THE ADVOCATE OF INDUSTRY，AND JOURNAL OF SCLHNTIFTC，MFOCEANICAL AND OTHER IMPROVBMTHNTE．

VOLUME 6．］
Scientific American CIRCULATION 16，000．
 BY MUNN \＆COMPANY，




John Carrouthors，Bavannah，Ga．
M．Bollemet，Mobile，Ala．
Barlow，Payne o Poarroon，L．ondon．
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remainder in 6 months．

The First Inventor of Steamboats． The Vienna correspondent of the Morning Chronicle says：－In the archives of Venice an interesting discovery has been made，from whici it would appear that a Frenchman named Gautier，professor of mathematics at Nancy，and member of the Royal Society at Paris，was the first to invent navigation by steam．In the year $1756^{\prime}$ he submitted bin plan to the society of which he was a member， and it met with no countenance from that body．He then published a treatise on the subject，which attracted the attention of the Venetian Republic，and procured for him an invitation to the shore of the Adriatic；he went but death soon put an end to his labors． A year or two afterwards the theory of Gau－ tier was practically exemplified on the Seine， amidst the acclamations of the Parisians． The treatise by Gautier on＂Navigation by Fire＂is the discovery alluded to above． ［Exchange．
［The Vienna correspondent of the Chronicle exhibits his entire ignorance of the subject，for Jonathan Hulls，took out a patent in England， and published a pamphlet on the subject of steam navigation in 1737－see our History of Propellers，pages 13， 14 and 15.

## Patent Soap．

We perceive that Mr．John Ransom St． John，of this city，has secured a patent in England for what is termed an improvement in soap．It is made thus：

A soda lye is first made，in which 49 parts of lime to the 100 parts of soda are used This makes a caustic lye of $10^{\circ}$ ．To every pound of hot lye of this strength， 6 lbs ．of tal－ low，lard．sterine，or any oil is added，and the mixture boiled．This makes Fuller＇s soap． To every 100 parts of this soap made hot，add 50 lbs ．of common whiting or the silicate of magnesia mixed with 15 gallons of water． The whole is then boiled and 12 pounds of re－ $\sin$ is added and stirred until the union is completed，but not allowed to boil． 14 lbs ．of of soda crystals are then added，and 2 lbs ．of borax．A mixture of 3 lbs of starch may now be added，and all stirred with a good heat and until fully dissolved and mired together．A trial of the contents of the soap kettle may now be made，and if the sample，when placed in a shallow vessel，quickly hardens and sets， the contents are run off into moulds．The borax is a new and good feature，but a some－ what expensive one in this soap，and the whiting，however good for hardening，and adding to the weight，does not add to its de－ tergent quality by any means．

A Geological Curionity．
Mr．James Rooinson，of New Bedford，Mass． recentlydiscovered in Fairhaven，near the fort， a large stone of very remarkable formation， specimens of which he has sent to several dis－ tinguished geologists．Profeesor Hitchcock， of Amherst，says the rock is coarse phorphyri－ $\Psi$ tic granite．It contains large and perfect phic granite，which is remsrkable．

NEW－YORK，SEPTEMBER 13， 1851.
［NUMBER 52.

AVERY＇S PATENT PLATFORM HORSE－POWER．．－－－Fig． 1


The accompanying engravings represent an Improved Horse Power，invented by Mr．Cyrus Avery，of Tunkhannock，Wyoming Co．，Pa，and of last June．
Figure 1 is a side elevation，the frame being broken away round the axles to show the im－ proved parts．Figure 2 is a transverse sec－ tion．The same letters refer to like parts．
$A$ is the frame；$B$ is the main shaft hung in suitable bearings on the frame，and having two toothed chain wheels，C C，and a fly wheel fast upon it ； $\mathbf{E}$ is the lower guide shaft having two plain wheels，F F，fast upon it ； G G are rollers fitted so as to turn easily on the shafts B and E，outside of the wheels，C and $F$ ，close to the sides of the frame；$H$ is the platform which is secured in the common way to the links of the endless chain，I I， which have recesses on one side fitting to the teeth of the wheels， $\mathbf{C} \mathbf{C}$ ，on the driving shaft $B$ ，and they also run on the plain wheels，$F$ on the guide shaft，$E$ ．The links of the end

Fig． 2.

less chain are made of cast iron，united by knuckle joints，and，in every alternate link a wrought iron pin，$b$ ，is placed standing out from the outside of the link，the requisite distance form the axle of one of the rollers， K ，which supports the pletform；thus the axles of the rollers form parts of the links；$L$ are the top guide rails on which the rollers， K K ，run on that part of the platform above the phafts． The lower guide rails on which the rollers ran are on that part of the platform below the shafts．While the platform is in motion the wheels， K K ，move from the upper guide rail， L ，to the lower one，or vice versa，when their direction is reversed．The common way of guiding them around the shafts，$B$ and $E$ ，is by curved stationary ways secured to the in－ side of the frame．As they travel round the ways，their revolution is suddenly stopped and
their direction reversed，and as they acquire a great impetus when in rapid motion，conside－ rable power is lost in thus suddenly reversing them．This disadvantage is overcome by the rollers，G G，on the flanges of which the wheels， $\mathrm{K} \mathrm{K}$, one guide rail to the other，their flanges enter－ ing the recesses at the side of the flanges，$a a_{\text {，}}$ on the rollers．As soon as a wheel comes in contact with one of the rolless，its motion is transmitted to the roller，which commences moving round the shaft on which it is moun－ ted，and the revolution of the wheel stops al－ most instantaneously，consequently，when it reaches the opposite rail to that which it has left，it will run freely．The rollers，G G，be－ ing flanged，keep the wheels， K K ，from slip－ ping off their axles without the aid of linch pins or nuts．Great saving is effected in the construction，as the weight of the rollers is not much，wheress the ways commonly employed are of considerable weight ；considerable work is saved in casting the chains with the wrought iron axles，$b b$ ，of the wheels， $\mathrm{K}, \mathrm{K}$ ， the axles being inserted in the mould and the metal poured around them．
The claim is for the combination of the rol－ lers，G G，as arranged，with the flanches on the wheels，$K$ L，for the purpose stated．
More information about this＂auful improve－ ment，such as the sale of rights，de，may be obtained by letter addressed to the patentee according to the above direction．

LIST OF PATENT CLAIME
Iesued from the United staces Patont Otfice．
for the wigi indine september 2， 1851.
To S．S．Young，（assignor to J．R．Stephen），of Ea－ on， 0 ．，for improvement in Rules for Caloulating Machine．
I claim the arrangement of parallel slides， substantially in the manner set forth，one sli－ der being for units，another for tens，another for hundreds，\＆cc．，and each slider being so graduated and numbered as to show through the vertical opening，the same denoting the interest or tax on the numeral figure that ap－ pears on the same slider，at the side of the bar，as described．
To T．M．Chapman，of Old Town，Me．，for impro－ ved Saw－Filing Maohine．
I claim the swinging frame constructed as described，viz．，by having the arms firmly at． tached to a rod，the ends of the said rod work－ ing freely in holes or bearings in the arms， which are attached to the horizontal rod，C， by which arrangement the swing frame has
an up and down motion，owing to the rod， C
turning in its bearings；also a horizontal re－ ciprocating motion，the same as the rod C，and a forward and backward motion，by which． with the aid of the flle turning on its axis in the frame，the file may be so adjusted，as to operate both upon the front and back of the saw teeth，substantially as set forth，
［This is an excellent invention，and we hope to be able to present an engraving of it in our columns．］
To Junius Foster of Green Point，N．Y．\＆David Marsh，of Bridgeport，Conn．，（assignor to Junius Fos－ ter，of Green Point），for improvement in method of seouring Wheels to Axles．
We do not claim the securing of a hub to an axle by means of a groove around the in－ ner end of the hub or a bead on the arle，but we claim the application of the cylinder， 5 ， and flanch $F$ on the axle，in combination with the cylinder $E$ ，flanch 3 ，couplings， 7 ，keys 12 ， and coupling box $G$ ，to retain the plate $D$ ，of the hub，and allow its rotation between the flanehes 3 and $F$ ，without any tendency to un． couple the hub from the axle，substantially as described．
To Conrad Harris \＆P．W．Zoiner，of Cincinnati， Ohio，for improvement in Double Oven Stoves．
We claim the damper constructed and ar－ anged as described，so that one or both ovens may be used at pleasure．
We also claim the flue between the ovens， substantially as constracted and arranged，to communicate directly with the exit flue．
We also claim projecting the cold air cham－ ber into the flue under the fire place，and there discharging the received air，so as to protect the oven from being over heated at that point． To Charles Hobbs，of Now York，N．Y．，for im－

## Plates．

I claim，first，the moulding，in plaster，of one or more forms of type，wood cuts，medals， ec．，at one operation，in air－tight vessels，by means of exhaustion．
Second，I claim the making of the plaster moulds with two faces．
Third，I also claim the casting from one or more moulds，in a box sufficiently tight to hold fluid metal and bringing the face perfect by means of the weight of fluid metal con－ fined above them，in column or otherwise．
Fourth，I also claim the grooved wedges for retaining the moulds in their places while cast－ ing from them．
Fifth， 1 also claim the non－admission of fluid metal to the moulds，until the orifice through which it enters is sunk beneath the surface of the fluid metal，thus preventing the dirt and dross from entering with it．
To J．C．Kempton，of Manayunt，Pa．，for improve－ ment in Drying and Oxidizing Colored Goods．
1 claim the application of atmospheric pres－ sure，or the mochanical pressure of air，in the coloring of cotton，wool，or other substance for removing the excess of liquor，absorbed from the vat，and for oxidizing or flxing the color， by its forced passage throughout the mass，and by the use of apparatus，substantially as de－ scribed．
To John Moulson，of Philedelphia，Pa．，for improve－ ment in Meroury Baths for Photwgraphic Purposes． I claim the agitation of the mercury upon a cooler surface，immediatply previous to its use in the heated cup，for the developement of photographic impressions by means of my movable lever cup or its equivalent．
I claim the lever cup，or elongated cup，mo－ vable perpendicularly on an axis，or centre of motion，which centre of motion need not be confined to a particular part of the cup，but it may be varied and placed in any manner，giv－ ing and admitting the movement of the cup， but must be so arranged as that the mercury or other substance may flow from the heated surface of the cup to the coolne surfece of the tube or elongated cup，and viot veraa，by elo－ vating or depressing the exterior end of said cup．

I claim tre belancing of said lever cup，or its equivitent，on the cuntre of motion，where－ over phaced，so that it will remain stationary when the woight of the mercury or other sub． etance is let on tu either end of it，that end contsining the mercury or other substance used being held down．
To Wm．Irvin，of Philsdelphia，Pa．，for improve－ rents in Method of Racising Sunken Vessel
I claim the combination of the inflatable air receiver，purcheee，roller，and wedge，or their equivalents，as described，for the purpose of raising and supporting vessels．
To Edwin Stanley，of Bonnfagton，N．Y．，for im－ provement in the coantruction of Bridges．
I claim the method of making the threst arches of bridges，that is to say，I claim the arch constructed partly of wood and partly of iron，when arranged in the manner set forth， the iron parts of the arch being construc ted in such a manners as to afford a firm bearing for the braces and uprights with a projecting flanch of a sufficient wooden part of the arch as set forth，and the wood being bolted upon the sides under cover of the flanches of the iron，in such a manner that the wood upon one side can be removed and re－ placed without disturbing that on the other， the whole being constructed and put together substantially in the manner set forth．
To W．B．Tilton，of Carrollton，Ala．，of Improve－ ment in the Construotion of Violios，eto．
I claim the introduction into the body of the instrument of the brace，or supporter con－ structed of any suitable matorial，and of any requisite form，between the upper and lower extremities thereof，either inserted into blocke of wood，or introduced into an elongation of the neck to answer the same purpose．I am enabled to give strength to the imborment，to resist the strain of the atrings，and disconnect the sound board，and table or back from the blocks，said brace or supporter sustaining the tensiun of the stringe，preserving the tone in quality，volume，and melody of instrument to which this improvement is applicable．
I alao claim the mantier of increasing the vibration of the sound hoard and the table or back by the cutting sway or zemoving the be－ fere desoribed portions，in the manner and for the purpose set forth．
To Nathan Chapin，of Syraouse，N．Y．，for improve－ mont in Cider Mills．
I claim the cast iron grinders，arranged and constructed as described，viz．，so as to force the apples while being crushel from the centre towards the periphery of the plates，and at the asme time to force a portion of the pumive through the holes in the lower plate of the grinders．
I also claim the method of removing the cheese of pumice from the press crib，viz．，by detsching the platform from the press crib and uning the same for a sled to draw the chece from the mill，substantially as described．
To C．S．Bulkley，of Meoon，Ga．，for improvement I claim the circuit changer，substantially as above described，in combination with the ar－ rangement of wires，magnets，\＆co．，as sot forth， for the purpose of enabling the operator，at either one of the two distant stations，to ar－ range the consections at intermediate atationy， so that he can write through to the other end atation at pleasure．

ADDITIONAL IMPROVEMENT．
To Prederiok Pfanner，of Providence，R．I．，for im－ provement in proparation of Dyo－ntuff from Spont I
I claim the dispensing with the washing of the apent madder in the first place，and the drying and pulverizing it，after it has passed shrough the other preoess，and substituting drawing or pressing instead．
destons．
To Calvin Fulton，of Rochestor，N．Y．，for Dosiga for Stove Plates．
To P．M．Hatton，of Troy，N．Y．，for Dexign fur Cast－iron Bedatoed．
To D．A．W．James，of Now York，N．Y．，for De uign for Stoves：
To S．H．Sailor，of Konsington，Pa．（assignor to
North，Harrioon \＆Chase，of Philadolphia，Pa．，for
Desigas for Stoven．
Tosilan Merohant，of Cleveland， 0 ．，for Denign for Btoven．
T To James Hatohinson，of Troy，N．Y．，（assifnor 1 to Debrith Pow in A．A．．Powers，of
＂

Improverment in the Saloty Lamp． Mr．Goldsworthy Gumey，the gentleman who，about two months ago，so ingeniously ex－ tinguished，by steam，the subterranean fire in the colliery of the Earl of Mansfield，near Al－ loa，in Scotland，has suggested the employ－ ment of burnished silver wire gauze，in place of iron wire gauze，now used in safety lamps．

## IMPROVED STEAM AND WATER SYPHON INDICATOR．



The accompanying engravinge represent ansame，through these the air escapes，as they mprovement in Indicators for steam boilers，are filled with a denser fluid；$H$ is the water improvement in Indicators for steam boilers，
invented by Mr．Wm．C．Grimes，of Philadel－ phia，who has taken messures to secure a pa－ent forms of the syphon indicator；$K$ is tent，and who，having one in use，successfully，front elevation of a finished instrument；J J for about one year，thus brings it before the are black or high colored glass floats to render public．The figures represent several forms of more visible the surface of the transparent the Syphon Indicator with one in section The same letters refer to like parte．
A is the boiler；B B are metallic tubes or imbs of the syphon；C C is a glass tube in which the different fluids meet；D D are stop cocks ；E E are amall screws closing apertures in the metalic tubes；these are to allow the air to escape，as the tube fills with water or other fluid；F F are reservoirs ；G G are small screwn oloning apertares in the topa of the

It is well known that the sufety lamp gives a poor light，owing to the wire gauze absorbing and obstructing the rays，there can be no doubt but the lamp is susceptible of great im－ provements in this respect，and we consider the suggeotion of Mr．Gurney as one of no mall importance，and one which wo hope miners will pay some attention to． are visible the surface of the transparen fills the space above the floats．
This instrument shows the height of the water and the pressure of the steam．As the balls on the floats，diverge or approach，in the same degree does the water fall or rise in the boiler．The pressure of the steam is shown by the intermediato point between，or mesn olevation of the floats，on columns of the heavier fluid，be that more or less．

The indicator represented in section at $L$ ，i imilar to that at $K$ ，except that a denser fluid is used in connection with the elastic one，ren dering floats unnecessary．
In the form shown at M，non－elastic fluids only are used，the glass is an inverted syphon with a dense fluid in the bend．At N ，adense fluid lies in a lock or bend of the metallic tube ； the glass tube above $R$ ，is a reservoir of wa－ ter attached to，and open into the boiler and forms a part of the syphon．
To have the means of knowing the heigh of the water in boilers，and pressure of the steam is of the first importance to those in charge of them．Various devices have been brought forward to do this，but try cocks and the weighted valve are still in almost univer－ sal use．Intelligent engineeers are aware however，of their defects，and the liability o the valve to magnetic adhesion，and its no showing the varying pressure of steam excep by personal manipulation，and then imperfect－ ly．The try cocks rarely ever give the exact position of the water，and often indeed de ceive ；to these may be added their limited verge of position．To obviate these defects is the object of this invention．It is an instru－ ment requiring no personal manipulation；its indications are manifest to the eye by the movement of different fluids in a glass tube， while the range of its position，in respect to the boiler，is susceptible of giving to all ex posed，timely warning of dangers．
This improvement consists in the use of a syphon for showing the height of the water and the pressure of the steam（singly or seve ally）at any elevation above，depth below or distance from the boiler．It is formed with locks，bends，or reservoirs in its limbs and fill－ ed with fluids of different specific gravities； and at the desired point where different fluids meet，it is formed of glass．
The principle upon which this instrument acts，lies in the antagonistic action of the fluids in the syphon，one tending to flow through，the other to rernain；an inevitable re sult of such fluids when in a syphon，and it in a position to act．
Hence if the meeting point of the fluids is in a glass tube，the degree of force may be seen and measured by the extent of move ment，or change of place in the meeting point of those fluids．
When the water in the fountains，to which are attached the legs of the syphon，is on the same level，then the fluids in the bottom are in equilibrio，but when one of the fountains falls below the other，an action commences in the syphon and the meeting point of the fluids will depend upon their relative weight，or spe－ cific gravity．
If the resisting or antagonistic fluid is thir－ teen times as heavy as water，then its change of position will be about one－twelfth part as much as the fall of water in the boiler．If twice as heavy，then its change is about two－ thirds as much．
If light as atmospheric air，its change is nearly the same as the fall of water in the boi－ ler．In point of fact the heaviest is always the antagonistic fluid．
When a fluid heavier than water is used， an inverted bend or reservoir is made in or near the glass to contain it．
And when one of the fluids is elastic，then the effect of steam pressure upon it，may be seen as is the rise and fall of water in the boiler．
We have placed the description of the figures first，so that a good idea of its mechanical construction may be first obtained，after which its acientific principles of action will at once be appreciated．
More information about this useful im－ provement may be obtained by letter ad－ dressed to the inventor．

To Correspondents．．Our Index，\＆cc．
We have a number of communications on hand which will receive attention in due season．Our index renders the Sci．Am．very useful for ready references to the articles pub－ lished．The list of claims which are pub lished officially every week is of manifest im－ portance to inventors．Other periodicals al－ ways copy from us．The first official newe of an invention

## Bcientificamerican

## NEW YORK, SEPTEMBER 13, 1851.

To Our Subscribers-o-End of Vorume Six. This number completes our Sixth Volume, and to you, our subscribers, we return our sincere thanks for the support you have given us, and the kindly feeling manifested in the prosperity of the Scientific American. As friends of American science, and the rights of inventprs, many of you have greatly interested yourselves to promote our circulation by soliciting others to become subscribera. From mall beginninge, six years ago, the Scientific A merican has attained to a very honorable position in point of circulation, and consequent influence and usefulness. Our constant rea ders can give testimony to a great improve ment in public taste for useful information within the past few years, and we have re ceived many congratulations for having labored so diligently to cultivate and promote it Our object and aims have been to spread abroad useful and practical information in clear and aimple language. We have alway kept free from party influences, and have been always independent, to speak without fear or favor upon every question. Truth has been the object of all our discussions, and we have spoken it, untrammelled with any other influence than the golden value of truth itself We never stand neutral, and we claim no im munity from criticism, but we do not descend to meet evely one who may choose to attack and never will; we bide our time.
We will still continue to pursue "the even tenor of our way," but with greater diligence, in the dissemination of useful knowledge, for overy increase of circulation increases our re sponsibility. The Scientific American is the best illustrated mechanical paper in the world and it contains more useful information than any other. We have always added im provement to improvement during the pas six years, and we will continue to do so. Our next volume will be printed with new type, and on heavier and more beautiful paper. We will continue to improve in good engravings and the number of them. W have able correspondents, and men of high standing in the scientific world, frequently contribute to our columns.
The articles on Electrotyping and Water Wheels, in this volume, are worth more than the whole price of subscription. We hope fo ${ }^{\text {a }}$ great addition of new subscribera to noxt vo lume, for it will be the best we have ever pub lished. Our paper is the Repertory of Ameri can inventions, discoveries, and improvement in the useful arts; it is an Encyclopedia of Progressive Science. No man can apend two dollars to better advantage than by subscri bing for it, for we are positive that there is no man, no matter what his business or profession is, but will find something in it, which he can find no where else, and which will be o more worth to him than the price of his sub scription. We have sources of information of a peculiar character, and we make this statement without hesitation, for we know it to be true. Although our subscription listis very respectable, we have a pupulation which should give us one five times larger, and by doing so, our people and country would cer tainly be gainers, for our paper is a standard work, and can always be used for reference.

## Some Poisons and their Antijotes.

The effect which some metals in an oxidized state, have upon the human body is very singular.
Gold and silver in a pure state may be taken into the stomach without producing any injurious effect, but a single grain of white arsenic will soon curdle the life blood and lay low in death the stoutest of men. Many other substances, as well as arsenic produce as fatal resulte.
The effect of "animal poisons" upon the human frame, has been known from all ages but the reason why the tiny drop ejected from the fang of the snake, or the bite of the scorpion, produces such tremendous effects upon
it is, "man is crushed before the moth." The effect of poisons taken inwardly has also been known from the earliest ages, and a common method of putting victims to death in Greece was by the poisoned bowl. The wise Socrates ell a victim to thia sind of death.
At an early age the alchymists devoted an much time to the discovery of antidotes for poisons, as they did to discover the philosopher's stone. All the knowledge derived from them, however, respecting this branch of chemical science is of scarcely any worth whatever. Chemistry is a modern science in every respect, and in no one instance more than the investigations of such men as Christisson into the nature of poisons. The virulence of any poison is known only by experiment. Poi sons are soluble, that is, they pass into the blood and injuriously affect the functions of life. The object of the chemist to ender poison inert, is to make it insoluble when it will pass away and escape withou producing any deleterious effect.
To do this in the stomach is to administe an antidote which will meet every conditio of the human system
There is an acid used in many houses fo emoving stains from furniture and clothes and for cleaning brass, named "oxalic acid;" it greatly resembles common salts, and ha been oftentimes taken for them by mistake If this poison is taken into the stomach it will be rendered inert by speedily drinking down a quantity of magnesia or lime water Another poison is corroseive aublimate which is alse moed in families for destroying bedbugs; if this is taken by ehildren or others by mis alke, the remedy in to swallow as quick as possible, the white of eggs, and if these ar ot convenient, some pearl ash and dissolve lue. Of these facts every person should be informed. These substances combine with he poison in the stomach and form an insolu be inert compound.
Hydrated protoxide of iron, which can be ju-chased at thedruggists, if quickly adminis ered is an antidote against white arsenic and sulphuric acid is an antidote for lead There are many poisons however, for which no human hand has a remedy, because their action is so rapid upon the well springs of life, But some more ought to be said about "lead poison," as it is a very extensive harm doer. Paintera colic is caused by drinking water mpregnated with lead in mines, or by th metal being introduced into the system by in haling lead dust. The metal is soluble when introduced into the body, and is the cause of aany acuto pains. Sulphuretted waters, weak sulphuric acid and water, renders lead nsoluble, and has therefore been prescribed a remedy for this disease. But it has been found that the lead, though rendered inert by being insoluble is still diffused through th body, ready when some favorable condition arises to act injuriously again. It was disco vered, not long ago, that the iodide of potassium is capable of dissolving the compounds of lead, or rather in bringing it to a new condi tion whereby it becomes soluble and can be rashed away.
If a person be poisoned with lead, the nys em strugglea to throw it off through his kid. neys, and it can be detected in the urine. The remedy is to give sulphuric acid in water, in strength, a little sour, when the pain will dis sppear, but the lead remsins in the system Then give a dose of iodide of potassium and slight pains return, but the lead will be dis appearing in the secretions. By repeated small doses of sulphuric acid and water, and the iodide of pottassium in small doses, a some intervals afterwards, the lead is effectu ally driven from the system.
This iodide of potassium has the same in fluence in driving mercury from the syatem and is one of the grandest discoveries of mo dern times in medical chemistry. The test for the ontire removal of lead from the sys tem is, when a pretty large dose of the iodide causes no acute pains.

Hon. Levi Woodbury expired at his residence in Portsmouth, N. H., on the 5th inst., eged 61 years. At the time of his death he was one

Court, which position he filled with much ability. From an early period, and until theclose of his career, he has occupied high places of public trust-discharging his duty in an able and praieeworthy manner. He was justly esteemed one of the most dintinguished of American statesmen.
Short Conversationi on Mechanick.o-No. 6 (Conoluded.)
Q. "I promised last week to present some easons, why centrifugal force was 'property f matter, an independent law of nature.' " A. Come to the point at once and tell me what centrifugal force is ?
Q. "Well, all I know about it is, that it is said to be a property of matter exhibiting itself under the condition of rotation and not chargeable upon the power applied to cause the ro tation."
A. Well you do not know, I see, what centrifugal force is. All the men who have learned the science of mechanics know what it is, you do not know where it comes from nor whither it goeth. Centrifugal force is not an independent force, it is just a name for a certain action of matter derived from another force, the same as if I said " grain is threshed by a horse power machine," it is true the ma chine threshes the grain, but there is no inde pendent power in the machine, that independent power is in the horse. There is no aw better understood by mathematicians than that "all bodies have a tendency when impressed with dynamic force to move in a straight line, and when bent out of the treight line ty another force, their tendency to move in a straight line is not destroyed, but is atill exhibited, and is named 'centrifuga force,' not because of its original nature, but ita direotion from the centre; in other words it is truly the inartia of the body, that quality by which all bodies, when impresse with a force which sets them in motion persevere forever in a straight line. Now let me nullify all that you hove said about it to the contrary; you say it is a pro perty of matter, an independent law of nature and exhibita itself under the condition of rote ion."
Q. "Yes."
A. Well, rotation in plain English, mean body revolving round some centre.
Q. "That is what I mean."
A. Very well. Is it exhibited in a body which does not retate, and in a body which does not move at all?"

## does not move " No."

A. Has a vibratory pendulum a rotation.
Q. "No."
A. Is contrifugal force exhibited by a pen dulum?
Q. "I believe it is."
A. That is right, hence it is exhibited un der more conditions than under rotation.Does a wheel exhibit rotary motion whe tanding still?
Q. "No."
A. Will it move of itself?
Q. "No."
A. What will set it in motion?
Q. "An extraneous or applied force."
A. Does it exhibit centrifugal force when s in motion?
Q. "Yes."
A. When will the wheel stop?
Q. "Whea the applied force is withheld."
A. That is right, hence, as the wheel can not move without an applied force, and stops when the applied force is withheld, and as entrifugal force is not exhibited but when he wheel is moved by the applied force, it cannot be an independent force, but is in es sence and principle dependant on the applied force, for it cannot exist without it; in short, it is the applied force, seeklng its right line of direction; centrifugal force then is not an independent force and is exhibited under more onditions than under rotation.
Q. "Woll, I see it is, but then it increases with the square of the velocity, and the ap plied force does not, consequently it must be an independent force and $a$ tremendous force it is, for it often breaks machinery to pieces, ye is no tax on rotation."
A. It is aingular how it can breat machine-
A. It ye be no tew it can breat machine
nery in that case must have cost nothing, like your centrifugal force. So far as it relates to an increase of force according to the equare of the velocity it perfectly agrees with the applied force according to the unit of measure applied to falling bodies, as I explained to you last week, and by which centrifugal action is always measured. A body moving with a double velocity has four times the vis viva, or living force of one moving with a single velocity, it is measured by $\mathrm{W} \times v^{2}$. The centrifugal force of the cog wheel gearing which meeta with an equal resistance at every new point of action is measured by $W \times v$, and this reconciles the whole theory, and it is thus understood by intelligent engineers. I know that there are some men who cannot appreciate this simple and harmonious law, for there are people who are as difficult to teach as grindstones. Many, somewhat smart men boo, are quite satisfled with such arguments as " $a$ cheese is round, the moon is round, therefore the moon must be a cheese;" I hope you are not one of these
Q. "I hope not."
A. You will never go wrong if you make the following axiom the basis of your mechanical reasonings, viz., "action and re-action are equal." It was by the use of this simple base line that D'Alembert resolved some of the most difficult and beautiful geometrical problems in his "Traite d'Dynamique." If it were otherwise, mathematics and geometry would be no better than old wives fables.

Paines Atmosphheric Light Patent.
"The Intelligencer denies, by authority, that any patent is about being issued for Paine's new light, or likely to be, his publica. tion to the contrary notwithstanding."
The above notice appears among the telegraphic items published in the daily papers on the 5 th inst. We should really like to know by whose authority such a statement was made-if by any one connected with the Pa tent Office a vacancy ought to be created in. stanter, and some one worthy of confidence placed instead. We have learned upon authority, that Mr. Paine's application is atill pending before the Office, and that it is his in. tention not to withdraw.
Now we contend that the officers connected with the Patent Office would be guilty of a gross dereliction of duty by making public any decision where the applicant is unwilling to submit to it, without availing himself of all the priviliges of reconsideration of his claims, or an appeal from the Commissioner's decision. The decisions made by the Patent Office Examiners are many times of doubtful character, and we know that Mr. Paine feels dissatisfied with the one rendered in his case. Now the publication "upon authority" of such a statement must necessarily be understood to seal the action of the office against him in this application. Mr. Paine has said great number of things which were in our opinion erroneous, but that is not to say but he may invent something new and very useful. Give every man fair play say we, and if he can show by experiment that he has discovered a new method-an improvement in gas light, or any art, he is entitled to a patent.

Literary Agency.
M. Boullemet, Esq., for many years proprietor of the Mobile Literary Depot, is about establishing a general local agency, for publishors in the city of New Orleans. He will also continue his agency in Mobile. Mr. Boullemet has for a long time been our sole agent in the latter city, and we take much pleasure in recommending him as a gentlemen, prompt and efficient, and in every way worthy the confidence of book and newspaper publishers

Substitate for Hops in Making Beer. A communication has been presented to the Paris Academy of Sciences, by M. Dumfulin, reasting to the use of picric acid as a substitute oas hops in making beer. Four grains of picric acid are sufficient for twenty-two gallon of beer. The fermentation was conducted with great regularity, and a sample of the leer was sent to the Acadeney. Hops, we uppose, are cheaper than the acid in this suppose,
country.

Ozone．
Prof．Farady has gone far to demonstrate
that Schoenbein＇s ozone is not a peroxide of that Schoenbein＇s ozone is not a peroxide of
hydrogen but merely an allotropic form of ox－ ygen．It is best obtained by placing a piece of phosphorous half covered with water in a two quart bottle loosely stopped．In five or six hours the process is complete，when the phosphorous and water may be removed and the ozone left for experiments．The test for ozone is a mirture of one part iodide potassi－ um， 10 of starch， 200 of water boiled together for a fow minutes and then spread upon pa－ per．In an ozonized atmosphere it instantly turns blue from the liberation of iodine．－ Ozone differs from oxygen in the ordinarystate by ita far higher power，acting rapidly upon lead and even ailver and discharging vegeta－ ble colors．
To Remove Stains from Mourning Drossen． Boil a handful of fig leaves in two quarts of water until reduced to a pint．Bombazines， crape，cloth，\＆c．，need only be rubbed with a sponge dipped in this liquor，and the effect will be instantaneously produced．－［Exchange． Beware of using the above，for it cannot re－ move a single stain，and those who rub crape with a sponge，will find to their cost，that they have spoiled its dress and finish com－ pletely．
There are two kinds of stains on mourning dresses，and black colored goods which are en－ tirely different，the one is dirt such as grease， \＆c．，the other is the diecharge of color．The latter is easily distinguished becauseit presents a yellow burned look．Sometimes，a little ammonis will restore the color，that is，if it has been discharged by a weak acid，but ge－ nerally，nothing will do but ce dyo．Grease and dirt oan only be removed by washing，$n$ little alcohol will remove a faint grease spot， and this is a very safe remedy．

## Inverted Locomotion

Some interest has been excited in Pittsburg by the performance of a Mr．McCormick，who walks head downwards，on（or rather under）a slab of polished marble，to which his feet at－ tach themselves，as he asserts by atmosphe－ ric pressure．He made some six or seven steps，the slab being only nine feet long．This experiment is said to be the result of many years of research and labor，and involving phi losophical principles．－［Ex．
［This is a tough story，and the philosophi－ cal principles involved，must be of that sort denominated philosophy falsely so called．

American Yachts．
The yacht America has beat all the yachta of the Royal Squadron and every other squad． ron in England with the greatest ease．This must mortify the pride of that nautical ne－ tion．

## Fire Annihilator．

We shall publish engravings and a full spe cification of this invention next woek．It is now in the hands of some of the richest ca－ pitalists in our country，and will soon be be－ fore the public for general introduction．Our remarks will be freely and impartially given． If it is all that is gaid about it，insurance companies will not be long in existence，and
fire companies will soon be disbanded．If not， itis one of the greatest schemes ever got up in We shall give it our attention
＂Bohold They Come．＂
Since the new prospectua for volume 7 was first published in the Scientific American，（two weeks ago）over 6,000 new and old subscribers have manifested their wish to become patrons to the next volume，（commencing next week） and remitted their money in advance，according to the advertised terms．
Taking the success wo have been favored with for the last two weeks，for a criterion，we may confidently expect over 20,000 patrons to our new volume，which will encourage us to be－ stow far greater expense in the editorial and engraving department of the paper than wo have ever before been able to do．
Come，Inventors and Mechanics，send in your names，and get your fellow mechanica and neighbors to remit with you．The more we have to feed，the－befter fare wo will serve you．

## Scientific American for Binding．

As this number closes volume 6，we would suggest to those that desire to have their num bers bound to send them to this office and have them executed in our usual manner，for the low price of 75 cents．
You can depend upon having your volumes well bound by sending them to this office， 20 they will be executed to conform in atyle with hundreds that we have bound for ourselves and the trade．

## rarice．

We present a title page with this number， and our readers will know how to use it in binding their volumes．The Scientific American is held to be one of the best stan dard works for binding that is publiched．
subscribers and Regularity of Mails． Every subseriber would do well to try and get one or more in the same place，for the larger the package of papers，the greator in the chance of its regularity．A single paper is often mislaid，but it is not so with a lara ger package．

## TO CORRESPONDENTS．

S．J．W．，of Mich．－Your engine though somewhat much in practice，nor so far as we construe your in－ vention，are there any new principlesdereloped there in．Compressed air has been used with and without exposure to heat more than a century and a halr
ago，also alcohol and ether have been applied as me－ dia for boiling at a low temperature，we should ad vise you not to prosecute your invention，as the ar－ rangement though probably ne

## J．D．L．，of N．H．－As to the

nvention，we cannot speak without the aily of you riment，but we incline to the opinion that it wil work．That the plan is new we have no doubt so far as we understand it．
as we understand it．
P．L．S．，of Troy．－We approve of your arrange－ ment，and think it may work well．You had better send us a small model，neatly made to represent the invention，and on its rcceipt we will advise you mor fully in in regard to its patentability
A．M，of Canada．－There are several excellen rick machines now in use in this country，but $w$ tured．

A．C．C．，of Mass．－Your apparatus is believed to possess novelty sufficient to warrant an application
for a patent．The engraving would costar D． $\mathbf{H}$ ，of The engraving would cost six dollars． D．H．，of Ala．－We answered your letter on the 3d inst．
J．E．M．，of Boston．－We are unable to give such informan ens not knowing of any suc s．M．，
Wi．Aifference between your brake and the one illus trated in 41，Vol．4，and you are advised not to apend money upon an application．
H．M．of 0 ．－Several different contrivances have bo exhibited to us for a self－acting gate to be used on railroads，and to be operated by the passing train
of cara，but we are not aware that any have been of cara，but we are not aware that any have been
adopted on any of the roads．We secured a patent adopted on any of the roads．We secured a patent
on one of the devices for Mr．R．Coffin，of West Ha－ n one of the
M．G．P．，of Del．－Mr．Morse，the patentee for burn ing tan，sarw－dust，etc．，resides at Athol，Mass． still pending at the Patent Office．
E．P．G．of Mass．－We consid
atentable，but could judge better upon that point ou would send us a model．
E．M．of Ind．－The Builder is published in London ot a high price．We do not know that a specimen number could be obtained here，withoutdestroying a file of the work．We thank you for the complimen W．A．C．of N． $\mathbf{Y}$ ．
Wility in our contrina for to belty and
and we would think it best for you to machines， model when you come on in October．
H．M．，of Vt．－Your kind offices have been duly appreciated．We hope you may be able to procure the additional subscribers you speak of．You may send a model of the bevel plane and we will have a ngraving made of it．
D．S．M．，of - Your device for balancing mill stones is beliered to be new and patentable
We do not soe anything about the ille， We do not see anything about the oiles upon which a potent coould be
months subscription．

## L．R．，of N．Y．－To <br> contact with a power any more than to wake a per

 on fraom sleep．You peruse a good explanation of his in Mr．1－2，Vol． 6.
S．C．，of N．Y．－Yours will meet with attention． D．L．，of N．Y．－We know of no good feed for be oxcept the sugar syrup．Honey is somewhat diffe ent from cane sugar，as it contains glucose and a norystalizable sugar，but we do not know its quan itative analysis．The honey from sugar should gra S．F．，of N．Y－other honey
s．．，of N ．Y． C as cylinder of 6 inches diame wo horse power，but so much the better．The pow er depends on the steam pressure．
Money recoived on account of Patent Ofice bun－


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Persons desiring the claims of any invention which has been patentod within fourteen yoars can obtain a copy by addressing a letter to thie office；stating the name of the patentee，and enclosing one dollar as fee for copying．

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 SCIENTIFIC AMERICAN． MESSRS．MUNN \＆CO． MMERICAN $\&$ FOREIGN PATENTAGENTS， And Pablishers of the do the public that the frot roupeotally announce to the public that the firntnumber of VOLUME SEVEN of this widely oircu－ lated and valuable journal will issue on the 20th of Seppember．The new Volume will commence with AN ENTIRE NBW DREBS，andwill be printed apon paper of a heavier texture than that uned in he preceding volumes．It is the intention of the Publishors to ILLUSTRATE IT MORE FULLY，by introduoing reprosentations of prominent events con－ ooted with the advascoment of soienco；besides farnishing the
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