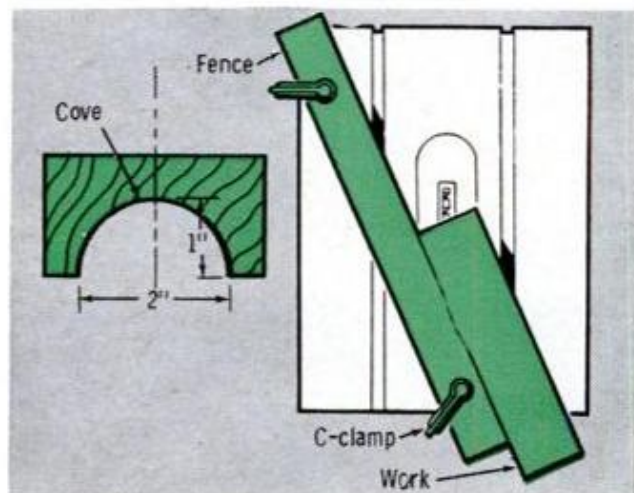
By WAYNE C. LECKEY

Technical illustrations by Barry Wiedenkeller



**RABBETING A DISC** is normally a job for a shaper, but your saw can do it in a pinch. The upper photo shows the semicircular jig needed. To start, the disc is lowered easily into blade, then rotated slowly.

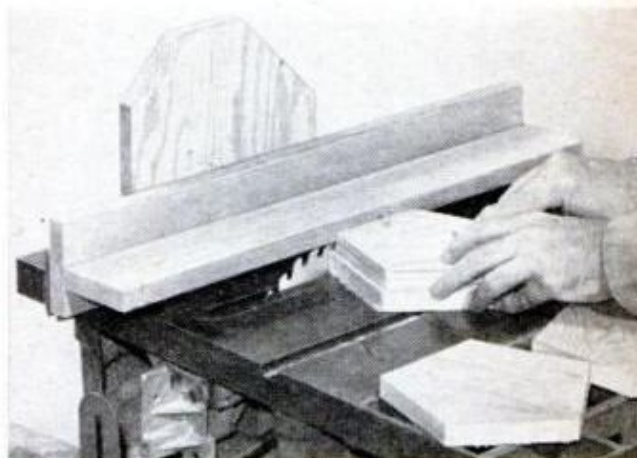
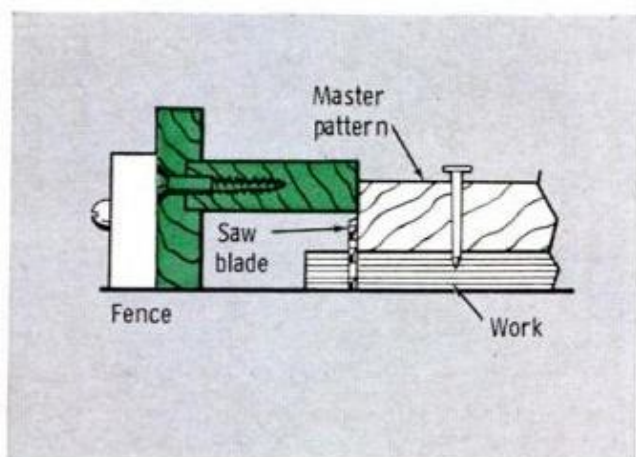
If you should want to make a saucer cut in a disc, the work can be hollowed by rotating it slowly face down over the blade in a V-jig clamped in front of the blade. Here you take  $\frac{1}{16}$ -in. bites at a time.



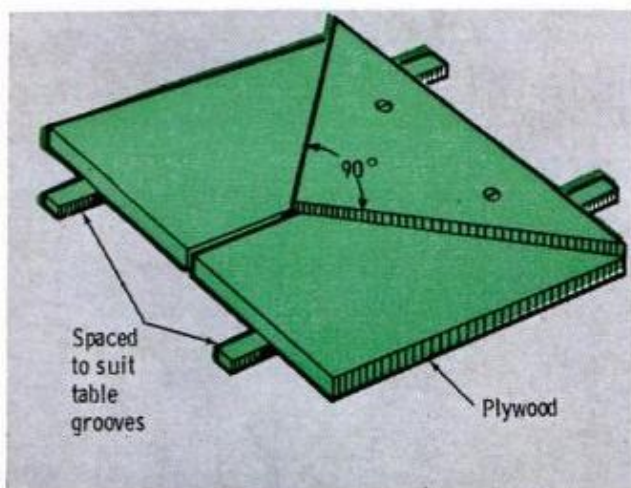
**MAKING COVE MOLDING** on your saw is possible by passing the workpiece repeatedly across the blade at an angle. The wood fence can be positioned to form the cove down the middle of the work, which is then ripped lengthwise into two pieces. The coving is formed by successive passes over the blade, cutting no more than  $\frac{1}{16}$  in. with each pass. A combination blade works best.



# Table Saw Short



**PATTERN SAWING** is a fast way of duplicating straight-sided work in quantity on your table saw. Whether you make two or ninety-two, each piece will be exactly alike. The setup requires an overhanging wood fence, which is clamped or screwed to the saw's fence, and a master pattern of the part to be duplicated. The points of two nails driven through the pattern embed in the wood to anchor the work. As the detail shows, the wood fence is aligned flush with the face of the blade, and the blade is raised just high enough to handle the thickness of the work. Clearance under the fence must suit the thickness of the work, and the pattern must be thick enough to ride along the fence. The work, of course, must be cut up beforehand to the approximate size and shape of the master pattern; in the photo, pentagon blanks have been roughed out.



A **MITER JIG** is faster and more accurate than your miter gauge for making right and left-hand miters. The detail and photo show two different ways to make one. Runners are added to the underside of a plywood platform and then the saw is used to make its own slot. Fences are positioned on the platform so they form a perfect 90° angle at an exact 45° angle to the slot.

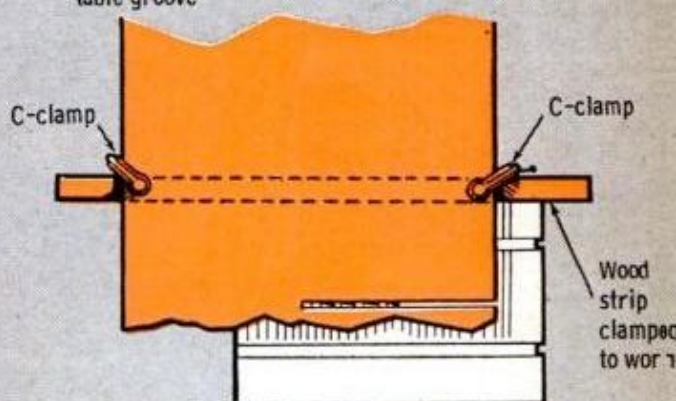
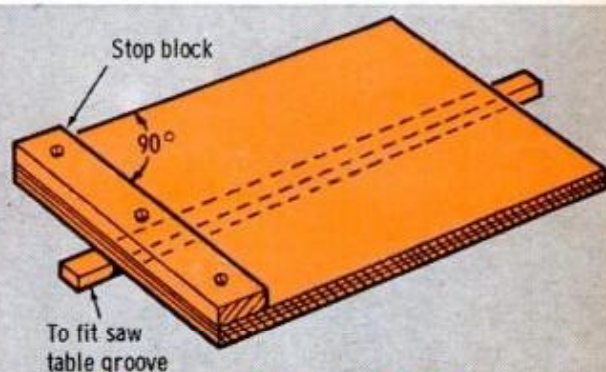


## to speed these familiar jobs



PLACE THE MITER GAUGE backwards in the table slot when crosscutting a wide board on a small saw. This utilizes all of the table in front of the blade to provide maximum support to the work.

NEVER USE THE FENCE itself as a stop in gauging length of duplicate pieces. The work will wedge between fence and blade and be thrown at you with great force. Always butt it against a block attached to the fence so there's safe clearance for the pieces when mass cut.



A SQUARING BOARD comes in handy for cutting a straight edge along irregularly shaped leftovers from your jig or bandsaw. It's nothing more than a sliding platform fitted with a runner to ride in the table slot to support the work as it's passed through the saw. Naturally, you shouldn't use the fence for this.

Such a jig is good for fairly small pieces, but where you have need to square up the edge of a large plywood panel, a straight strip is clamped to the underside and guided along edge of the saw table itself. Strip placement is dictated by size of table, plus what's required to true up the ragged edge.

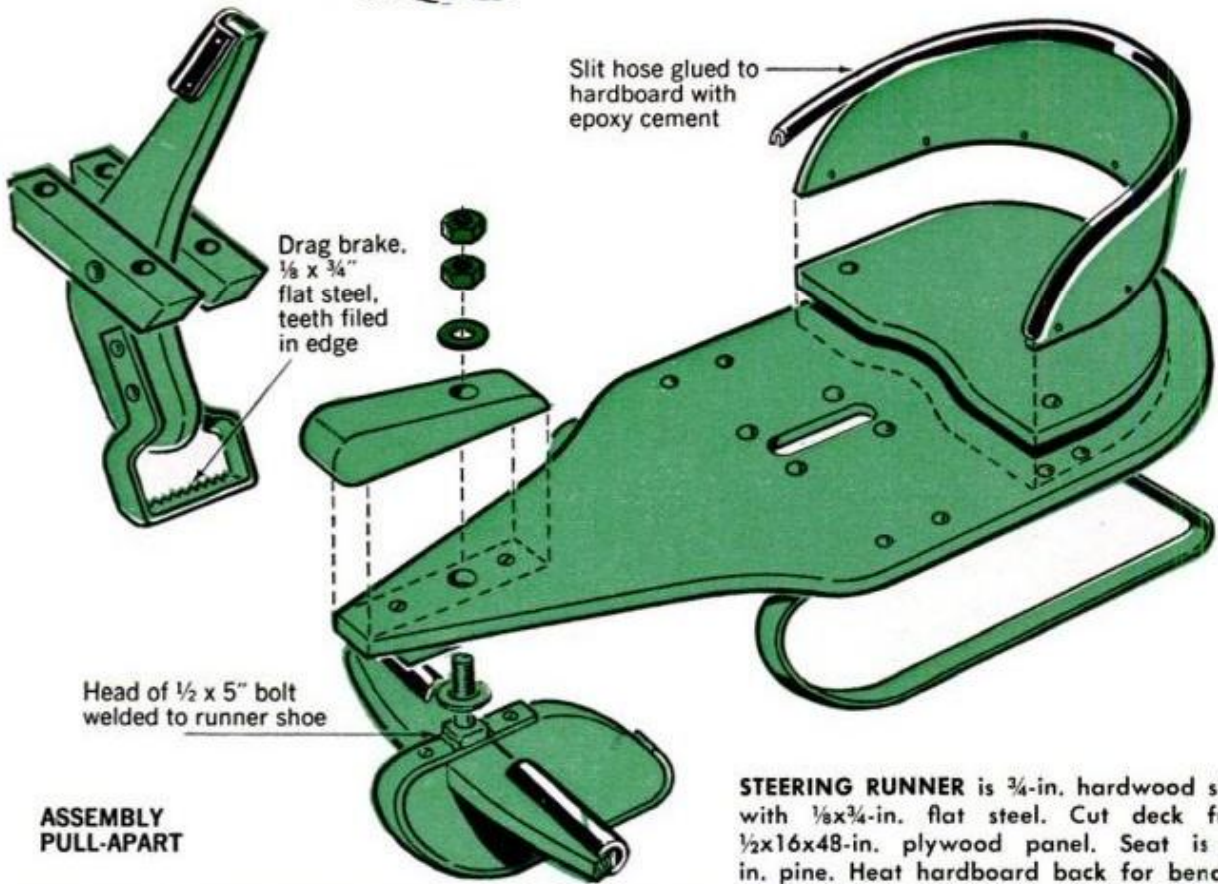


# Dragster sled



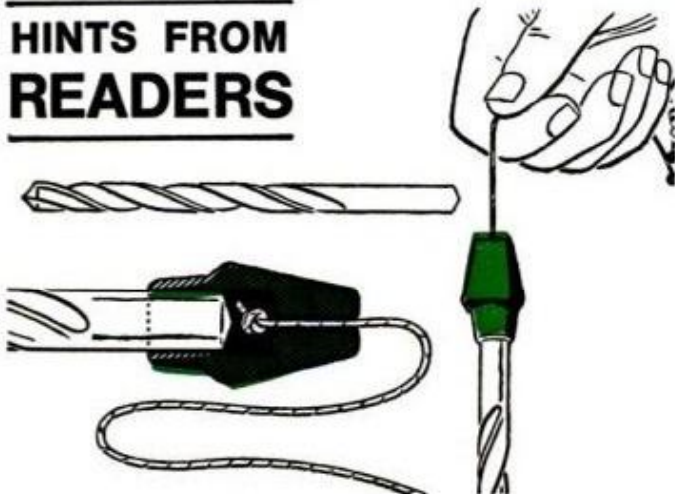
SAFETY FEVER has swept the auto industry, so why not build a little safety into another high-speed vehicle—the sled? Of course, dare-devil sled drivers quickly learn to steer with body English and brake with foot-drag, but it's all pretty makeshift.

Here's an ingenious sled that combines improved foot steering with an effective drag brake that also serves as a handgrip for balanced riding. The boy you make it for is sure to be King of the Hill.—Hi Sibley



**STEERING RUNNER** is  $\frac{3}{4}$ -in. hardwood shod with  $\frac{1}{8} \times \frac{3}{4}$ -in. flat steel. Cut deck from  $\frac{1}{2} \times 16 \times 48$ -in. plywood panel. Seat is  $\frac{3}{4}$ -in. pine. Heat hardboard back for bending

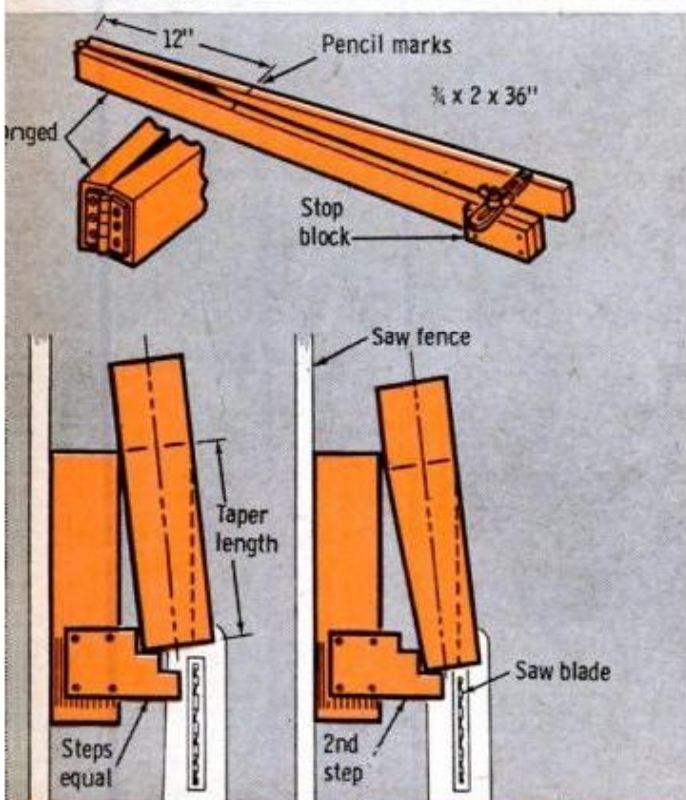
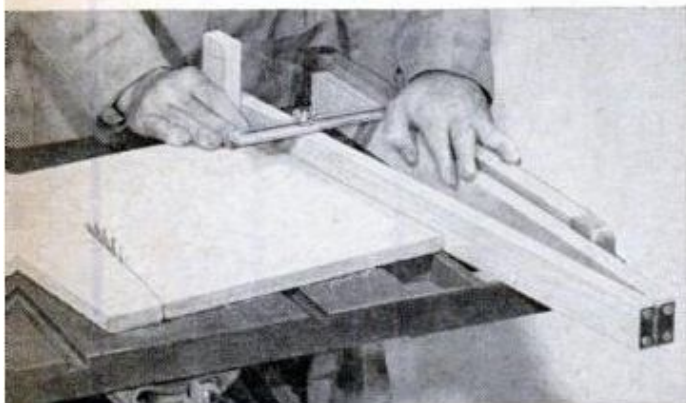
## HINTS FROM READERS



## Improved plumb bob

Even if you own a commercial plumb bob, you probably use it so seldom you can't lay your hands on it when a need arises. You can convert a twist drill, prick punch or nail-set into an effective bob by slipping a pencil eraser on its "non-working" end, after threading a stout string through a hole punched in the closed end. A knot keeps the string (fishline is ideal) anchored.—John Russell Jr.

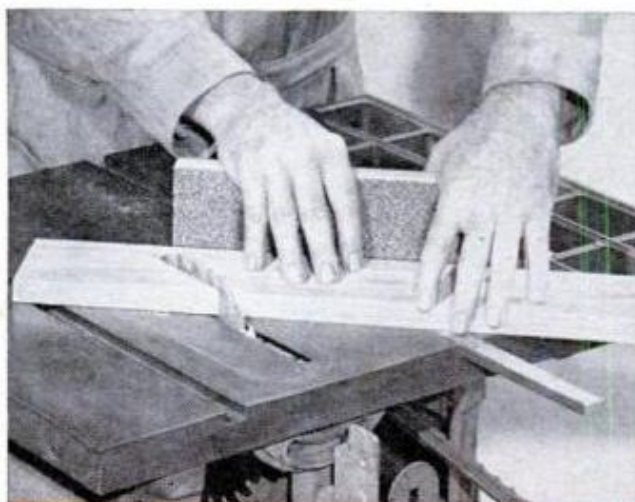




**TAPER RIPPING** requires a jig to hold the work at the required angle as it goes through the saw. Details above show two jigs: one a two-leg, hinged affair, the other a stepped block. Both have a straight side that rides the saw's fence. The hinged jig is set by measuring across the legs at a point 12 in. from the end. By opening it 1 in., you'll have a setting to produce a 1 in. per ft. taper.

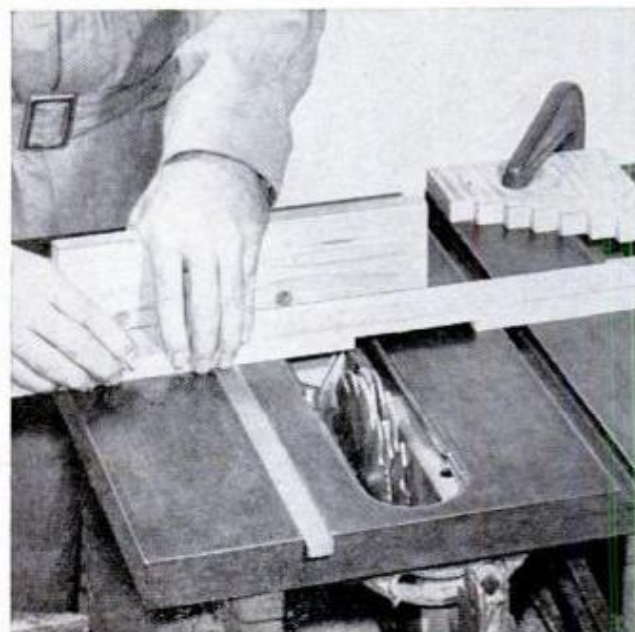
The non-adjustable stepped jig is good for work tapered on four sides, such as legs, since it saves constant re-setting. The work rests in the first notch for the first pass, then in the second notch.

## Learn to use your miter gauge

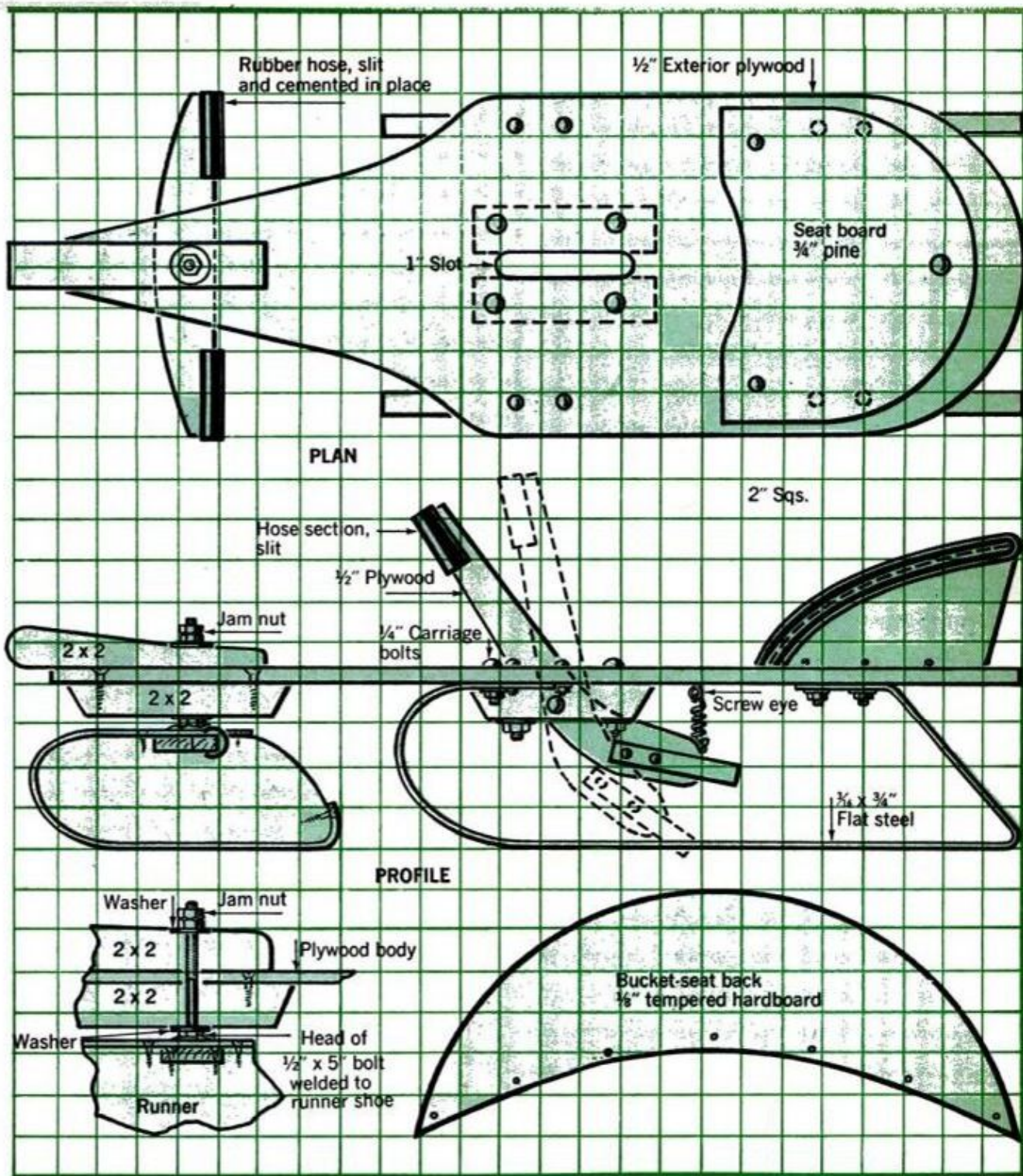


**WORKPIECE CREEPING** is difficult to prevent when making angle cuts greater than 45°. The smart craftsman will cement a sandpaper strip to the face of his miter gauge for a better nonslip grip.

**EXTRA WIDE DADOES** in duplicate work come out exactly the same length each time if you clamp a stepped stop block to the saw-table corner. Precut to suit the dado blade and length of dado, the block gauges each successive pass by resting work in the next step. The last step sets the exact width.



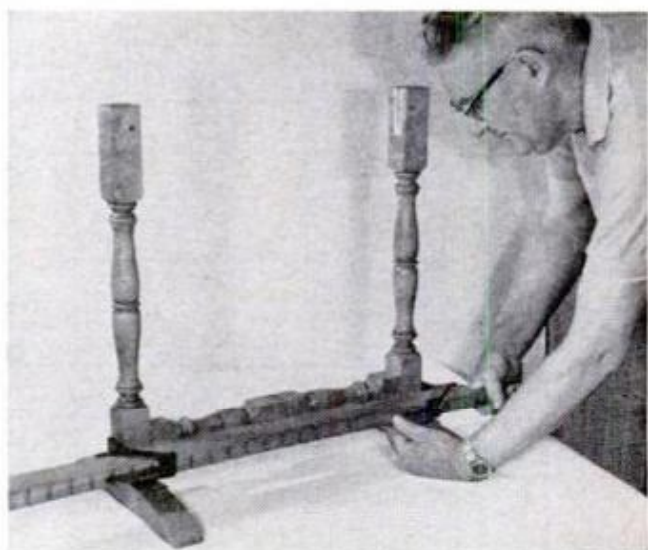
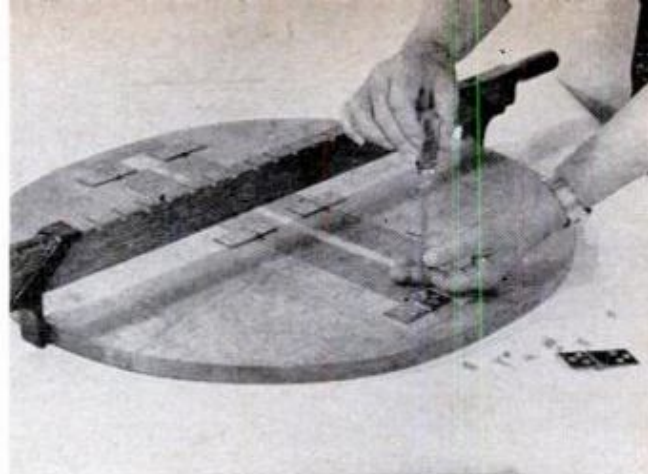




## Trap flying fragments

When chiseling concrete or rock, it's best to protect yourself from fragments that fly up from the tool point. But working through a rubber shield, such as a scrap of inner tube, is clumsy since it hides the impact point. Instead, use a piece of screen about a foot square, slit at the center to pass the point of your cold chisel or star drill. You can see through it.





**LAY LEAVES UNDERSIDE UP**, clamp, install hinges (top photo). Next, glue trestle feet on both legs and, when set, join these assemblies with the lower stretcher, clamping as shown

# Build this butterfly-trestle table

First made by early colonial craftsmen, it's quite at home with present-day furnishings

By W. CLYDE LAMMEY

**T**HERE'S NO TELLING just when the drop-leaf top and butterfly wings were added to the trestle tables of early colonial times, but these design features provided a happy solution to the pressing space problems of the day. Folded, the butterfly-trestle table stores in a closet or takes a minimum of floor space; open, it trebles as a serving table, an end table for a reading lamp or a decorator piece for den or family room.

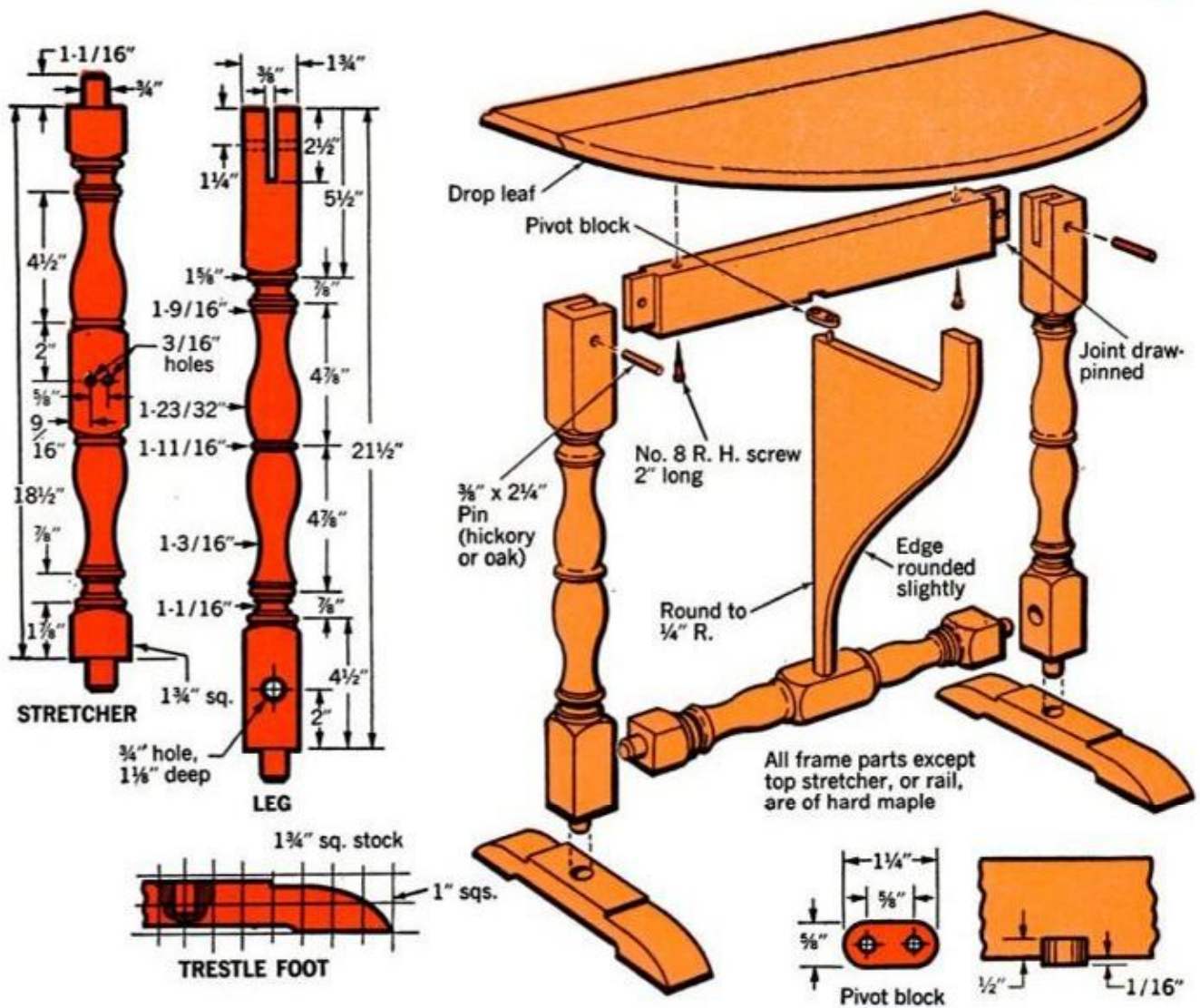
Dimensions altered slightly from the original sizes are given here to adapt the

table for modern-day homes. Only three turnings, all from stock of the same sectional size, are used. All parts of this table are of selected maple except for the pine top stretcher.

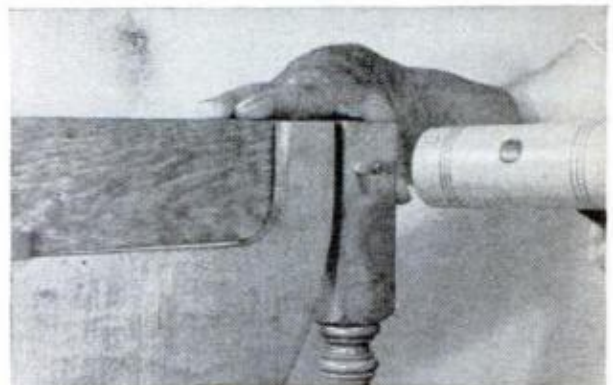
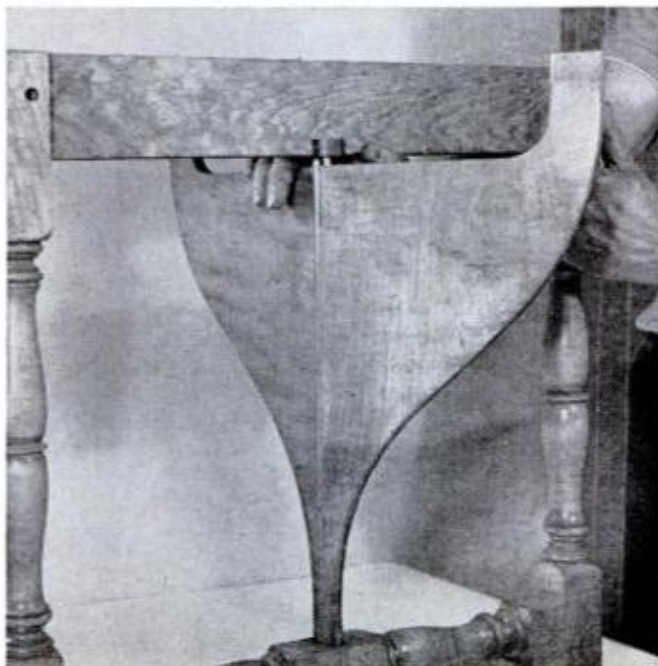
The top-rail-to-leg joints are draw-pinned. All others are glued round-mortise-and-tenon; this way you turn the tenons on the ends of the turned members and drill holes to form the mortises, eliminating the time-consuming square mortises and tenons required for pinning.

The trestle feet are cut from the same





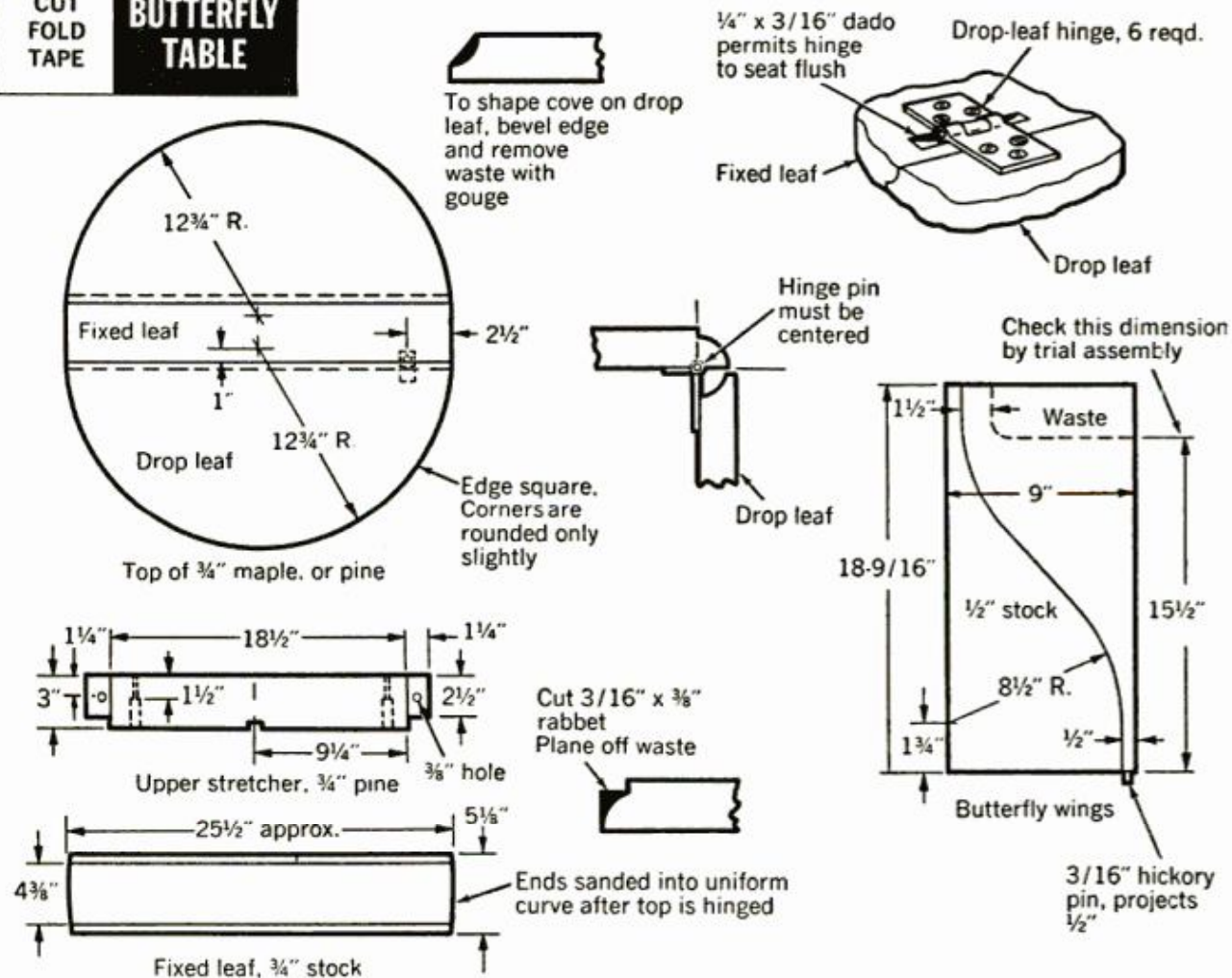
WITH ONE END of stretcher raised slightly, locate wing pivot pins in the pivot block holes (below). Using no glue, drive the leg draw pins home (right). Glue and screw top stretcher to the fixed leaf (lower right)





CUT  
FOLD  
TAPE

# BUTTERFLY TABLE



size of stock as the turning squares. Make the three turnings first. The round mortises can be drilled before turning, but cut the open-end mortises for the upper rail afterward. Do a clean job of turning the legs and lower stretcher and sand thoroughly while the parts are still in the lathe; a rough turning won't stain well.

Cutting the tenons on the top rail to a snug, sliding fit in the mortises takes patience. Drill holes through the mortises and tenons for the draw pins slightly off center so the pins draw the joints tight when driven home. Drill counterbores edgewise near the ends of the rail for screws that will join the fixed leaf of the top. Then cut, fit and drill the pivot block and glue it in place.

Next, make the wings and determine the one dimension so indicated by a trial assembly of the frame. Cut away the waste and glue in pivot pins—two to each wing. Sand the near meeting edges of the wings to a  $\frac{1}{4}$ -in. radius and round the outer curved edges slightly.

If you have a router with matching cutters, the drop-leaf joints pose no problem,

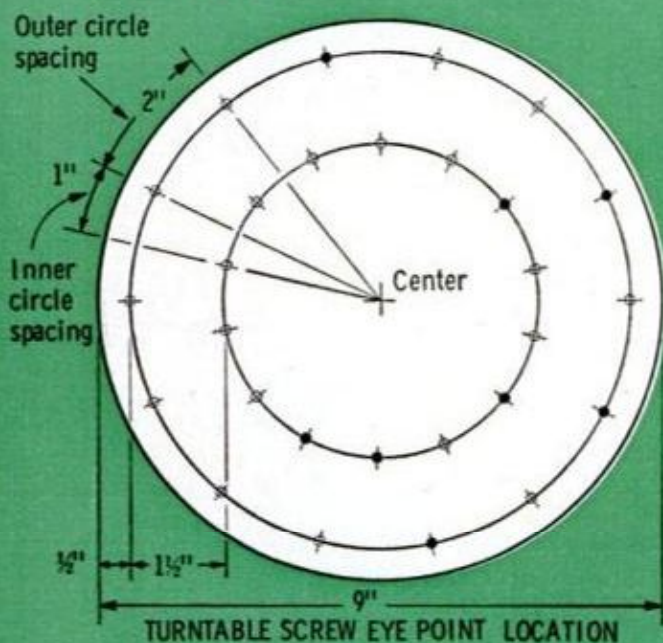
but hand tools call for extra care. The two small details suggest procedures. To set the hinge leaves flat, you'll have to recess the barrel in stopped grooves, as sketched at top right. Place the three leaves, underside up, on a flat surface, tighten a bar clamp lightly across the widest part and screw three pairs of equally spaced hinges in place. Then sand the leaves on both sides and even up the edge of a true curve.

Assemble by gluing and clamping the trestle feet to the legs, then join these units with the lower stretcher. Finally, screw the fixed leaf to the upper rail.

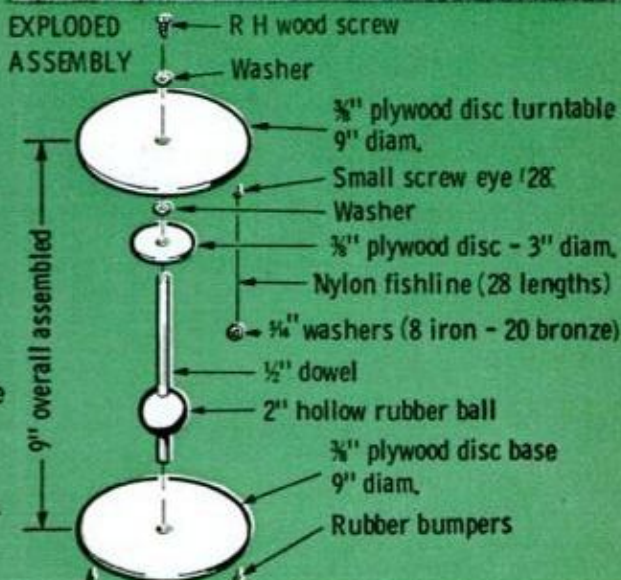
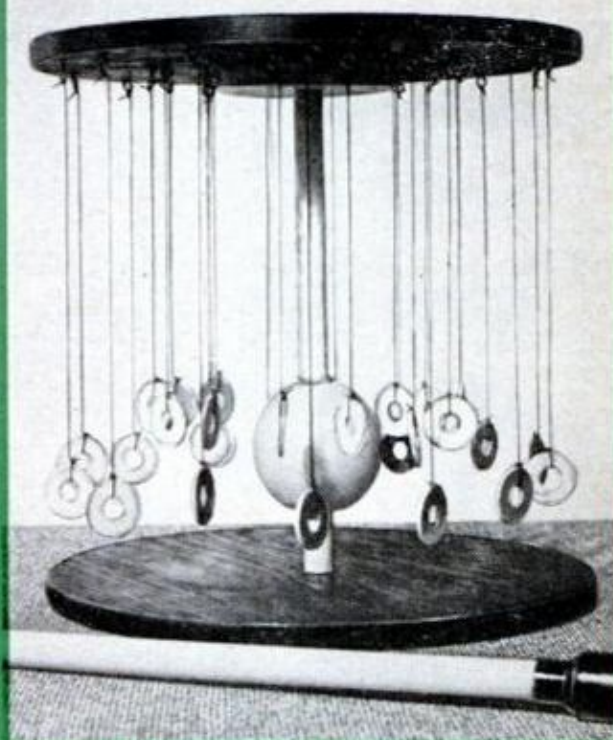
Many craftsmen prefer to stain and seal at this stage, when parts are easier to handle. Use any stain suitable for maple. If you apply a penetrating stain, wipe off the excess as directed on the container to avoid a mottled appearance. Apply and wipe off until you get the desired shade. Let the stain dry 24 hours before applying sealer. This, too, should dry completely before you rub lightly with sandpaper or fine steel wool in preparation for a semigloss or wax finish. ★ ★ ★



# MAGNETIC GAME



- = Magnetic tentacles (iron washers)
- = Nonmagnetic tentacles (bronze washers)



THE NAME OF THE GAME is "Portuguese Man-of-War," and you can make it to test your steadiness and luck. To score, a player must pass a magnetic wand through the maze of look-alike washers on the ends of the tentacles and touch the rubber ball in the center, thus "killing" the man-of-war. However, he loses a point if he is "stung" in the process—if one or more of the washers sticks to the wand.

The secret, of course, is that while some of the washers are common iron, most are bronze which won't be attracted to the magnet. Since they are all the same size and painted alike, no one can tell which will "sting" and which are safe.

To lay out the screw-eye locations, swing both circles on the upper disc and

mark 1-in. spaces around the circumference of the disc. This will make 28 approximately equal spaces. Next, radiate lines through these marks and the center of the disc. The screw eyes are located at alternate intersections of the rays with the outer and inner circles.

The wand is made from a permanent magnet salvaged from a discarded 4-in. PM radio speaker (you can find one at almost any radio shop). Most contain a threaded hole in the small end. Use a machine screw with a matching thread to mount it to the dowel, snipping off its head and coating it with glue before you screw it into the end. If desired, reinforce this joint by wrapping it with tape.

—Merton H. Slutz



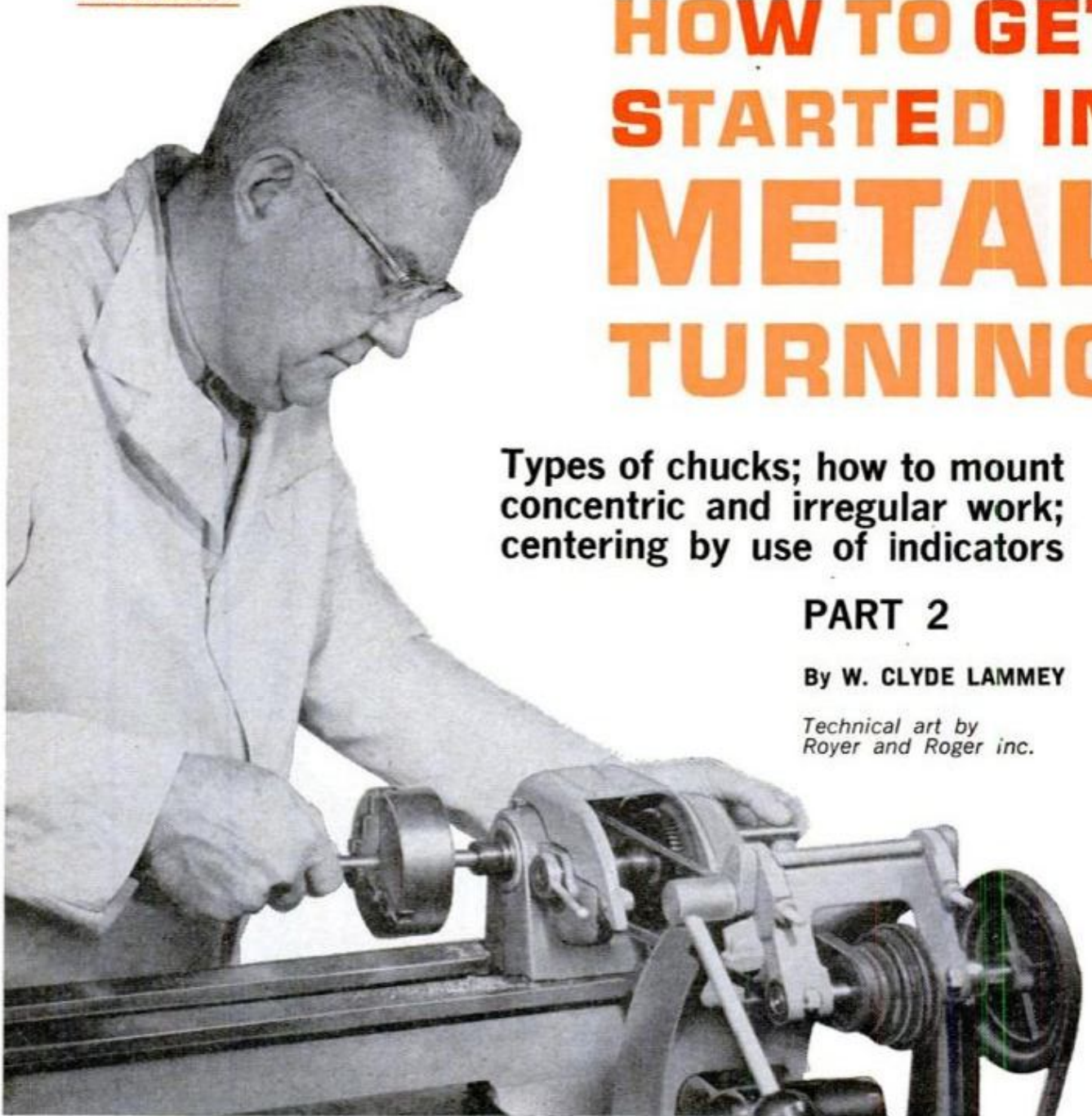
# HOW TO GET STARTED IN METAL TURNING

Types of chucks; how to mount concentric and irregular work; centering by use of indicators

## PART 2

By W. CLYDE LAMMEY

*Technical art by Royer and Roger inc.*



**TO AVOID DROPPING CHUCK** when mounting, clamp it on round stock that will pass through spindle

**U**SE OF GEARED CHUCKS is the next step in learning to operate a metal lathe. How to prepare and mount work between centers and grind cutting tools appeared in Part 1 last month.

Work that cannot be mounted between centers and driven with a dog usually is chucked for machining. Chucks for everyday work are of several types, all operated manually with a special wrench.

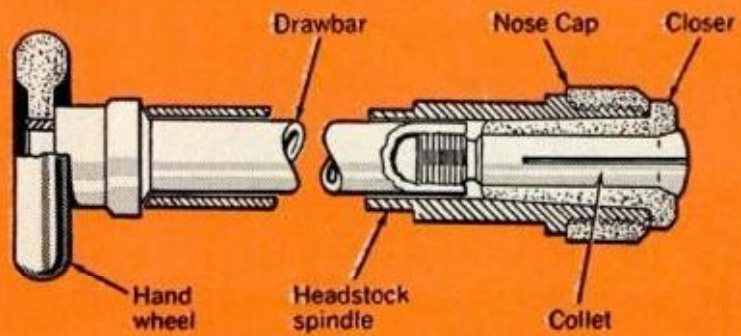
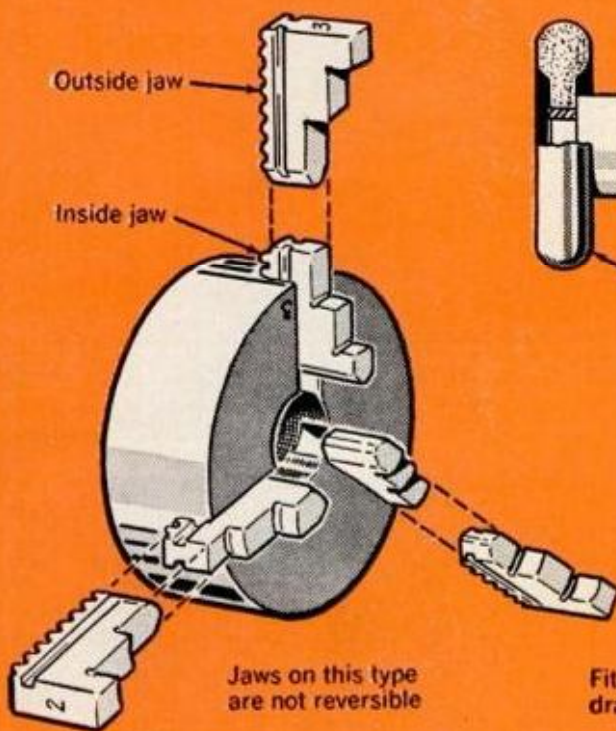
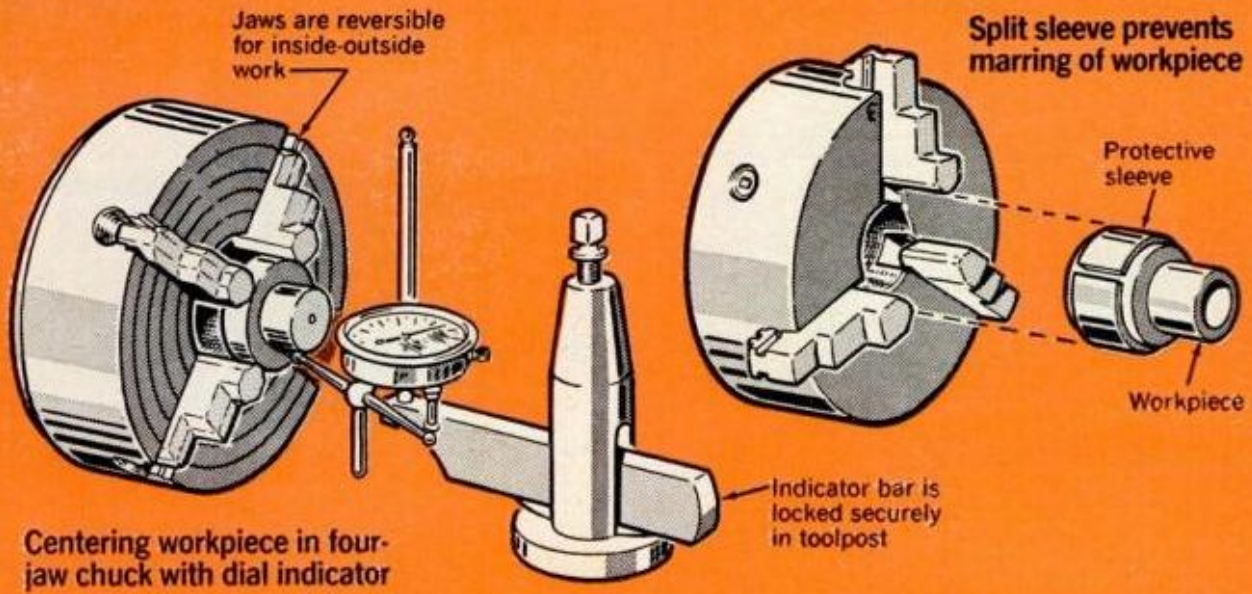
Perhaps the most common is the four-jaw chuck on which each jaw is operated individually. These usually come with a set of jaws that can be reversed to hold inside or outside work ("inside" and "outside" refer to the way in which the jaws

engage the workpiece). Concentric rings, equally spaced, are machined on the face of the chuck to help center the work.

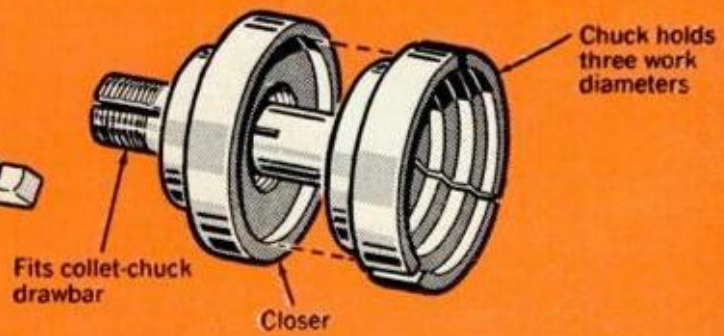
Next in common usage is the universal, or scroll, chuck on which the three jaws are self-centering. Turning the T-wrench in the single actuating socket on the chuck body moves all three jaws simultaneously. When they close on the workpiece it is automatically centered. Such chucks are accurate within .003 or less and come with two sets of jaws—for inside and outside work. Some miniature scroll chucks have one reversible set.

In addition to these two common types there are spring collet and step chucks;

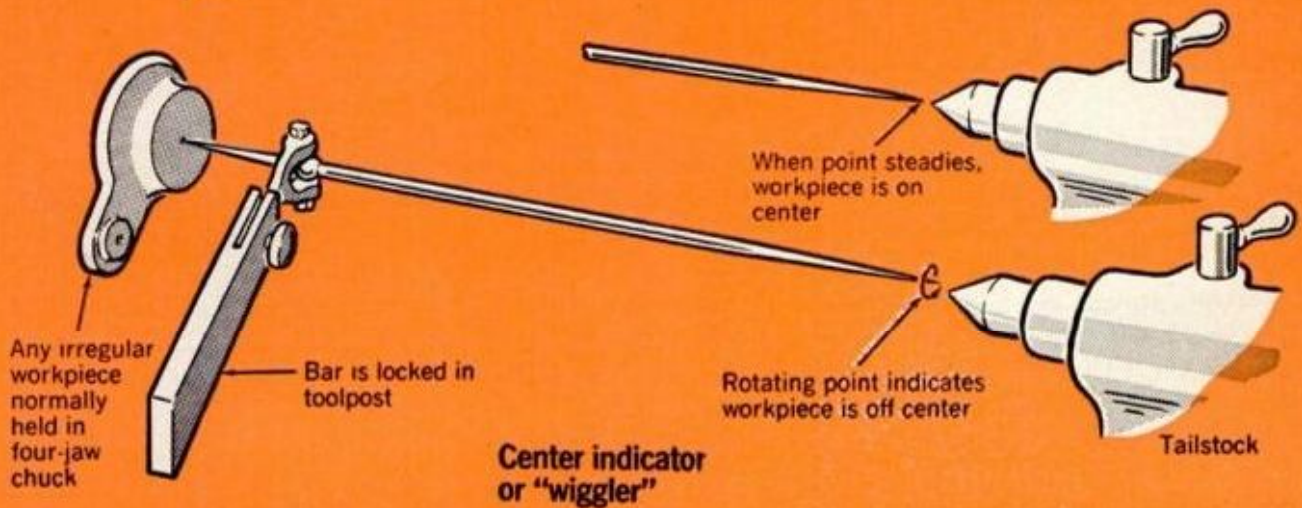




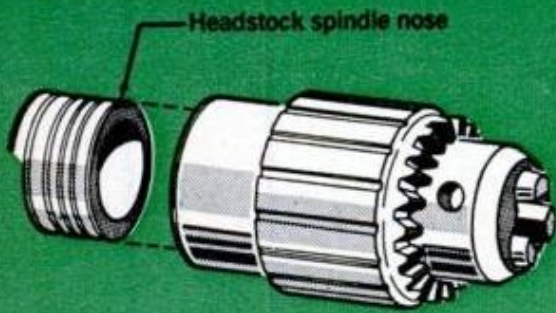
Collet chuck, draw-in type



Step chuck for holding round workpieces



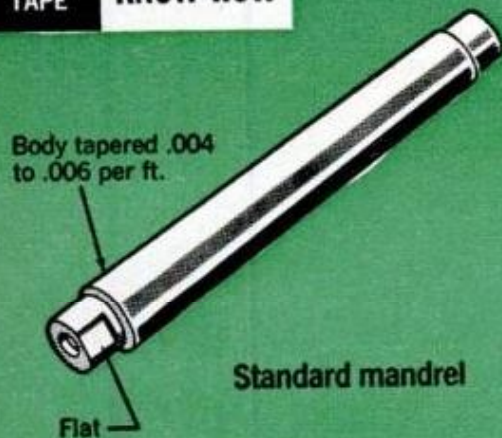




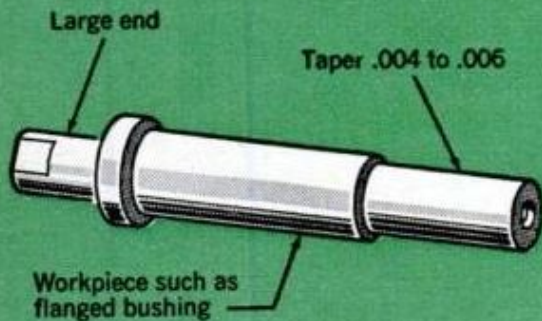
Headstock spindle nose  
Geared chuck for small workpieces

CUT FOLD TAPE

LATHE KNOW-HOW



Standard mandrel



Mandrel improvised from mild steel round or drill rod

both are actuated by a spindle drawbar and also a geared chuck (similar to a drill chuck) that turns onto the spindle nose and is ordinarily used for "live" drilling operations, with the work supported by a pad held in the tailstock.

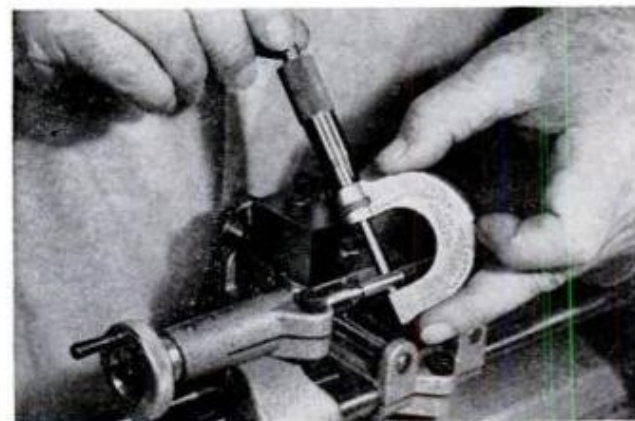
The collet chuck also is widely used in the machining of small parts requiring close tolerances. Spring collets range from about 1/8 in. up, the sizes usually increasing by 16ths.



TAILSTOCK CENTER used as indicator for centering in four-jaw chuck. Workpiece is center-punched or center-drilled. Method not acceptable for close work



GRIP INSIDE OF WORKPIECE with jaws of universal chuck by backing them out, rather than running in. This permits both facing and edging of the workpiece



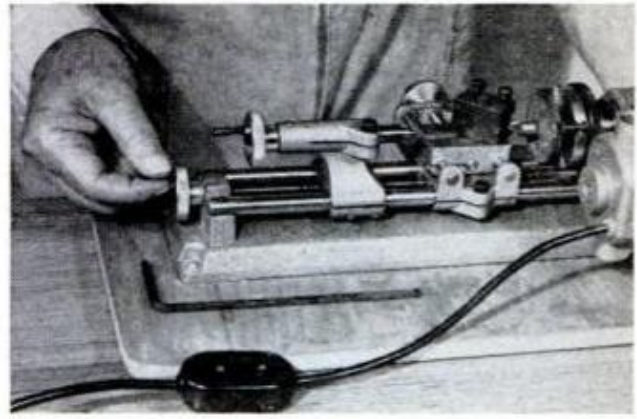
WHEN YOU MUST COME CLOSE, use a mike, especially on small-diameter work where it is more difficult to "feel" a caliper. Be sure of the reading

The step chuck is really a collet-chuck accessory. It is threaded to fit the collet-chuck drawbar and each unit is designed to hold two or more sizes of rounds, such as discs or small gear blanks, for machining. Both collet and step chucks are especially useful for repetitive work; the workpiece can be locked quickly in place in the collet, where it is automatically centered, then machined and released by a short turn of the handwheel. Model-

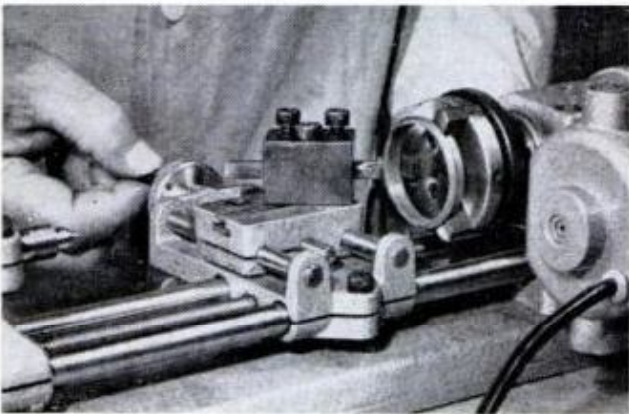




**CHALK OR PENCIL MARK** method for centering in four-jaw chuck. Here line is not continuous, shows work is off center. Not acceptable for close work



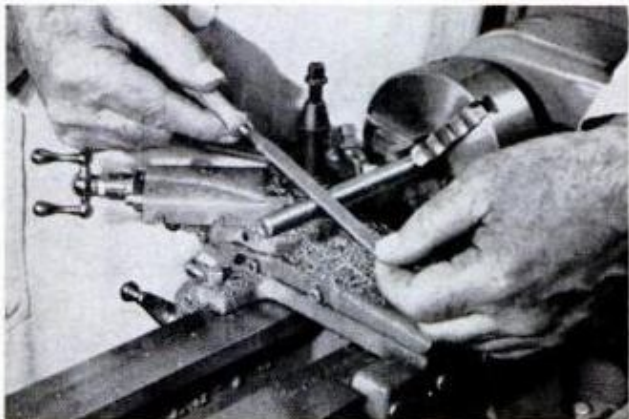
**MACHINING CHUCKING LUG** on model loco drive wheel. Work is held in outside jaws of three-jaw chuck having reversible jaws for inside-outside work



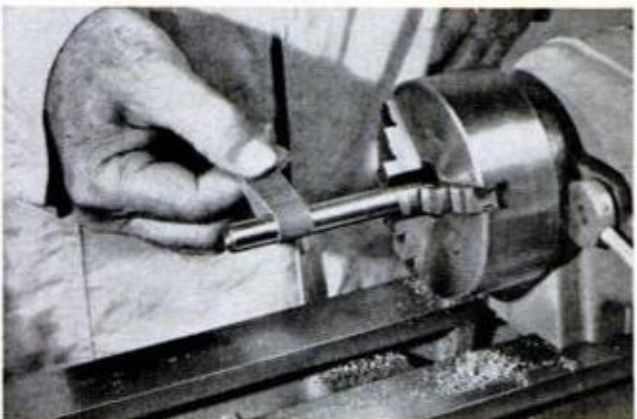
**GRIP OUTSIDE OF WORKPIECE** for a final back-facing operation by reversing the jaws. On most universal chucks, the jaws would be interchanged



**ON ORDINARY WORK** not requiring close tolerances, diameters can be checked quite accurately with callipers. Finger sensitivity largely determines accuracy



**MAKE MANDREL FOR AVERAGE WORK**, when you don't have ready-made one handy, by filing a taper on round of drill rod that has been center-drilled



**FINISH THE TAPER** by smoothing with a loop of fine abrasive cloth, checking the diameter frequently until you have the correct taper of .004 to .006

makers, experimenters and metal-working hobbyists find these chucks useful for machining small parts.

When working with the independent four-jaw chuck, you rough-center the workpiece, with the concentric rings on the face of the chuck aiding in placement. For ordinary work not requiring close tolerances you can use the tailstock center as an indicator when the workpiece has been center-drilled or center-punched.

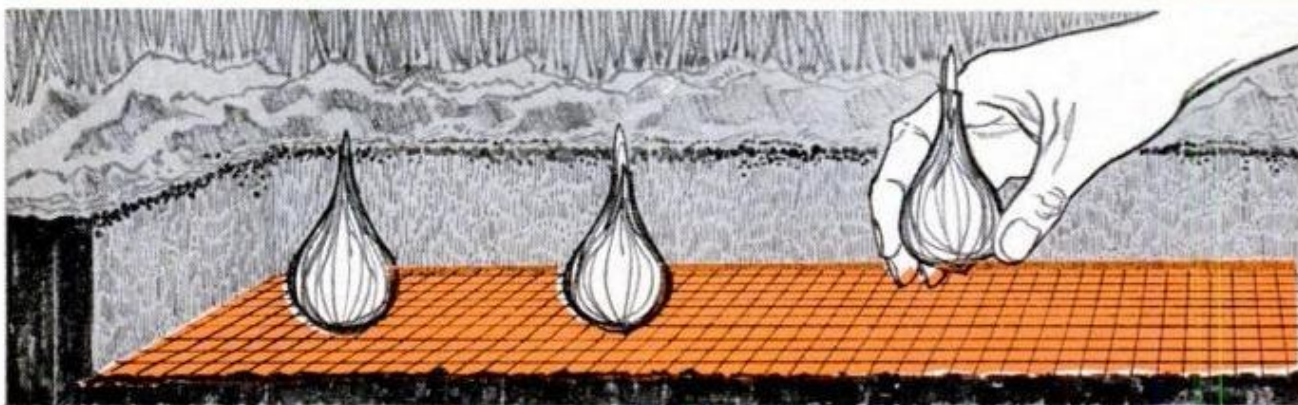
The usual procedure is to set two adjacent jaws and then work the third and finally the fourth to bring the workpiece to dead center. With care, this can be done quite accurately.

Another fairly accurate method is to rough-center the work and then hold a piece of colored chalk or a china-marking pencil on the tool-holder. The pencil point should just touch the high point of the

*(Please turn to page 210)*



# Solving home problems

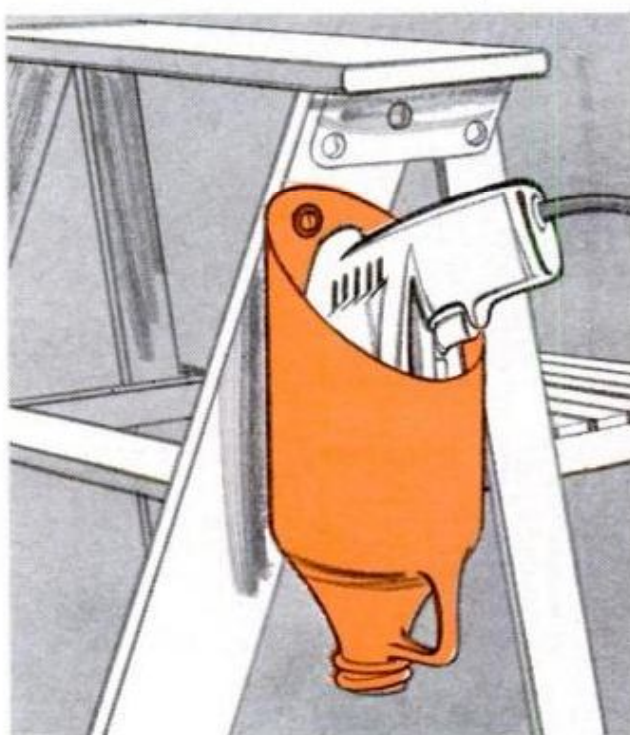


**YOU'LL FIND ALL YOUR FLOWER BULBS** after flowers have withered if you plant them over ½-in. gal-

vanized wire mesh covered with 4 in. of soil. Pull the mesh, and the bulbs will come up free of dirt



**TROUSER LEGS** from worn-out slacks make good carry-all bags. Have your wife sew together the uncuffed ends and run ropes through cuffs for easy toting



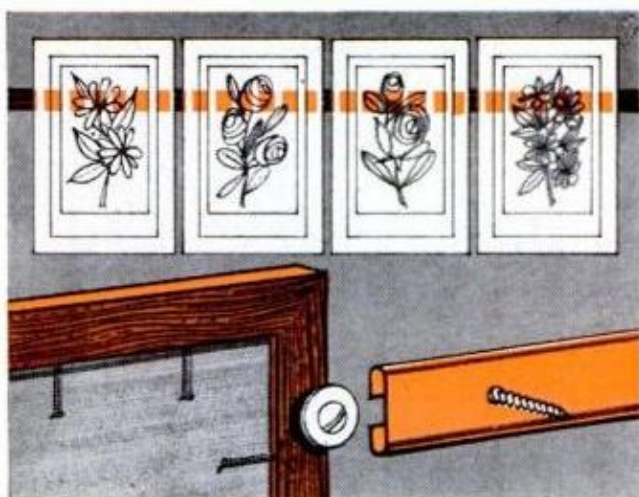
**LADDER-MOUNTED HOLSTER** made from a plastic bleach bottle holds your drill while you work on a ladder. Cut away bottom of bottle, bolt to ladder



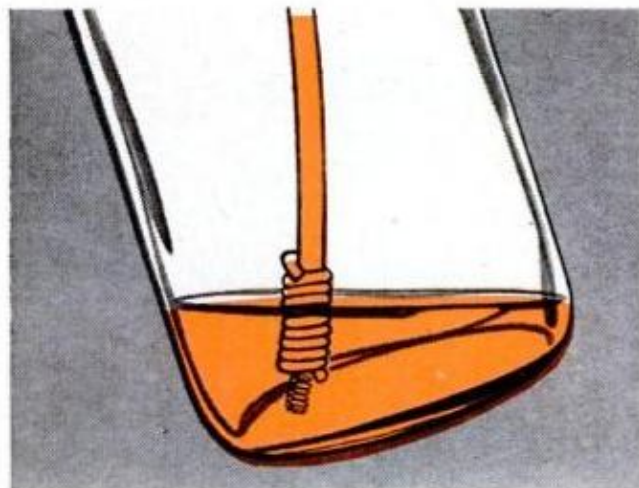
**FOOD WON'T STICK** in freezer or tumble out when door is opened if it's kept in a dish drainer. Only four wire legs touch the ice, so drainer won't freeze

to the shelf. You can inspect the food easily by pulling out the entire drainer, so there's less chance of forgetting something in a back corner





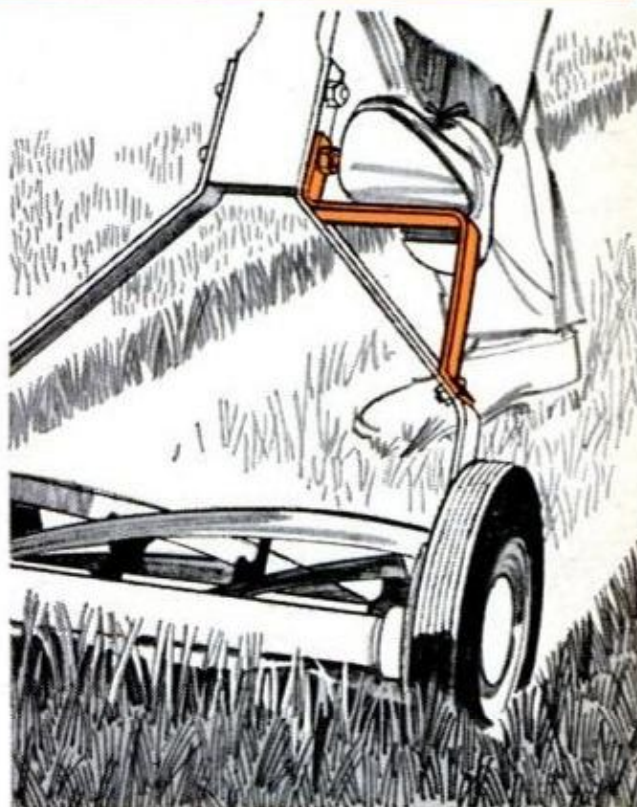
**TO HANG SMALL PICTURES** in a neat row and allow easy switching, screw a straight section of flat curtain rod, slotted side out, to wall. Two screws with washers behind each picture frame slide inside rod



**WIND A FEW TURNS OF SOLDER** on the end of the tube that draws liquid from jar in your garden-hose sprayer. Weight of solder will keep tube in deepest part of liquid even when the jar is tipped as shown



**OLD KITCHEN FORK** helps clean paint from a brush. Comb bristles with the fork while you rinse brush in water or paint solvent (depending on the paint)

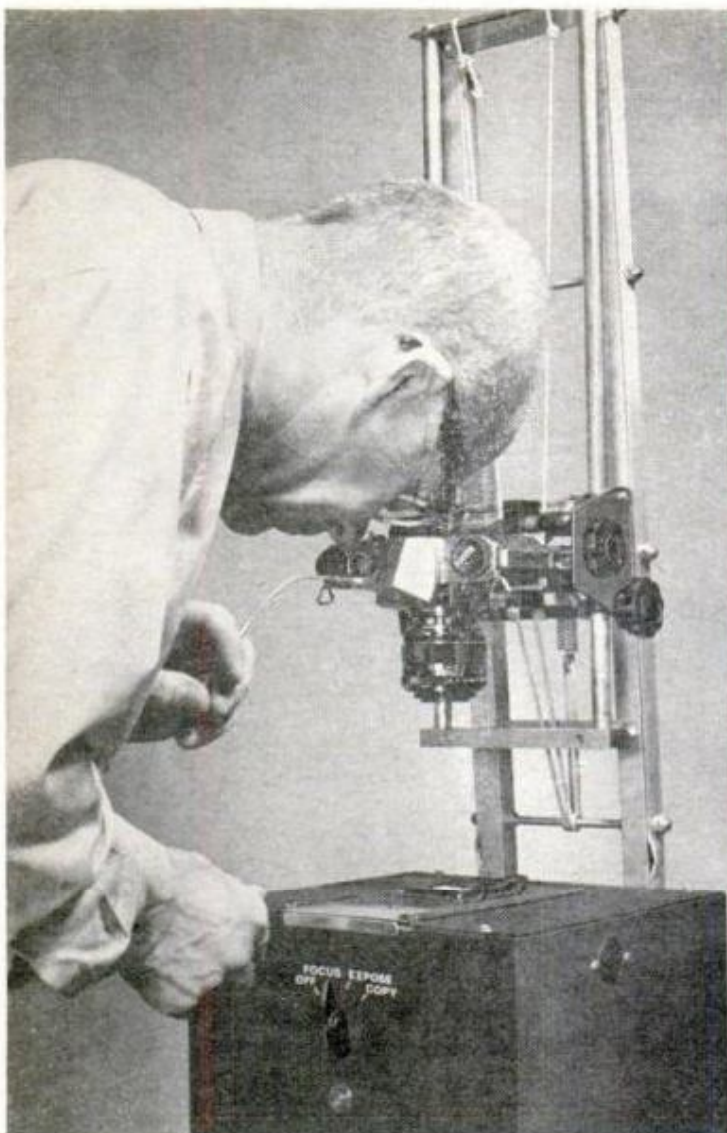


**FOOTREST** bolted to the frame of your lawnmower will help you get the mower started again when it bogs down in a clump of high grass. Make the footrest from  $\frac{1}{8} \times \frac{3}{4}$ -in. steel, bending it as shown



**SWEEP CATERPILLAR NESTS** off trees with fiber kitchen brush on a pole. Discard brush handle, drill holes in one end of long pole, insert brush prongs in holes





# MAKE THIS COPIER

for slides...  
 titling...  
 correcting  
 exposure...  
 prints from  
 transparencies

By Frank L. Greenwald

Technical art by Philip F. Huy

**D**UPLICATING FILM MATERIALS costs a pretty penny when you have to do it on the outside . . . and even then, you won't get some of the custom effects possible when you build this copier.

Build the unit, mount a 35-mm camera (preferably a single-lens reflex) and add electronic flash; then you can:

- Duplicate positive transparencies from 16 mm to 2¼ in. square.
- Reduce from larger transparencies.
- Correct for under or overexposure when copying transparencies.
- Produce title slides, using slides, postcards or artwork.
- Make color negatives from original transparencies.
- Make black-and-white negatives from original transparencies.

To accomplish this handsome set of objectives, you'll need a set of extension tubes, a reverse adapter and a filter adapter.

A rangefinder camera is adaptable to this setup as long as it has an opening back to permit focusing and composing on a ground glass placed at the film plane and has an interchangeable 50 or 55-mm lens.

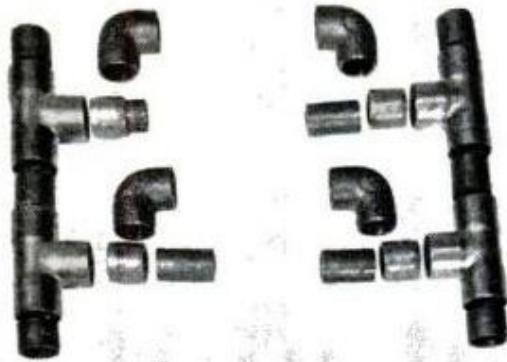
Start construction with the utility box. Drill the holes for the tube sockets that will hold the auto-bulb copying lights on the sides, the line and sync cords in the rear and the switch and "ready" light in the front. The cord holes should be fitted with rubber grommets. Note that the switch is located in one of the two sides having no sheet-metal screw in the center. Then cut the slot for the filter drawer.

Turning to the superstructure, cut four 32-in. lengths of aluminum angle for the column box girders, taking care in the drilling and bending to insure that you have two inner and two outer members. Drill ⅜-in. holes ½ in. and 7½ in. from the bottom of the inner pieces. Attach

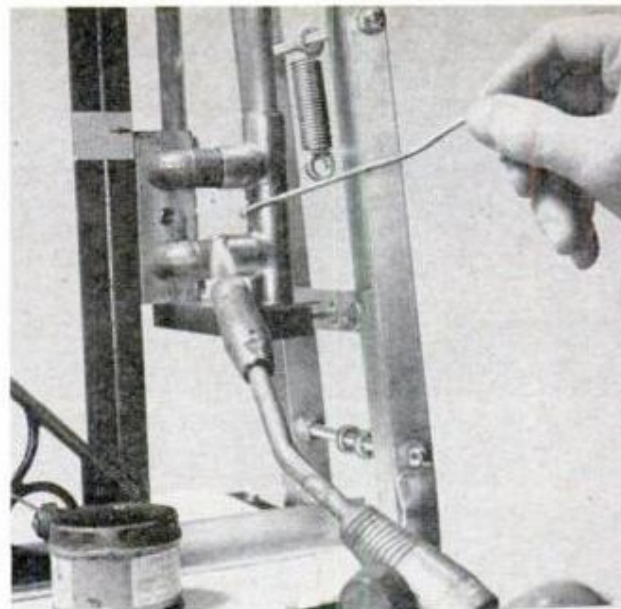




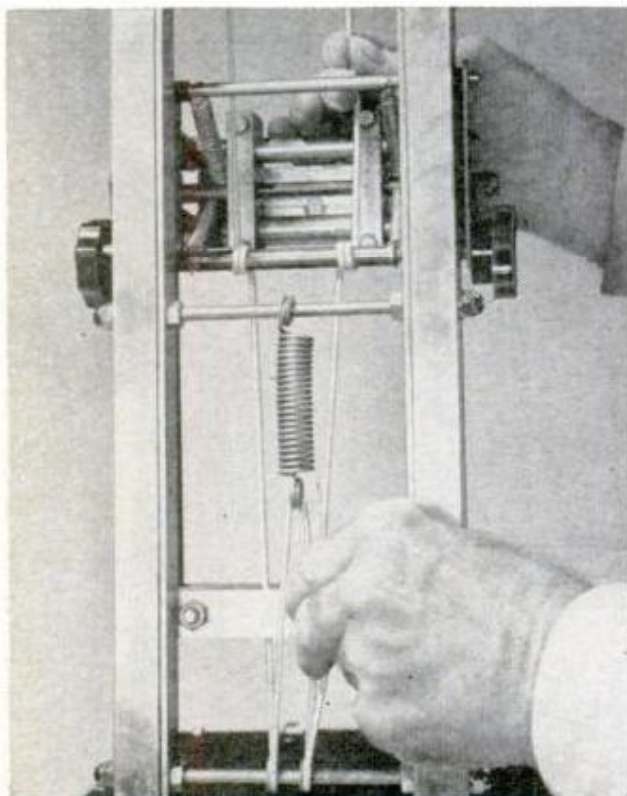




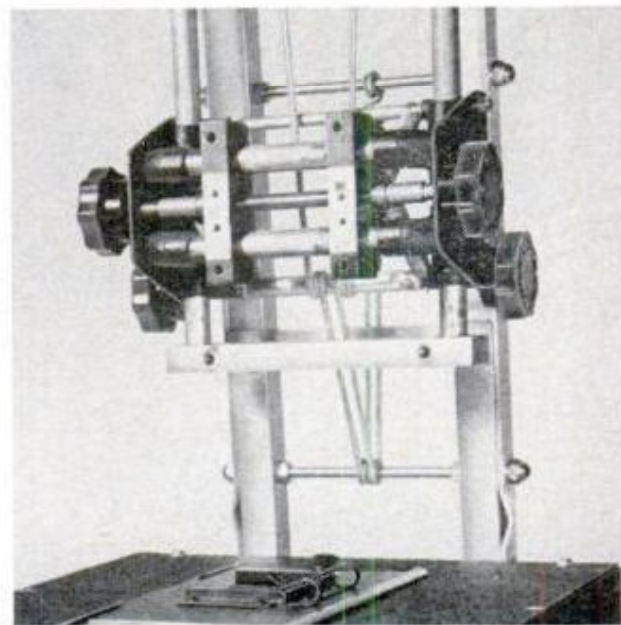
**FOR TRAVELING-CARRIAGE FRAME**, remove about  $\frac{3}{16}$  in. from one end of tee in each pair and join with  $\frac{1}{2}$ -in. I.D. x  $\frac{3}{4}$ -in. bronze bushings. Insert  $1\frac{1}{2}$ -in. bushings at other tee points as reducers



**ALIGN CARRIAGE ASSEMBLY** vertically and horizontally with trunnions mounted on loose rails. Solder tee-to-elbow joints first, check rail positions again and then solder the elbow-to-trunnion rail joints



**WINDLASS MECHANISM** makes use of traverse drape cord in a pulley arrangement tensioned by a spring. Before tying the second end, pull cord down below the spring and work all slack up past the carriage



**ONLY CAMERA PLATFORM IS MISSING** in this view of the carriage. It is screwed to the trunnion faces, which are spaced  $2\frac{7}{8}$  in. on centers, so that the camera-base screw will clear the traverse screw

these girders to the utility box, backing up the screws with a scrap bar from the aluminum-angle stock. Install a similar piece  $5\frac{3}{8}$ -in. long as a stretcher  $3\frac{3}{4}$  in. above the base, followed by the upper rail support at the top.

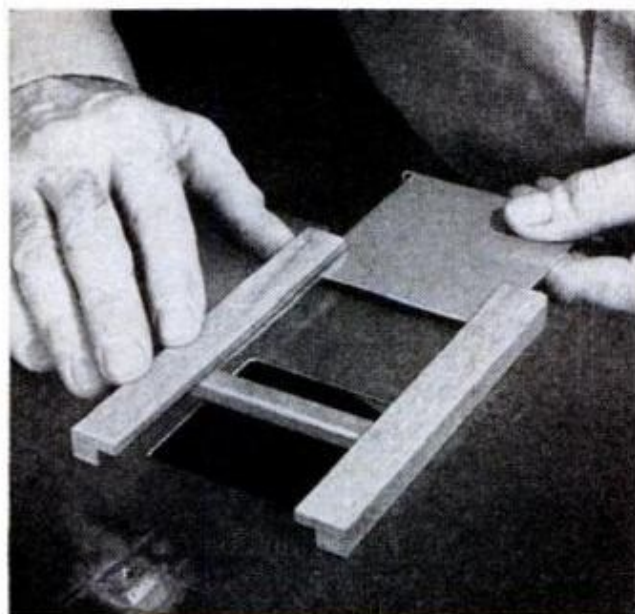
Next, add the rest of the girders and install the threaded-rod stretchers. At the top behind the rail support, merely bolt the girder halves together. Slide a pair of  $\frac{1}{4}$ -in. open-edge grommets onto the second stretcher from the bottom. These will serve as pulleys for the cord windlass.

Crimp  $\frac{1}{4}$ -in. grommets in the open terminal loops of the heavy spring and slide one end onto the third stretcher.

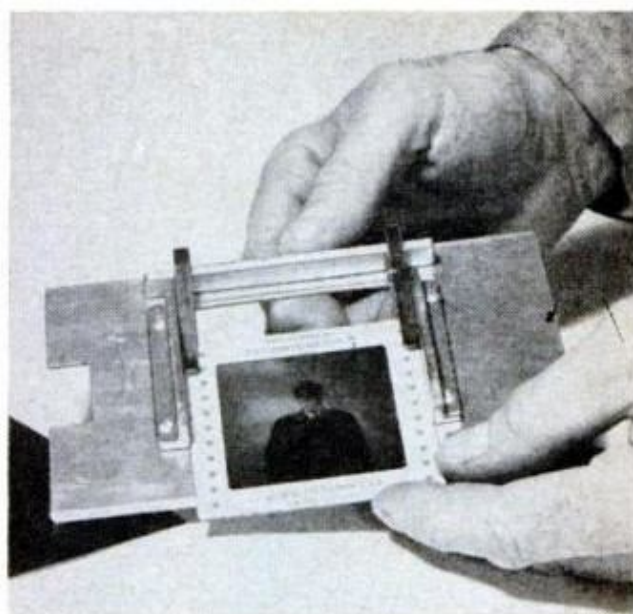
With one more step, you reach the first construction plateau. Form the key stock into the lower rail support and, while you're at it, the carriage trunnions. Then drill and tap the upper ends of the  $\frac{1}{2}$ -in.-dia. cold-rolled steel (CRS) rails.

Place the lower ends of the rails into the lower support and install on the aluminum stretcher. To do this, pass  $2\frac{1}{2}$ -in. pieces of  $\frac{1}{4}$ -20 threaded rod through the

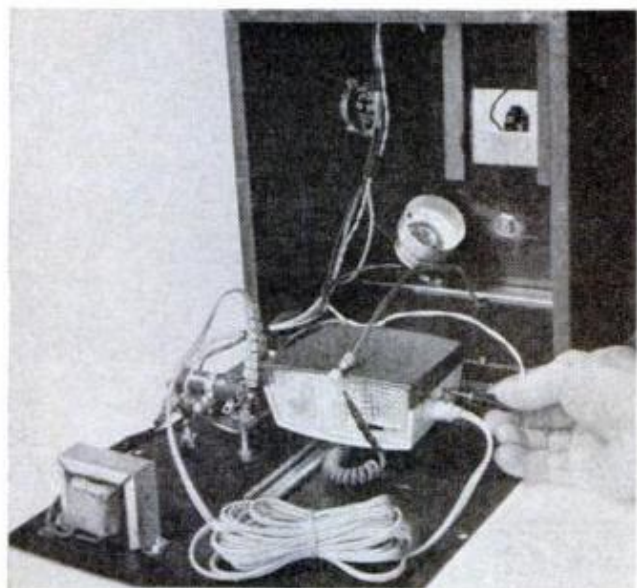




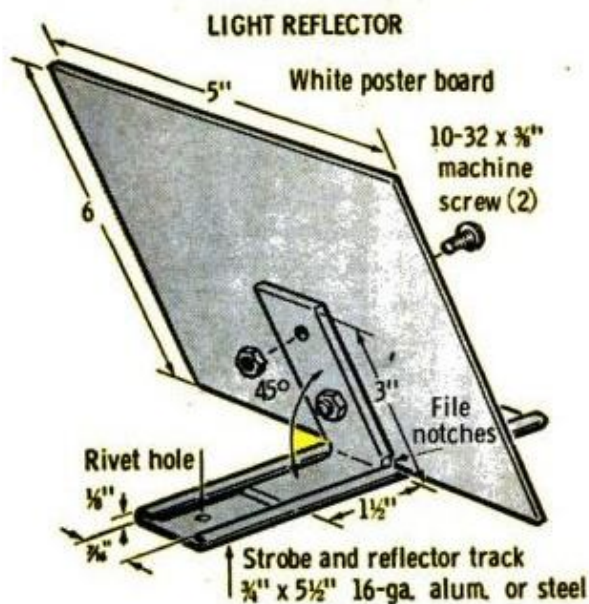
**FILTER DRAWER**, illustrated on page 230, is used as a template to position the drawer guides, which are secured with flathead wood screws. Note soldered nut, which holds the track retaining screw



**ONE SLIDE HOLDER** is needed for 2x2-in. mounts for 35-mm slides and another for 2 $\frac{3}{4}$ x2 $\frac{3}{4}$ -in. mounts for 120 film. Each is equipped with spring clips to hold the mounts. Finish top with flat black enamel



**GUTS OF THE ELECTRICAL SYSTEM** are mounted on the bottom panel. Reflector (right), which slides into the track in front of the electronic flash, also handles the viewing light seen inside the box



clearance holes in one piece of the support and thread them into the other piece. Run nuts up to the support and tighten on the ends of the rails. Add two more nuts to the rods so they rest against the stretcher and then two more to the rear of the stretcher to hold the rods in place.

Now, you can turn to the carriage assembly. Slide the tee assemblies (shown in photo on opposite page) onto the rails and bolt the rails at the top. Then adjust the rails with the rear nuts on the above-mentioned  $\frac{1}{4}$ -20 threaded rods in order

to insure that the rails will be vertical.

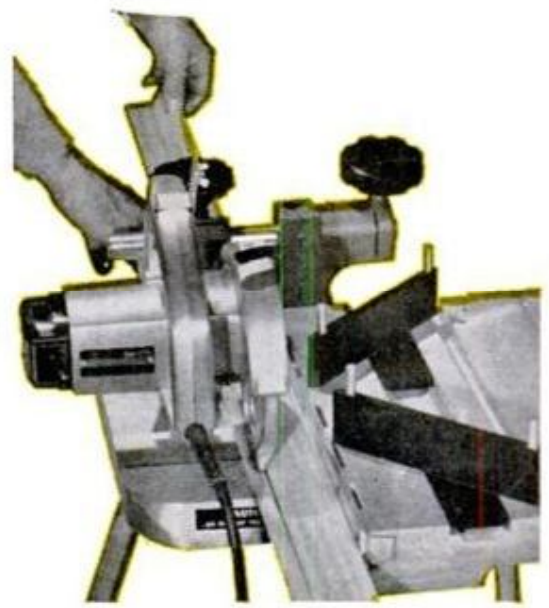
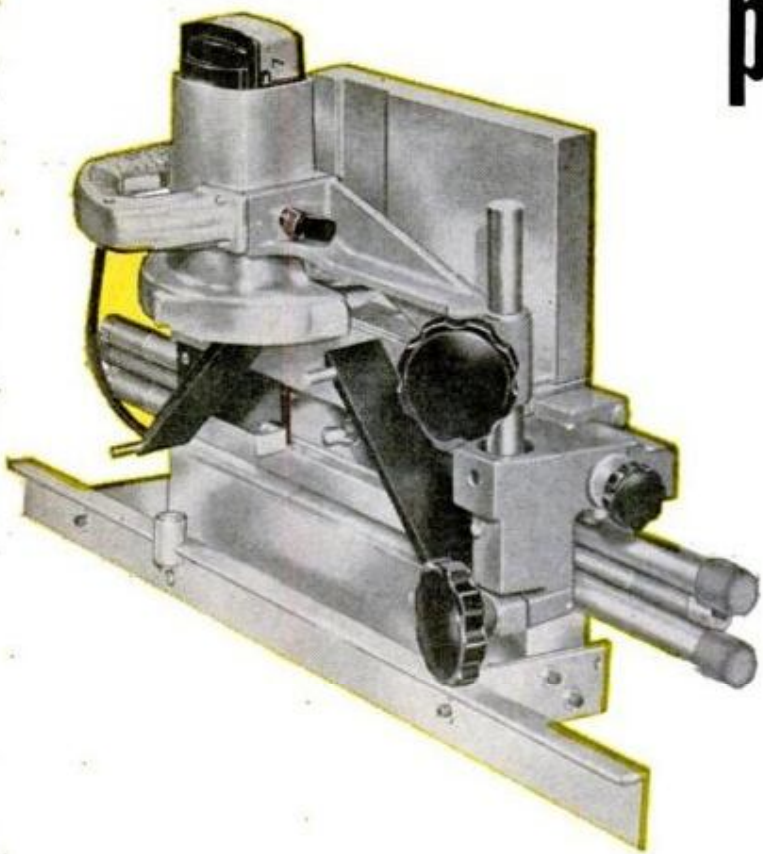
Into the middle connections of the tees, after coating all joints in this assembly with soldering flux, insert  $\frac{1}{2}$ -in. pieces of  $\frac{1}{2}$ -in. copper tubing as reducers, followed by  $\frac{3}{4}$ -in. pieces of  $\frac{3}{8}$ -in. copper tubing and the  $\frac{3}{8}$ -in. elbows. Insert the  $\frac{1}{2}$ -in.-dia. CRS trunnion rails into the elbows. Then mount the trunnions on these rails, positioning them next to the elbows. Adjust the copper fittings to bring the trunnions to the same height, using shims

(Please turn to page 230)



# Electric trim saw puts miter box to shame

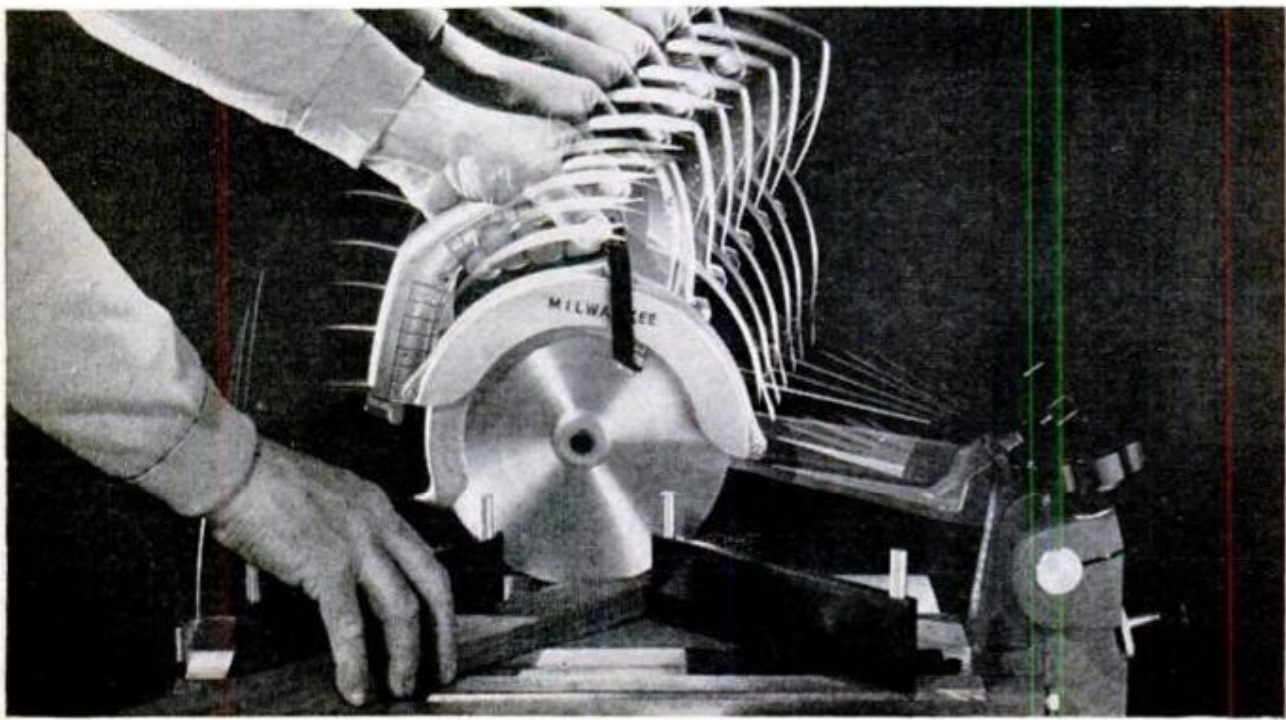
By WAYNE C. LECKEY



**NO CUMBERSOME THING** to tote from room to room, compact machine weighs but 45 lbs., stows legs for carting from job to job. All parts lock in place

**FAST CHOPPING ACTION.** Counterbalanced saw swings down through material, makes miters up to 3 3/8 in., square cuts up to 5 1/4 in., shaves 1/100 in.

**SAW LOCKS** in lowered position for ripping, clamp holds trigger for continuous operation. Rips to center of 12-in. board





**T**HE MITERBOX has always been a carpenter's best friend when it comes to trimming out a room. But look what has come along to make it obsolete!

Called a miter table by its maker, the Milwaukee Electric Tool Corp., this power "chop" saw relegates the hand miterbox to the horse-and-buggy age for fitting door and window trim. In seconds the carpenter can now produce perfect-fitting inside and outside miters (plus square cuts) that are hard to match with a miterbox. And while the rig is really a cut off saw, it can rip to the center of a 12-in. board.

It's designed to handle any shape molding, wood or nonferrous (brass, aluminum

and bronze) metal. Long work is supported by a table extension, there's a protractor unit for odd-angle cuts and it can shave as close as a block plane.

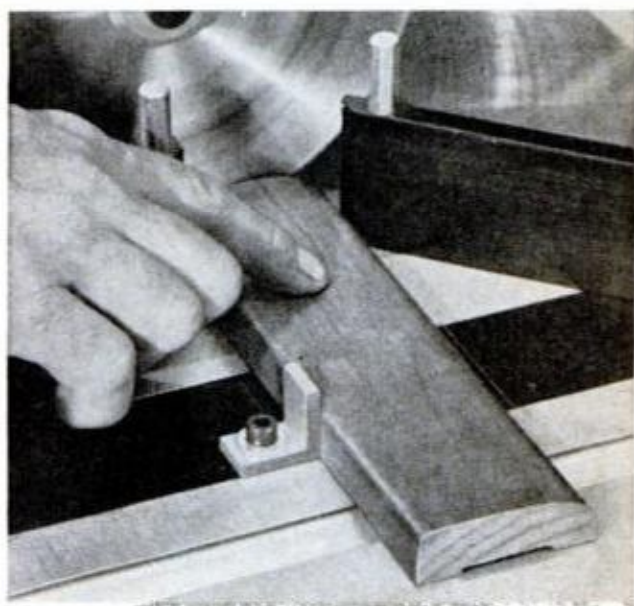
Clever are the folks who designed it, for the cutting blade is actually their Model 6331 heavy-duty, 7-in. contractor's saw which can be detached from the table for regular roughing-in use. Thus, it's not standing by idle between trim jobs.

As for toting from job to job, its three tubular legs unscrew and stow with the machine so it can be carried as easily as a suitcase. The price, miter table only, is \$124; complete with Milwaukee's 7-in. portable saw, \$198.50. ★★★

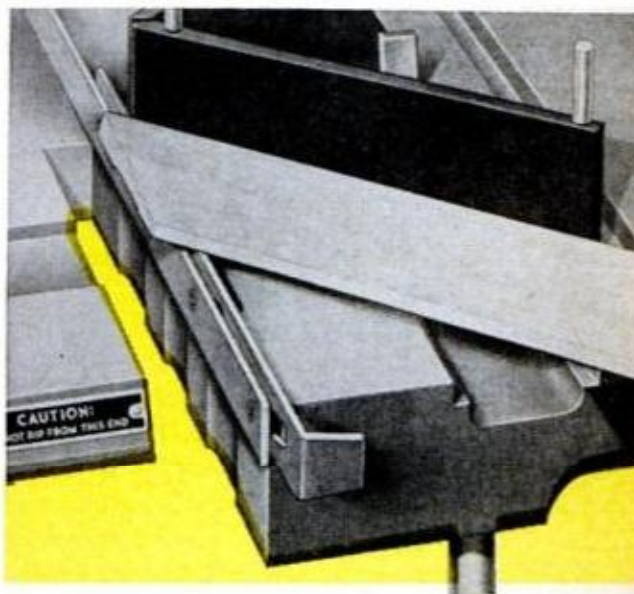


**ODD ANGLES**, other than 45 and 90°, are cut with work held against an adjustable protractor unit

FEBRUARY 1967

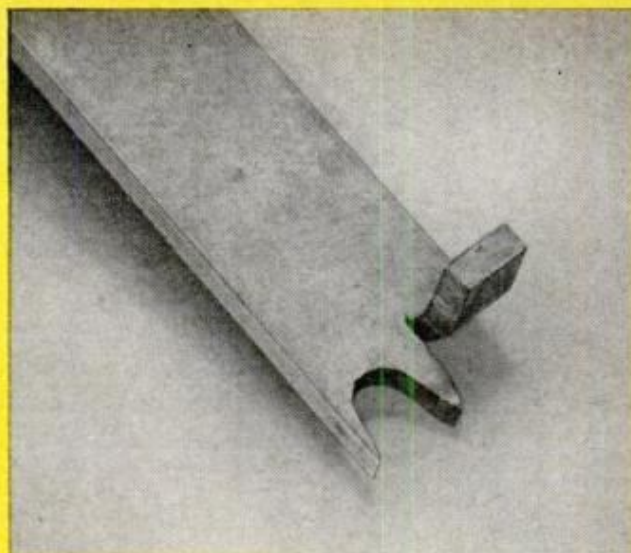
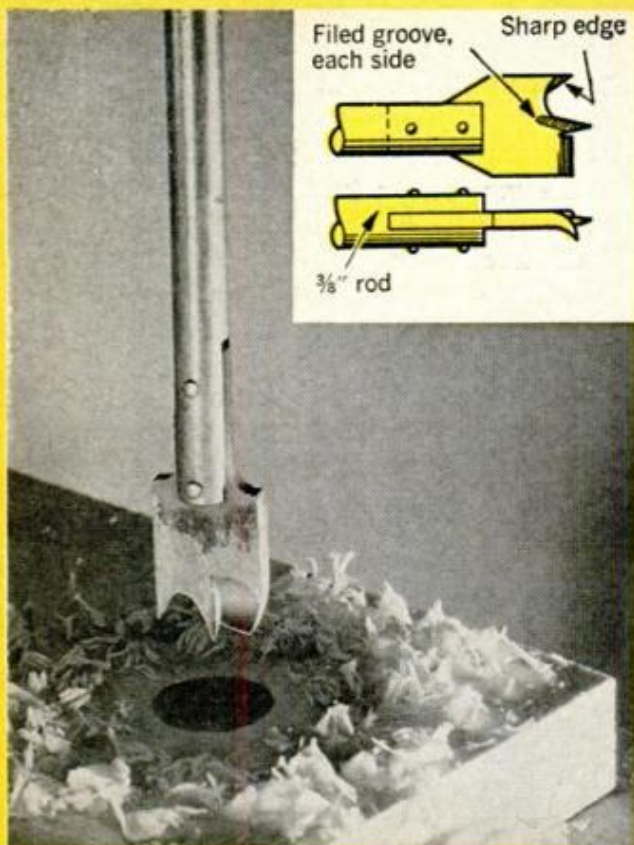


**PRESET MITER FENCES**, plus 90° stop, provide automatic setting of work without need for adjusting

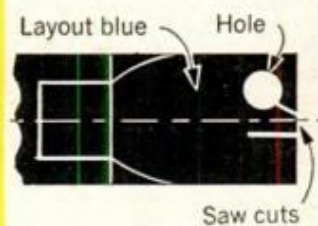


**UNDERCUT SLIDE BAR** elevates work at line of cut to remove backwood for perfect, tight-fitting miters





**BEFORE SAWING** blank to final shape, hole is cut open as in photo below, then end is heated and bent up as shown in photo above. Rivet sawed-out blank to shank before filing



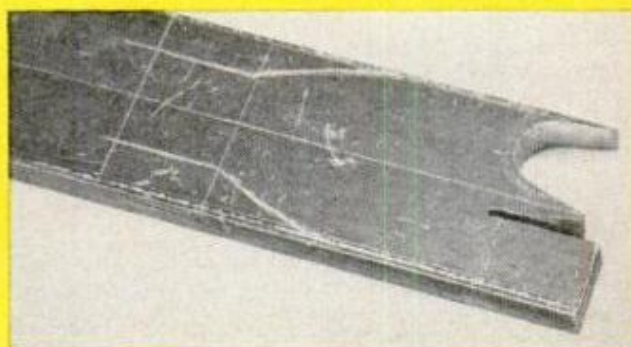
## MAKE YOUR OWN AUGER BITS

**NEXT TIME YOU NEED** a wood-boring bit for a special-size hole, borrow an idea from granddad's day and make your own.

Start with a plate of flat tool-steel stock. For bits around 1 in. in diameter,  $\frac{1}{16}$ -in. stock is about right. It's sold as "ground flat stock" by tool-supply companies and hardware outlets. Tool steel is easily hardened and tempered, or you can use low-carbon steel and treat it with a case-hardening compound.

This type of bit pivots around a central point and has a sharp tip, like the end of a knife blade, for cutting the hole circumference. A cutting edge between the tip and point, and at right angles to the bit axis, is for clearing the hole. Length of the flat portion of the bit can range from about  $1\frac{1}{2}$  in. upward, depending on hole size.

To fashion the bit, coat the steel with layout blue and draw the general outline



of the blank. Then drill a hole as the first step in forming the point and circumference-cutting tip, and make the saw slots. File the rounded notch, the point and the cutting tip to shape, and bend the portion which forms the main cutting edge at almost a right angle (this is best done with the metal red-hot).

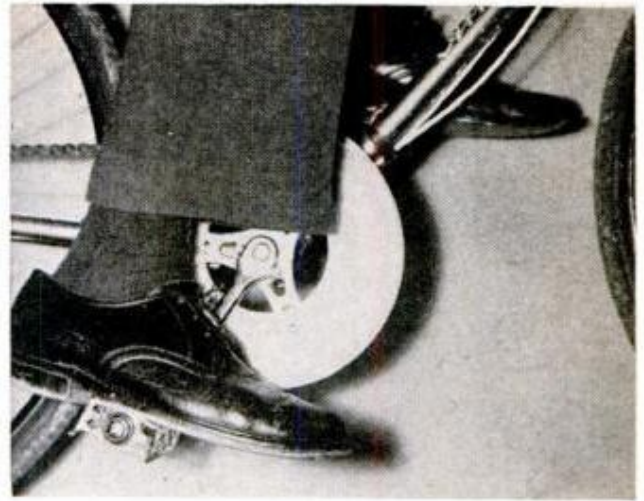
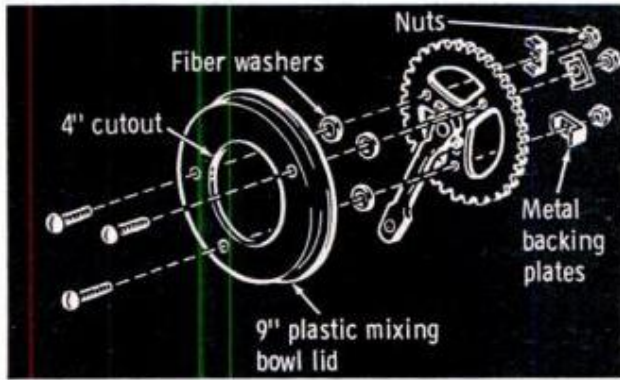
The blank must then be necked down and riveted in a slot in a rod that forms the shank. The cutting edges are filed and ground to final shape, and the bit is hardened and tempered to a light-purple color.

A refinement illustrated in the top drawing is to file two grooves, one on each flat surface, so as to form sharp edges along the center point. These grooves can be made with a slender round file. They help the bit penetrate the wood, especially when you use it in a hand brace or drill.

—Walter E. Burton



# HINTS FROM READERS



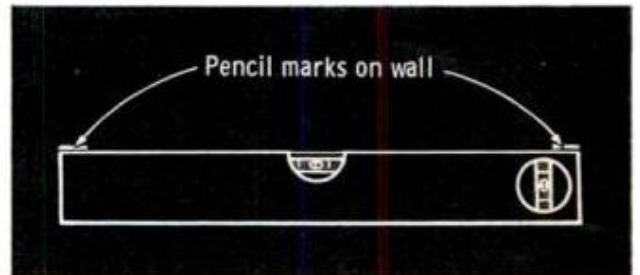
## Replacement chain guard from mixing-bowl lid is rustproof

When a chain guard on a family bicycle must be discarded because it's rusted through or damaged, you can improvise a quick, inexpensive replacement from a plastic lid for a 9-in. mixing bowl. Just cut a 4-in. hole in the center of the lid and drill three or four mounting holes to line

up with the sprocket holes. Use fiber washers under the nuts or metal backing plates which are bent to fit over the spokes of the sprocket. Your new rustproof guard will spin as you pedal, but it's larger than the sprocket, so keeps your pants leg from catching under the chain.—*Jack Wiley*

## Is your level on the level?

A quick test for accuracy in your level is to place it against a flat wall and adjust it horizontally to center the bubble. Mark along the top at both ends. Then turn the level end for end and line it up with these marks. If bubble centers as before, the level is true.—*Wilfred Beaver*



## Cleated-plank ramps speed job of installing tire chains

Make yourself a pair of cleated platforms and you'll find that tire chains go on in a jiffy. Cut a couple 2x4s about 20 in. long and nail four  $\frac{3}{4}$ x $1\frac{1}{2}$ -in. cleats across each after sawing a long bevel at one end. Place these in line with the rear wheels and lay the chains over them, with the fourth and fifth crosslinks between the

cleats, as shown in the left photo, below. Now when you run the wheels up onto the cleats (right photo), the chain is still free to move since the tire is not resting on the links. That guarantees you plenty of slack to permit easy buckling when you toss the chain up around the tire.—*Arthur R. Tanner, Jr.*

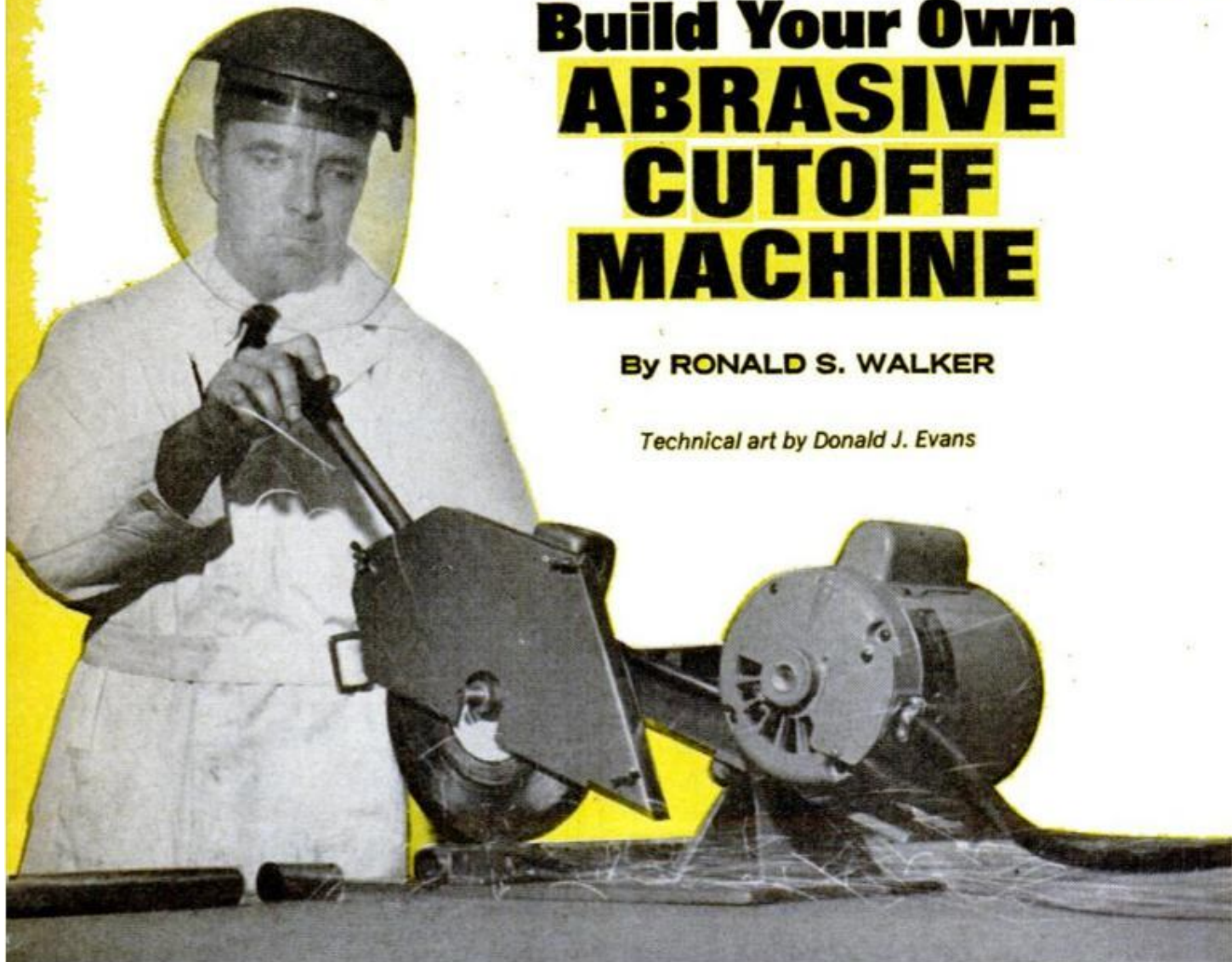




# Build Your Own ABRASIVE CUTOFF MACHINE

By RONALD S. WALKER

Technical art by Donald J. Evans



**YOU CAN MAKE THE SPARKS FLY** with this easily operated tool, but safety mask or goggles are a must

**YOU CAN ZIP THROUGH STEEL** with this portable abrasive cutoff saw in a fraction of the time it takes with a hacksaw.

It's relatively lightweight and you can make it with a minimum of machining. The tool is based on a winning design in the Award Program for Progress sponsored each year by the James F. Lincoln Arc Welding Foundation of Cleveland.

The design uses  $\frac{3}{8}$ -in. hot-rolled steel for the baseplate and  $\frac{1}{4}$ -in. for the arbor-and-motor base. As a result you get good stability, enough thickness to prevent distortion during welding and enough bite for screw threads.

The hinged pivot is welded to both plates where the weight of the motor will only slightly overbalance the weight of the arbor end of the assembly. For this reason, make the hinge, but do not weld to either plate until after the mandrel,

blade, guards, handle and switchbox are at least temporarily mounted.

The pipe used for the pivot assembly is  $\frac{3}{8}$ -in. nominal size. Since this gives you an actual inside dimension of .489 in., it has to be drilled or reamed out to slightly over  $\frac{1}{2}$  in.

Run  $\frac{1}{4}$ -in. fillet welds from the sheet-steel pivot supports to a  $3\frac{1}{2}$ -in. section of the pipe, using  $\frac{1}{2}$ -in.-long skip welds to prevent distortion. For this and for welding to the plates, I used a  $\frac{1}{8}$ -in. Fleetweld 37 E6013 electrode at 130 amps. Later, weld the  $1\frac{1}{4}$ -in. outer pieces of pipe to the arbor plate. Then the pivot rod can be inserted through the three sections of pipe. A punch mark in the center section will lock the pivot rod.

The one side and the top spacer strip of each guard are tack-welded on the inside about  $\frac{3}{4}$  in. apart with a  $\frac{1}{8}$ -in. E6011 electrode. Finish the outside corners of



# ABRASIVE CUTOFF MACHINE

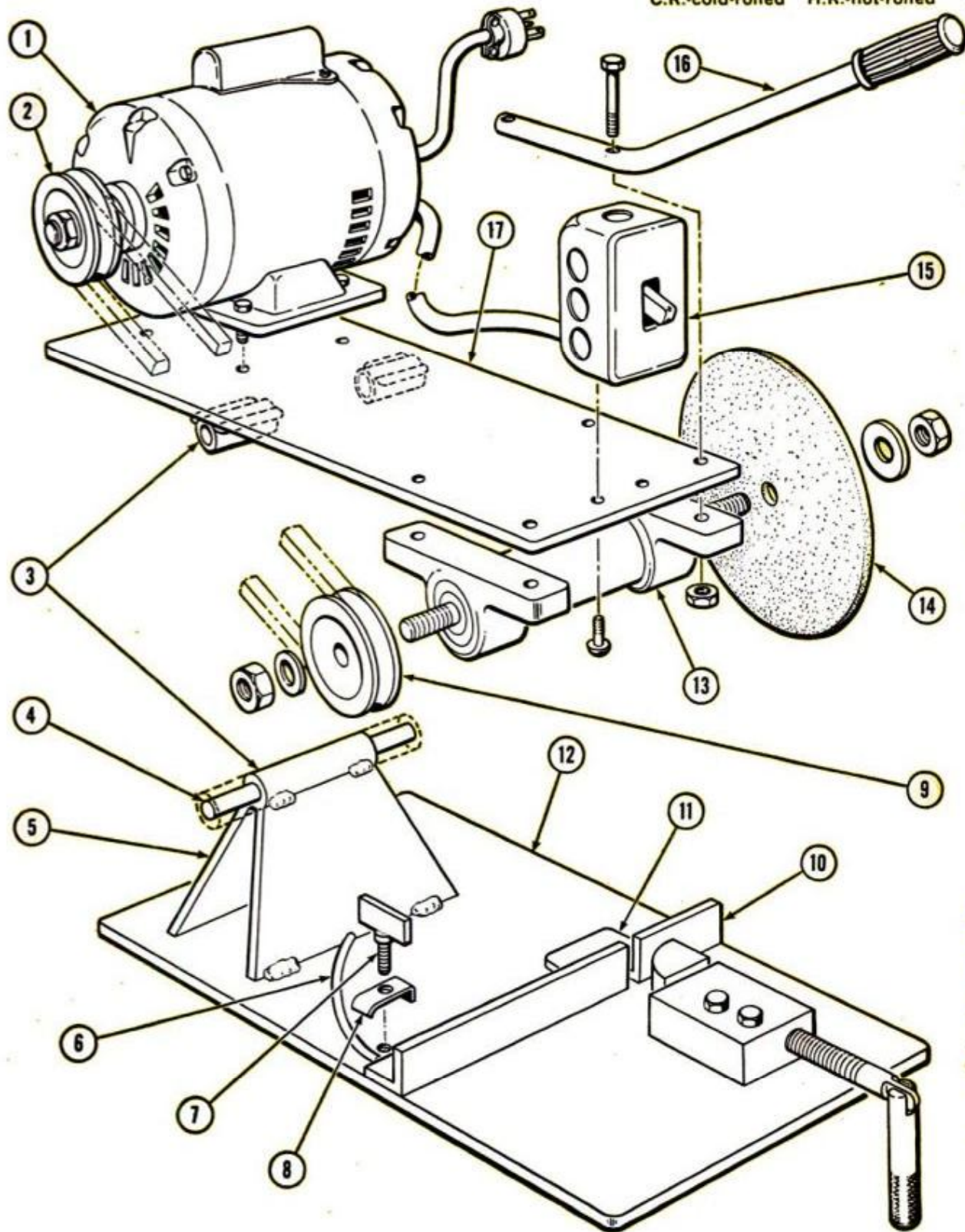
- 1 1-hp, 115-v. capacitor motor
- 2 2½" A pulley
- 3 ¾x6" pipe
- 4 ½x6" C.R. rod pivot
- 5 ¾x3¾x6" H.R. steel (2)

- 6 ¼x11" C.R. rod fence guide
- 7 ½x½x1¼" H.R. steel brazed to ¼x½" capscrew
- 8 ½x½x1¾" H.R. steel floating clamp
- 9 2½" A pulley

- 10 ¾x1½" steel angle fence
- 11 ¾x¾x2¼" H.R. steel bridge
- 12 ¾x10x18" H.R. steel baseplate
- 13 Sealed ball-bearing mandrel, ⅝" shaft

- 14 ⅝x10" resin-bonded abrasive blade with ⅝" center
- 15 Grounded single-pole switch
- 16 ¾x18" pipe
- 17 ¼x6½x17¾" H.R. steel

C.R.-cold-rolled H.R.-hot-rolled

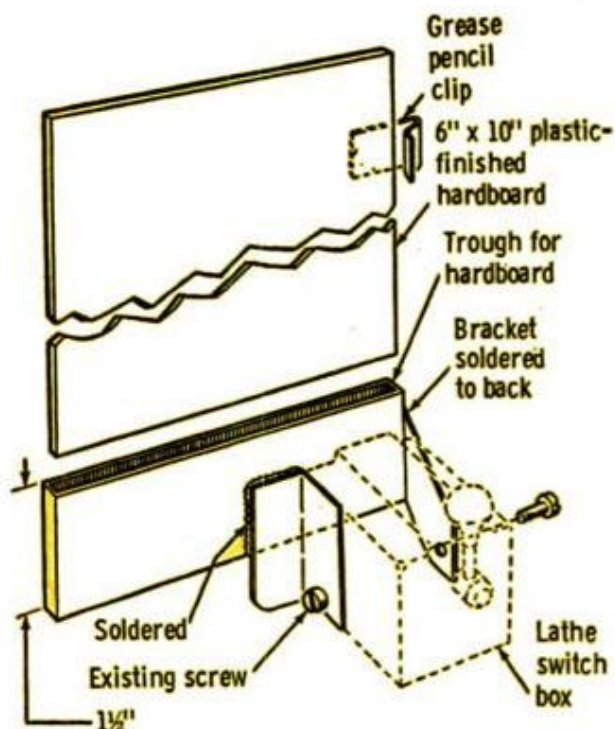




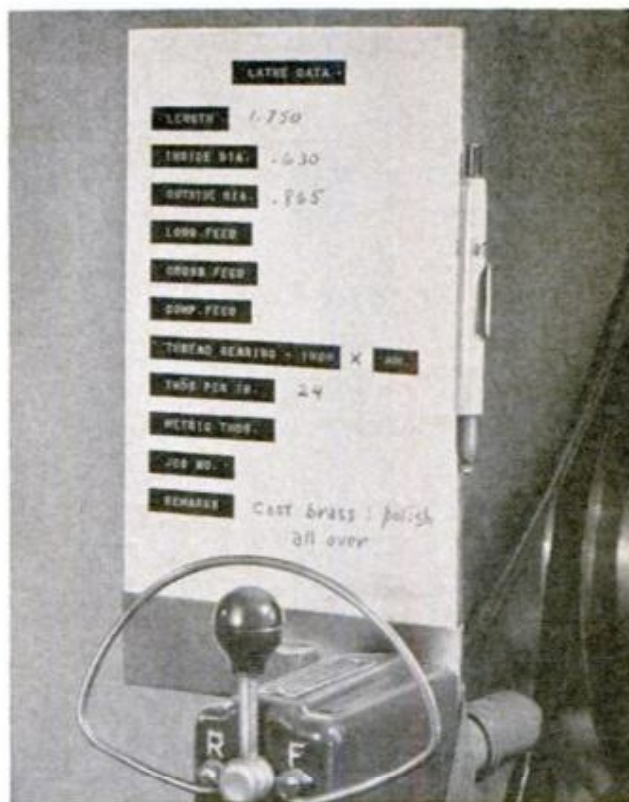




# Make a bulletin board for your lathe



A removable panel of white prefinished hardboard, mounted on your lathe, lets you record data on current jobs such as lengths, diameters, threads per inch, rate of feed, lever setting for automatic feed, and start and stop points for feed-screw micrometer-collar readings. This is a particular time-saver when machining identical pieces. Board bracketed to switch box slips out for marking with a grease pencil opposite tape labels. After a job, temporary data wipes off clean.—*W. E. Burton*



## NEXT MONTH IN SHOP AND CRAFTS

**PROJECTORS THAT BRIDGE THE 8-MM GAP.** The latest amateur movie equipment is designed around new-format Super 8 film. But if you convert, what happens to your precious old movies? The answer is a projector that will show both film formats, and next month's roundup helps you pick one with the features—and price tag—best for you

**CHECKER YOUR OWN GUN STOCK.** Whether you prefer a simple point pattern or elaborate carving, you can transform any plain gun stock into a beautiful custom piece that'll also provide a better grip. An expert shows you what tools you need and how to use them

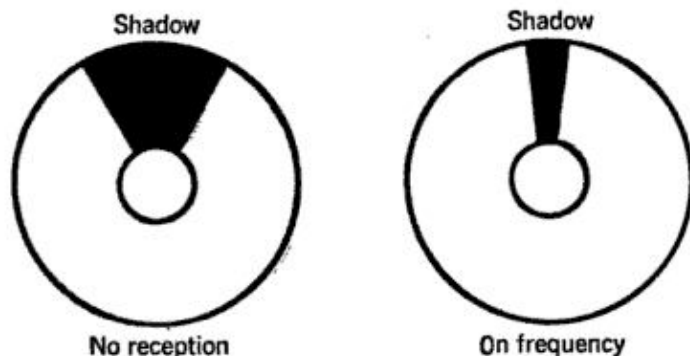
**BUILD YOURSELF A SCREEN HOUSE.** Patios are fine for parties, but when you yearn for a personal retreat you need a back-yard shelter for privacy and protection from insects and summer showers—without sacrificing fresh-air comfort. **PM** commissioned a well-known architect to design a screened haven with built-in storage for everything you'll need for relaxation—then we built it to prove you could. Full plans next month

**HOW TO TROUBLESHOOT YOUR STEERING LINKAGE.** Vital to the safe operation of your car, the steering system is important for you to understand. March's Saturday Mechanic discusses the operation of all basic elements, from steering wheel to tie-rod ends, in showing you how to diagnose and cure the ills that can develop



# Staying on the beam with TUNING

If your hi-fi rig lacks an electron-beam tube or an indicating meter, add one! The light patterns on the 6E5, at right, and EM84, opposite, show minimum shadow when you're right on station  
By WALTER SALM



**T**HE IMPORTANT FUNCTION of a tuning indicator is to show you when your radio receiver is exactly tuned to the frequency you wish to receive. Tuning by ear may seem fine, but your ear is not as accurate as an electronic detector.

Proper center-of-the-channel tuning becomes even more important for FM stereo broadcasts. Slightly off-station tuning severely degrades the multiplex signal. If your component tuner or receiver or console stereo system doesn't have a tuning indicator, you can retrofit one into the existing circuits.

There are two types of tuning indicators: meters and electron-ray tubes. Each has certain advantages and disadvantages. The tubes are generally more sensitive than meters—they'll give more critical tuning and may be easier to use. But hooking them to your tuner is more complicated, and they draw an appreciable amount of power. Most tuner makers allow a safety margin in the design of their power supplies, so the tuning eye can be added without appreciably detracting from tuner performance.

Physically, the 6E5 is larger and draws up to 4 milliamperes, opposed to about 1.5 ma. for the EM84. But you might already have a 6E5 kicking around the house. It was used very frequently on the more elaborate prewar radio consoles, and its circular green "magic-eye" still peeps out of many modern tape recorders as a modulation level indicator.

The schematic diagram showing the connecting points for a 6E5 is of a typical FM tuner stage—in this case that of the EICO HFT-90. To power the indicator tubes, connect the filaments to the filament winding of the power transformer. Twist the filament leads together to cancel stray a.c. pickup. Find an appropriate B+ point of 200 to 250 v. You can find this with your vacuum-tube voltmeter or, if you don't have a meter, try one of the two B+ points indicated in the schematic.

The signal fed to the tube grid is the AVC voltage, obtained here from the last intermediate frequency (IF) transformer (point E). Look at the schematic for your own tuner and you'll find a similar point to make the connection.

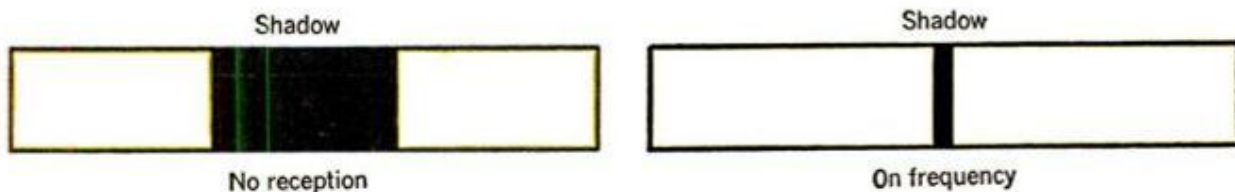
The value of resistor R1 will vary depending on the signal strength at the IF transformer terminal. For low signal levels, a 150-ohm resistor will give just enough isolation to keep the indicator tube from affecting the tuner circuit. For higher signal levels, use higher resistance values up to about 1 meg. If you notice shadow fluctuations on the tube that vary with the sound, add the .01-microfarad bypass capacitor shown in dotted lines in the schematic. The 1-meg. resistor between the plate and target may already be wired into the tube socket if you took it from an old radio. Check its value with an ohmmeter.

The EM84 is somewhat more sensitive than the 6E5, has a target pattern that is easier to use, and is a 9-pin miniature

POPULAR MECHANICS



# INDICATORS



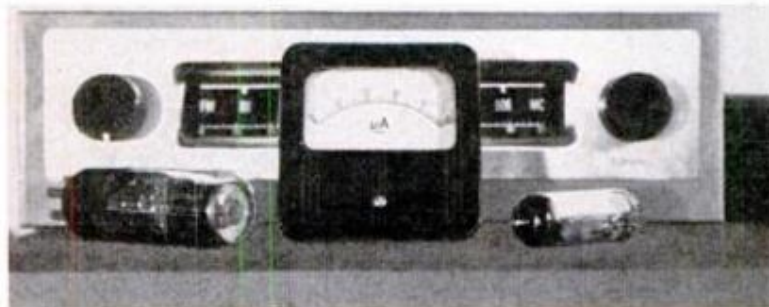
type. The tube is really two tubes in one envelope. One is half a triode amplifier which provides the signal for the indicator section. A 470,000-ohm resistor connects the target and plate of the two sections. The plate of the triode half feeds the ray-connected electrode (grid) of the other section. A series resistor ties the triode grid to the AVC point in the tuner. Again, the value of this resistor may have to be selected as before, between 150 ohms and 500K.

The meter as a tuning indicator is easiest to install—and easiest to ruin by improper experimentation. The schematic shows connecting points for two types of meters—signal strength indicator and

null point indicator. The advantages of meters over electron-ray tubes are that they draw very little current, require almost no additional hardware and are very easy to install. On the debit side, they are not quite as sensitive as most electron-ray tubes, since the meter movement has more mass than a stream of electrons.

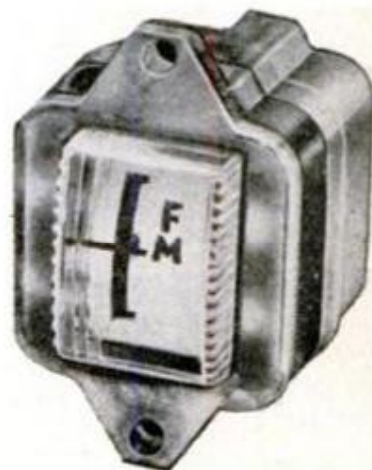
Basis for a signal strength meter is a 50-microampere meter movement. You can buy the big easy-to-read or the small edge-reading type. Either is available from electronic parts distributors.

With the signal strength meter, connect the *positive* side to chassis ground and the *negative* side to the center terminal



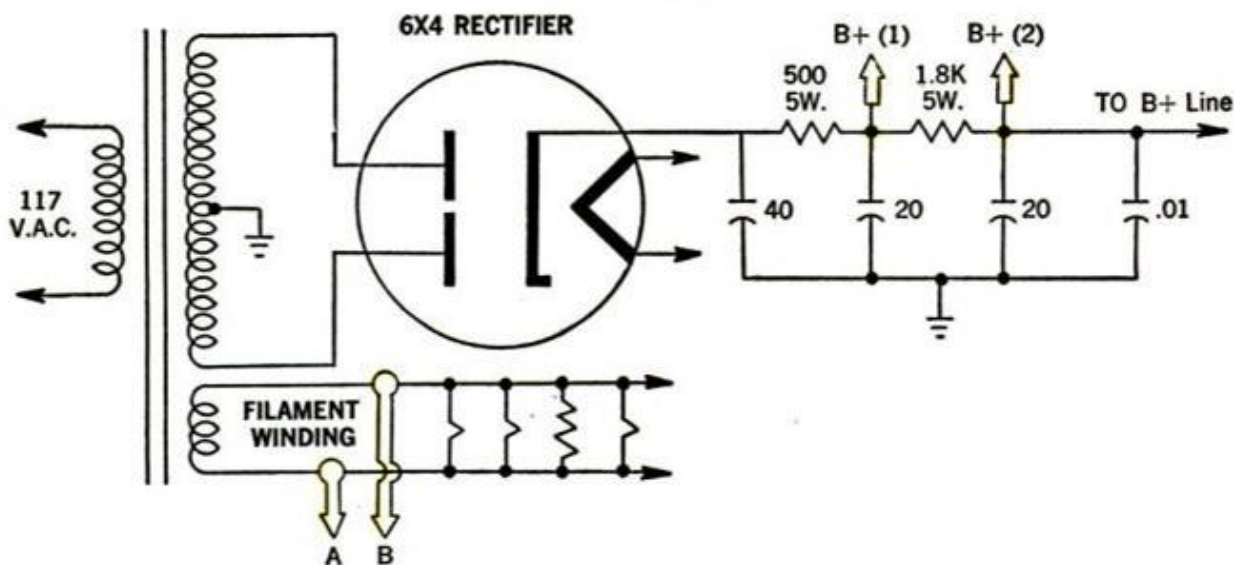
**TUNING INDICATORS** in front of EICO HFT-90 FM tuner are, from left to right: 6E5 electron-ray tube, 50-microampere meter movement and EM84 electron-ray tube. The EM84 is the same type of tube used in some newer color television receivers to indicate when the set is precisely tuned to a complex color broadcast signal

**LAFAYETTE FM** tuning meter requires a scant  $\frac{7}{8}$  x  $\frac{3}{4}$ -in. mounting area. The \$2.50 meter has 50-microampere sensitivity above and below center null point. Solder lugs are on back of case

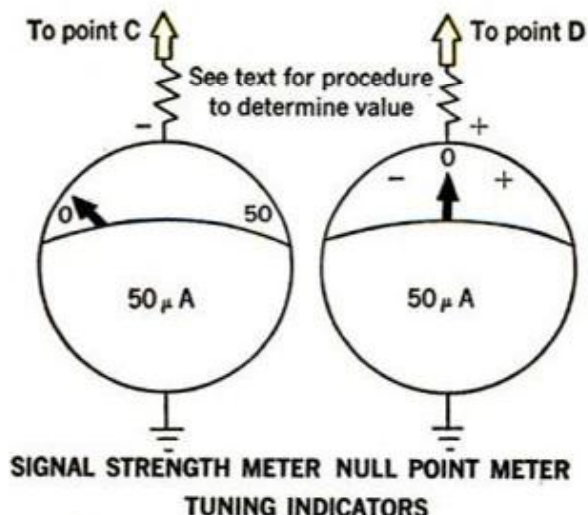




## TUNER POWER SUPPLY



**CIRCUIT CONNECTIONS** for the four types of tuning indicators at the right are keyed in color to the points in the schematic diagrams above. The power supply and the last IF and detector stages shown are those of the EICO HFT-90 FM tuner specifically, but are representative of most tuner circuits. When connecting either the signal strength or null-point meters, the value of the resistor between the meter and points C and D, respectively, will have to be determined experimentally using a substitute potentiometer; the procedure is given in text. The .01-microfarad capacitors, shown as dotted lines in the grid circuits of the 6E5 and 6EM4, are necessary only if the tube image fluctuates with the audio signal



of a 500,000-ohm potentiometer set at maximum resistance. (The potentiometer will be used to determine the value of the fixed resistor to be wired into the circuit between the meter and point C.) Now connect one of the other terminals of the pot to point C in the schematic.

Tune in a strong station and then back off the pot slowly until the needle reads about 75 percent of full scale. Without changing the potentiometer setting, remove it from the circuit and measure its value with an ohmmeter. It will probably be somewhere between 100,000 and 300,000 ohms. Now wire a fixed resistor of approximately the experimentally determined value into the circuit.

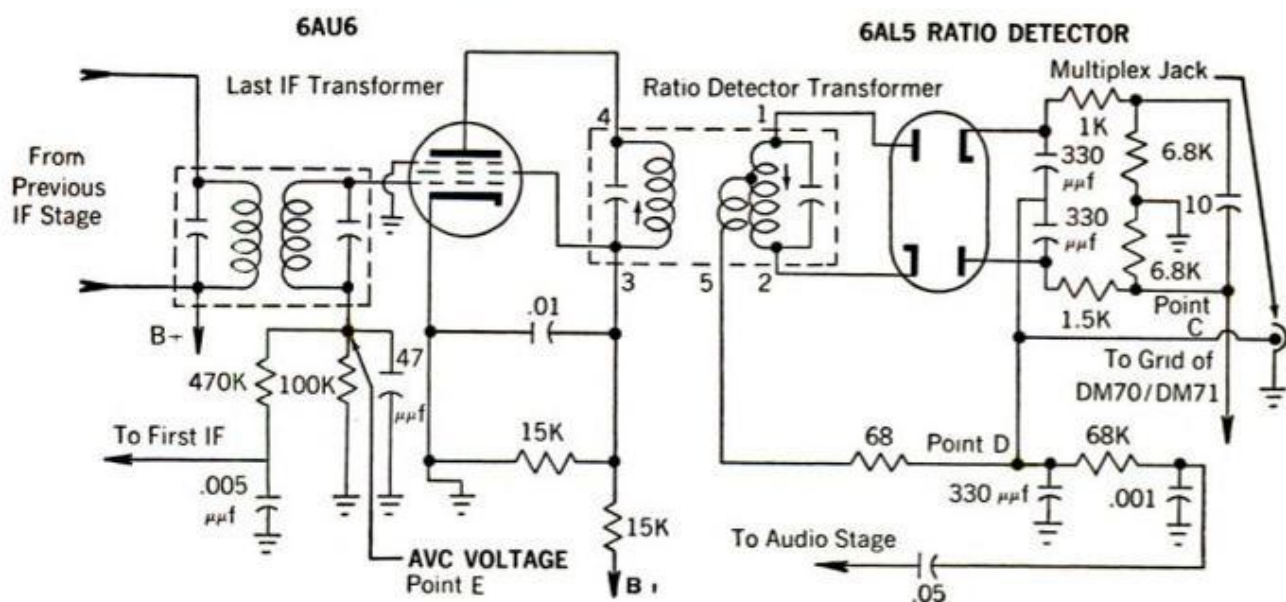
For the null-point indicator, you'll

need a 50-microampere meter with zero at the center of the scale. This time connect the *negative* side of the meter to chassis ground, the *positive* side to the pot center terminal and other side of the pot to point D in the schematic. The potentiometer adjustment will require some experimentation for a null point (zero).

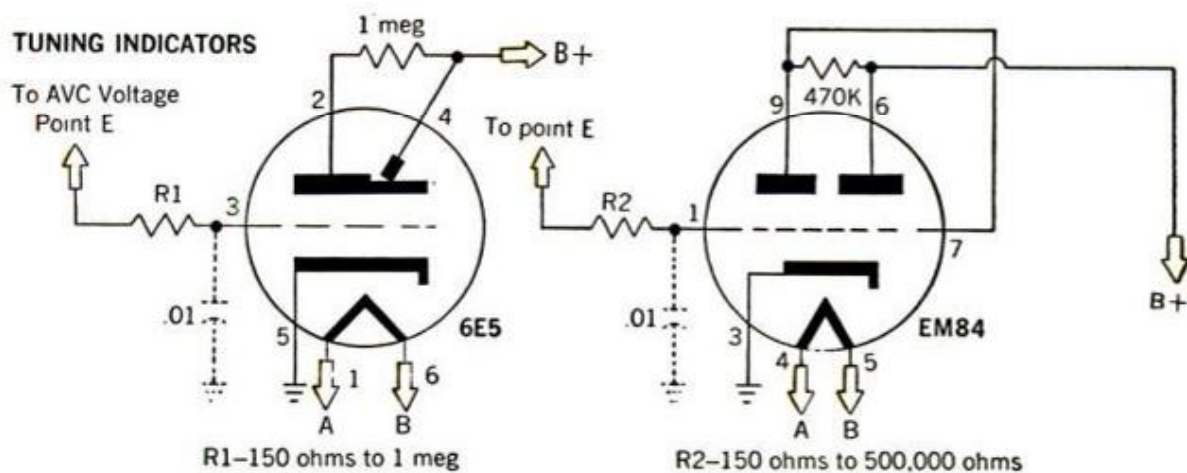
As you approach the center frequency of the station you're tuning, the needle will climb up the plus side of the meter and then drop back for an instant. This is the null point, the spot that you want. Adjust the pot so that the needle doesn't move much more than half the scale width on either side of zero. When you get the right setting, measure resistance and wire in a fixed resistor. ★★★



## LAST IF AND DETECTOR STAGES



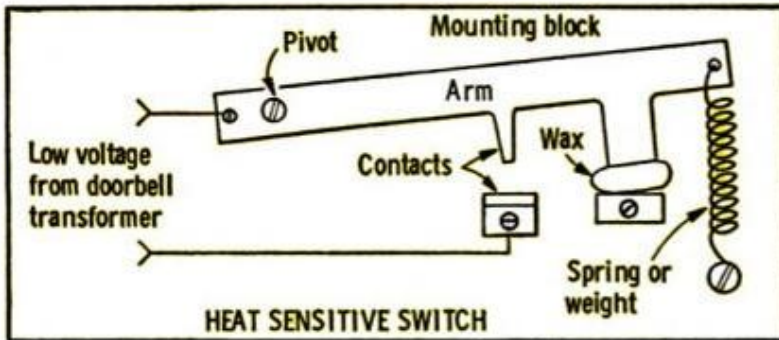
### TUNING INDICATORS



**INSTALLATION OF EM84 INDICATOR TUBE** in EICO HFT-90 Tuner is shown at left and above. Lower left corner of tuner immediately behind front panel allows adequate room for tube. Rectangular cut in front panel was made to correspond to dimensions of the beam on the surface of the tube. In making your own custom installation, locate tube—or meter—in a position convenient for wiring and viewing, and route leads to tube socket or meter lugs close to the chassis. If front panel cannot be worked easily, consider a mounting behind thin dial-face backing plate



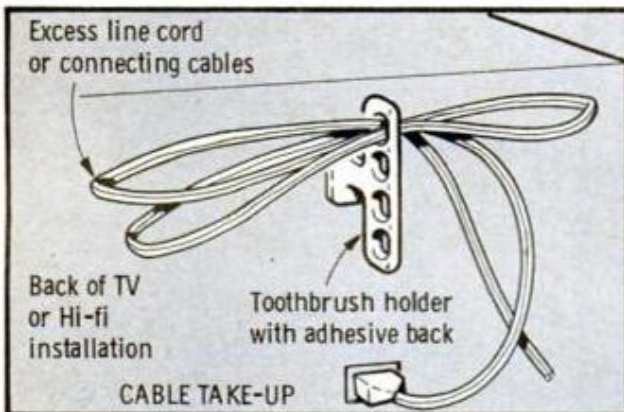
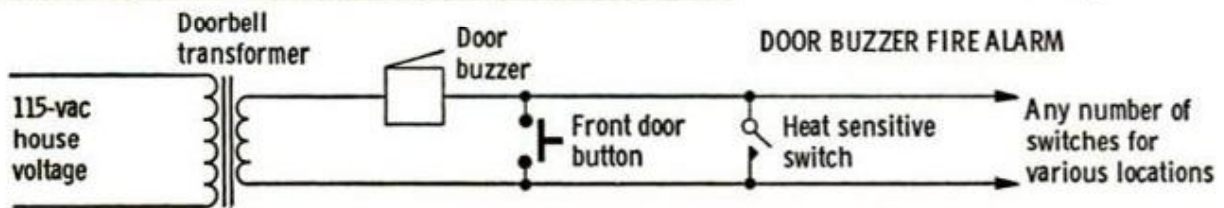
# ELECTRONIC KINKS



## Door-buzzer fire alarm

A simple heat-sensitive switch wired into your door-buzzer circuit can alert you in the event of fire. The heart of the switch is a substance with low melting point that allows the circuit to close under heat conditions. Beeswax, for example, melts at 145° F.

—Harley L. Sachs



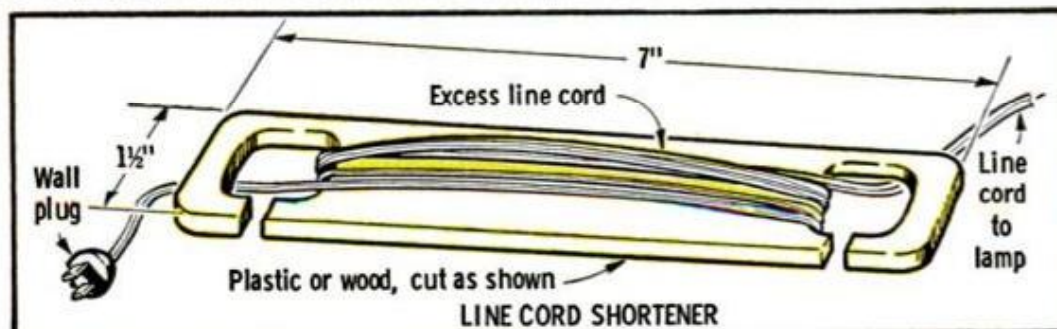
## Slack wire take-up

If it weren't for a few toothbrush holders, my TV room would look like a spaghetti factory. Interconnecting cables, power cords and speaker wire abound between the components on a bench heavy with portable TV, hi-fi tuner, amplifier, clock timer, tape deck and speakers. The holders press on the back of the equipment and keep things neat.

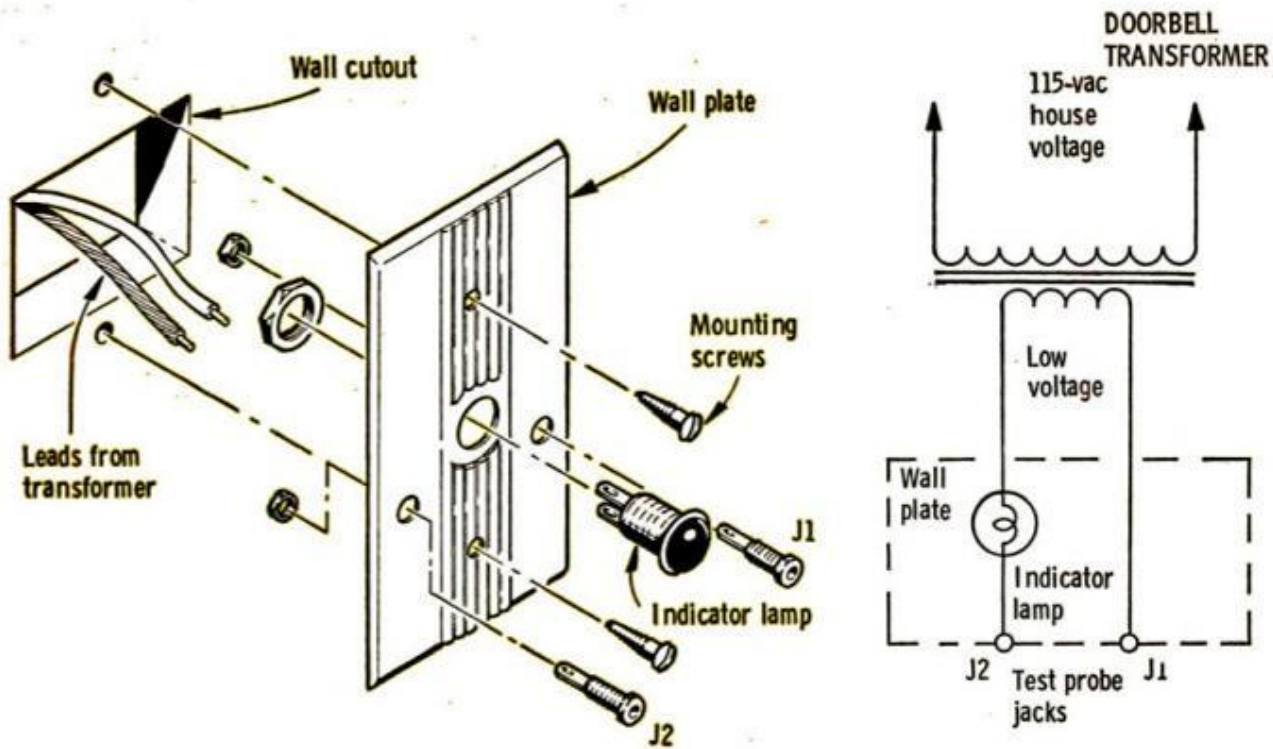
—Gene Weiss

## Line-cord shortener

More often than not you decorate or rearrange a room and find lamps and appliances so far from the nearest outlet that you need an extension cord. Other times the outlet is so close that you have 4 or 5 ft. of slack cord to trip over. This shortener solves the problem.—M. W. Loftus

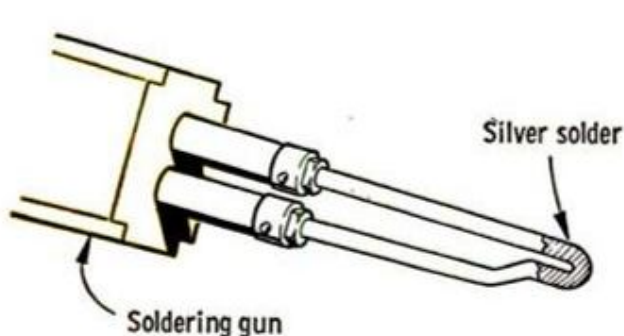






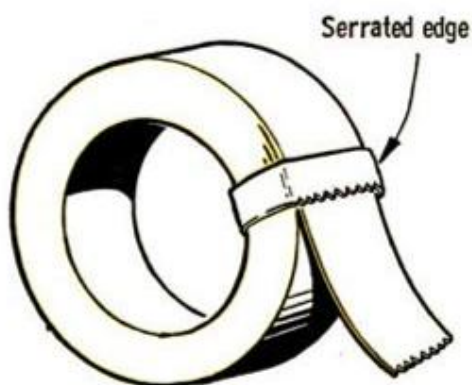
### Built-in continuity tester

With a few inexpensive components you can forget about purchasing the test gear necessary to check out small appliances and other equipment where circuit continuity indicates proper operation. Use two test probes to pick off the low voltage supplied by your doorbell transformer and place an indicator lamp in series. When it lights, you've got continuity.—Gene Weiss



### Permanent tinning

You can save countless jobs tinning the tip of your soldering gun by using a torch to flow silver solder over the tip. The tip will stay bright since normal soldering heat won't affect the silver.—Wilfred Beaver



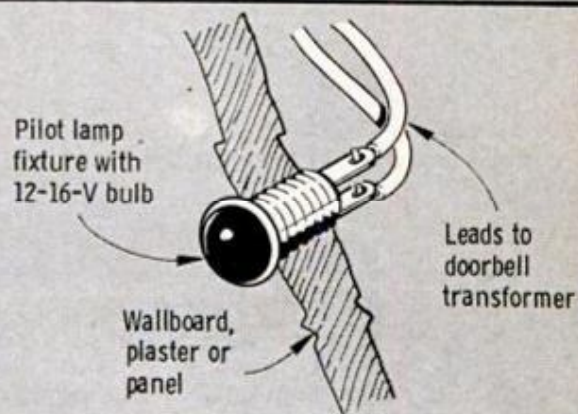
### Substitute tape dispenser

Each of your many rolls of assorted workshop tape can have its own dispenser. Just take a length of serrated cutting edge from the edge of a kitchen waxed-paper box and wrap it loosely around the tape roll.

### Low-voltage night light

Another use for your seldom-used doorbell transformer is supplying low voltage to a 12 to 16-v. indicator lamp that serves as a night light. I mounted this one right in the wall in a dark hall. Naturally it is always lighted, but draws extremely little current. A switch could be wired in series to turn it off.

—Gene Weiss



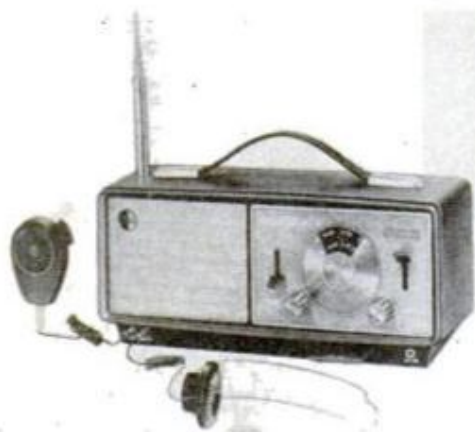


# NEW IN ELECTRONICS



## Electric zoom

At push of button, battery varies binocular magnification three to six times linear, keeps subject in focus through entire range. Priced at \$120 by Kalimar, Inc.



## Communications Console for kids

It's portable, it's an AM radio, it receives all 23 CB channels and transmits voice or code on channel 14. It's G.E.'s \$34.95 base station, complete with mike, headset and batteries.



## New problem, new cartridge

Following the increasingly zig-zagging grooves of modern hi-fi recordings poses a challenge to cartridge design and requires a new standard of cartridge performance; trackability. Shure's Super-Track V-15 Type II was designed to solve the problem. It's \$67.50 with elliptical, diamond stylus.



## Battery care with convenience

Plug one end of Dynamic Instrument's battery charger into your garage outlet and the other into your car's cigaret-lighter socket for a controlled 1/2-amp. charging rate with no danger of overcharging. Perfect for keeping a high charge on batteries used in cars for short-trip daily use, the "Charge 'N Start" has a lead over 9 ft. long, comes with its own glove-compartment case and costs \$5.95.



**Look!**  
**A whole new kick**  
**in shaving...**  
**lime shave cream**



Just when you thought shaving could never be anything but dull, along comes Rapid-Shave® Lime! Cools, refreshes, even smells like fresh, juicy limes. Get your lime lather—quick—before your dealer runs out. From the shave-wise folks who make Rapid-Shave Regular and Menthol.



## HOW GOOD IS THAT GUARANTEE?

*(Continued from page 130)*

management to obligations that may run on for generations?

Some so-called "lifetime guarantees" are valid when the qualifications on the guarantee are clearly stated. One of the major manufacturers of homebuilding materials recently started guaranteeing its siding "against cracking, chipping, crazing, blistering, flaking or peeling for the life of the building on which it is installed." Note the qualifying words. This is an excellent guarantee, primarily because it is highly specific.

Another guarantee is so good it has become a legend in its field. It states that if a certain cigaret lighter "ever fails to work, we'll fix it free. . . All you pay is the cost of mailing it to us—not one penny more. We will bear the cost of repairs and return postage." The company has backed up this promise so faithfully for so many years that their guarantee has become their primary sales tool. Now *that's* a guarantee.

### ● *Do you have any protection beyond the guarantee?*

In many states you do. Most states have statutes regarding "implied" (unwritten) guarantees and "guarantees of merchantability and fitness." Such laws are based on the theory that a manufacturer "implies" that his product is fit for the use for which it is sold, merely by putting it on the marketplace. Such laws provide possible redress for the citizen who suffers damage to body or property due to the failure of a product.

Many manufacturers attempt to evade implied warranties with written disclaimers. A typical example, which is part of a guarantee, reads: "There are no warranties applicable to (company), including but not limited to any implied warranty of merchantability or fitness for a particular purpose, other than stated herein. (Company) shall have no further obligation or liability with respect to the equipment or its sale, operation or use. . . ." Despite such written disclaimers, suits brought in some states have been found in favor of the consumer.

### ● *What can you do if you feel a manufacturer or dealer is not living up to a written guarantee?*

Two agencies offer help.

The National Better Business Bureau (and its affiliated local organizations) will contact offending manufacturers and retailers. They have doggedly pursued numerous cases involving guarantees.

The Federal Trade Commission will fight cases through the courts at no cost

to an individual or involvement of his name. However, the FTC will not tackle a case *unless it is in the public interest*; that is, unless significant numbers of citizens are involved, or unless a false guarantee gives one manufacturer or retailer an advantage over all his competitors.

Both agencies offer advice on what you can do if you honestly feel you've been gyped as the result of a guarantee. Putting their suggestions together, PM offers the following recommendations:

1. Shop in cold blood. Buy quality, if possible.
2. Read and understand the guarantee *before* you buy.
3. Staple the sales receipt to the guarantee, and file them in a safe place.
4. In case of trouble within the guarantee period, *holler!* Do it reasonably, not emotionally, but do it.
5. When you complain, follow the instructions on the guarantee.
6. If there are no instructions, take your complaint first to the seller. He's the man who took your money.
7. If you get no satisfaction, write a letter to the manufacturing firm. Give specific details.
8. Still no satisfaction? Contact your local Better Business Bureau if you have one. Keep your temper while you give the BBB representative all the facts.
9. If you bought the product by mail instead of over the counter, state your complaint in writing to the National Better Business Bureau, Inc., 230 Park Ave., New York, N.Y. 10017. Again, be specific.
10. Carry your fight one step further by contacting the proper agency of your state government. "Nearly all the states," says the FTC, "have statutes aimed at misrepresentation of products and services. And in some states these laws are enforced with vigor."
11. If you honestly feel that you have been victimized by a deceptive practice that may also deceive others, write a letter to the Federal Trade Commission, Washington, D.C. 20580. Give as many facts as you can.

If the matter comes to legal action, as presumably you hope, your identity will be protected; the FTC never brings an action on behalf of an individual.

If you exhaust these possibilities for action and still get no satisfaction, the chances are high that *you* are wrong, no matter how strongly you may feel. And a business deserves as much protection from an individual as vice versa.

### ● *Is there anything you can do if a product collapses on the day after the guarantee period expires?*

Start cussin'.

★ ★ ★



## MOUNTAIN CLIMBING

*(Continued from page 115)*

too, is practiced on a slight incline. But within an hour of initial introduction, you have to make a rappel off a perilously high rock. Strangely enough, the basic instruction is so sound and the method so practical, that you step off into space without a moment of hesitation or a twinge of fear.

The second day, the class takes to the rock walls around the camp, and it is here that theory is taught under actual climbing conditions.

There's the jam hold, for instance. You simply slip your hand into a crack in the rock, flex your fingers and find that you can support your weight with ease. It is also astounding to learn that you can balance yourself quite securely by simply pinching a tiny outcropping of rock between the thumb and index finger.

Like every natural coward, my initial reaction was to press myself as closely as possible to the rock wall and hang on for dear life.

### "Climb with your legs"

"Lean back," Larry Williams said. He scrambles up and down the rocks like a goat, pausing here and there to give instruction and advice. "Try it. Let your toes take the full weight. You climb with your legs, not your arms."

I leaned out from the wall and, sure enough, it was easier. My feet did the climbing and the hands were used mostly for balance.

After a few days of instruction we were off early in the morning for our first ascent—Mount Winchell. It took us five hours to reach the base of the mountain. All the way there the massive peak towered in the distance, looking like an impossible objective. And if this wasn't discouraging enough, there were the young bucks being helpful with statements like: "Boy, you sure do okay for a man your age."

The actual climb was not difficult. As Larry Williams explained: "You climb a mountain a small piece at a time. It is simply a connected series of small technical problems."

We reached the peak in two hours. The towering mass of rock was no longer so formidable. It had been an experience. I enjoyed the exertion. It was the perfect way to spend a vacation—high in the hills away from campgrounds and crowds. But I had an odd feeling of sadness, there on the peak, and the next time I climb a mountain—and I will—I won't go all the way to the top. ★★ ★



Nothing turns  
the heat on like a  
Bernzomatic torch...  
does 101 jobs  
around the house.

Instant flame. Just the right flame for soldering, sweating pipes, removing paint-putty, lighting charcoal fires, hobby crafts... any job around the house, shop or farm requiring heat. Lifetime brass burner, safe king-size fuel cylinder lasts up to 15 hours. Detailed instruction and idea book. From about \$6.95 at your dealer's.

# BERNZOMATIC®

BERNZOMATIC CORPORATION  
ROCHESTER, NEW YORK

**SPECIAL OFFER!** Get Kodak's new Hawk-eye Instamatic R4 Camera Outfit (up to \$19 value) for only **\$9.85** prepaid with coupon you get with purchase of any Bernzomatic Torch.





POW



# 1967 the year of the Sea-Horse

18 purebreds  
in 10 power classes —  
performance backed  
by our 2-year warranty\*

**TRIM TWINS** Sweet and low 9½ (pictured) is the World's best-selling outboard. Others are the Slick 6 and 5. Twin-tote 3's come "straight" or fold-away. Both are available as high-thrust with right-angle drive and 3-blade prop or Angle-Matic with weedless 2-blade prop.



**TORRID TWINS** Start with the Fast 40. Available as Electramatic, standard-electric or manual start. The 33 comes standard-electric or manual starting. Our high spirited 20 (pictured) rounds out the middle of our line with refinements for amazing fuel economy.





# Power/Pulse ignition for Johnson V-100

No breakers, no points, no condensers — smooth power throughout the speed spectrum



This little black box is the heart of the solid-state system that eliminates ignition service and adjustment for V-100 owners . . . that promotes instant starts followed by uncanny smoothness, even at the slowest idle, regardless of the engine's state of tune . . . that has such an anti-fouling effect on spark plugs you can expect 5 to 10 times longer plug life. This tremendous performance booster is more — much more — than you get with any other production ignition system. Standard on the Sea-Horse V-100. Other V-100 standards are Electramatic drive (gears shift automatically, electrically) and a host of refinements that enables it to run on less fuel than last year's model.



**FORMIDABLE** Among Johnson's bold crew of big V's is the versatile V-80 (pictured). **FOURS** Two models: One is Electramatic with exclusive fully automatic shift and throttle control. The other standard-electric with mechanical forward-neutral-reverse transmission. The V-60 Sea-Horse is also available in two versions. One with high-speed gear case for medium loads and hulls. The other with heavy-duty, high-thrust gear case for big loads. New adjustable stern bracket is standard on our V-4's — makes it easy to position your engine for maximum performance.

Get all the facts on our '67 Sea-Horses at your Johnson dealer. He's in the Yellow Pages. Or write direct for your free copy of our fun-filled, full-color 36-page catalog. Johnson Motors, Waukegan, Illinois 60085. Dept. PM-27.

**Johnson**   
First in Dependability

Sea-Horse motors. Sea-Foil boats. Air-Buoy dive gear. Skee-Horse snowmobiles. • Division Outboard Marine Corporation

\*For 24 months after purchase, Johnson Motors will replace without cost to the original purchaser any part if its manufacture which, upon inspection, proves to have failed in normal pleasure use due to faulty material or workmanship.



## NEW BLACK BOX IGNITIONS

(Continued from page 160)

standard equipment on the four-cylinder 100-hp Golden Meteor; Evinrude's system is standard equipment on its four-cylinder, 100-hp Starflite 100S.

Battery voltage is fed into a black box (called the "pulse pack") that contains six components. For our purposes, let's consider these six as arranged into two lines of circuits that perform two functions.

One line of circuits consists of an electronic vibrator, transformer, rectifier and capacitor. It has the job of stepping up the battery's 12 v. to approximately 300 v. This voltage is "stored" in the capacitor.

The second line of pulse-pack circuits consists of a trigger circuit and a pulse transformer. Upon a timed signal from the sensor rotor and head inside the distributor to the trigger circuit, the 300 v. in the capacitor are switched over to the pulse transformer. The sensor rotor and head are the parts that replace conventional ignition breaker points.

### Prongs replace points

The sensor rotor is a four-prong rotating device. Each prong services a cylinder. Each time a prong passes through the electrical field in the timing head, the sensor head sends out a signal for juice and a spark is produced. There is absolutely no mechanical contact.

The "message" for spark issued by the sensor causes a sudden discharge of voltage from the capacitor to the pulse transformer. The transformer steps up the voltage tremendously and instantaneously produces a very hot spark at the sparkplugs.

Following through from the battery, then, the 12 v. from the battery is increased to 300 v. at the capacitor and then to 20,000 v. at the sparkplugs. This voltage is delivered 20 times faster than in a conventional ignition system—in millionths of a second.

Rapid delivery of high voltage has the advantage of permitting even the dirtiest sparkplugs to fire. Because of the intense voltage and the fact that it is delivered so rapidly, voltage has no time to lead off, even through the foulest plugs. This means that no matter how dirty or fouled your plugs are, they'll fire.

Mercury has CD ignition in four of its 1967 models—the 50 (500 SS), 65 (650 SS), 95 (950 SS) and 110 (1100 SS) hp engines. The 50 and 65 are four-cylinder engines; the other two are sixes.

Generally, Mercury's system works like the Johnson-Evinrude setup. Battery voltage is fed into a low-induction ignition

transformer and from there to a switch box.

What happens inside the switch box is something I don't know for sure, because no one at Mercury will say, but the setup establishes more than 40,000 v. of current for the sparkplugs. The distributor arrangement is a rotating slotted disc which does the work of conventional breaker points without mechanical contact.

### Plug is integral part

The sparkplug used in the Mercury, Johnson and Evinrude capacitor-discharge ignition systems is an integral, important part of those systems. Although Mercury calls its plug Polar-Gap, Johnson calls it Center-Fire, and Evinrude refers to it as a "cold-running surface gap 360° arc plug," all are the same Champion L-19V plugs.

This is a very cold plug. The operating temperature of the electrodes and ceramic insulator is 800° to 1000° F. *colder* than that of a conventional sparkplug. This means that the plug doesn't glow red-hot in the combustion chamber as does a conventional plug. So, deposits from the use of leaded fuel do not reach a temperature at which preignition can occur.

The plug has a tip which is arranged into three rings. In operation, the center electrode receives the high voltage. A ceramic insulator forms the plug gap, and a large mass of metal running around the outside of the plug is the other electrode.

Spark travels from the center electrode to the outer electrode, making spark arcing considerably greater than that of a conventional plug. Because the sparkplugs have a 360° electrode gap, the rate of electrode erosion is reduced. Since the electrodes of the Champion L-19V are flush with the electrode nose, the plug is self-cleaning and never needs to be regapped.

### Servicing CD ignitions

How tough is it to take care of this system? Not difficult at all. In fact, the only maintenance it needs is an occasional sparkplug change. But there are two other points to keep in mind:

1. The battery must be securely fastened, and the battery cables must be tightly attached at all times. There must not be any break in the circuit or the CD system can be ruined.

2. If there is an apparent ignition breakdown, the engine should be serviced by a dealer selling that make engine. Manufacturers stress that *only* a certified dealer should be allowed to work on the system.

When installing new sparkplugs, Johnson and Evinrude recommend tightening



to 17½ to 20½ ft.-lb. torque. Mercury suggests that plugs be seated finger-tight and then tightened to 20 ft.-lb. torque.

By the way, all three manufacturers state that if the L-19V plug is not available, you can substitute other plugs. Mercury says to use Champion L-4Js gapped to .030 in. with an unleaded fuel mixture. Johnson and Evinrude say to use Champion J-4Js gapped to .030 in. However, substitutions should always be replaced with the L-19V as soon as possible.

#### How good is CD?

Coming right down to it, then, just how good is CD? Based on all reports to date, it's great. During two years of in-the-field experience with CD, Mercury has received many enthusiastic and unsolicited comments like these:

"I think the 1100SS is great. I have used it several times for trolling at least five hours straight without any miss or sputter."—*Napa, Calif.*

"We have used this motor for trolling for hours at idling speed in a tarpon rodeo held at Tampico, Mex. It performed perfectly and has excellent performance at all speeds."—*Trinity, Tex.*

And from a dealer:

"The model that I have been using since last spring starts instantly every time. It responds perfectly to every throttle setting. I have over 200 hours on this engine and haven't had to remove the sparkplugs yet."—*Orlando, Fla.*

#### More CD praise

Johnson also had some CD engines out in the field before the public introduction this year. After laboratory testing, 30 CD-equipped engines were sent to various people to be used informally for as many hours as they wished. With the exception of some early coil failures (which were quickly rectified), the comments were glowing:

"I haven't had to remove a sparkplug in 65½ hours of operation. This is the quickest starting motor I've seen. After the motor is warmed up, I tried to touch the starter without the engine starting. I couldn't. That flywheel wouldn't turn ¼ of a turn without the motor starting."—*St. Petersburg, Fla.*

"Idling is remarkably better."—*Pensacola, Fla.*

"This engine provides smooth idling and gives no apparent lag in acceleration."—*Dick Pope, Jr., president of Florida Cypress Gardens Assn., which puts on four water-ski shows a day.*

So you'll probably be hearing even more of CD next year. With a start like this, how can it help but spread? ★ ★ ★

# THE MINUTE YOU START USING NICHOLSON HACKSAW BLADES YOU BECOME A PRO.



Send for your free copy of the sawer's handbook, "Sawology." Please include your name, address, zip code.

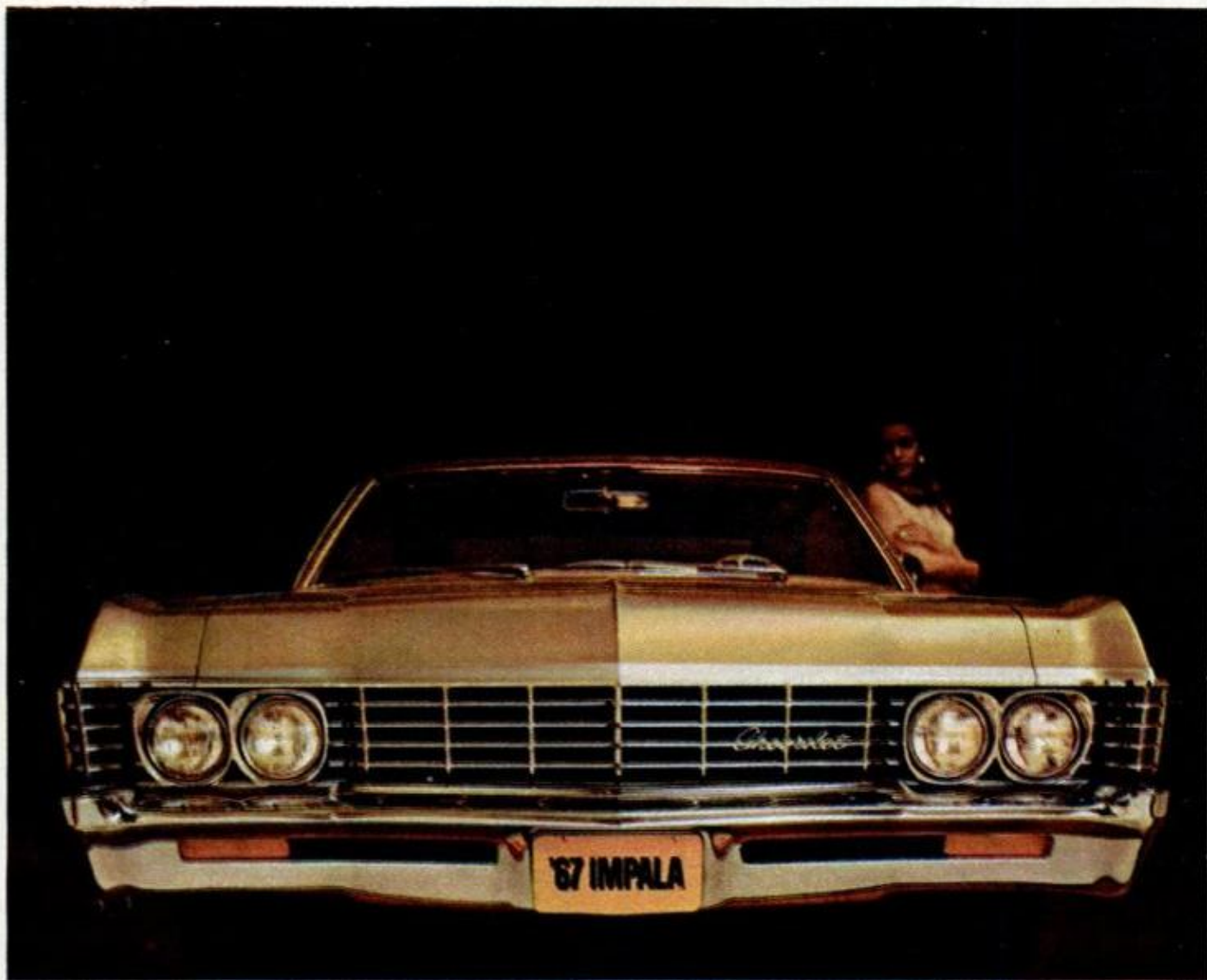
There's never a dull moment with

## NICHOLSON

Nicholson File Co., Providence, R. I. 02904/Quality cutting tools







## 3,897 lbs.\* of solid, secure '67 Chevrolet

Heavy. The way most people want an Impala, nearly two tons. And big. Its Body by Fisher is over six and one-half feet wide and, bumper to bumper, it's over 17 and one-half feet long.

And secure. It has the GM-developed energy-absorbing steering column, an energy-absorbing steering wheel and instrument panel. It has a dual master cylinder brake system with a light to warn you of a pressure difference in either system.

And it's right. A 1967 Caprice, Impala, Bel Air or Biscayne is built for the highways like never before. And inside, with its many new ideas, you take along all the peace and quiet and comforts of home. Maybe even more. Now, at your Chevrolet dealer's.



\*Impala Sport Coupe shown with optional Turbo-Fire 327 V8, Powerglide, power steering, power brakes, radio, wheel covers, floor mats.



MARK OF EXCELLENCE



## INDEPENDENTS WIN AT DAYTONA?

*(Continued from page 92)*

Richard as his No. 1 driver in a Plymouth. Jim Hurtubise will probably run a Plymouth for Norm Nelson in most of the big races, and Buddy Baker, son of all-time-great Buck Baker, will drive a Charger for Ray Fox of Daytona Beach.

Lincoln-Mercury is back after a two-year absence from racing. Bud Moore, one of the few independents who has managed to hang in there near the top, will set up five Cyclones in his shop at Spartanburg, S. C. Dan Gurney drove one last month in seeking his fifth straight win in the Riverside 500, and has decided to run in the Daytona 500 after a two-year absence. Dan will also tackle the 24-hour (Feb. 4) "Continental" in a Mercury, and the new Trans-American 300 (Feb. 3), in which he and Parnelli Jones will drive Cougars. If Parnelli runs in the 500, he'll be in a Cyclone.

When *PM's* scout swung by Moore's spotlessly clean, brick-front shop, Bud hadn't yet received his '67 Cyclones. His crew was rebuilding the '66 he had campaigned independently last year.

"We'll convert it into a '67 with new sheet metal," he said, "and then we'll build four new ones. I think having Lincoln-Mercury back in racing is going to help make 1967 the greatest year in stock-car history."

Chevrolet will continue aloof from racing—publicly, at least—although Smokey Yunick will again have a Chevelle on the big speedways, with Curtis Turner behind the wheel. Other Chevilles will show up on the dirt tracks, but aren't likely to enter the more important races.

For the first time in two years there are few war clouds on the horizon. There could be a row if Ford makes a last-minute decision to enter its single-overhead cam engine—a powerplant Chrysler claims is not a production item. To make it eligible, Ford would have to produce and sell 500 units and risk protests from the safety lobby for offering the public such a potent package. (This applies to the hemi too, but it's already on the market.) Ford will begin the season with its wedge, which the rules permit to have two four-barrel carburetors. The more exotic hemi is restricted to one. Should the wedge not do the job, Ford has the OHC as an ace in the hole.

Because of similarities in Ford's and Chrysler's 1966 and 1967 models, the garages will build a minimum of new race cars. Mostly, 1967 sheet metal will be grafted on 1966 chassis, reducing costs.

NASCAR recently cleared the way for

Ford to use its heavier Galaxie chassis components on the Fairlanes. The latter are cut in half at the firewall, and a complete Galaxie front end, including frame rails, and suspension, is grafted on. Chrysler hollered that this was a violation of the spirit of stock-car racing.

John Holman, ramrod of Ford's stock-car operation, defended use of the Galaxie front ends. Standing in his immense 40,000-square-foot race-car "factory," he insisted, "It makes for greater safety. Besides, all the parts are Ford parts—all from the parent company—and all are available over the counter."

Last year a great deal of subtle body-work—in the form of slanted windshields and sloped front ends for improved aerodynamics—was performed to attain higher speeds. Many builders spent up to 50 percent of their time shaping and streamlining bodies that were supposed to be stock. The situation got so far out of hand that owners and drivers held a secret meeting last October to petition a rules change specifying that bodies could not be altered. NASCAR bought the recommendation, although everyone is allowed to fit a one-inch "spoiler" to his trunk lid to improve stability.

Cotton Owens, the mechanical genius behind David Pearson and a fine driver himself a few years back, likes the stiffening of the body-modification rules. *PM's* reporter talked to him in his new shop, also in Spartanburg, S. C. He was building a second Charger for '67.

"By leaving the bodies stock," Owens explained, "we can cut the cost of building a car almost in half. Their unit construction makes it hard to lower and streamline a Dodge or Plymouth. They (he meant Ford) can do it a lot easier because their cars have separate frames. They may have looked stock from the grandstand, but those 1965 and 1966 bodies were so modified they might as well have been specially built like those for Indianapolis."

Where does all this leave the independents? If a driver and mechanic are able to find a rich sponsor, they may be able to build themselves a new Ford or Chrysler racer equal to one of Holman-Moody's or Ray Nichols'. But they'd better have \$12,000 or \$15,000 to work with.

Because NASCAR rules say that 1965, 1966 and 1967 cars are eligible for Grand National competition, many independents will race in "used" equipment. Ford's plan to run Fairlanes in '67 left Holman-Moody with 20 leftover Galaxies at \$3000 to \$6000. But most "1966" Fords running last year were really converted '65s with

*(Please turn to page 234)*



# Now! It's easy to have Bruce Oak Floors



## **PREFINISHED... just lay over subfloor or old floor**

Now you can give your living room, bedrooms or added-on room the lasting beauty and style of famous Bruce Floors. This highest quality Oak flooring, completely finished at the factory, can be laid over new subfloor or old floor. Bruce Blocks are installed in adhesive (see above). Ranch Plank with pegs and Strip floors are blind nailed. No sanding or finishing.

**ECONOMICAL!** A new Bruce Oak Floor will cost you less than a good rug... and will last the life of your home. The beautiful Bruce Prefinish doesn't chip or mar, and is so easy to care for. Mail coupon below for booklet in color.



### **MAIL FOR FREE FLOOR BOOKLET**

E. L. Bruce Co.  
1500 Thomas Street  
Memphis, Tenn.—38101

Send information on Bruce Prefinished Oak Floors to:

Name \_\_\_\_\_

Address \_\_\_\_\_

## **BRUCE Prefinished Oak Floors**

## **METAL TURNING**

*(Continued from page 179)*

workpiece when the lathe spindle is rotated by hand. Move jaws slightly until the pencil scribes a continuous line.

When a machining job requires working within close limits, you must use more accurate centering methods. A center indicator, or "wiggler," gives good results when set up as shown on page 177. Center-punch workpiece, rough-center it in the chuck jaws slightly until the indicator arm steadies as the work is rotated and you have it very close.

The dial indicator is more sensitive and faster, and it can be used on a greater range of work shapes. The workpiece need not be center-punched, since the actuating arm of the instrument can be located to ride on any smooth surface, inside or outside or on the face when it is necessary to test for out-of-true axially or radially. When the needle steadies you are quite sure the work is dead-centered.

### **Protect work with sleeve**

*A note of caution:* Use a protective sleeve when chucking or rechunking workpieces that are fragile or partially machined. To protect the machined surface from the chuck jaws, cut a short sleeve from tubing with an inside diameter that will slip-fit the workpiece (or machine a sleeve to fit). Slot it as shown at the top of page 177 and slip on the part of the workpiece to be gripped in the chuck. The sleeve protects from marring and gives support to fragile work that might be crushed out of round in the chuck. Avoid overtightening the jaws, or both chuck and work may be damaged.

All-over machining sometimes presents a problem in holding the workpiece, such as a bushing. The first step is to bore, ream and face to specifications, with the bushing held in the chuck. Then remove the bushing and mount it on a mandrel that will take the bore of the bushing in a close press fit.

Ready-made mandrels come in many sizes, usually tapered from .004 to .006 per ft. For work not requiring extreme precision, you can make a mandrel as shown in the two bottom photos on page 179, tapering it to take the bushing. The latter should be a fairly tight press fit after the mandrel has cooled to normal temperature. Of course, the mandrel must be center-drilled and a flat filed or ground at the big end to assure that the driving dog does not slip when the work is mounted between centers for final all-over machining. ★★★

*(To be concluded next month)*



## 15 WAYS TO CURE ROUGH IDLE

(Continued from page 143)

and coil. Start the engine. If dwell angle reading is not falling within specs, stop the engine, remove distributor cap and rotor and adjust your points with a feeler gauge. Check maximum opening of the points when the moving point arm is on the cam lobe. Some distributors have a "window" which lets you adjust points without removing cap and rotor. If your distributor has it, you need only a dwell meter and special screwdriver.

### Sparkplug troubles

10. *Faulty sparkplug gap.* If the gap is too wide you'll get a weak spark. If it's too close, you'll have fouling, shorting or preignition. You need gauges and specs for your type of plug. Remove plugs, clean them and adjust the gap to specs. Plugs should be new every 12,000 miles, cleaned and gapped every 6000.

11. *Worn wires and boots.* Dried out or ripped plug wires, or cracked plug boots, can cause a short circuit. Replace worn ones.

12. *Leaky valve.* A valve that isn't closing properly isn't sealing off the combustion chamber. A broken valve spring is often the problem. Most cars use hy-

draulic lifters so the valve condition can be checked with a vacuum gauge. If your car has solid lifters, you'll need a compression gauge.

To check valves, let the engine warm up. Attach the vacuum gauge and start the engine, letting it idle. If the needle shows a steady pulsation, suspect a leaky valve.

### Uncommon causes worth checking

13. *Bad fuel-pump pressure.* Too much or too little fuel-pump pressure upsets your air-fuel ratio. It's an uncommon problem, but worth checking with a fuel-pump pressure test. You'll need the fuel-pump pressure specification for your car.

14. *Stuck manifold heat-control valve.* If your car has a manifold heat-control valve to vaporize fuel, you'll find a counter-weight, usually beneath the carb at the exhaust manifold. Jiggle it to make sure it's working freely. If not, free it or replace it.

15. *A plugged PCV.* For a full rundown on plugged positive crankcase ventilation systems see *That Pesky PCV* (page 108, Sept. 1966 PM). A plugged PCV affects engine breathing which must be unrestricted for smooth engine idle. ★★★

# WE'VE GOT the FORMULA For Solving Your Problems

Planning to build your own garage? Need instructions to make a burglar alarm or beds? Want help on household hints or workshop projects? Looking for plans for a model clipper ship or child's car?

### SEND FOR YOUR FREE POPULAR MECHANICS SERVICE FILE

More than 300 subjects covered in Popular Mechanics library of books, booklets, blueprints, and patterns are listed in this tremendous reference file. Here's the handy guide which shows you where to find the answers to almost any do-it-yourself problem.

POPULAR MECHANICS, Service Bureau PM-2

575 Lexington Ave., New York, N. Y. 10022

Please send your free SERVICE FILE to:

Name .....

Address .....

City ..... Zone ..... State .....





## NEXT FIVE YEARS IN SPACE

(Continued from page 96)

explorers might discover unknown chemical elements. The answer to that question is "No." But, the probability of discovering different minerals or unknown compounds of known elements is high.

Minerals that formed under a different gravity and in a virtual vacuum are bound to be different in some manner. But even if none of these minerals is in any way directly useful, it is still certain that there must be compounds of common metals (like copper, aluminum or magnesium,) on the lunar surface. Again, the typical lunar conditions, airlessness and free solar energy, will make it easy to extract the metals from their compounds.

If a sufficient supply of a specific metal compound is found, it would not be difficult to set up a completely automated solar-powered smelter.

### Self-supporting lunar base

None of these metals will be worth the cost of transportation to earth, but the point is that every ton of construction material that can be produced on the moon is a ton that does not have to be carried to the moon. With just a little luck, a lunar base might be self-supporting.

The research that can be conducted in and from a lunar base ranges literally from astronomy to zoology; there is no science that cannot learn something new when research is conducted under lunar conditions. What are the colors of some stars when we receive their light without interference by the atmosphere? What is the percentage of X-rays in their light? (Our atmosphere is opaque to X-rays.)

How large will a crystal grow if the gravitational pull is less? Maybe the lesser gravitational pull will not make a difference, but we want to know. Does the impact of protons from the sun cause many short-lived radioactive substances to occur in the lunar surface? If so, what isotopes will be formed?

Will a plant grow taller under the lesser gravity? If it does—which is likely—will it do so by having larger cells in its make-up or by producing more cells of the customary size? Will the gestation period of small laboratory animals be influenced by the reduced gravity? Will an amoeba grow larger before it splits?

To scientists, each question will suggest 10 or 20 more, none of which could be answered on earth, but all would be answered by a moon research station.

While the first landing on the moon will eventually result in the establishment of a research laboratory and an astronomical

observatory, the activities connected with space flight itself will result in a large, orbiting manned satellite—a space station.

Such a station has been talked about for nearly two decades. Work on a multitude of satellite projects and on Project Apollo has pushed space-station plans into the background temporarily, but that does not mean they have been given up. In fact, the Air Force's only major space project—Project MOL, for Manned Orbiting Laboratory—is a kind of forerunner.

The idea is to have a large enclosed space in orbit, a cylinder measuring at least 20 feet in diameter and 40 feet in length. The MOL would have an airlock at one end, into which an adapted Gemini capsule can dock, so that the astronauts can enter the MOL through the hatch of their capsule. They will then have a large enclosed, air-filled space for extended experiments in weightlessness.

In addition, there is a NASA idea of using the large fuel tanks in the upper stages of Saturn rockets as the basis of a small space station. These tanks would already be in orbit and the fuels they originally contained are neither poisonous nor odorous.

### 'Earth watch'

A space station would have about as many different uses as a base on the moon. One of its most important uses can be called "the earth watch," a steady check on weather patterns (with meteorologists in the space station who not only report as do unmanned weather satellites, but who can interpret what they see), a check on such things as the drift of icebergs, and special services such as the spotting of ships and aircraft that are "lost."

The space station can also be used for astronomical work and for short-range research projects in physics and chemistry. Long-range projects would be handled better and more efficiently by the lunar laboratory, but for single experiments it will cost much less to transport a researcher or two to the orbiting station than it would to send them to the moon.

And there is one more use for the space station: Large satellites, especially for communication, that are to come, will need servicing and maintenance. The station would be a perfect base for inspection and maintenance personnel, while the spacecraft needed for this purpose would be orbiting alongside the space station.

Can all this be expected to be finished within the next five years? No, for it will never really be finished. But the foundations for all these things exist now and they can be expected to be well under way by the end of 1972. ★ ★ ★



## TROUBLE WITH YOUR BOAT

(Continued from page 163)

cruising 30 miles offshore when he detected gasoline in his bilges. Wisely deciding to drain the bilges, he very unwisely pulled the sea plug. Instead of the gasoline draining out, the sea roared in, and in the confusion, the startled yachtsman lost the plug, and the boat went down. He abandoned ship. Some three days later, a search craft located him, suffering badly from exhaustion and exposure.

Such a sequence is only believable in a Laurel and Hardy comedy, but many unbelievable accidents actually occur each year. To call the people involved "stupid" is an oversimplification and is, in most cases, incorrect. A man doesn't make enough money to own a large cabin cruiser by being stupid. Perhaps a better classification is that he is ignorant in a specialized area, and will not admit that his general experience doesn't cover it.

Basically, there are four "checks" that should be a *must* for every boatsman:

**Check yourself.** If you are new to the water, take a short course in boating and water safety. The Coast Guard Auxiliary, the U. S. Power Squadron, and the Red Cross conduct such courses free.

**Check your boat and equipment.** A free courtesy inspection will be made, if you request it, by the Coast Guard aux-

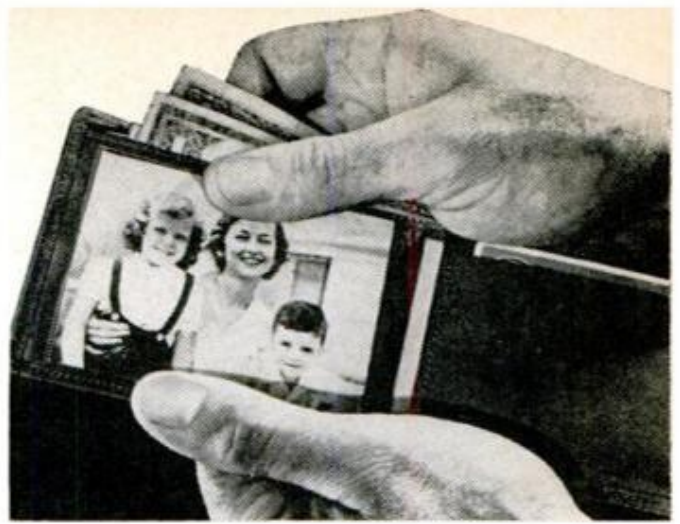


iliary. The inspector can also help determine what equipment is needed.

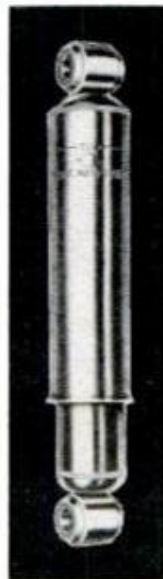
**Check the weather.** Call the Weather Bureau, not the Coast Guard, just before sailing. If the weather is doubtful, come back another day.

**Check in with someone ashore.** Tell a reliable person ashore where you are going and when you will be back. Ask him to notify the Coast Guard if you are not back within a reasonable time. Don't try to tell your plans to the Coast Guard. They have their hands full with people who are already overdue.

Complete these four basic checks, retain a healthy respect for the open sea, and you'll find that boating is a safe, relaxing and pleasurable sport. ★ ★ ★



**Sure, you can  
buy "bargain"  
shock absorbers  
(but you may be  
saving only money)**



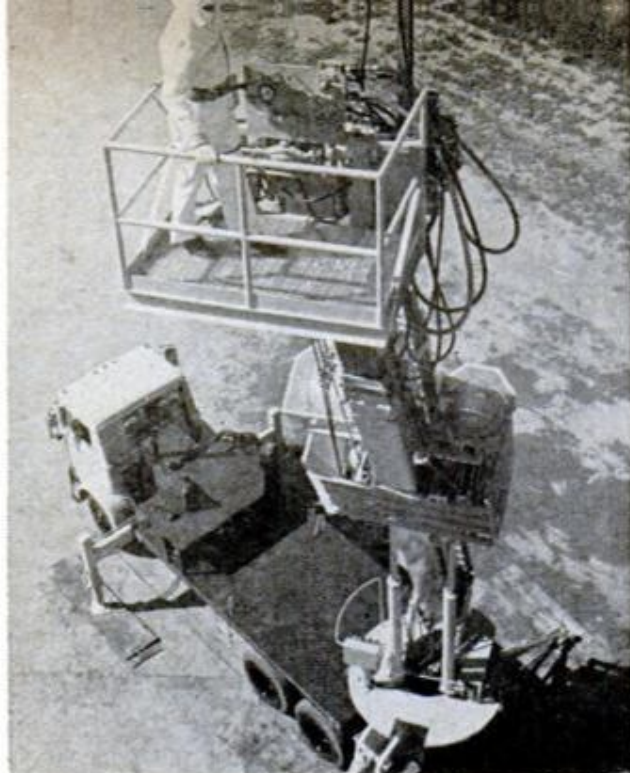
Why bet your life—or your family's—on a few dollars? That the difference between "bargain" shocks and the finest money can buy—Monroe. More people choose Monroe to replace original equipment shocks than all other makes combined. Can you afford to settle for less than the best in driving safety? Safety-equip your car with **Monro-Matic®** shock absorbers wherever you have your car serviced.



**ALL YOU NEED TO KNOW ABOUT SHOCK ABSORBERS**

**MONROE AUTO EQUIPMENT COMPANY**  
Monroe, Michigan





## To join the underground

Although it's demonstrated here outdoors, this unusual steel platform and boom will soon be operating underground. It's designed for heavy duty open stope mining, allowing the operator to work close to the mine face. Eaton Metal Products is the builder.



## Honeycomb for Apollo

Each of the 370,000 fiberglass honeycomb cells covering Apollo is filled with a resin mixture as the spacecraft is prepared for flight. The honeycomb disintegrates from temperatures as high as 20,000° F. during re-entry, protecting the primary heat shield beneath.

# Special offer to pipe smokers who smoke these brands



First of all, congratulations on your good taste. They're fine tobaccos every one.

But I'll bet that, like most pipe smokers, every so often you get the urge to try something different.

And so Kentucky Club Mixture makes this offer. If you're in the mood to try a remarkably mild and aromatic mixture, one of the fastest growing brands in America, send us the empty pouch you've just finished and you'll receive a fresh pouch of Kentucky Club Mixture.\* Free.

It's an offer you ought to consider if you're a serious pipe smoker. Here's why.  
1 Kentucky Club Mixture is probably the mildest aromatic pipe tobacco around. Most smokers can enjoy pipeful after pipeful without "bite".

2 It's a clean, easy-to-light tobacco that's cut to stay lit right down to the bottom of the bowl.

3 The aroma is pleasing to most everyone. Especially women.

4. Most important, the flavor is smooth and rewarding. The result of

the careful blending of 5 important tobaccos: White Burley, Virginia Brights, Weeds Cavendish, Turkish and Perique, plus a dash of Deer Tongue for flavor. (Deer Tongue, by the way, is a variety of wild vanilla. It's used as seasoning the way you might add salt to stew.)

So that's it. Kentucky Club Mixture is a mild aromatic blend made by people who believe it's best and are ready to prove it by sending you a supply.

For your free pouch mail your empty to: Kentucky Club Mixture, Box 6666M, Wheeling, West Va. And when you've smoked it, write and let us know how you like it.



## Kentucky Club Mixture

\*Unfortunately we can't picture all tobaccos. But the offer's good on any brand (except Kentucky Club Mixture). Offer good in U.S.A. and Canada only.



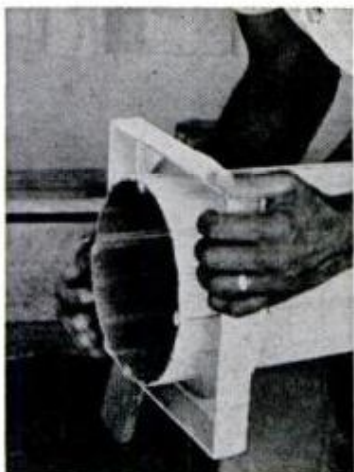
# Classic columns in minutes



1: Cut column staves to length, using hand or power saw



2: Interlock staves to form the column. Slide in last stave



3: Push cap and base slightly past ends to avoid nicking



4: Locate column, using 2x4 prop. Check work with level

ADMIRERS OF GREEK ARCHITECTURE can add Corinthian-style aluminum columns to their homes for as little as \$25 each. Unlike wooden columns, these resist rotting and termites, and they go up with a minimum of work.

"Classic Columns" consist of primed strips, or staves, that snap together. To install the column, first measure the height of the opening and add an extra  $\frac{1}{4}$  in. for a snug fit. Cut the staves to length, interlock them to form the column, and slip on the cap and base. Temporarily push the cap and base a few inches past the ends of the column to avoid marring these sections while column is positioned.

Next, prop up the place where the column will stand and position the column, using a level. Then remove the prop, secure the base and top with set-screws and finally paint. Pacific Column Co., P.O. Drawer E, Alameda, Calif., makes columns in 6 to 15-in. diameters and 8 to 30-ft. lengths. Prices range from \$18 to \$279 with standard column caps. Special ornate caps are \$25 to \$31 extra.



**GAIN PRESTIGE, BIG INCOME, JOB SECURITY**



## You, too, can be an ACCIDENT INVESTIGATOR

Earn up to \$8 an hour part time or up to \$1,000 a month full time, in this fast-growing field, or let us show you how you can stay with your present job and have a 2nd income on the side.

In a matter of weeks you can know exactly how to investigate the facts about an accident or fire; properly estimate the loss, then help distribute the millions of dollars insurance and transportation companies pay out to cover damages and injuries. For many men this is a golden opportunity to get into one of today's most exciting new professions. 200 million accidents this year will require so many more trained investigators, some beginners get over \$500 a month, plus car!

### We Teach You Quickly at Home

We are training scores of accident investigators by mail and helping to place them in the fast-growing, highly profitable Accident Investigating Field. No previous experience is required. A car is usually furnished; expenses are paid. Many men earn while they learn. Only average education is required.

Only 15 minutes reading a day puts you on the high road to success as an accident investigator. Progress as fast or as slow as you like. Many men get their diplomas in a matter of weeks! (We give you FREE Employment Help through our nation-wide PLACEMENT SERVICE — or show you how to start an investigating business of your own at home.)

### Part Time, Full Time Earnings Like These:

Here are just a few reports of recent earnings: Bob Durant jumped his salary to \$7500 as soon as he started. Bill Peck made \$943.00 in just 5 days, checking hurricane damage! Bob Pritchard reports companies in his area offering men \$8,000 a year to start, plus car and expenses! (Some men are earning up to \$8 an hour on the side in their spare time.) No wonder Art Victoria writes, "I recommend Liberty School (Home Study Course) for anyone seeking a better life."

Let us prove how easily you can quickly switch into this exciting new career that provides prestige, security, a bright future! Sending for FREE Brochure does not obligate you in any way. No salesman will call. Mail postcard or coupon below today to Dept. 52, Liberty School, 162 E. Cook, Libertyville, Ill. 60048. (The Liberty School is Approved for Veterans' & Servicemen's Benefits.)



Jim Edwards, Director, Dept. 52  
Liberty School of Claim Investigating  
162 E. Cook, Libertyville, Illinois 60048

**MAIL FOR FREE INFORMATION**

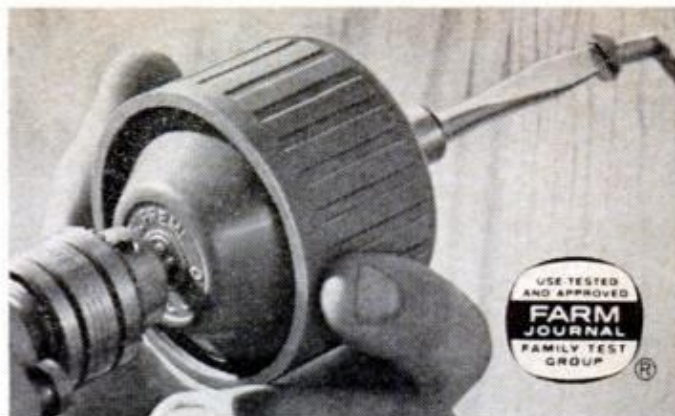
Rush me your FREE BROCHURE showing how I can make as much as \$1,000 a month full time or up to \$8 an hour part time by getting into the Booming Accident Investigating Field. Also include the actual names and locations of successful graduates all over the country. This does not obligate me in any way, and no salesman will call.

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Interested in full time job  Interested in part time job



## To drive screws . . . use your power drill and job-tested **VERSAMATE**

Versamate is a speed reducer made exclusively for the blister-building business of screw driving. The secret is 7-to-1 speed reduction that boosts power seven-fold and slows down the drill speed until it's perfect for sinking any screw—large or small. See your tool dealer for this \$5.95 beauty.

**RIDGID**  
**Supreme**

POWER TOOL EQUIPMENT

THE RIDGE TOOL COMPANY, ELYRIA, OHIO, U.S.A.

## **GUITARS** Big Discounts **WHOLESALE-TO-YOU!**

**BUY DIRECT!**  
Famous Brands

E-Z TERMS

5-Day FREE Trial



SAVE! BIG DISCOUNTS! Nationally advertised guitars. Over 100 models, all styles, for students and professionals. Low as \$19.95! DIRECT from Wholesaler-to-You. Easy Terms, low as \$5.00 down! FREE Home Study Course and Bonus Gifts! Discounts on banjos, mandolins, ukes. Satisfaction or money back. Free Color Catalogs, low discount prices. Write:

**GUITAR WORLD, Dept. R-27**  
5535 W. Belmont Ave., Chicago, Ill. 60614

## **\$70 AIR-GUN** only \$29.95

Complete with chisel this 3 lb. Air-Gun rips into metal, chips concrete, drives pins, etc. Delivers 5500 2" strokes a minute. Operates on 3 to 5 hp compressor. Made especially for govt. and manufacturer made too many. At only \$29.95 ppd. while they last, a \$70 value.

**Meredith Separator Co.**

Dept. PM1, 310 W. 9th St.  
KANSAS CITY, MO. 64105



## **FIRES** **200 ROUNDS** **NEW WALTHER AUTOMATIC**

Amazing full-size model of high-powered Walther automatic pistol holds and fires 200 rounds automatically from over-size chamber at incredible firing speed. Peak accuracy firing power to distances of 30 feet and more. No recoil. Safe. Non-lethal. Walnut-color stock is contoured to fit the hand. Smooth jam-proof action guaranteed. Not sold in NYC, or if under 16. (State age with order). Send \$2.98 cash, check or money order plus 27¢ shipping charge. We include free silver pellets. Satisfaction guaranteed.

**\$298**

(200 rounds \$1) (400 Rds. \$2) (1000 Rds. \$5)  
**WORLD CO. DEPT. 2PM 1 PARK AVE., NEW YORK 10016**



POPULAR MECHANICS



# FREE... World's Largest Electronic Kit Catalog

**Portable Phonograph Kit** ... New all-transistor ... 4 speeds ... Automatic ... plays anything from the Beatles to Beethoven ... assembles in just 2 hours ... Only \$39.95

**Citizen's Band Radio Kits** ... New preassembled 2-watt Walkie-Talkie just \$99.95 ... plus 3 other walkie-talkie kits, and a full line of transceivers and accessories.

**Portable And Table Model Radio Kits** ... New Transistor FM/FM Stereo Table Radio at \$69.95 ... wide array of AM, FM and shortwave models ... easy to build, superb performance.

**Stereo/Hi-Fi Component Kits** ... New! World's most deluxe stereo tape recorder kit, plus complete line of tube and transistor tuners, amplifiers, receivers, speakers, turntables, cartridges, furniture.

**Test and Lab Instrument Kits** ... New professional 5" DC Oscilloscope ... complete instrument line for home workshop, Industrial and Educational use.

**Electronic Guitar Kits** ... New famous American-make HARMONY models, plus new Heathkit Guitar Amplifier, all in kit form at up to 50% savings.

**12" Portable B & W TV Kit** ... New all transistor ... AC or battery powered ... new integrated circuit first time ever in a kit ... assembles in only 10 hours ... \$119.95

**Tape Recorders** ... New Heathkit version of the Magnecord 1020 ... 4-track, 3 mbtors, solenoid operation plus a host of other professional features ... save \$170 — Only \$399.50

**Transistor Organ Kits** ... New instant-play COLOR-GLO "Artiste" ... deluxe 17-voice "Coronado" ... both famous Thomas models in easy-to-build Heathkit form ... Save up to \$350.


**World's Best Color TV Buys** ... New Early American cabinet for Deluxe 25" model ... built-in self-servicing facilities for the best color picture at all times ... from parts to programs in just 25 hours.

**Amateur Radio Kits** ... New deluxe SB-301 5SB receiver and matching SB-401 transmitter ... plus world's largest selection of ham receivers, transmitters, transceivers, accessories.

**Plus Full Complement Of Marine Electronics** for your boat, **Educational Kits** for Home Study or Classroom, **Photographic Aids**, unique **Stereo System Planning Guide**, and actual page illustrations of Heath assembly manual to show you what easy fun kit-building really is.

Over 250 Kits For Every Interest — easy to build — up to 50% savings

**MAIL COUPON NOW FOR YOUR COPY!**

HEATH COMPANY, Dept. 17-2 Benton Harbor, Michigan 49022		
Please send FREE Heathkit Catalog.		
Name _____		
Address _____		
City _____	State _____	Zip _____
CL-259		



## HOW TO BUY YOUR FIRST BOAT

*(Continued from page 156)*

### **RUNABOUT** *(Continued)*

mum safe power. Consider the load you will want to carry and don't skimp on boat size. The larger it is, the more safety and comfort. And don't overpower.

We're discussing a boat that is supposed to get up and go, so choice of power can be critical. Should it be inboard, stern-drive, or outboard? Or should it be jet-powered? Jet power, without a prop or other sharp appendages, eliminates a source of danger to skin divers and skiers, and allows you to run your boat through shallows that will turn other boats back.

Prices for a 16-ft. outboard runabout begin at about \$1000. It will take that much again to bolt on a 75 or 80-hp outboard motor and another \$300 will get you the top end of the horsepower range. To get into a stern-drive runabout, with anything over 100 hp, will probably cost you \$3000 and up.

Does the boat you're considering have plenty of space for stowing sports equipment—skis, fishing tackle and the like?

Finally, you might want to consider a folding canvas top—sometimes it's as much a relief to get out of a broiling sun as it is to get shelter from a cold, pelting rain. And, with sun-lounge seats, side curtains and an adventuresome spirit, you can use it as a camping cruiser.

### **SAILBOAT** *(Continued)*

The centerboarder's main advantages, then, are "shoal" (shallow) draft and peppier sailing, plus being much easier to trailer and haul out for maintenance.

With these general characteristics in mind, the choice of a particular boat becomes largely a matter of your more detailed personal preferences and how much you want to pay. To give you some idea of what to expect, let's look at a representative example of each type.

Take the Bull's Eye, for instance. It's a fiberglass keelboat only 15-ft. long and quite tame because of its ballast and small sail area. The cockpit is large enough to take four adults comfortably on a day's sail. If you live near an exposed, rather rough body of water, this would be an excellent choice. New, a Bull's Eye goes for about \$2200. A used one can be found for under \$1000.

The Blue Jay, a 13-ft. wooden centerboarder, gives away security for thrills. It's especially popular as a first boat for training. In spite of its small size, though, it will still take three adults in the cock-

pit, and can pass a Bull's Eye. In this boat, it's advisable to stay in protected water with breezes under 20 mph. You'd better not be a novice if you exceed these limits, for unlike Bull's Eyes, "Jays" will dump the unskilled into the drink. New, about \$1000; used, roughly \$400.

A good general rule to keep in mind is that comfort and security generally work against sailing sharpness. As one increases, the other decreases. So the basic question in choosing a sailboat is which of these qualities is more important to you personally. And how much.

### **FISHING BOAT** *(Continued)*

and bigger fish to handle, you'll need 16 to 20 feet of hull with a good vee or round bottom and high freeboard for stability and dry running. Also a deep forefoot and wide bow flare to get you out of trouble in case of a blow. Rigged with twin middle-sized motors, or a big running motor and a small fishing motor, such boats take two to four men in comfort.

For really deluxe accommodations—though at a price—don't overlook the many "utility" runabouts on the market. Running from 14 to 20-ft., they offer very sophisticated and specialized hulls, many good built-in features, lots of deck and seating space, and are often available with stern-drive or inboard power from economical four-cycle engines. And don't forget their big attraction to many fishermen: They do double duty as a family runabout and ski boat, a good selling point with wives and families.

One great fishing boat often underrated by buyers is the stable, inexpensive, comfortable pontoon boat. It probably offers more square feet of deck for a dollar than anything else afloat.

Pontoon boats are harder to trailer and store than the more conventional hulls, but if you keep your boat in the water, they're great. It's like having your own private fishing dock and floating patio.

Another type of boat most fishermen overlook is the inflatable or folding boat. They're smaller and more expensive than rigid hulls, but offer great stability, easy portability and the easiest storage of all.

One happy thought: No matter what boat you pick, the fishing will be great!

### **SKI BOAT** *(Continued)*

if the boat skids or porpoises in a turn instead of responding quickly, there will be a loss of power on the towline and the skier will begin to sink. When the boat takes hold again and the rope snaps tight,

*(Please turn to page 221)*



it may be snatched from his hands.

Low freeboard not only makes it easier for a fallen skier to climb into the boat, but also simplifies picking up lost skis. In addition, it cuts wind resistance and gives the driver good visibility.

Having the right equipment is just as important. The tow hook, for instance, should be installed ahead of the motor near the center of gravity to keep the stern from swaying from side to side when the skier is criss-crossing the wake. The speedometer is actually optional for weekend skiing, but it's a big help when trying to maintain a constant speed.

Finally, make sure that your dealer equips the engine with the proper propeller for skiing. ★★★

## **CRUISER** (Continued)

be constructed so that it can be dogged down tight—watertight. A chain pipe leading to the forepeak rope locker will avoid slopping mud on the V-berths.

Look for a sturdy bow rail and a strong safety-glass windshield. All decks should have nonskid surfaces free of toe-stubbers. To make side decks safe, there should be handrails along the cabin.

For cruising comfort, you'll want to be sure the boat doesn't act as a sounding board for excessive engine noise and vibration. As a matter of fact, too much engine noise or vibration probably means something has come unstuck, because today's engines are about 100 percent quieter than they were a few years ago.

Also in the comfort department, look for adequate provisions for privacy (two-way doors and draw curtains) and proper cabin ventilation.

For safety as well as comfort, make particular note of the boat's attitude underway. There should be good visibility from the helm in all directions and at all speeds. Watch out for a bow-high angle which can cut off forward visibility.

Choose a hull with enough beam to be stable. Perhaps a cathedral hull or another version of a multi-hull will provide the level ride and steady platform you want. If you choose a conventional hull, then look for a full high bow with plenty of flare forward to give you a dry ride.


You'll find a tremendous choice of power. Within trailering size, inboard outdrives rack up a lot of advantages. Somewhere around 26 feet and over, the inboard engine with fixed shaft—possibly in pairs—might be your best choice.

Hopefully, you are going to spend a lot of time on your new cruiser. If you have to skimp on some features, give up a little comfort. *Don't skimp on safety.* ★★★

Kodak  
TRADEMARK

# Fastback



 Slide the cartridge in and you're off to the movies—a full 50 feet of uninterrupted super 8 movies.

The KODAK INSTAMATIC M8 Movie Camera features smooth power zooming from 9.5mm wide-angle to 45mm telephoto, plus four shooting speeds for special effects. Automatic exposure control at all speeds. Through-the-lens viewing accuracy! No film winding—battery drive. Less than \$225. See this superb movie camera and the complete line of KODAK INSTAMATIC Movie Projectors at your Kodak dealer's.

*Price subject to change without notice.*

## **Kodak Instamatic® M8** Movie Camera





# INSIDE

**What makes the new Merc 1100SS the world's most powerful, most advanced outboard?**

**⚡ NEW ALL-ELECTRONIC THUNDERBOLT PROVED IGNITION WITHOUT BREAKER POINTS.** First on Mercury in 1966, finest by far in 1967—fires with lightning speed and power, eliminates pre-ignition. Polar-Gap spark plugs last seasons, not days. Engine efficiency and reliability are dramatically increased! No need for periodic adjustments to plugs and points—timing never needs resetting!

**⚡ QUIET!** Comes from Mercury's unique System of Silence: acoustically lined wraparound cowling, rubber-mounted engine support frame, neoprene-sealed fittings, "Wall of Water" exhaust jacket, Jet-Prop exhaust and Dyna-Float suspension. Add internal reed valves, Power-Dome combustion chambers, closer tolerances.

**⚡ SMALL-BORE, SHORT-STROKE, IN-LINE DESIGN** minimizes the major sources of engine wear, results in more horsepower per cubic inch, greater economy, longer engine life.

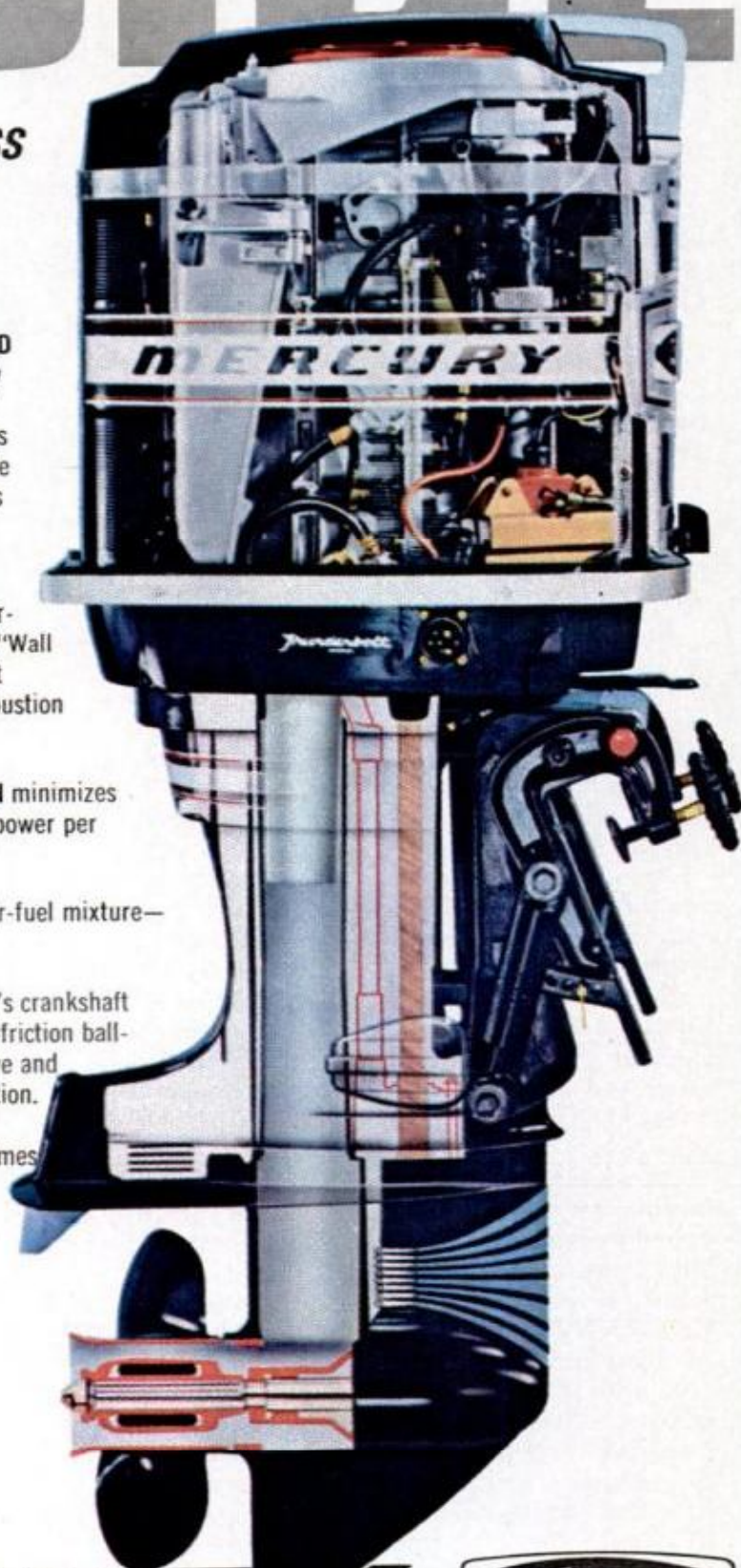
**⚡ FIXED-JET CARBURETORS** maintain a perfect air-fuel mixture—the engine can't run too rich or too lean.

**⚡ ENDURANCE-PROVED CONSTRUCTION.** Mercury's crankshaft and connecting rods are made of forged-alloy steel. Anti-friction ball-and-roller bearings are used throughout. Shearproof drive and hydraulic shock absorbers provide rugged impact protection.

**⚡ JET-PROP EXHAUST** fires exhaust sound and fumes through the propeller hub into the prop slipstream. Vacuum-caused drag is reduced, engine breathing improved.

See the 110-HP Merc 1100SS—plus 8 other new Mercs for '67—engineered to stay ahead: 3.9, 6, 9.8, 20, 35, 50, 65, 95HP—at your Mercury dealer—or write for '67 catalog to Dept. PM-2, Kiekhaefer Corp., Fond du Lac, Wisconsin.

Kiekhaefer Corporation, Fond du Lac, Wisconsin. Kiekhaefer Mercury of Canada, Ltd. Kiekhaefer Mercury of Australia Pty. Ltd. Subsidiary of Brunswick Corp.



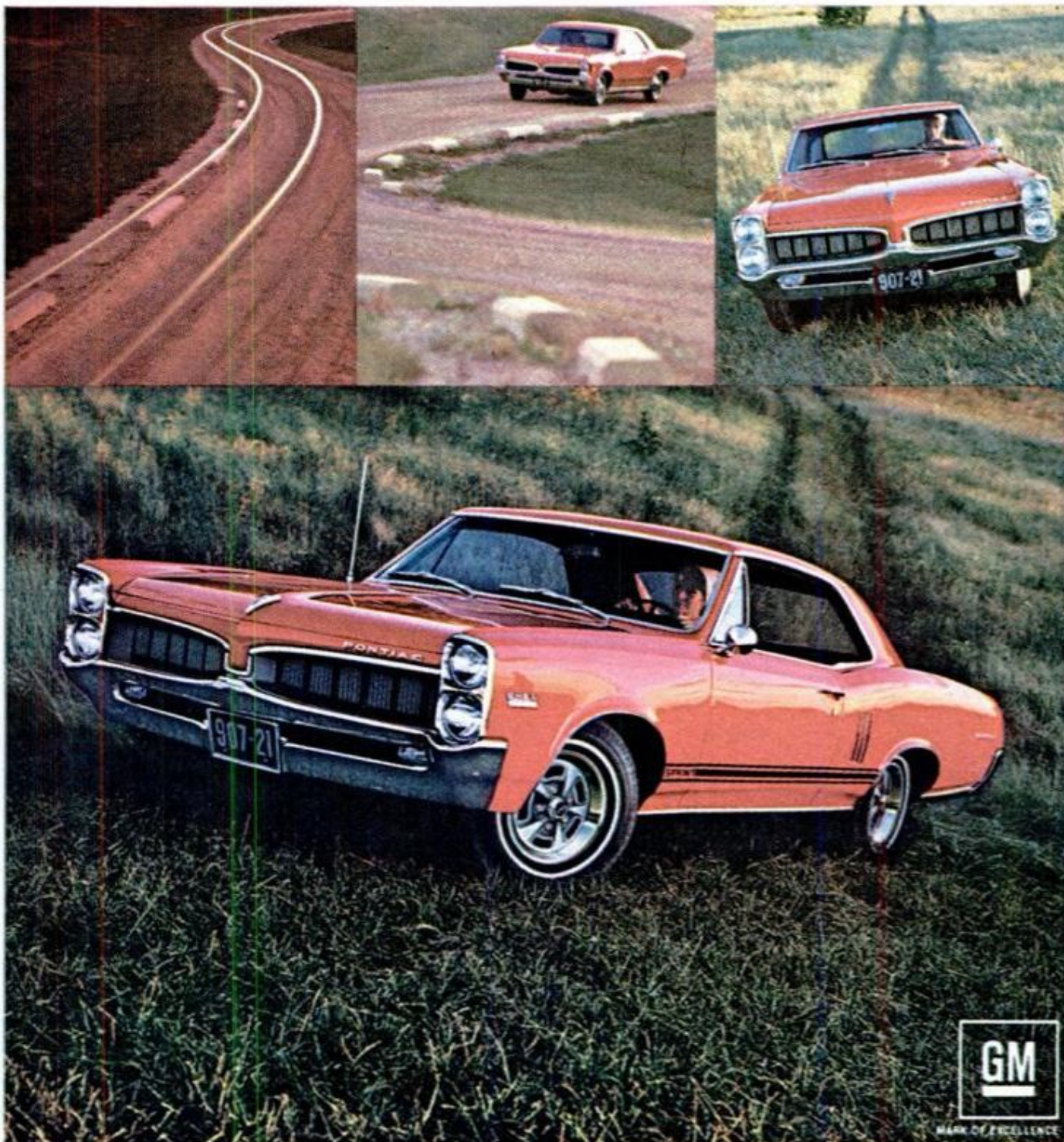
# MERCURY



WORLD LEADER IN MARINE PROPULSION

**ANOTHER MERCURY FIRST: THUNDERBOLT IGNITION—Now without breaker points and available on 4 new Mercs—50 to 110 HP**





Pontiac Motor Division

## With an OHC 6 like this who needs an 8?

The stripe on this Le Mans hardtop identifies it as our phenomenal Sprint option. This means its standard 165-hp Overhead Cam Six has been replaced with an even more enthusiastic 215-hp 4-bbl version. Special suspension has been added. And an all-synchro 3-speed floor shift.

The result is a high-rpm driving machine that'll go all day at highway speeds with plenty of reserve for passing. Yet with the agility and grace of a European sports car, and the reliability of American

engineering. At a fraction of the European cost.

You can order the Sprint option on any Tempest or Le Mans, except wagons. And incidentally, they all come with GM's standard safety package that includes a four-way hazard warning flasher and GM's energy absorbing steering column.

Of course, you don't have to go for the Sprint. The standard 165-hp OHC 6 is enough to send a lot of V-8s home counting their cylinders.

**Pontiac OHC Sprint/Ride the Wide-Track Winning Streak**



## THE BIG PILE-UP OF 1966

(Continued from page 127)

he found a plowed U-turn and started back. When wrecks stopped him, he got out, crouched behind them, and ran west into the cut. He could hear cars bumping.

Then he was caught in the snow pinch. Once he held his hand up. He couldn't see it. He began bumping into people running, some in shirtsleeves. A man ran by waving a flare, red sparks flying. Bowers bumped into another man who kept shouting, "Oh, I'm all right, I'm all right." The man's face streamed blood.

Then for a moment a gust cleared the air. It was not quite dark. As far as Bowers could see—a mile to the west—were wrecks.

He began to search the hulks for injured and dead. People were shouting, rolling in snow, climbing the cliffs. Others were being pulled into cars for warmth. The smashed bus was disgorging people.

One man in a car was shouting, "Do something! Call an ambulance." Bowers heard a calm voice say: "A dozen are on the way—if they can get here." He had found Trooper MacConnell. MacConnell's face was frozen.

They went to MacConnell's car and called Buffalo: "Isn't there any way you can close the road?"

Buffalo began telling all hands to stop all traffic. Then over the air came one plaintive protest: "How can we stop 'em if we can't even see 'em?"

The troopers then decided: With so many hurt MacConnell should begin ambulance runs. They pried his car loose, filled it with injured, and MacConnell set out to try to reach Batavia. Bowers, looking for casualties, kept hearing collisions.

And then he saw a Mars light.

Batavia's Genesee Memorial ambulance, after a remarkable run, arrived even while collisions were still happening. The crew jumped out with a stretcher. They were just lifting a woman when a car came out of nowhere, hit the ambulance and tossed it, a hopeless wreck.

Bowers peering into a shattered VW, noticed a wire wheel. "What's a wire wheel doing in a VW?" he wondered. He looked closer: A Triumph was *inside* it.

Then Bowers could no longer see. His ice-rimmed eyes froze shut and his hands were too cold to melt them. Presently he felt two warm hands on his eyes. As the lids thawed he saw the ambulance driver. They found a car that still had windows and put the injured woman in it.

All told, Bowers had counted 30 hurt. The problem now was to get these out and save the hundreds of others, who

could not leave, from freezing. Some 400 cars were stranded in and near the cut. In them were 1000 people without food.

Gas was running out; some cars were already frigid.

Other troopers arrived. Some wanted to break a trail to farmhouses a mile away. This was abandoned as dangerous.

A convoy of 20 cars was organized to run east with the wind. Only cars with good heaters, defrosters and plenty of gas were chosen. When women were afraid to drive, college boys were given the wheel.

This convoy went two miles and stalled. Another trooper's car was hit by a truck.

It was now decided to try to send a convoy west. It was only three miles to Batavia, but three miles into the wind. The plows broke a U-turn. Troopers Bowers and MacConnell, back turned for a second trip, briefed each driver: "Follow the taillight ahead, but don't hit it!"

The wind rocked the cars as they turned, following the plow. When the motorists faced the wind they simply panicked and quit.

This may seem strange to anyone who's driven in hard storms. But this was a near-hurricane, and that awful snow-pinch, falling over the cliffs, splitting across windshields, was terrifying. In such snow it is impossible to know if you're turning right, left, or not turning at all.

### Third try is stopped

Then a third try was made. The convoy crept west two miles, then stopped. Plowman Hagan had hit a big drift.

Foreman Farrell, riding with him, came back to reassure drivers. "We've radioed for a big V-plow," he said. "Keep rolling back and forth while we wait, to keep from drifting-in." Soon the plow came.

In every crisis, troopers say, there is one "wise guy." The V-plow opened the drift, and the convoy was just starting to move when Farrell saw a woman cut out of line, shoot ahead—and stall. Then she spun her wheels. Farrell cried, "Oh, no!" She was hopelessly dug in. The road was plugged again. It was 45 minutes before the V-plow came back and got her out.

They put her back in line. This time, when Al Hagan got his plow started, Farrell looked back. Not a car was following.

But this time the plow kept going, for ambulances, doctors, rescue crews—and now food trucks—were converging from several towns. And a lane had to be open.

An hour later that frightened convoy crawled into Batavia behind a plowman on foot. The plowman held a lighted flare in one hand; his other touched the fender of the lead car, so he wouldn't lose it.

During the night a few more small



groups came out, including all of the injured. Back in the cut the troopers grouped people in warm cars. They doled out gas, two gallons at a time.

Little by little, more rescuers arrived with blankets, medicine, sandwiches. A 150-vehicle convoy of plows, wreckers, ambulances, was en route from Albany. Hearse were ready, too, for it was felt sure that in that enormous pile of wreckage many would be found dead. When the storm eased at daylight a count was made. Of 325 cars that were stranded, 100 were wrecked. And of these, 70 were "to-taled"—hopeless scrap. The snow on many lay 10 feet deep. Rescuers went from drift to drift digging for the dead.

Scores could have died that night. But the miracle revealed by dawn was: except for the young bride run over at Indian Castle, not one single soul perished on the Thruway. Credit in part the bravery of Thruway rescue crews after Trooper MacConnell's "red flash." Credit, too, the astonishing help motorists gave each other. "They were driving like crazy, but when the chips were down they were wonderful," says Bowers.

#### Lessons learned from pile-up

It would be three days before the Thruway was open again. By next night when the big convoys were moving at last, these lessons had been learned:

- A dangerous storm-hypnosis—and dizziness—comes with heavy snow.
- Drivers going into the wind tend to panic. Those going with it gain a false sense of security because it seems calm.
- In snow, the speed differential causes trouble. When snow gathers no sensible car driver will go over 45 mph. Some trucks (with more traction) can safely go 55-60. And some drivers try to move at those speeds. But a fast car perils trucks because it may spin when overtaking.

Thus, in snowstorms our big pikes now need a fixed "storm-speed range" for all. A sensible range of 30-40 mph would stop thousands of winter wrecks.

● Much better weather warnings are needed for drivers. Radio forecasts today are often skimpy, out of date. They should be given every few minutes.

● Storm "red alerts" should be posted at road entrances and roadside service areas.

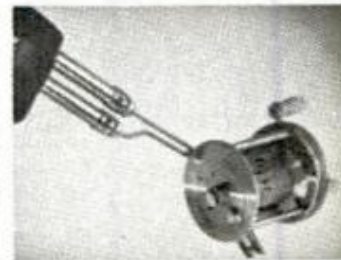
● Bigger, faster plows are needed.

● But mainly drivers need to know the true danger of storms. If stuck on a high-speed pike in zero visibility while other traffic is rolling fast, you have only one choice: leave your car, put out flares (if safe) and run. When it really starts to blow, try to hole up in a safe warm place and wait it out! ★ ★ ★

## Your proficiency shows...



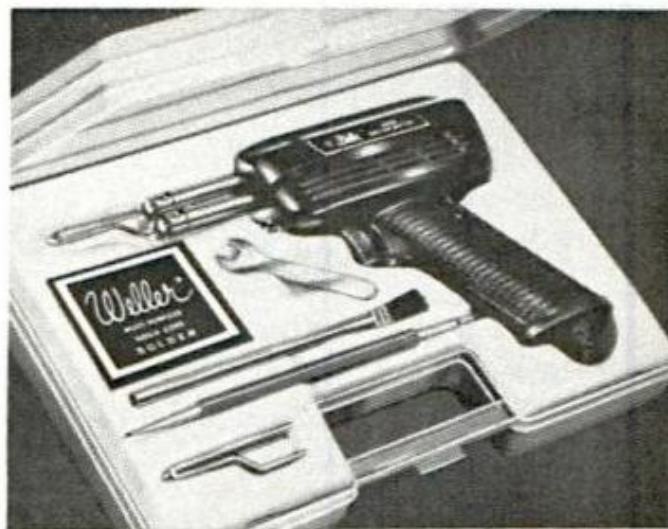
HOME DECORATING



METAL REPAIRING

## when you own a *Weller*® DUAL HEAT SOLDERING GUN KIT

Wrap your trigger finger around a Weller gun and you're a "pro" at many tasks. Exclusive trigger-controlled dual heat, automatic pre-focused spotlight, perfect balance, solid copper tips and fastest heating are unbeatable features. Choose the soldering kit that best answers your homecraft needs from Weller—the originator and biggest seller of soldering tools.



#### Weller Utility Kit 8200PK

includes 100/140 watt gun, 3 long-life soldering tips, tip-changing wrench, soldering aid, flux brush, solder, "Soldering Tips" manual, \$8<sup>95</sup><sub>list</sub> plus utility case of break-proof plastic.

#### Weller Heavy-Duty Kit D-550PK

complete with 240/325 watt gun; 3 different tips for soldering, cutting and smoothing (thermo-plastics, tile, etc.); tip-changing wrench; supply of solder and "Soldering Tips" manual \$12<sup>95</sup><sub>list</sub> ... all in a break-proof plastic utility case.

**WELLER ELECTRIC CORP., Easton, Pa.**  
WORLD LEADER IN SOLDERING TOOLS



# Its new look is just one nice thing about the '67 Chevy pickup



## THERE ARE LOTS OF OTHERS.

We got tough about new ideas to make it last longer . . . like eliminating exposed sheet metal joints on the cargo box. And building self-washing wheelhousings with special splash shields . . . new ideas to retard corrosion.

For safety's sake, we built in a new telescoping lower steering shaft and a dual master cylinder brake system. Added style by color-keying the interior to match the exterior. Then closed the whole package with a one-hand tailgate latch.

We kept a lot, too . . . like smooth-riding Independent Front Suspension and the most popular truck sixes and V8's.

Got the picture? So has your Chevrolet dealer. See him soon. Chevrolet Division of General Motors, Detroit, Michigan.



*a brand new breed of pickups*



## PONTIAC'S FLASHY FIREBIRD

(Continued from page 100)

with both the Camaro and Mustang, so perhaps, it's me.

Also, I found the manual brake pedal too far away from the accelerator and much too high to reach quickly with my foot. Pontiac engineers tell me the new dual-braking system makes this necessary in that if one pair of brakes fails, quite a bit of additional pedal travel is needed to actuate the other pair of brakes. Still, I should think this could be remedied by raising the accelerator assembly to bring it closer to the height of the brake pedal. The pedal for the dual power brakes, by the way, doesn't have this objection.

The Firebird is based on the Chevrolet Camaro body shell, yet it features distinctive Pontiac paneling and trim, mainly up front. The car also offers a number of nice touches designed for comfort, safety and convenience.

Both cars I drove had steering wheels that could be adjusted for rake, locking into any of seven different positions, a feature I find desirable for comfort.

### Plenty of safety features

Safety considerations are present in abundance. In addition to seat belts all 'round, an energy-absorbing steering column and a dual-braking system, plus many other items included in the typical "safety package," Firebird interiors feature recessed door handles in the armrests—out-of-the-way "in case," yet easy to get at if one wishes to open the doors. Another feature is that the front seats lock into place, thus helping prevent a person being thrown forward during abrupt deceleration.

Speaking of the seats, they don't seem to hold either driver or passenger in to any great extent—a weakness of almost all cars, I think. Personally, I'd prefer more lateral support than I find in any U. S.-built automobile. Yet all this may be nothing more than mild eccentricity on my part.

One optional feature that appealed to me the moment I climbed behind the wheel is the location of the tachometer. It's directly in the driver's line of vision. Obviously, if it is going to be used to its fullest extent, this is where a rev counter belongs.

Another innovation I liked is the Firebird's "fold-away" spare tire. The tire quite literally folds around the rim of the spare wheel, reducing by half the normal spare-tire size. This is important because luggage space in most cars of this type is

at best somewhat cramped. A pressurized can of compressed gas is provided for emergency inflation of the "fold-away" spare. Installed, the tire is said to be good for 1000 miles.

If yet more luggage space is needed, the back of the rear seat can be folded forward, providing a flat, carpeted deck upon which several small suitcases can be carried.

But regardless of its design innovations, the Firebird as a whole comes off as a fast and sporty means of travel, and without the discomforts of a true sports car. I found the car roomy and comfortable, with excellent driver visibility and a "big car" feel despite its 108-in. wheelbase. Overall, the Firebird fulfills admirably one of my personal requirements for any motor car—it must be relaxing to drive.

Pontiac calls the Firebird a sports car. Thankfully, it isn't. A true sports car is almost a racing machine, with ultra-quick steering and harsh suspension. But the Firebird, like its fellow personal cars, is really more of a GT (Gran Turismo) setup designed to eat up the road at relatively high speeds over long distances. And this it does very well. ★★★

## HELICOPTERS IN VIETNAM

(Continued from page 111)



1. Sikorsky CH-53 Sea Stallion
2. Boeing CH-47 Chinook
3. Bell UH-1B Iroquois
4. Bell UH-1D Iroquois
5. Bell OH-13 Sioux
6. Kaman HH-43 Huskie
7. Sikorsky SH-3 Sea King
8. Sikorsky CH-46 Sea Knight
9. Sikorsky CH-54 Skycrane
10. Boeing H-21 Workhorse
11. Sikorsky CH-37 Mojave
12. Sikorsky HH-19 Chickasaw
13. Hughes OH-6
14. Kaman UH-2 Seasprite
15. Sikorsky UH-34 Choctaw



## DODGE CHARGER

(Continued from page 103)

"Quick throttle response and terrific acceleration."—Kansas bank cashier.

► He has the 426-cu.-in. "Hemi" engine.

"Good passing power."—South Carolina machinery operator.

"Plenty of pep."—Louisiana electrical engineer.

*Sandwiched in among the most laudatory comments, oddly enough, were frankly-stated gripes about poor paint jobs, water leaks, and generally poor workmanship. Combined, these complaints "enjoyed" a frequency-of-mention rating (FMR) of 23.8 percent.*

"Too many things are left half done by the factory."—Navy, Maryland.

"Windshield molding wasn't properly installed. Water leaks into the trunk."—New Jersey college student.

► Many owners reported leaky trunks, one lady claiming a suitcase full of clothes had been ruined.

"Could have a better paint job and doors and windows could be better aligned."—Marines, South Carolina.

"Looking down the side of the roof line, it looks like an ocean wave."—California machine operator.

*Next on the dislike list at 9.9 percent was what owners considered poor rear visibility.*

"I have difficulty seeing out the back window."—Ohio computer programmer.

"Difficult to park because of not being able to see out back."—Kansas salesman.

"Things are distorted through the rear window."—Tennessee fireman.

"Can't tell where the back of the car ends."—Texas department manager.

*Complaints about poor gas mileage were next, racking up an FMR of 9.4 percent.*

"Uses an awful lot of gas—7½ miles to a gallon is not good mileage."—Texas secretary.

► You're right, it isn't. You should be getting much more even though you have the 383-cu.-in. engine. Cry a lot.

"My gasoline bills scare me half to death."—Texas businessman.

"I get very poor mileage."—Kentucky salesman.

*A somewhat surprising 8.5 percent of the Charger owners replying to PM's questionnaire commented on the construction and location of the ashtray. Typical of the gripes is this complaint by a California office machine operator:*

"Front ashtray is in a bad location in that the airconditioning blows the ashes out. The tray itself is too shallow. Also, there's no ashtray on the passenger side."

*Having bought the car, it figures that most owners would be tickled pink with the Charger's fold-down rear seat. They are, giving it an FMR of 14.8 percent.*

"Carried a four-foot stereo outfit in back. Feature is especially useful as a bed for our child."—Louisiana secretary.

"Extra room has many uses. I've carried my set of drums in it many times."—Texas draftsman.

► Things must be booming in the draftsman business.

"Have carried many large items that just wouldn't fit in a regular car."—Iowa factory worker.

*Most Charger owners had high praise for their car's interior styling. One, they think it's handsome and well finished, and two, they think it's nice and roomy.*

"The dash is the best engineered and the interior the most luxurious of anything in its price field."—Ohio technician.

"Instrumentation is good. The interior is great looking and very practical."—North Carolina student.

Speaking of instrumentation, the majority of Charger owners said they rarely if ever used the car's standard equipment tachometer, a fact that won't exactly surprise anyone. Most of those who said they did use it have manual transmissions, using the tach in conjunction with changing gears. Owners did say, however, the tach is somewhat finicky and inclined to go out of whack. They report that replacement and/or service takes months in many cases.

*An overwhelming majority reported liking very much the Charger's retractable headlights. Only 2.6 percent said they didn't care for the idea, most fearing that the mechanism might fail at a critical time. However, only 38 owners reported any trouble, most difficulties involving one light being slower to turn out than the other. Of the 38 complaints, only five said the headlights stick every now and then.*

*Most Charger owners (59.9 percent) reported favorably on dealer service, grading it from "excellent" to "just okay." Those who didn't think much of it, however, complained mainly of what they considered their dealer's reluctance to devote time and money to repairing what he—the dealer—considered factory goofs. The following from a New Jersey laboratory technician sums it up neatly:*

"My 'friendly' dealer explained to me that he couldn't fix the rattles because the factory would not reimburse him for his costs. Then, smiling, he told me I really ought to try and fix the rattles myself. To say I'm disgusted is putting it mildly."

*Finally, it would appear that a basic, unadorned Charger is as rare as football*



practice in a retirement community. A big 67 percent of the owners reported their cars as being equipped with power steering, 48.8 percent said they had airconditioning, 45.9 percent had radios, 17.2 percent had power brakes, 15.8 percent the remote rear-view mirror, 15.3 percent a heater, and so on down the option and accessory line.

One owner, a young Army officer on duty in Nebraska, reported the options and accessories he ordered added about \$2000 to the car's basic price, but that despite the rather heavy bite, he considered his Charger "all-around, the very best car I ever hope to own."

In general, it would seem most Charger owners tend to agree. ★ ★ ★

## Locate Turkish Warship

What is believed to be an early eighteenth century Turkish warship has been discovered by an Anglo-Israeli expedition in 30 feet of water at the mouth of Acre harbor, on the Israeli coast, near Haifa.

This was the culmination of a three-week survey financed by the Wolfson Foundation, from which Dr. Edward T. Hall, director of the Research Laboratory for Archaeology, Oxford, England, returned in mid-December.

The wreck was found while the expedition was plotting the ancient submerged fortifications at Acre. The ship measures about 200 feet in length.

Alexander Flinder, secretary of the British Sub-Aqua Club, and a team of six Israeli divers brought up bronze objects and a considerable quantity of wooden planking from it.

The fact that the planking was of pine, and the type of fastening used, indicates that the vessel was almost certainly a Turkish warship of about the 1675 period.

The find was made only two days before the British members of the expedition had to leave. Israeli divers and archaeologists are continuing the investigation with a view to a more ambitious operation.

While on the Israel coast, the expedition spent three days off Ashdod, in a vain search for a Canaanite ship of the early second millennium B.C.

Dr. Hall used his own yacht to test a new type of magnetometer which detects metallic anomalies on the seabed. It operates in a way very similar to the instrument now widely used by archaeologists on land except that it is towed in a torpedo-shaped container and transmits its reading to recording instruments on the yacht.

# Sure beats smoking!



Enjoy Copenhagen: Place a small pinch between cheek and gum. No chewing.

United States Tobacco Company

## What's the difference between a hairpiece and a Taylor Topper?

To the man who's considering doing something about baldness, or to the man who's presently wearing an old fashioned "hairpiece"—there are several IMPORTANT DIFFERENCES:

**TAYLOR TOPPER**, the modern practical answer to baldness, is built on a design principle that's so different it's patented. A contoured, lightweight plastic base is the secret. Because air can circulate beneath it a Taylor Topper stays cool and clean. Because natural hair is actually rooted into the plastic it looks natural and retains its styling. A Taylor Topper is as easy to put on as your hat, as good looking as your own hair, absolutely secure, and so easy to wear that you're not even conscious of it.

Old fashioned hairpieces, in comparison, are made by tying hair to a net base. The hair lies flat, looks unnatural. Applying the hairpiece requires 15 to 30 minutes and a lot of glue and skill. Removing it requires a lot of time, skill and a poisonous solution called acetone. Because it absorbs perspiration, an old fashioned hairpiece requires frequent cleaning, and professional restyling and repairs to the delicate net base.

If you're now wearing, or considering, an old fashioned hairpiece, why not do yourself a favor? Take a few minutes to look at a Taylor Topper. There's a trained representative near you. He wears a Taylor Topper and will be happy to answer all of your questions. See for yourself why so many thousands of men choose the patented Taylor Topper as the only PRACTICAL solution to baldness.

Nationwide Service—there's a trained representative near you.

SEND FOR FREE BROCHURE

Taylor Topper, inc.

DEPT. 5 B

1641 EL CAMINO REAL MILLBRAE, CALIFORNIA

Please send Free, full details in plain envelope.

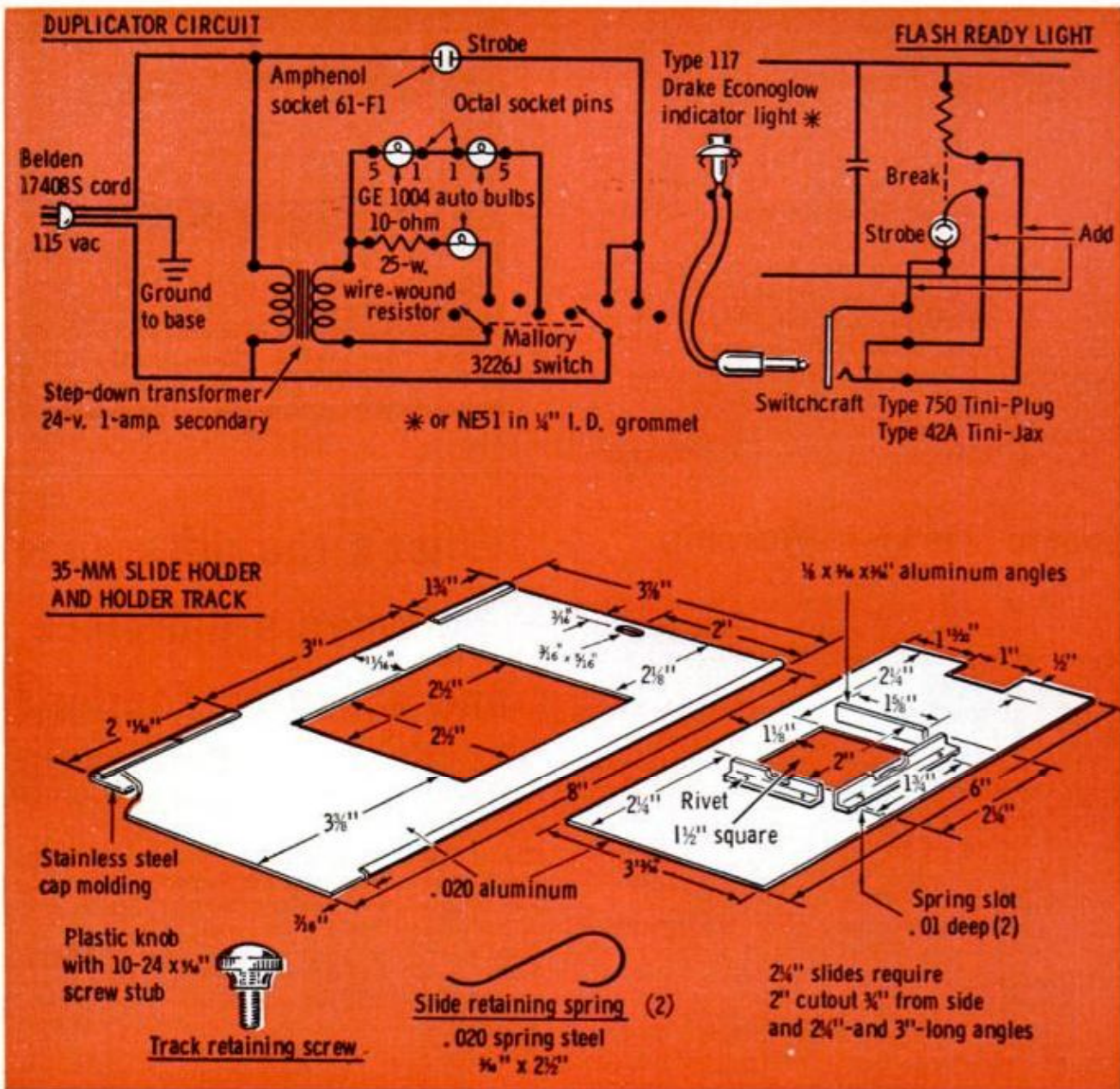
NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

PHONE \_\_\_\_\_





**MAKE THIS COPIER** *(Continued from page 185)*

under a tee if needed. Align the trunnion faces parallel to each other and perpendicular to the base, and slide the rails in or out to make the carriage sides parallel.

Then solder all joints, the rails last.

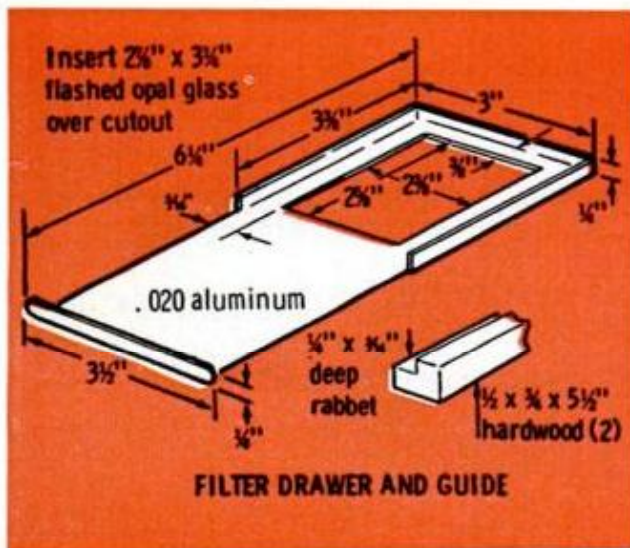
Space the trunnions with outer faces about 2 7/8 in. apart and install the traverse screw with its spring sleeves. This is followed by the side plates, installed with their rear edges parallel to the carriage rails. Drill through the plates into center of the center branch of each tee, mounting plates with self-tapping screws.

To insure that the carriage has free travel, loosen the bolts at the top of the rails, raise the carriage to the top and retighten the bolts.

Next, remove one side plate, install the carriage axles and tension springs, replace the side plate and install the knobs. These springs are designed to eliminate play in the traverse mechanism.

The travel mechanism is a traverse-drape cord tensioned by a spring. One end is attached to the upper crosspiece, run inside the upper axle, wrapped around

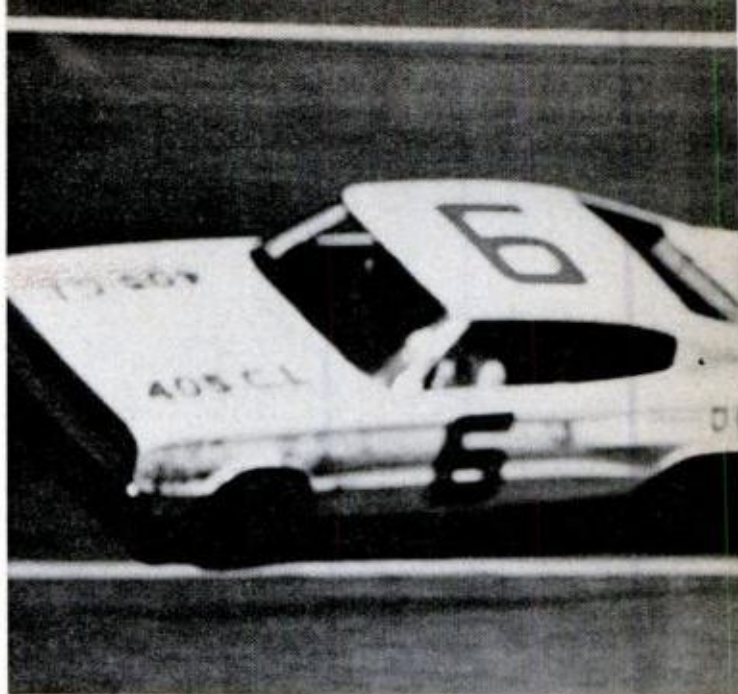
*(Please turn to page 232)*



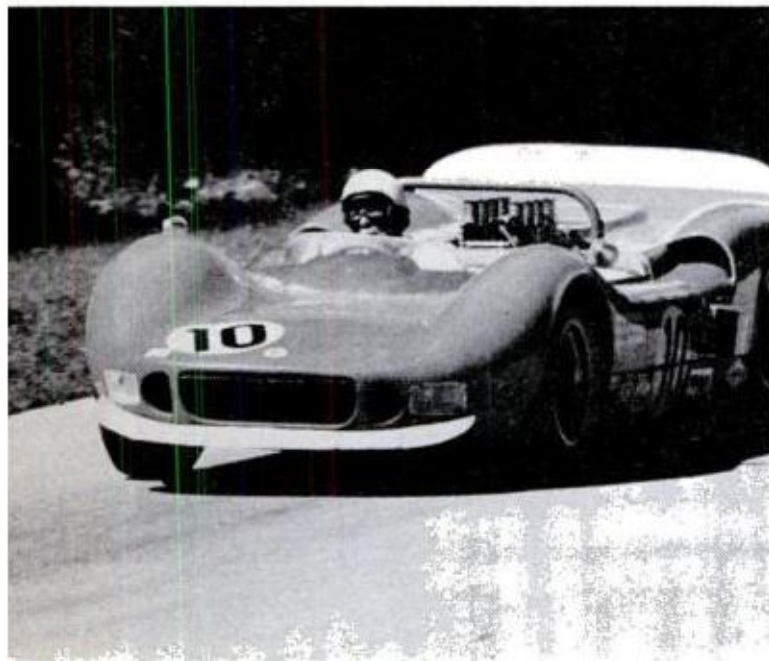




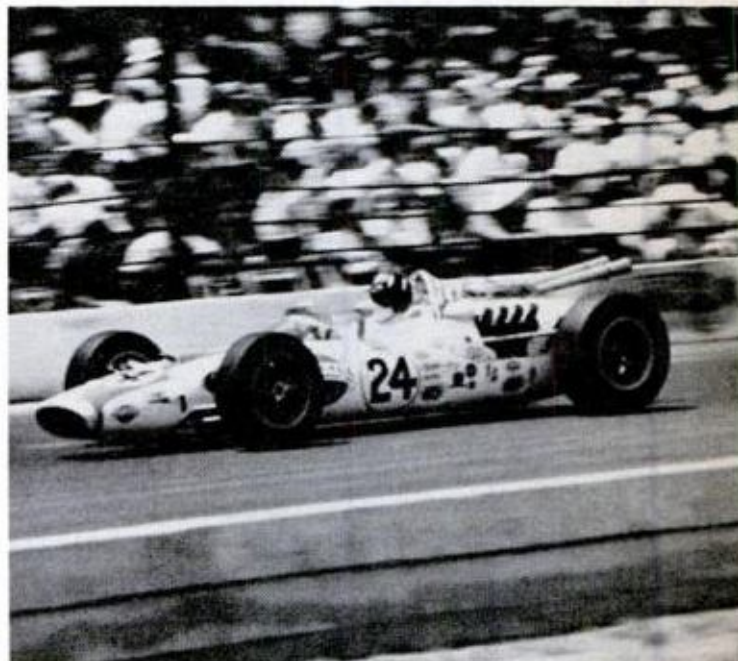
Champions spark Jack Brabham's Repco-Brabham to World Driver's Championship



Champions spark David Pearson's Dodge to NASCAR Grand National Championship



Champions spark Chuck Parsons' McLaren-Chevrolet to U.S. Road Racing Championship



Champions spark Graham Hill's Lola-Ford to Indianapolis 500 victory

## Champions use Champions!

Again in 1966, the overwhelming majority of racing champions chose Champion spark plugs! (So do the majority of the world's car makers.)

They know that the brand of spark plug does make a difference! Good reason for you, too, to always specify **Champions**.



To feel new power instantly, install new Champions now and every 10,000 miles.



**EVERLITE\*****World's THRIFTIEST Light Plants****THE CHAMPION \$144.50**

**The Champion — 1200 watts 115 volts AC for only \$144.50**  
 Unbelievable but true—Brand new production methods now make possible world's finest design in a service free alternator light plant at this unprecedented price. Plant puts out a steady 1200 watts of 115 volt AC power to run power tools, oil burners, pumps, TV, or anything that requires up to 1200 watts. Powered by a rugged 3 HP, 4 cycle, easy start gas engine with 1 year factory warranty. Complete with carry handle and shock mounts. Why fool with short life 2 cycle plants when you can buy this rugged top quality machine at our factory price.  
 Item # 1265 wt. 65 lbs. \$144.50

**RECHARGE ALL BATTERIES****Only Everlite**

- Charges 6 batteries
- Charges 3 times faster
- Charges all batteries

Including hearing aid, flashlight, lantern, radio, in fact any battery up to 12V. Save Money and have the convenience of fresh batteries always. Simple and 100% Safe. Plugs into any 115V. outlet. Guar. for one year. Send \$6.95 plus \$.65 for shipping .....

**695**

Model 75

**MASTER MECHANIC MFG. CO., Dept. A-27 Burlington, Wis.**

Southern Customers Write to Dept. A-27, Box 65, Sarasota, Fla.

**Speedy Sprayer**

**7 times faster than brushing!**

Handy, efficient sprayer for dozens of jobs around the house. Does an hour's work in minutes. Handles most paints, varnishes and insecticides. Speedy Sprayer "Compact 404" Outfit complete with gun, hose and compressor.

only **\$42.50**

Slightly Higher Denver West

Write for "How to Spray" booklet and catalog.  
**W. R. BROWN CORP.**  
 2701 N. Normandy Ave., Chicago, Ill. 60635.

**MAKE THIS COPIER***(Continued from page 230)*

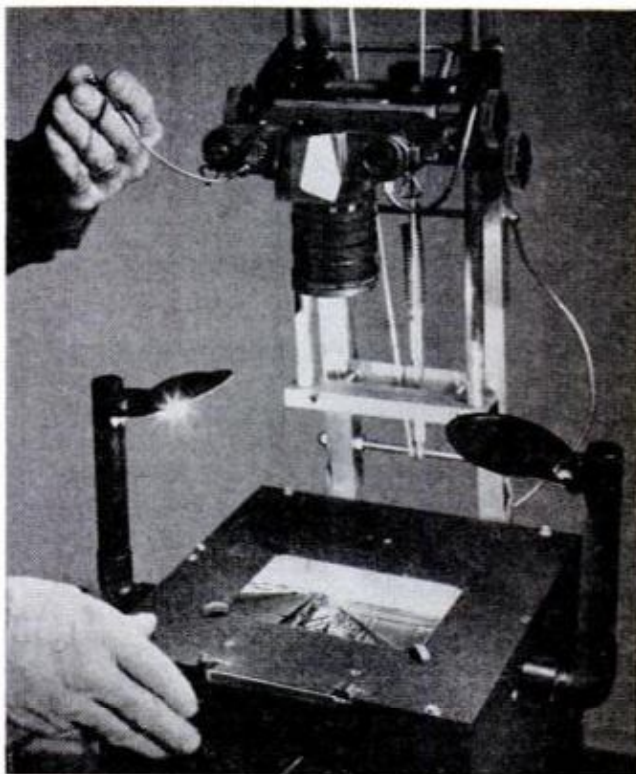
the lower axle, passed around a grommet pulley, hooked to the spring and continued up to the crosspiece in similar manner. Before tying the second end, however, tension it with the spring. Turning the lower axle, then, will move the carriage in windlass fashion.

As the final step on the copier's superstructure, cut, drill and mount the camera platform to the trunnions precisely parallel to the base.

**Completing the utility box**

To locate the light opening, make a template of a slide with the center marked. Move the camera and the template until the "slide" exactly fills the viewfinder; mark the center. Measure out  $1\frac{3}{16}$  in. in each direction to locate the cutout lines.

Free the track-retaining tabs by cutting and/or drilling  $\frac{1}{16}$ -in. holes along the cutting lines. Mount the wood filter-drawer guides with countersunk flathead wood screws to the underside of the top plate. Also to the underside, solder a 10-24 nut over the hole for the track retaining screw. Replace the hexhead sheet-metal screws at the sides of the top with countersunk 6-32 x  $\frac{1}{2}$ -in. flathead machine screws to provide a clear worktop for large prints. Washers under the nuts will

*(Please turn to page 237)*

**REFLECTION-COPY LIGHTING** requires these plug-in auto dome-light assemblies. Cemented octal tube bases, elbows and tubing should allow for inserting some additional tubes when duplicating large copy

**POPULAR MECHANICS**



## ABRASIVE CUTOFF MACHINE

(Continued from page 192)

fence after assembly is completed, this "bridge" will hold the two halves of the fence together. Drill a  $\frac{7}{32}$ -in. hole 7 in. from the same end and tap it for a  $\frac{1}{4}$ -28 capscrew. This is a pivot, since we are now going to provide for adjusting the fence for miter cuts.

First, bend  $\frac{1}{4}$ x11-in. rod to a  $6\frac{7}{8}$ -in.-radius arc and weld one end to the rear of the left end of the fence. This is a clamping guide. Now, position the front edge of the fence  $7\frac{1}{4}$  in. from the front edge of the baseplate and scribe the plate at the left in front of the fence to facilitate resetting the fence square.

For the floating miter clamp, bend a strip of  $\frac{1}{8}$ x $\frac{1}{2}$ x1 $\frac{1}{16}$ -in. hot-rolled steel so as to make one leg with  $\frac{3}{16}$ -in. clearance under it and the other with  $\frac{1}{8}$ -in. In the center of the horizontal, drill a  $\frac{7}{32}$ -in. hole for a  $\frac{1}{4}$ -28x $\frac{1}{2}$ -in. capscrew. Drill and tap a hole  $\frac{1}{4}$  in. behind the fence and  $\frac{1}{4}$  in. to the right of the curved rod to receive the capscrew. To turn it into a thumbscrew, braze a  $\frac{1}{8}$ x $\frac{1}{2}$ x $\frac{3}{4}$ -in. steel tab to the top of the capscrew.

### Optional work clamp

The one part that requires machining is the work screw clamp, which is not essential to make. One end of the threaded steel rod requires a  $\frac{1}{2}$ -in. flat milled on it to mate with a milled groove on the handle so that the latter may be pivoted to clear the baseplate.

More important is the other end of this screw, which must be retained in the clamping-block hole, yet turn in it. Reduce the end of the rod to a  $\frac{1}{2}$ -in. diameter for  $\frac{5}{8}$  in. Mill a  $\frac{1}{8}$ -in. groove  $\frac{1}{8}$  in. back from the tip. Then drill a  $\frac{1}{2}$ -in. hole  $\frac{5}{8}$  in. deep in the clamping block and a  $\frac{1}{8}$ -in. hole in the top of the block. This hole must intersect the  $\frac{1}{2}$ -in. hole at one side and  $\frac{1}{8}$  in. from its bottom. A split pin inserted from the top will ride in the milled groove as the screw turns but will prevent the screw from withdrawing when the clamp is backed off.

### Baseplate stop for wheel

A steel bar can be welded to the underside of the arbor plate to stop the lowered abrasive wheel after it just nicks the baseplate. With limited use of the tool, however, it would take a long time before the baseplate will be cut through, since the motor will stall if forced into too wide a cut in the baseplate. At the time the wheel does cut through the plate, the slot could be welded shut and then ground flush. ★ ★ ★

FEBRUARY 1967

# FOUR-WAY

## Best Low Cost Electric ARC WELDER

### MONEY CAN BUY

COMPLETE READY TO USE

5 YEAR GUARANTEE

Only \$14<sup>95</sup> POSTPAID

10 DAY TRIAL



WELD, BRAZE, SOLDER, CUT. Tops in performance and value. Ideal gift, educational, profitable, enjoyable. No experience needed. Use  $\frac{1}{8}$ " welding rods and  $\frac{1}{4}$ " carbons to make or repair auto bodies, fenders, trailers, boats, toys, furniture, farm equipment, garden tools, anything of metal, even aluminum. Operates on 110 V. line. Produces to 11,000°. Complete ready to use.

**WORLD'S GREATEST WELDER VALUE. BRAND NEW. YOU CAN PAY MORE BUT YOU CAN'T GET A BETTER LOW COST WELDER.** Over 500,000 in use by home owners, farmers, hobbyists and mechanics. **5 YEAR UNCONDITIONAL GUARANTEE.** Simply return. We will repair or replace and ship free of charge. **You Get: FULL FACE SHIELD, heavy metal cabinet, ground clamp, 12 ft. heavy cables, SPECIAL combination carbon arc torch & rod holder, carbons, welding and brazing rods, flux, solder, welding manual. ORDER TODAY ON 10-DAY UNCONDITIONAL MONEY BACK TRIAL.**

**SEND ONLY \$2.00** and pay \$12.95 plus C.O.D. charges on delivery, or send only \$14.95 for postpaid shipment in U.S.A.

**FREE** Order from this ad & receive extra \$2.00 gift of rods, flux and solder. **FREE**

## FOUR-WAY WELDER CO.

1810 So. Federal St., Dept. R2-B, Chicago, 60616

## MAN SIZE! NOT A TOY!

### 12 hp, all-gear drive

Mows lawn up to 60" swath ... handles tough jobs others can't. Sized for bigger tools, extra leg room. Automotive clutch, transmission, and differential — no belts. Implements for mowing, dozing, gardening, snow. Own the best, at modest cost! Write for catalog.



## ECONOMY TRACTOR

1005 K-2 Amoka Ave.  
Waukesha, Wis.

## NOW! WARN OVERDRIVE gives 'Jeeps' more Go!



New approved accessory cuts engine RPM 33% at any speed, reduces noise, vibration so you can drive your Jeep 4-w.d. comfortably at freeway speeds. Amazing synchromesh OD lets you shift up or down, on the go, anytime, in any gear, at any speed. Adds six forward speeds, two reverse. At Jeep dealers, or write us.



**WARN SALES CO., Inc.**  
9050-A Empire Way South  
Seattle, Washington 98118



# Get 5 FREE SAMPLES

of these fine  
House of Edgeworth  
tobaccos

**1.** Choice, cool-smoking no bite Burleys.

**2.** Aroma men relish, women welcome, too.

**3.** Exclusive Peach Brandy Flavor.

**4.** Flavored with Sweet Birch Southern.

**5.**

New fragrance for the outdoorsman.

LARUS & BROTHER COMPANY, INC.  
Dept. M-2, Post Office Box 3-AC,  
Richmond, Va. 23208



Please send my five free trial pack samples as offered.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Limited to U.S.A. One offer per customer.  
Fine Tobacco Products Since 1877

## INDEPENDENTS WIN AT DAYTONA?

(Continued from page 209)

new body panels. This means they have had two seasons of hard competition and are not likely to be front-row contenders. Few 1966 Dodges or Plymouths will be for sale because they are being converted to 1967 models. Chrysler boycotted NASCAR in 1965 and built few race cars then. Ford converted most of its 1965 Galaxies to '66s. So there is a shortage of used race cars.

There are, however, dozens of 1964 Grand National cars around. NASCAR rules say only cars built during the last three model years are eligible, but because of the shortage of 1965s, the rules may have to be relaxed to let 1964s run.

Suppose an independent can't afford to build a new Ford or Chrysler and does not want to buy a beat-up, used machine. What are his alternatives? He could build a Chevelle, though the cost would be nearly as great as that of constructing one of the other makes and the job might be more complicated. For example, several Chevilles now competing use Ford suspension components because, being designed for racing, they're stronger.

This all means the true independent cannot expect to capture major races unless a fluke eliminates a dozen or so of the faster cars. The best he can hope for is that he will do such a good job that he will be invited to join a factory team.

A big problem in a race will be the speed gap between the top cars and the rest of the field. This month's 500 may see several cars qualify above 180 mph. Half a dozen more will do 177 or 178. Six or seven others will be over 170. Then there will be great gap. Many in the back rows will be 20 to 25 mph slower than those in front. One can only hope they don't get run over. It may be denied, but in past years, drivers of old cars filling up the back rows have actually been instructed to drop out with "mechanical trouble" after a few laps.

Both Ford and Chrysler will probably concentrate on major speedways. This means the Grand National races on short tracks will offer a good shot for the independents. Last year ex-mechanic James Hylton drove so well in a '64 Dodge that he nearly beat Pearson out for the championship and was named Rookie of the Year.

As Detroit participates less on the smaller tracks, it leaves the way clear for potential stars like Hylton to learn the ropes before moving on to bigger, richer races. In this sense, the future of the independent looks a little brighter. ★★



**...world's safest power saw!**

**WRIGHT®**  
POWER BLADE SAW

The world's safest gasoline powered saw for construction, firewood cutting, pruning, trimming, brush cutting . . . in fact, every wood cutting job.



WRIGHT DIVISION BEARD-POULAN INC., P. O. BOX 9329, SHREVEPORT, LOUISIANA

**BRONZE FOUNDRY**

Since 1935

Schools • Home Workshops • Inventors  
Make your own castings of aluminum, copper, bronze, silver. Foundry sets are available in six sizes, capacity 1½ lb. to 48 lb. of red brass. 2400 Deg. F. blast furnace included with each. Write for Free Circular.



**KANSAS CITY SPECIALTIES CO.** Dept. P-2, P.O. Box 193, Middleton, Wisc.

NOT TO BE CONFUSED WITH IMITATION **\$5.95** Not Sold to Calif. or N.Y. res.

22 Cal. Blank Cart. 8 Shot Revolver  
No Permit Required  
Imported from ITALY

**"BLACK VENDETTA"**



Latest model, not a toy. Gun is of solid steel construction. Lightweight and perfectly balanced. Fires 8 rounds in 2 seconds! Double or single action. Precision crafted. 5½ inches long. Ideal for stage, sporting events, boating, protection. Revolver \$5.95, deluxe leather holster \$2.25. Send cash, check or M.O. and save C.O.D. charges. \$1.00 deposit with C.O.D. orders. **BIG THREE ENT. INC. 1109 Sixth Ave., Dept. PM27, N.Y., N.Y. 10036**

**BASEMENT TOILET FLUSHES UP**



TO OVERHEAD SEWER OR SEPTIC TANK. NO DIGGING UP FLOORS. INSTALLS EASY. Write **McPHERSON, INC. BOX 15133 TAMPA, FLA.**

**HARD-TO-FIND TOOLS**

**NEW CATALOG** of exceptional useful tools rarely found in stores or other catalogs. Industrial—professional quality only. Used by wood & metal workers, repairmen, welders, machinists, clock, watch and instrument makers, jewelers and model makers. Brookstone tools solve problems—make work easier, more fun. Send 20¢.

**BROOKSTONE CO.** 27-24 RIVER ROAD WORTHINGTON, MASS. 01098



**Build BEAUTIFUL CLOCKS**

Send just 25¢ for illustrated clock book—the most complete available, describing plans for grandmother, grandfather, wall and shelf clocks easily and inexpensively made with simple tools. Also pictured are a wide selection of finest dials, quality movements, and kits in high-grade cherry, mahogany and walnut.

**CRAFT PRODUCTS, Elmhurst, (1) Illinois**

**GENUINE ALNICO MAGNETS**






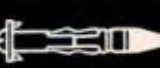


**PERMANENT, NON-ELECTRIC, GUARANTEED.** Hundreds of uses. Retrieve valuable steel items from fresh or salt water, tools from tanks and drains. Try any magnet one week. Money back if you are not well pleased.

- S-710 (Wt. 53 oz.) Has pull of 225 lbs. on steel block... \$16.50
- S-625 (Wt. 49 oz.) Has pull of 125 lbs. on steel block... \$10.50
- S-600 (Wt. 40 oz.) Has pull of 100 lbs. on steel block... \$ 8.00
- S-575 (Wt. 18 oz.) Has pull of 75 lbs. on steel block... \$ 7.00
- S-500 (Wt. 13 oz.) Has pull of 50 lbs. on steel block... \$ 5.00
- S-90 (Wt. 5 oz.) Has pull of 15 lbs. on steel block... \$ 3.50
- S-44 Rod Magnets for Electric Guitars 1¼" DIA. x 1¼" 12 for \$ 4.00
- S-47 Hot pad Magnets . . . 10 for \$1.00 . . . 50 for . . . \$ 4.87
- S-35 Hobbyist Assortment of 8 small magnets . . . \$ 2.00

SEND M.O. OR CHECK—WE PAY POSTAGE—SORRY NO C.O.D.'s  
**MIAMI MAGNET COMPANY, 3240 N.W. 27th Ave., Miami, Fla. 33142**

**Fasten with the real thing**

<b>MOZZLY</b> hollow door fasteners 	<b>MOZZLY</b> extra-strength hooks 	<b>MOZZLY</b> hollow wall fasteners 
<b>MOZZLY</b> heavy-duty solid wall fasteners 	<b>MOZZLY</b> Well-Nut all-purpose fasteners 	<b>MOZZLY</b> no-drill hollow-wall drive fastener 

**MOZZLY®**

There's no substitute for genuine MOLLY fastening products . . . best for 95% of all household fastening jobs.



**CONSUMER PRODUCTS CENTER**  
**United Shoe Machinery Corporation**  
221 OLEY STREET, READING, PA. 19601



# You're the guy they count on to keep the moving parts moving.

There are over 50,000 moving parts in an armored convoy. And you know them all.

You're an expert—an Army mechanic. You can hear an engine knock 5,000 miles before it starts. And the swingiest music in your life is the sound of a well-tuned motor.

You first heard that music back in high school when you had that sweet '61 convertible. You figured you were a good mechanic then, but now you know you are.

Now you have Army training behind you. A three-month course you couldn't buy in civilian life. It was eight hours a day of valves, pistons, gears, bearings, shafts and rings. It mixed classroom theory with shop-room practice.

And when it was over, you had it made. The course and your future. Your future in the Army. Your future later as a civilian.

As a high school grad, you got your training guaranteed in writing before you enlisted. You had over 300 choices. The one you picked was a winner.

So were all the others.

## Army





## MAKE THIS COPIER

(Continued from page 232)

prevent them from bottoming on the heads in the thin material.

Make the slide-holder track, slide holder and filter drawer as shown on page 230. Fasten the aluminum sheet to the cap molding with epoxy cement.

The layout of the electrical system is fairly apparent from the photo on page 185. The optional electronic-flash ready-light is positioned on the front of the box below the switch hole. The track mounted on the bottom accommodates both the flash unit and reflector. The terminal board is standoff-mounted.

The viewing light, mounted under the nut from the girder backup plate, is a socket from a 1960 Ford backup light with a biscuit cutter for a reflector. A dome-light assembly will work just as well. As with the flash, its light is designed to strike the reflector board. The light path from the flash to the reflector to the slide is about 8 in.

For reflection-copy lighting, I made lights consisting of octal bases from some worn radio tubes, copper solder elbows and copper (or plastic) tubing joined with epoxy cement. Auto dome lights are attached to the upper ends.

### How does the copier work?

With the switch off to the left, the transformer is on, but there's no power to the lights or flash. In the second position, "view," the viewing light is on along with the flash unit. Next, "expose," the flash unit is on, but the viewing light is off. Finally, the "copy" position with copy lights on, flash and viewing light off.

The filter drawer holds a flashed opal diffuser and any 3-in. gelatine filter square. For 35-mm and super slides, a 2-in. square mounted in a 3-in. card frame will suffice. With most electronic flash units, you'll need a Wratten 81A filter to kill the bluish cast.

In addition to adjusting image size, carriage travel is used for focusing, particularly when working at a 1 to 1 image ratio. The carriage traverse is another means of lateral adjustment.

A reversed 55-mm lens, a filter adapter, a reverse adapter and a 21-mm tube will provide a 1 to 1 ratio. A reversed 35-mm lens in the same setup will enlarge a 16-mm slide to 35 mm.

To duplicate an underexposed slide, open one stop for every estimated stop of underexposure. To correct underexposure, open two stops for every stop estimated.

To duplicate or correct an overexposed slide, stop down in the same way. ★★ ★



## How to get your choice of training guaranteed before you enlist.

Your first step should be towards your Army Recruiting Sergeant. He has all the facts on more than 300 courses open to you. As a high school grad, you'll get the course you select guaranteed in writing before you enlist. And there's no obligation until you enlist.

Call him today. He's in the phone book under U.S. Government.

Meantime, get a colorful, exciting 40-page booklet about Army life and Army opportunities. Simply fill out and mail this coupon. There's no obligation.

# Army

PM 2/67

OPPORTUNITIES

Box 1041

Mt. Pleasant, Iowa 52641

Please rush me your 40-page booklet,  
"The Secret of Getting Ahead."

NAME \_\_\_\_\_

AGE \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

PHONE \_\_\_\_\_

EDUCATION \_\_\_\_\_



## BUILD YOUR OWN CAMPER AND SAVE!

Complete, easy to follow Camper Plans, Instructions and Materials List ... \$3.95

Satisfaction Guaranteed!  
PICKUP COVER PLANS \$2.00  
EQUIPMENT CATALOG \$1.00

refundable on first order.

Also Factory Built Units.

**VIKING CAMPER SUPPLY, INC.**  
94-BP Glenwood Ave.  
Minneapolis, Minn. 55403



Save 50% With This Viking Package Deal

All items from our catalog to build a 10' or 10'6" Camper. Average retail \$1,795. Total Pkge. \$847.10.

SEND CHECK OR M.O. FOR DETAILS SEND DIME

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

## I-N-V-E-N-T-O-R-S WE NEED INVENTIONS

Sell your invention for cash—need money for Patent?—Are technical problems holding you back? Universal Inventions has helped inventors all over the world—just like yourself—why not you? Inventions provide the magic spring-board to sudden riches. REMEMBER, we either sell your invention or pay you a cash bonus. Write for details.

UNIVERSAL INVENTIONS, Dept. 13, Marion, Ohio



Learn how to become a **GAME WARDEN**

GOV'T HUNTER, FORESTER, WILDLIFE MANAGER

Exciting job openings now for qualified men who love outdoor work. Protect forests and wildlife—arrest violators! Good pay, security, prestige and authority for respected career Conservation Officers. Easy home-study plan! Send for FREE Fact BOOK, aptitude QUIZ, SUBSCRIPTION to Conservation magazine. State age.

NORTH AMERICAN SCHOOL OF CONSERVATION  
Campus Drive, Dept. 4172, Newport, Calif. 92660

**SCUFFED FLOORS? SEND FOR FREE SAMPLE**

Removes heel marks, stains, adhesive from asphalt, vinyl, vinyl asbestos. Send name of hardware or linoleum dealer.

**MY-RO TILE CLEANER & ADHESIVE REMOVER**

MY-KO CHEMICAL CORP., Dept. PM  
1736 N. Second St., Milwaukee, Wis. 53212



## DRIVE-BY-HULL AUTO COMPASS

... because today's turnpike and expressway exits and entrances call for fast, sure direction knowledge. At your dealer's or write for literature.

INSIST ON FAMOUS HULL QUALITY  
HULL MFG. CO. • Box 246-D-2 • Warren, Ohio 44482

**HIGH SPEED DRILL BIT MIX**  
**40 Drills \$250**  
Only Add 35c postage & handling

A fabulous buy. You get 40 assorted, American made high speed drills. From 1/32" to 1/4" in varying lengths. All sharp and ready to go. Also 40 High Speed Wire Gauge Drills #60 to 80 for only \$3.95 ppd.

**CONSUMER BARGAIN CO.**  
Dept. PM-2, 15 Matthew St., Farmingdale, N. Y.

## U.S. GOV'T EQUIPMENT SURPLUS

### DIAL TELEPHONE

(ITEM #715) -- Same type phone used on all telephone systems. Use as extension to main phone or on private systems. Excellent condition. Shipping weight 8 lbs. Cost \$25.00.

FOB \$5.95



FOB \$66.95

### 12-VOLT BATTERY WINCH

(ITEM #318-A) -- Powerful 12-volt gear reduction winch. Full reversing. Use on truck or auto. 2000 lb. capacity. Holds 195 ft. 1/2" cable. Size 10" x 8" x 7". Shipping weight 68 lbs. Motor cost gov't over \$275.00.

### AIR COMPRESSOR EQUIPMENT

For farm, home, industry at terrific savings. Gauge \$1.85, Compressor \$18.49, Tank \$4.95, Complete Kit \$30.50



Send 25c Coin Or Stamps For 3 Main Catalogs

Electronic Surplus -- Many marvelous buys. Relays, motors, switches, recorders, walkie-talkies, Homestudy Course, Kits, etc.

**SURPLUS CENTER**  
DEPT. PM-027, LINCOLN, NEBR. 68501

## BE YOUR OWN BOSS!

INCREASE YOUR INCOME  
MAKING RUBBER STAMPS  
PART OR FULL TIME!

Big profits... little investment... small working area. Deal direct with manufacturer providing lowest prices on professional presses & supplies, plus valuable aid. For FREE prices and full facts write



**CUSTOM MERS.**

402 E. Elm, Springfield, Mo. 65801

Precision lathe  
incls. 3-jaw chucks,  
1/10 hp motor

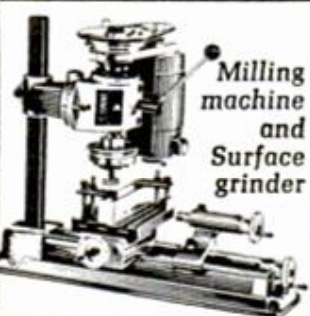
Drill press  
head rotates 360°

Polisher  
speeds to  
7200 rpm

## UNIMAT

is 5 machines in 1

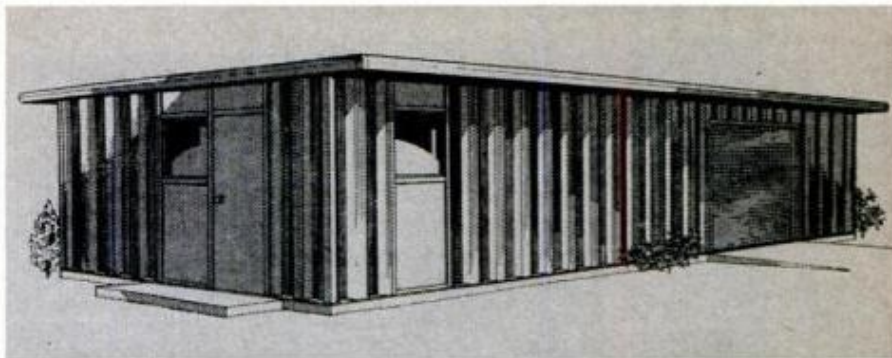
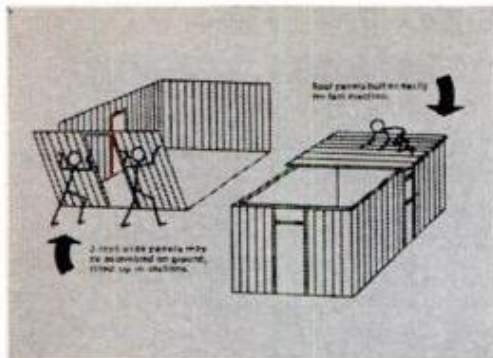
Amazing multi-purpose machine converts from precision lathe to vertical mill, drill press, surface grinder and polisher in seconds! Price, \$139.50. includes motor, lathe and drill chucks. Easy-to-use —detailed instructions show how. 50,000 units now in use by model makers, hobbyists and R & D labs. Write for free catalog, or send \$1.00 for photo-packed 40 page handbook, "Miniature Machining Techniques."



AMERICAN EDELSTAAL, INC.  
DEPT. G-B7, 350 BROADWAY, NEW YORK 10013



**NOW 2 men put it up with a wrench...in days**



**NEW BUTLER PANL-FRAME® M-36 BUILDING**

Butler's newest building is a do-it-yourself project. You don't need heavy framing because the rigid panels are both frame and cover. Two men using ordinary hand tools can put up a 12' by 15' basic building on a foundation in less than two days. And you get a functional building that can serve ideally as a garage, utility building, field office, even a restaurant.

A factory-painted Panl-Frame M-36 building can be as small as 6' by 9' or up to 24' by 60' without interior partitions. With partitions, it can be any length. Panl-Frame is the least expensive building you can buy with these features.

Now in stock at your Butler Builder.® See the Yellow Pages under "Buildings" or "Buildings, Metal." Or send the coupon today.



**BUTLER MANUFACTURING COMPANY**  
7639 East 13th Street  
Kansas City, Missouri 64126

Please send me more information on Panl-Frame M-36 buildings.

I need \_\_\_\_\_' x \_\_\_\_\_' building for \_\_\_\_\_  
(size) (use)

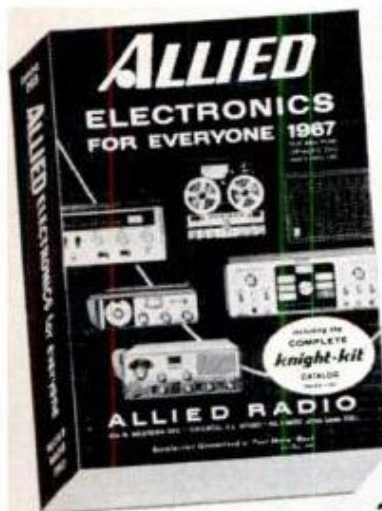
Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**FREE NEW 514-PAGE ALLIED 1967 CATALOG**



Top Savings on the best in electronics for everyone . . . Famous Knight-Kits • Stereo Hi-Fi • Tape Recorders • CB 2-Way Gear • Walkie-Talkies • FM-AM Radios • Short Wave • Portable TV • Amateur Gear • Intercoms and PA • Automotive Electronics • Test Instruments • TV Antennas Hardware, Parts • Plus scores of Allied values!

**NO MONEY DOWN!**  
24 months to pay with Allied Credit Fund Plan.

**FREE!** ALLIED RADIO, Dept. 6-B  
P.O. Box 4398, Chicago, Ill. 60680

Send FREE 1967 Allied Catalog

Name \_\_\_\_\_  
PLEASE PRINT

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**20 WOOD SAMPLES with woodworkers Catalog**

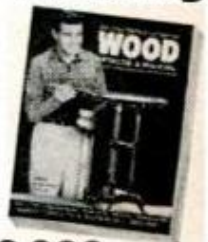
ENJOY woodworking more! Let Constantine's big picture-packed Catalog-Manual help you build new furniture — refinish, restore beat-up cabinets, chairs, chests, tables, etc. Find instantly whatever you need. Buy at money-saving prices from world's largest catalog source for imported and domestic woods. Cabinet lumber, carving blocks, veneers, plywood, pipe briar, inlays and more! Newest Catalog features new tools, materials, shop devices. Fabulous all-purpose clear finish. Glue that needs no clamps. Inlay picture kits, 99¢. Needed products found nowhere else. Plus woodworking instructions, plans, patterns!

**Catalog & Wood Samples Only \$1**  
Dollar Fully Refunded on First Order  
Accept this offer to own fascinating set of 20 2x4 specimens of world's glamorous veneers — Rosewood, Satinwood, Lacewood, Teak, etc! Compare! Then instantly identify finest woods wherever you go. Send only \$1 for Wood Samples and Woodworkers Catalog. Dollar refunded on first order. Est. 1812

ALBERT CONSTANTINE AND SON, INC.  
2050 Eastchester Rd. Bronx N.Y. 10461 Dept. B-5

Enclosed \$1 for Wood Samples & Woodworkers Catalog. (\$1 refunded)  Catalog only 25¢

**MAIL AD** Name \_\_\_\_\_  
Address \_\_\_\_\_  
Zip \_\_\_\_\_



**2,000** PRODUCTS FOR SHOP & HOME  
Woods — Veneers — Finishes  
Furn. Hardware — Lamp Parts  
Cane — Upholstery — Tools  
Picture Molding — Clock Kits

**FREE WITH CATALOG**  
"101 PROJECT IDEAS"



If there are 10 businesses  
in your town, you can

# MAKE UP TO \$50 EXTRA A WEEK!



Line includes hundreds of items businesses need & use!

BY supplying just 10 businessmen in your town with the office supplies, business forms and printed material they need—and use up—every day, you can make extra money every week in just a few hours of your spare time! National's great line of business necessities and advertising specialties make it easy for you to earn \$50, \$100 a week—and more!

### NO EXPERIENCE NEEDED YOU DON'T SPEND 1¢

We send you FREE everything you need to start making TOP COMMISSIONS right away. Send coupon below for FREE Kit that tells you how to start making extra money in spare hours you'll never miss. MAIL COUPON FOR FREE DETAILS. No obligation.

National Press, Inc., North Chicago, Ill. 60064 Dept. 764

Home Office, National Press, Inc.,  
Dept. 764, North Chicago, Ill. 60064

Yes, I want your big line of BUSINESS PRINTING, BUSINESS NECESSITIES, and ADVERTISING SPECIALTIES FREE AND POSTPAID so I can earn extra money week after week

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

## MAIL TODAY FOR FREE BOOKLET...

Showing the most beautiful school in the country... elaborately equipped with the most modern, scientific testing equipment known.

Day and evening classes. Good, full & part time jobs and housing provided.

G. I. APPROVED

1645 S. Grand, Dept. P.M., St. Louis, Mo. 63104

Name \_\_\_\_\_ Age \_\_\_\_\_

Street \_\_\_\_\_

Town \_\_\_\_\_ Zip \_\_\_\_\_ State \_\_\_\_\_

Telephone \_\_\_\_\_

WORLD FAMOUS

## BAILEY TECH SCHOOL



## The Painkiller. For hemorrhoids that hurt.

You have probably heard of Nupercainal® Suppositories and Ointment by now. Nupercainal is the most effective and longest lasting painkiller of the leading products available without prescription. It is over eight times stronger than the most commonly used topical anesthetic preparation. Doctors have been recommending Nupercainal for over 33 years for hemorrhoids that hurt.

Over 8 times more pain-killing power than the most commonly used topical anesthetic.



### Variable Speed Electric Drills Solid State Electronic

#### Trigger Control

NEW 1967

- Skil
- Black & Decker 1/4" AS LOW AS \$12.64
- Sears
- Millers Falls 3/8" AS LOW AS \$15.64

SOLD DIRECT—SEND FOR DETAILS  
MOTORS-CONTROLS CO. BOX 91A MEQUON, WIS. 53092

## NEW CATALOG FOR THE WOODWORKER

A Complete Catalog for the Home Craftsman or Handyman. Contains items to make your Hobby or Home Repair Job Easier and More Exciting. Imported Woods, Veneers, Tools, Excellent Assortment of Hardware, Unusual Lamp Parts, Picture Frames, Top Quality Kiln Dried Woods, Legs, Kits and many other items you can't find elsewhere. All at BARGAIN PRICES. Send for yours today, only 35¢ ppd.

KAY-KRAFT MILLS

602 North 1st St., Dept. PM-1, Vincennes, Ind. 47591

## To Make and Sell Ornamental Concrete Items

You Need MOLDS

For Thorough Info  
On Over 300  
Different Molds  
You Can Buy And  
Use Plus Complete  
Start To Finish  
Professional Instructions  
RUSH \$2.00 for book



TURN CONCRETE INTO GOLD

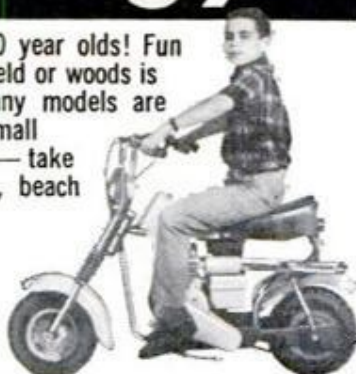
CONCRETE MACHINERY COMPANY, INC.  
839 Lenoir Rd. - P. O. Box 99 - Hickory 2, N. C.



## FOX MINI-BIKES

Do-It-Yourself or Fully Assembled  
**16 MODELS** from **\$5950**  
 2½ hp to 5 hp

Simple enough for even 10 year olds! Fun and easy! Any empty lot, field or woods is your playground. And, many models are licensable for street use. Small enough to fit in a car trunk — take it camping, to the cottage, beach . . . anywhere!

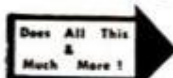


### BIG CATALOG \$1

Shows Bikes, Plans, Parts, Access., Pictures  
 Colored Brochure only -25¢

**FOX CORP.** Box 797PM • Janesville, Wis. 53545

## MINI-DOZER



- SNOWMOBILE
- BULLDOZER
- LAWNMOWER

— Complete line of Attachments —

CATALOG 30F - PLANS & PARTS PRICE LIST \$5.00

C. F. STRUCK CORP. CEDARBURG 1 WISC.



## ENROLL—EARN YOUR DEGREE

of Bachelor of Bible Philosophy (B.Ph.B.), Master of Bible Philosophy (M.Ph.B.), Graduate of Bible Philosophy (G.Ph.B.), Doctor of Metaphysics (Ms.D.), or Doctor of Divinity (D.D.). Chartered by State, Correspondence Courses only. Please write for FREE BOOKLET.

### AMERICAN BIBLE INSTITUTE

Dept. PM, 408A W. 75th St., Kansas City, Mo. 64114

## New Portable LIGHT PLANTS

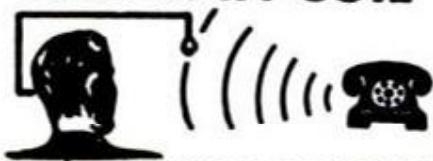
110-120 V. A. C. 1500 watts, 60 cycles. Weight 24 lbs. Size 10" x 5". Fanbelt driven from car, pickup or gas engine of 2½ or 3 h.p. Operates ½" Drills, Saws, T.V. Brand new. Money back guarantee. Regular \$89.50 now \$49.50. With switch, pulley and voltmeter. Send check or money order.

VIRDEN PERMABILT CO.

Box 7066

Amarillo, Texas 79109

## AMAZING NEW "LISTEN-IN-COIL"



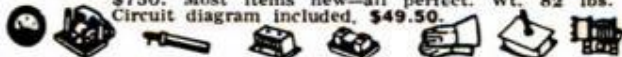
PICKS UP ANY TELEPHONE CONVERSATION!

**NO CONNECTION TO TELEPHONE NECESSARY!** You hear the entire two way conversation from a distance . . . undetected! Limited supply remaining at only \$1.98. SUPER-SENSITIVE model \$2.98. Satisfaction Guaranteed! Catalog of LISTENING DEVICES 35c. FREE with order! Save COD fee and send Check, Cash or M.O. to: Consolidated Acoustics, DEPT. 101, 1306 Washington, Hoboken, New Jersey.

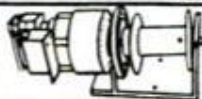
## GOVT. SURPLUS AND OTHER BARGAINS SAVE UP TO 90%

### "BIG 12" ARC WELDING & BATTERY CHARGING KIT

With deluxe accessories consisting of one R 1 300 amp generator, ground clamp, welders adjustable helmet, electrode holder, 300 amp ammeter, 300 amp shunt, rheostat, toggle switch, 300 amp reactor coil arc stabilizer, voltage regulator, battery charging relay, one pair heavy duty welder's gloves. All units guaranteed pre-tested. Approx. Gov't cost \$750. Most items new—all perfect. Wt. 82 lbs. Circuit diagram included. \$49.50.



**AC GEAR MOTOR** Operates on 115 V. AC 60 cycle. Continuous duty. 1/15th HP 4 pole motor. 9 RPM @ output shaft. Contains extra heavy steel gears. Develops 750" lbs. torque. Face mounting. Great for conveyors, mixers, displays, etc. 9" L x 4½" W x 8" H. Shpg. wt. 16 lbs. NEW. Special purchase. Specify model VW16-2. A \$38 value. NOW \$19.95



### HEAVY DUTY BATTERY WINCH

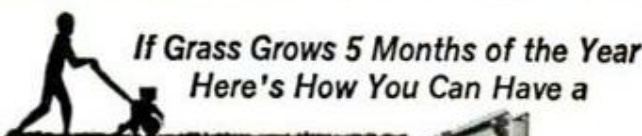
Rugged, deluxe winch with ball bearing construction throughout motor & gear train. High gear reduction. Rated cap 3000 lb. pull. Contains reversing switch. Rugged ¾" plate steel mounting base with outrigger support. 22" L x 9" W x 8" H. Handles 250' of ¼" cable. Built for 12 V battery operation; also operates on 8 V at reduced cap. & speed. A must for Scouts, Jeeps, Trucks, Boat loading trailers, etc. Shpg. wt. 80 lbs. Approx. GOV'T COST \$490. NEW. 90-day guarantee. Model E-D \$79.50



### NEW! BIG! 1967 CATALOG

Send 25c for amazing catalog with 1000's of bargains in hydraulics; electrical, marine, automotive items, etc. Order from ad. Prices FOB 50% deposit for COD. Must include your zip code number. Satisfying mail order customers thru-out the world since 1945.

**AIRBORNE SALES CO.** Dept. PM267  
 8501 Stellar Dr. • Box 2727 • Culver City, Calif. 90230



**PROFITABLE  
 Lawn Mower  
 SHARPENING  
 BUSINESS  
 OF YOUR OWN  
 EARN \$5 AN HOUR!**



Earn extra cash right from the start—average \$5 an hour. The Foley Lawn Mower Sharpener is a complete shop in one machine. No experience is needed to start—anyone can operate it, and turn out professional-like jobs. All operations are done quickly, easily and accurately.

### Operate in Sparetime, in Your Own Home

An ideal sparetime business—although many find it so profitable, they devote full time to it. For complete fact-filled booklet, send coupon. No salesman will call:



Foley Mfg. Co. 243-7 Foley Bldg., Mpls., Minn. 55418  
 Send booklet on Lawn Mower Sharpening business.

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_



# FANTASTIC VALUES WITH THIS COUPON

**AMERICAN MACHINE & TOOL CO., Dept. PM27, Royersford, Pa. 19468**  
Please send me the units checked. Payment in full enclosed \$.....  
or \$3 deposit each item enclosed, balance C.O.D.  I MUST BE FULLY  
SATISFIED OR WILL RETURN UNIT WITHIN 10 DAYS FOR FULL REFUND.  
No questions asked.

<input type="checkbox"/> 8" Power Saw at \$14.95	<input type="checkbox"/> Jointer-Planer at \$19.95
<input type="checkbox"/> Standard Rip Fence #354 at \$3.50	<input type="checkbox"/> Lathe at \$9.85
<input type="checkbox"/> Long Rip Fence #354C at \$4.50	<input type="checkbox"/> Set of 3 High Speed Turning Chisels at \$4.95
<input type="checkbox"/> Belt Sander at \$14.95	<input type="checkbox"/> Drill Press at \$29.95
<input type="checkbox"/> Mitre gage for Sander at \$1.95	<input type="checkbox"/> Disc Sander at \$7.95†

½ hp GE Motor {  \$14.80 (purchased with other item)  
                           \$18.95 (if purchased separately)

NAME .....  
ADDRESS .....  
CITY ..... ZONE/ZIP ..... STATE .....

SAVE AS MUCH AS...  
**80%** WITH  
QUALITY **Amco**  
POWER TOOLS

**DIRECT FACTORY OFFER AND REVOLUTIONARY PATENTS** decrease costs, increase efficiency. Full scale power tools of heavy duty 100% cast iron and steel. Streamlined design reduces weight, cuts material and production costs. Special patents provide added efficiency, accuracy, savings. Parts made, assembled, tested, packed right in our own factories shipped direct... save store profits.

**ENDORSED BY AMERICA'S TOP MAGAZINES**... Here is what the editors say:  
"A good bit of sound—imaginative—engineering." Popular Science; "(saw) boasts many features of bigger brothers." Popular Mechanics; "Amazingly versatile." Workbench; "Highly substantial construction, sturdy enough for production line use."

Industrial Woodworking. And Workbench awarded these tools their coveted "Work Tested" Seal.  
**OVER A MILLION USERS** confirm their precision, versatility and rugged performance.

**\*10-YEAR FULL SERVICE GUARANTEE**... Any part or parts of any AMCO power tool (except motor) which may become inoperative for any reason within ten years after the purchase date will be repaired or replaced by the factory without cost to the purchaser. Your only cost: for postage.

**UNCONDITIONAL  
10-DAY MONEY  
BACK  
GUARANTEE**

You must be fully satisfied. If not, return in 10 days, freight collect. Money promptly refunded in full.



## 8" TILT ARBOR POWER SAW

**DOES WORK OF \$75 BENCH SAW** as is. Converts easily to equal any \$300 floor model cabinet units! Crosscuts, rips, mitres, cuts compound angles, dadoes, makes coves and mouldings.

**\$14.95** f.o.b. factory. Wt. 25 lbs. Includes completely assembled cast iron and steel 8" saw with ground cast iron table... less blade. **RIP FENCE**, if desired, for easier work alignment, \$3.50 add'l.

**SAW BLADE TILTS... TABLE STAYS LEVEL**  
• Locks securely at any angle up to 50°, raises, lowers 0"-2¼". Patented tilt mechanism, accurate etched scale. Patented motor mount takes std. ¼ h.p. or larger motor, keeps belt tight, assures perfect alignment at any angle, transmits full power. Takes std. blade, saw insert removes to take dadoe heads, cutters, etc. (not incl.). Accurate mitre gauge assembly. Ground spindle. Enclosed steel base. "Compo" bearings. Access. Std. size (for bench saw) \$3.50; larger fence (for cabinet base, as ill'd.) \$4.50.

**FREE CABINET BASE PLANS** Use as portable bench saw as received (inset photo) or transform easily and inexpensively into floor model (as shown) guar. to do work of floor models costing \$300. **FREE plans**... all you'll need are a sheet of ¾" plywood and 3-4 hours. Use your AMCO saw for cutting. Plans provide 27" x 24" work surface, 33" height, tool storage compartment.

**10-YEAR FULL SERVICE GUARANTEE\***

## 6" SWING 3-FOOT LATHE



Optional faceplate for turning bowls, trays, lamp bases, rosettes, etc. \$2.50.  
**\$985** f.o.b. factory Wt. 14 lbs.

Set of 3 high speed turning chisels, \$4.95 add'l.  
**DOES THE WORK OF \$40 UNITS**... with same precision and speed. Turns wood, plastic. Sturdy cast iron with tubular steel bed. Ball thrust cup center, spur center, T-rest assembly, lever action tail stock, 2-speed pulley. Fits any motor.

**10-YEAR FULL SERVICE GUARANTEE\***

## PRECISION 4" x 36" BELT SANDER



f.o.b. factory. Wt. 15 lbs.  
**\$14.95** †Disc Sander attachment incl. disc bracket, ground cast table (tilts 0-45°): \$7.95 add'l.

**DOES WORK OF \$50 SANDERS**... The world's most talented belt sander. Heavy cast sander incl. 4" x 36" sanding belt, V-pulley drive, multi-purpose drive spindle. Changes from horizontal to vertical sanding in secs. Uses ½ hp or larger motor.

**10-YEAR FULL SERVICE GUARANTEE\***

## FULL 22" JOINTER-PLANER LONG, 4 1/8"

**\$1995**



f.o.b. factory. Wt.: 19 lbs. Complete as shown.

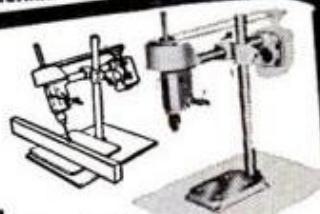
100% precision ground cast iron and steel.

**DOES THE WORK OF \$60 UNITS**... Professional power planing at a hand tool price. Make faster, more accurate joints, rabbetts, bevels for windows, doors, drawers, square tapered legs—Adjustable precision ground cast iron tables. Patent-pending design holds knife to table clearances at any depth. Rabbett depth ¾". Fence adjustable 0°-50°. Hardened, ground hi-speed steel knives. Dual cutter guards. Balanced cutter head.

**10-YEAR FULL SERVICE GUARANTEE\***

## 32" RADIAL DRILL PRESS

All cast iron and steel  
f.o.b. factory **\$2995**  
Wt. 30 lbs.  
½" cap.  
Jacob's chuck incl.



**DOES WORK OF \$90 UNITS**... and much more. Industrial quality precision unit with all standard features, many extras. Head raises, lowers. Depth of throat up to 16". Pre-set to any angle for on-or-off table drilling, even horizontal drilling. **10-YEAR FULL SERVICE GUARANTEE.\***

**BRAND NEW ½ H.P. MOTOR...\$14.80**

F.O.B. FACTORY

FOR ANY OF ABOVE MACHINES. WT. 17 LBS. PURCHASED SEPARATELY, \$18.95



What kind  
of man uses  
Vaseline  
Hair Tonic?



His host has just been shot "I saw her shoot him." "No! I just picked up the gun." "You're a liar..."



"I saw smoke pouring from the gun, my dear." "Impossible, you're the liar." How does he know?



.38 caliber cartridges are virtually smokeless.

Some men are hard to fool.



The man who knows how to take care of himself  
uses Vaseline® Hair Tonic.



Материал предоставлен ООО «Велес»  
СЛЕДИ ЗА СЕБЯ



# No motor in its power class will go as far on 6 gallons of regular gas and one pint of oil



This is the 100 hp Evinrude motor that holds the world's outboard speed record (130.9 mph)!

How come it also beats all other big outboards in fuel economy?

There are two reasons:

First, it has a unique fueling and ignition system.


Each cylinder has its own fixed-jet carburetor . . . its own straight-in manifold . . . its own individually sealed compression chamber, with internal exhaust tuning. The combustion climate is thermostatically controlled. And ignition is all-electronic—with no mechanical contacts. It all adds up to faster firing, cleaner combustion, more power out of each fuel charge.

Second, the low-friction, low-profile V-4 design is inherently balanced. It runs smoother. Its short, rigid crankshaft has less "torsional whip" than tall in-line designs.

The high-torque, short-stroke V-4 design delivers higher thrust over a wider speed range. Propelling is less critical. Its versatile power is more efficient under varying load and speed conditions.

If you enjoy passing gas docks, you'll enjoy it oftener with a Starlite 100-S.

See your Evinrude dealer, listed in the Yellow Pages. Catalog free. Write Evinrude Motors, 4052 N. 27th St., Milwaukee, Wisconsin 53216

**EVINRUDE**  
first in  outboards  
Div. of Outboard Marine Corp.

Материал, защищенный авторским правом