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See Advertisement on last page.

## POETRY.

Written for the Scientific American
TRUTH Shall Prevail
by r. mactaflane.
Let falsehood's waves dash, In ceaseless roll,
Like an earthquake's crash,
Wild on my soul.
Be firm my heart,
Brave the wild storm,
Strong faith shall ne'er depart,
Though left forlorn.
Calumny's spite
May wound awbile,
Yet will the honest right
Triumph o'er guile.
Though fortune lower
Dark on the sky,
Truth never will cower-
Be thy hopes high.
False friends may leaveCold pass thee by ;
Yet do not sigh and grieve, True friends are nigh.
Though gaudy wealth
May not be thine,
If thou hast bread and health, Never repine.
Young hearts, young eyes, Weep not for scorn, Look to the bright skies, Cease you to mourn.
Truth is breaking
Shackles of wrong,
Righteousness is waking, Victory ere long.
Cradled in Truth
Never to quail,
Ealsehood shall sink forsooth Truth shall prevail.

## IFE'S LESSON SHOULD BE

by b. hallece

Forget not-regret not
The joys that have fled,
Though sweeter and fleeter,
Than fresh odors shed
From the jessamine's cup, Or the bright chalice hid
From the gaze of the sun 'Neath the violet's lid.

Forget not-regret not ; Hope ever should burn The incense of love In her funeral urn, Shedding glory and light O'er the geins of the past,
By time on the altar Of memory cast.

Forget not-regret not; Why should we regret, While one star remains, That another has set? And though all may have faded, Others brightly by far
Through the gloom may rise Than the once worshipp'd star.
Forget not-regret not ; Life's lesson should be, Like the stars that are hung O'er the limitless sea, A guide to our path, Brighter links of the chain To lead us and bind us To virtue again.


This Corn Dryer is the invention of James Kenny, of Maumee City, Ohio, and what he claims as his invention is the successful application of drying grain by steam, instead of fire heat, and also the simple and economical application of that heat. The above engraving our readers will refer to, as illustrating the structure of the machine and its mode of operation. A, represents a steam boiler with its safety valve $K$. $B$, is the feed valve which regulates the quantity of water in the boiler by the float in it, which rises as the boiler fills and shuts $B$, or sinks as the water decreases and opens $B$, which admits water from a cistern above by the water pipe.C. G, is a hopper for admitting the grain into the Dryer, where it is continually kept in motion by the screiw passing in at front by the hopper and gradually expelled in a dry state by the screw through the canal $L$. The screw may be driven by a belt from a horse power, or steam or water power. D D, is the steam pipe for heat-

## The Irishman who put t

A few days since a gentleman in Worcester county, Massachusetts, who employs several Irishmen in cultivating his grounds, ordered one of his men to put his horse into the wagon. After a short absence, Pat returned, exclaiming, "I've got him in sir, but it was a mighty hard job tho'!" This answer somewhat puzzled the gentleman, who upon going into the yard found his horse actually standing up in the wagon trembling with fear at his elevated and unsufe position.

## Court Quick

A gentleman was one day arranging music for a young lady, to whom he was paying his addresses. • Pray, Miss D.' said he, ' what time do you prefer ?' 'Oh,' she replied, carelessly, 'any time will do-but the quicker the better.'

## Serious Consideration.

An unmarried lady on the wintry side of fifty, hearing of the marriage of a young lady, her friend, observed with a deep and sentimental sigh, "well, I suppose it's what we all must come to."

A son of Erin once described a snake in this manner: "He is a venemous baste; he $\{$ has nather hind fore legs nor fore hind legs; he has an eye like a chicken, and goes crawling through the grass, and when you see him you are sure to run like blazes."
ing the Dryer. H H, is a box filled with char coal dust to economise the heat of the Dryer. an excellent plan, charcoal being such a good non-conduotor.
The utility of thls inveation is apparent and will beappreciated at a glance, as the engraving explains its uses almost without a word of comment. Mr. Kenny says that he maines some of his Dryers of different proportions from the one here represented. He has a drying cylinder of 10 inches diameter and 30 feet long, and the steam pipes may be made of any diameter most suitable. The screw is propelled so as to make abput 12 revolutions per minute. The shaft of the screw is 1 inch in diameter and the buckets or threads of the screw are made to make four circumferences each foot length of the screw. The chamber of the Dryer is made of sheet iron, and the whole machine can be got up at but little expense, as it is very simple. Mr. Kenny has taken measures to secure a patert.

## Maintainingthe Dignity of the Profession

 Mr. Sergeant Davy, eminent in the last century, was once upbraided with lowering " the dignity of the profession," by accepting silver for fees from a client, instead of gold. "I took silver," he said, "because I could not get gold," but I took every rap the fellow had; and if you call that lowering the dignity of the profession, I don't know in what the dignity of the profession consists."
## Mrs. Partington's Last.

"Our prospects is very dark," said the baker , on the occasion of a recent rise in flour "Yes," said Mrs. Partington, " and so is your bread; but," added that estimable lady, look ing benignantly on him through her spectacles, " your loaves are light enough."

## Absentmindiedness.

The first Lord Lyttleton was very absent in company, and when he tell into the river by the upsetting of a boat, at Hagely, it was said of him that he had "sunk twice before he recollected he could swim."

There is a woman in the west who is so large round the waist that her husband can't hug her all at once; but when he takes one hug he makes a chalk mark, so as to know where to commence the next time.

A schoolbov being asked by his teacher how should he flog him, replied, "if you please, sir, I should like to have it upon the Italian system-the heavy strokes upwards, and the down ones light?"

## LIST OF PA'RENTS

 issued from the united states patent office,For the week ending 21st August, 1847. To Timothy Clark, of New Haven, Conn., for improvement in Safety Apparatus for steam Boilers. Patented August 21, 1847.
To Stanton Pendleton, of New Haven, Conn. for improvement in Fish Hooks. Patented August 21, 1847
To Job Johnson, of Brooklyn, N. Y, for improvement in Fish Hooks. Patented August 21, 1847.
To Elijah M. Harris and Janes Cleghorn, of Cass county, Georgia, for improvement in Cotton Thinners. Patented August 21, 1847. To Samuel G Cornell, of Greenwich, Conn. ior improvement in Lead Pipe Machinery. Patented August 21, 1847.

For the week enaing August 28, 1847. To Phineas Whiteside, of Weedsport, New York, for improvement in Cooking Stoves.Patented August 28, 1847.
To Alva Gregory, of Pike, New York, for for improvement in the mode of heating wheel Tires. Patented August 28, 1847.
To Nathaniel Bosworth, of Troy, New York, for improvement in Ccoking Stoves. Patented August $28,1847$.
To Alexander Turnbull, of England, forimprovement in Turning. Patented August 28, 1847. Date of English patent, Sept. 26, 1486. To Charles Walker, of Brooklyn, New York, for improvement in Mills for grinding Mustard, \&c. Patented August 28, 1847.
To John Jones, of Bristol, Conn., for improvement in Curry Combs. Patented August 28, 1847.
To Christian Stoner, of Gettysburg, Pa., for ir.provement in apparatus for operating Carriage Brakes. Patented August 28, 1847. To Samuel Shreve of Shreveville, New York for improvement in Cooking Stoves. Patented August 28, 1847.
To Amory Fisher, of Tuscaloosa, Alabama, for improvement in Mills for grinding Corn in the Cob. Patented August 28, 1847.
designs.
To Charles J. Shepard, of New York, for Design for Stoves. Patented August 23, 1847.

## INVENTORS CLAIMS.

Metalic frames for Planofortes
Invented by Timothy Gilbert, of Boston, Mass, Patented July 24 1847. What he claims is the combination of the cross bars with the longitudinal bars and straight and curved sides of the main frame, whereby the said cross-bars serve as supports to the same, in order to prevent the springing out of place literally, thus making the frame itself do all the work of supporting the strains of the strings and avoiding the employment of the usual bolts and wooden frame-work to which the iron frame is usually confined, the cross bar beneath the frame serving the purpose of an important support to the head of the frame, and also to the sounding board.

Centrifugal Pumps.
Invented by Allexy W. \& Julius H. Von Schmidt, of Washington City, D. C. Patented July 24, 1847; they do not claim as their invention a rotary pump as they are now commonly constructed with the wheel working out of centre in the case, and letting the water into the case at the centre, but for taking water in between the centre of the wheel and the periphery near to the tangential discharge pipe.

Boiler Furnaces.
Invented by Daniel Griffin, of New York, Patented 31st July, 1847. What he claims therein as new, and secures by Letters Patent, is the forming of an opening or openings near the lower part of the ascending flue, in the chimney stack, in combination with the descending flue, to check the draught up the chimney, and thereby to detain the heated gases under pressure within a furnace.


Canal Tolls and Capacity.
The Albany Atlas says the average rate of canal tolls per week the present season, for 12 weeks, is $\$ 150,000$. At the same rates for the remainder of the season, say 16 weeks, the tolls will be $\$ 4,100,000$. This would give over $\$ 1,000,000$ for the public works. What is truly remarkable in connection with this large increase, and the present heavy receipts is the fact that the average freight of a barrel of flour from Buffalo to Albany, in July was less than it had ever been in that month, down to 1842. And in such good condition is the Erie canal, that boats make a passage from Buffalo to Albany in less time than they did in 1841, and carry double the cargo!

## Profitable Speculation.

About a year since Boston capitalists got possession of the Michigan Central Railroad, which is now constructed from Detroit to Kalamazoo, and which will terminate, it is thought, at Chicago. The stock which then cost about $\$ 75$ per share is now selling for $\$ 120$, an advance of $\$ 45$ in one year, which is a net gain to the stockholders of $\$ 990,000$ the whole number of shares being $22,000-$ The earnings for May were about $\$ 41,000$. It is estimated that when the heavy track is laid over the road, the receipts will amount to $\$ 1$ 000,000 per annum, and pay a dividend of 15 per cent.

Perpetual Motion Discovered.
It is advertised in the Ohio State Journal that Mr. A. Frisbe has satisfactorily ascertained that lenses of different sizes can be so arranged as to act expansively upon ether, alcohol or mercury, which expansion shall be hol or mercury, which expansion shall be
made to act upon any weight or springs, and keep machinery constantly in motion, provided the sun shines one day in the year.

This plan is not quite so good as attaching one of our Bob's kites to the earth's axis at the North Pole, and having the tail, which is made of incia rubber, pertorm a continual waltz with Madame Moon.

Coal.
The Pottsville Miner's Journal says that the quantity sent away by railroad from that place last week was 34,249 tons, and by canal 7,366 tons, making an aggregate of 41,615 tons Motive power was introduced on the West Branch Railroad on Monday week, and on Wednesday 659 cars passed over the scales, containing 3,097 tons of coal. This is the heaviest business ever done on the road in one day. Six locomotives are now running, but these are inadequate to the trade and the requisite number will be procured by the company as speedily as possible.

## Pennsylvania Iron.

Thre various contracts made in that state to furnish iron pipes for the Boston Water Works amount in all, to between seven and eight thousand tons. Messrs. Merrick \& Towne, alone, of Philadelphia, are filling up a contract for one thousand of the thirty inch pipe, to form the principal main between the pond and the city. A portion of the smaller pipe is cast at the furnaces in the interior of the State by which means the expense of remelting the iron is avoided.

A Treasure in a Teamikerlie.
A clerk in a hardware store in Cincinnati, put one hundred and fifty dollars in a tea-ketthe for safe keeping, and while he was out of the way the master of the shop sold the kettle for seventy-five cents, not suspecting the treasure it contained. The customer was so well pleased with his hargain that he has not been seen at the same store since.

## Oscillating wngimes.

This is the name given to Stephenson's Locomotives, which are built with their cylin. deas projecting over the wheels. A great Wei sht being placed on the extremities, causes them to leap and shake when pusked to any speed over 45 miles per bour

Portrait of Gen. Taylor.
The beautiful portrait of this brave General which is advertised in another column, is pronounced the most accurate likeness that has ever been taken. Great care has been used in getting up the engraving, and no expense spared in its execution, and the only reason for offering it so low is to insure an immense sale. Send in your quarters, halves and whole dollars, and you shall receive in return a likene that will be an ornament for any parlor.

## Florida Wine.

The Jacksonville, (Fla.) News of the 6th inst says:-"We learn from Col. McIntosh, of this country that he is making preparations to embark in a new enterprise-one which promises to develope new resources to the energy and industry of the planter of Florida He intends to enter largely into the cultivation of the grape, for the purpose of manufacturing wine, and making arrangements to have a vineya
Union.

Cotton Factorles.
The Mount Vernon Cotton Factory, at Alexandria, D. C., is in a fair way of soon be ing completed. The slaters have been at work on one of the outbuildings, and the other will soon be roofed. The proposed factory in Washington will no doubt be commenced ere long as the subscription list is steadily filling up.

## Numbering Houses.

The houses and tenements bordering on the public streets in Paris are being re-numbered The operation consists in replacing the old numbers by plates of enamelled porcelain white ciphers on a blue ground. These plates are set in the fronts of the houses as well as in the walls of enclosures, and confined there by bronze bolts.

A Novel Idea.
A proposition has been started in Phila delphia, to have a large iron tube, three feet in diameter, to extend from Port Carbon to Philadelphia, a distance of 90 miles, to convey coal from the mines at Port Carbon to Philadelphia. The expense is estimated at about fourteen millions of dollars, and there is sufiicient descent to make it practicable.

## Reaping Machines.

There are thirty-two Reaping Machines in St George's Hundred, Delaware, alone, and probably nearly 100 in the County. New Castle County presents one of the most improved and improving districts in the United States as to agriculture and intelligence. All which may be mainly attributed to free schools and he agricultural society of New Castle County

## Renilroad lron.

We learn that ten tons of beautiful Railroad Iron-the first ever made in this State-was drawn out of the Troy Iron and Rolling Mills last week. The iron manufactured was the Trail, designed for the Thoy and Saratoga Road. We understand that in a few days the company will turn out fron 25 to 30 tons a compr
day.

## Chicago Reailroad.

The total cost of the Galena and Chicago Railroad, as estimated by Mr. Morgan, in his Report, which has just been published will be $\$ 2,648,000$, or $\$ 14,553$ per mile. This estimate is made for a single track, with bridges for a double track

## Railroad Sunk.

Several rods of the Pittsfield and North Adams Railroad, in a swamp three or four milies this side of Pittsfield, have been for a long gradually sirking down, and within the last week has settled so as to be impassible by the trains, and at one time was under water

Filegant Extracts.
It is indeed gratifying to behold the partiality which some people evince for our scientific matter, and this is a peculiar taste eminently displayed in Neal's Saturday Gazette : oster.sibly original, however, in that paper.

A Rushin for Kinapp's Beverage agrin.
The warm weather of the pasi week has given a new itaretus to the "beverage" busine s, and Knapp is again supplying famines with his healthy temperance cordial, at 132 Fulton street (Sun Building.) Try it.

The Crops.
The most gratifying reports reach us by ev ery mail of the almost overwhelming abundance of crops of all kinds. As a sample, we find in Ohio and Kentucky papers, paragraph
like this :like this :-
" Never iu the memory of man, have such crops of wheat, corn, \&c., been seen as we have this year."
And Texas, New Orleans and other South ern papers, speak thus :-
" We hear from all quarters, that the crop never were finer, especially cotton and suga: * * If an early frost does not interfere, the sugar produce of Louisiana this year will ex-
hibit therichest yield of any one single agricultural product in any of the States of the Union."

## The Steamer Washington.

It has been said that the great cause of the failure of this steamer to make a more rapid passage was that the paddle wheels were too large, making the engines labor hard, work sluwly, and in bad weather irregularly; the quantity of back water was also so enormous that the ship's way was hindered. The pad-
dle wheels are now being lessened, and it is dle wheels are now being lessened, and it is the vessel is also going threugh several other alterations and improvements.
We say that when a large sea-worthy and omfortable steamship makes an average pas. sage at the rate of eleven miles per hour let her owners be contented, and the public also. The Washington is built to run well and carry a cargo, and her engines are calculated of drive her across the Atlantic at near about 11 knots per hour with grod management.

## The Gaadaquiver.

This is the name of a new iron steamboat for the Havana trade, which arrived here last Sunday from England, under command of Captain Hoskins, late of the steamship Great Britain, wrecked in Dundrum Bay. The Guadalquiver is 600 tonsburden, and is of a beautiful model. Her bulwarks when she has a full cargo on board are only three feet above the water's edge. Her engines are of 220 horse puwer. She comes here to have deck cabins added to her, as that sort of work can be done cheaper in New York than in London. She is to be employed under command of a Spanish captain, in the conveyance of passengers and light freight on the coast of Cuba.

## The Mining Speculation

The Lake Superior Mining Journal, published at Sault Ste. Marie, of August 21st, ives the names of 122 Mining companies, formed for mining purposes in the Lake Superior mineral region. The capital of their repured stock of these companies is divided into 451,200 shares, and the directors of no less than 27 of them reside in New York.

## Lake Supertor Copper.

The propeller Goliah arrived a few days since at Buffalo, with 180 tons of native copper from the CliffMine, belonging to the Pittsburgh \& Boston Mining Company. Among the masses was one marked 8,628 lbs. or 4 tons 028 lbs. which, with all the masses, are nearly or quite pure The shipments thus far this
season from the American and Canadian mines amount to 524 tons of metal in all.

## Union Magazine.

The September number of this splendid periodical has made its appearance, and for beauty of engravings and interest of reading matter has never been excelled by any former: number. The engravings alone are worth twice the price of the work. Published by Israel Post, No. 140 Nassau street.

## Rope Band.

Soft rope, the thickness of a man's finger, with an iron ring in one end, is recomtaended as a great improvement in bundling straw. Farmers who have tried the plan like it well.

## Plire Engine for Thrkey

Mr. Hunneman of Ruxbury, Mass. known throughout the United States, as a manufacturer of fire E biacs, is now constructing a splendid machine for Constantinople, which it is said, will be the Girst eagiae ever used in that city.

Patent Agency.
Applications for Patents made at this office on the most reasonable terms. Neat drawings. specifications, and engravings of the first character, and cheaper than anywhere else. Notices of new inventions, Agency for the sale of Patent Rights, and all business of that nature, promptly atterded to. Those who have patent rights to dispose of will find a good opportunity and field for their sale-such as Horse Power Machines and Waterwheels of every description. The largest circulation in the world for advertisements of inventions: \&c.

## Great Invention.

The Cincinnatti Times says:-A gentieman in this city, has discovered a plan by which he can send a man from this city to New York to transact business in two and a half hours, by a railroad which shall not cost more than three times as much as the Telegraph, including via-ducts and other et-ceteras. He can, he says, transport from Cincinatti to New York, in a day of ten hours, four hundred tons of merchandise, and at a cost not exceeding the usual rates, and that without steam or horsepower.

Well we should like to know something more about this plan, as it appears to be somewhat of a great impossibility.

Ne wv Mode of Manufacturing Gas.
We have been informed that a stove is nowr in successful operation at Mr. Andrew's store in Sisth street, Philadelphia, for making gas in a temarkably simple and economical manner, as heretofore noticed in the Scientific American. The stove is an ordinary one The gas is manufactured from American coal, and as the coke is subsequently used for heating the stove and manufacturing the gas, the cost of the gas is literally nothing. In manufactories, hotels, and public buildings, where a fire is constantly maintained, this plan will probably supersede all others.

## Falls at St. Croix.

It is thought that an important town is soor to spring $u p$ in this place. It is but sixty or seventy miles, as ascertained by actual survey, from these falls to Lake Superior. There are now ten double and five single dwelling hou ses, a large store and public house building at the Falls. Mechanics are wanted at the place at the present time.
How to Read when on the Railroad By holding a card over the line below that which you are reading, the eye is freed from the disturbance caused by the motion of the carriage, and you may read with comfort.

## Female Operatives.

The Lowell Courier estimates that some fifteen hundred young women employed in the factories of that city are now absent on sum mer visits to their friends.
The valuation of property in Fall River, for the present yeax is estimated at $\$ 7,715,170$ -an increase over the valuation of last year of $\$ 1,134,458$. The population of the town numbers 11,646 -an increase of 472.
A German writer calls a kiss "a delicious dish, eaten with crimson spoons." We suppose this is what is meant when it is said of a young fellow courting, that " he is after the spoons."
A pair of white Rats has been captured at Randolph, Vt. They are similar to the com mon rat only larger and more active. Their color is of a spotless white, their fur soft and downs, and their eyes red.
The quantity of beet-root sugar manufactured in France during the last six months, amounted to 52,695,424 killogrammes, being an increase of $13,343,670$ kilogrammes upon the quantity made in the preceding season.
A law has recently been enacted in Louisiana for the establishment of free schools hroughout the State.
The deposits in the Saiem Saving's Bank ave doubled in the last eight years-amounting now to upwards of a million dollars
The Bostoa Iron Company have closed a contract fo: 50,000 tons of Nova Scotia Coal, to be delivered this fall and winter.
The Cinciastti Gszette savs several derredations have already been committed on the tele, rraph in Ohio.

## THE OLD HOHIESTEAD.

Down in a quiet, sun-lit valley
Stands my luw-roofed cottage home, Rushing thoughts around it rally,
Thither wafted while I roam.
There in Summer, as of olden,
Waves the green-topped manly tree ; There in Autumn sere and golden,
Shadows fit across the lea
Still the streamlet cleaves the meadow Bordered by the mantling vine,
Where. beneath the tall oak's shadow, Then I threw the hempeal line.

Thoughtless childhood! happy childhood: I would journey back to thee; Roam again the " tangled wild-wood-wood," Sport beneath the maple tree.

## There no busy Sorrows fashion

Phantoms in the path of youth,
Nor pale Care nor purple Passion
Taint the bloom of Love and Truth.

## ar or Dilmbert.

D'Alembert was the son of a celebrated la dy of high rank who to conceal her indiscretion, caused him to be exposed on the steps of the church of St. Roch. Here he was found by a poor woman, who earned her livelihood by her needle She adopted him, maintained him by the produce of her labor, and placed bim in the College of Montaign. The young man profited by the instructions received, so that, like Pascal, he made new discoveries in geometry in his fifteenth year. His name soon became known all over Europe and the learned courted the society of the young student of Montaign. Such was the fame he acquired by his early talents, that the lady at last began to be proud of havisg given birth to such a son. Vanity brought what the voice of nature was incapable of effecting. She one day repaired to the College, and requested to see the youth. He came. "I am your mother," said she. "You my mother, madam? You are mistaken; I have no mother, but her who took care of me in my infancy." He tirned his back on her, and never saw her more but continued the affectionate and dutiful son of the seamstress, and repaid with interest in her old age the cares she had bestowed on his childhood.

Sam Patch Outdone Rocher heifer a day or two since, says the sats of Sam Patch, in the way of jumping. She was leeding on the brink of the precipice, over 100 feet high, at the Lower Falls, and by a mistep was precipitated into the water below, which luckily was deep enough to prevent her from being dashed to pieces on the rocks underneath. She disappeared but soon rose to the surface and attempted to gain footing on "terra firma," but could not from the steepness of the bank. Some men procured a boat, and fastening a rope to her horns, towed her some distance down the river to a place where she clambered up the bank as if nothing had happened. The animal did better than Sam Patch, who went down and never came up again.

False Standard of Femate Beauty
We are so accustomed in the present age to behold delicate women, that fur want of good models the ideal image which we form of them has been very much changed. Where are the characteristics of beauty as represented in modern novels? Instead of a bright aad healthy complexion, a graceful activity, and youthful viyacity we hear of a slender, कrial form, a sylph like figure, and interesting paleness occasionally relieved by the shade ot carnation, an expressive countenance gently tinged with melancholy. But it must be at once perceived that all these characteristics are exactly the indicatives of delicate health; an extremely slender figure, a flitting color, and a languid expression afford no very favorable augury for a future mother or for a wife who may perhaps be called to assist her husband in adversity, Yet the imagination of mothers as well as daughters is so fascinated by such descriptions that they are afraid of destroying these interesting charms; and we meet with some girls who whl not eat for fear of enlarging their feet $C_{\text {an }}$ anything be more pitiable.

Compressed Air locomotion Baron Van Rathen, a German noble, has in vented a locomotive, which from experiments made before the College of Engineers at Putney, has given great satisfaction. Air was compressed to nearly 60 atmospheres, or upwards of 850 lbs . the square inch, (equal to said the los. per square inch of steam.) It ted was set free again for unotive purposes ted was set free again for unotive purposes
without any branch of the process being atwithout any branch of the process being at-
tended with any of that evolution of excessive heat which has hitherto been considered a great obstacle to the employment of compressed air as a motive agent. These experiments come to us somewhat highly colored no doubt yet we should like to see some little attention given by our engineers to compressed air as a motive power. If an engine can be built to travel twenty miles per hour on the compres-
sed air system, could it not be used on the Erie Canal, building a track on the tow path. The expense would be but small, while the transit of merchandise would be most rapid in comparison with the present mode.

## Hollow Shafts.

Forge a pound of iron into a hollow rod and it will support a weight many times greater than if solid. Nature seems to have taken advantage of this, long before the mathematicians had discovered it, as all the bones of animals are hollow. The bones of a bird are large because they must be strong to move their large wings with such velocity; but they must also be light, in order to float easily on the air. Birds, also strikingly illustrate anotherfact in natural philosophy. If you take a bag, make it air tight and put it under water it wili support a large weight-sav a hundred pounds. But twist it or diminish the air in it, and it will support no such weight. Now a bird is just such a bag in air-when he wish es to descend, he compresses it, and falls rap idly; when he would rise, he increas $\epsilon$ s it and floats with ease. He also has the power o forcing air in the hollow parts of the body, and thus to assist his flight.

## Indellible ink

This article is now extensively used for marking linen. The shopman's price is usu ally two shillings per bottle; but those who wish to use it can manufacture it much cheaper To two drachms of nitrate of silver, add a weak solution of tincture of galls, ( 4 drachms, ) and mix them thoroughly by shaking. Thi is an indeliable fluid, and withstands the ef fects, combined or seperate, of heat and suds Another recipe is-nitrate of silver, 1 drachm purest gum arabic, half an ounce, dissolved in half a pint of purest rain water, caught in a perfectly clean vessel, in the open air. To write legibly with this ink, the cloth mus first be dipped in a solution of one ounce of salt of tarter, in an ounce and a halt of water, and exposed to the sun until perfectly dry, be fore the ink is applied. Nitrate of silver may be made by putting silver into nitric acid, (aquifortus,) by which it is dissolved.

## Vacnums

If a flexible vessel be emptied of air, its sides will be almost crushed together by the pressure of the surrounding atmosphere. And if the tube partly filled with fluid, be emptied of its air, the fluid will rise to the top. The bee understands this, and when he comes to the cup of the small honeysuckle and finds that he cannot reach the sweet matter at the bottom, he thrusts in his body, shuts up the Bower and then exhausts the air, and so possesses himself of the dust and honey of the flower. The feet of flies and lizards are constructed on a similar principle, and thus they waik with ease on glass or on the ceiling.Their feet are 9 made as to creaie a vacuum beneath them, and so tley have the pressure of the atmosphere, fifteen pounds to the square inch, to enable them to hold on. The cat has the same power to a less extent.

Time and Thumder.
If we see a thunder-cloud, and wish to know how far it is from us, we must begin to count as soon as we see a flash of lightning, counting deliberately till the report of thunder strike: the ear. Allow four counts to the mile, and we have the distance of the cloud. Thunder clouds travel generally at the rate of 20 or 30

Immensity of the Oniverse.
The following is abridged from a report furnished to a Paris Institute by M. Arago. It hows, in a brief space, the wonderful immenity of the Universe
In the northern hemisphere, 3,400 stars are visible to the naked eye. The number of stars of the 2 d magnitude are triple those of the 3 d , and so on to the 14th magnitude, which the most powerful instrument renders visible. The number of stars of the 1st magnitude. is 18 , and of the 14 th, 29 millions, and if we add to these, the 12th and 13th magnitude, it makes 30 millions of stars. Herschel, in the knee of Orion, a band of 15 degrees long, 2 degrees wide, counted 50,000 stars, and as that hand is only the 26th part of the heavens, so the entire surface contains $68,655,000$ visible with the telescope, but our glasses only reach the least remote; there must be above $148,-$ $5 \% 2,200$ stars, and our sun is only one of them the mass of our earth is but the 355th million part of that one sun, and we are but an atom in relation to our earth.
Stars of the 1st magnitude in both hemispheres are $1 S$, the 6 th were the least visible to the ancients by the naked eye; in our day it is he 7th.
There are stars whose distance is so0 times reater than those visible to the naked eye. Light, with the velocity of 77,000 leagues a second, takes three years to reach us from the nearest stars, 900 times more remote, so their light does notreach us until after 2,700 years.
The number of stars visible by means of a telescope of $!20$ feet focal distance, may be more than 300 millions.

## The Widow's Daughter

One, two, three rings on your finger-four, five-yes, true as we live-there are five gold rings on your finger-and Monday too-the regular washing day. We'll be bound to say you have not been to the wash-tub with your mother to-day. A poor girl as your are, whose mother can hardly earn enough to make both ends meet, and with gold! Shame on you! What could you do, if she would be taken away ? Yon are not fit for a wife, and as for being a lady that is out of the question. You have not beauty to reccommend you to some wealthy fon, nor industry to secure an honest mechanic. What in the world are you proud of? Why do you dress so extravagantly? Everybody knows that your mother is not able to support you in this way, and your neighbors will talk so long as you behave so like a fool. Our advice is, take every ring from your fingers, and commence an apprenticeship to the trade of housewifery. Learn to sew, to knit, to bake, to wash, to cook. You have nothing to expect from rich relations, and the only chance before you is, that you may become the wife of some honest mechanic.This chance will slip, if you are not careful, and your chance may be thrown for support upon the town. Believe it, or not, many a foolish and haughty girl like yourself, has come to such an end or a worse one. If rur advice is worth any thing, take heed to it, and the next time we call upon you, we shall find you more happy in spirits-cheerful and con-tented.-Exchange.

## Loss of a Balloon.

As Mr. Gale, of London, whas about to as cend in his balloon from the Glasgow Botanic Gardens, on the first week of this month, a gust of wind suddenly broke his netting, and his balloon arose carrying with it about thirty persons, to the height of 30 feet, from whence hey were precipitated to the ground. Fortunately only one was wounded. The balloon was destroyed and Mr. Gale lost his all. The inhabitants, however, opened a subscription, Mr. Murray heading it by a liberal sum. The balloon contained 600 square yards of silk, was 40 feet in diameter, 25 feet from valve to valve, and contained when fully inflated, not less than 35,000 cubic teet of gas. The estiess than 35,000 cubic leet of gas.
nated lost was upwards of $£ 900$.

## Underground Telegraphs.

The Electric Telegraph wires in London, are being put under ground-perhaps in oipes. This is what should be done here, Raising the wire on poles is, at best, but a careless mode of securing them Pass them

## Mane Ship Eurlding.

The activity of ship-building in the State of Maine, is at this moment very great. In solitary places where a stream or creek large enough to float a ship is found, builders lay the keels of their vessels. It is not necessary that the chanuel should be wide enough for the vessel to turn round; it is enough if it will contain her lengthwise. They choose a bend in the river from which they can launch her with her head down the stream, and, aided by the tide, float her out to sea, after which she proceeds to Boston or Nev York, or some oth er of our large sea ports to do her part in car rying on the commerce of the world.
The ship builders of Maine purchase large tracts of forest in Virginia and other states of the south, for the supply of timber. They obtain their oaks from the Virginia sinore, their hard pine from North Carolina: the covering of the deck and the smaller timbers of the large vessels are furnished by Maine. They take to the south cargoes of lime and other products of Maine. and bring back the huge trunks produced in that region. The larger trees on the banks of the navigable rivers of Maine were long ago wrought into the keels of vessels.

## Cotton Manufacture in Mexico

The cotton manulacture in Mexico, is more extensive than is generally supposed, and until checked by the war it was gradually increasing. In the State of Mexico there are twelve factories in operation, with 30,156 spindles. In the State of Peubla twenty-one factories, with 35,672 spindles are in operation, with 12,240 spindles more in construction In the State of Vera Cruz there are seven factories, with 17,863 spindles in operation, and 5,200 in construction. In Gaudalaxara there are five factories, with 11,312 spindles in operation, and 6,500 in the course of construction. In all Mexico there are 53 factories, with 135,280 spmdles. The annual consumption of cotton in these factories is $14,586,666$ pounds, of which about two thirds is imported. The daily product of cotton yarn is estimated at $35,780 \mathrm{lbs}$, and valued at 39,358 rials of eight to the dollar.

Prussian Mechanics'festival.
On the 13th of July, the Philharmonic So ciety of Prussian Mechanics held their grand festival at Neustadt Eberswalde, in Prussia. There were sixteen societies, composed of about three thousand six hundred members; they arrived, for the most part by railroads, the directors of which had reduced the price of seats one half in their favor, The mechanics entered Neustadt Eberswalde in procession, in holiday clothes, decorated with the distinctive colors of all their cities, and having at their head the banners of their corporations. They were received by the municipality in a body, preceded by the burgomaster, who addressed them with a speech. The first day of the festival, they executed in the open air, with accompaniments of wind instruments, popular airs, two of which were set to music by Mozart. In the evening they met at the banquet, where there was no other drink but beer, the company having themselves excluded from the repast wine and itser spirituous liquors. More than ten thousand persons were present at this festival, which was unique of its kind, and which passed off in the most perfect order.
stockton Cooperative Corn Min. A co-operative Corn Mill has gone intu operation at Stockton, Eng. Rev. J. C. Meek is a zealous promoter of this work of brotherhood. Experiments of this nature cannot fail to do much good; they teach the people to rely upon their own exertions; to cultivate feelings of mutual affection; to regard their strength as proportionate to their union; they instruct the working classes in the elements of social organization; and are in fact, so many nurseries, where the young trees are nurturned, until they assume a sturdy growth and stately aspect, when putting forth their mighty arms, they defy the wrath of the tempest, and adorn the land from wbich they draw their sustenance.

The earnings of the halfpenny steamboats which ply between London Bridge and the

NEW INVENTIONS.

Threshing Machine.
J. A. Taplin, of Unıon Village, Washing ton County, in this State, has invented a threshing machine, takes up but little more room than a wheelbarrow, and with a Horse Power which the inventor has attached to it will thresh out one hundred sheaves in five minutes.
Mr. Taplin, has attached to the Thresher a horse power, of great simplicity and efficiency which is a decided improvement upon the heavy and clumsy ones now in use in that quarter It can be taken to pieces and put up again in twenty minutes, and can be pla ced any where, without the necessity of an especial erection for it. With two horses, a bundant power is obtained to work his threshing machine. We believe that the price is fifty dollars.

New Screw Machine.
Mr. William Van Anden, of Trenton, N. J. who has invented some excellent machinery already for cutting screws, has lately made another improvement, which is said to be superior to any invented in doing better work and in a more rapid manner. The screw is headed and formed betore it goes into the maehine. A shovel full or more is then thrown into a sort of hopper, and they come out a another part of the machine with the sclew cut and ready for use. There io no transfer ringof the iron from one place to another, bu the thread is perfected and the screw complete when it falls from the machine. The thread is cut with great neatness, and the whole operation is excecding beautiful. The inventor of this curious machine, Mr. Van Anden, is also the inventor of a machine for making rivets, which is to be put in operation by the Delaware Rolling Mill Company as soon as thei buildings are completed.

Car Wheel Boxes.
Messrs. Sull \& Norris, of Philadelphia, have invented and patented a valuable improvement in the manner of forming the upper Dearings of journal boxes of locomotives, cars and carriages of various kinds, and for the shafts of steamboatisand other shafts of machinery that is liable to a variation in the range of the journal boxes. The journal boxes are formed cylindrical on the upper or on both the upper and lower sides and combined with plumber blocks so as to allow them and the axles of the respective pairs of wheels when on the railroad to conform freely to the inequalities of railg on both sides of the track.

## Improved Rotary Engine

Mr. W. Gregg, of Philadelphia, has made an improvement in the rotary engine by which he says he governs the admission of the steam and the reversing of the engine's motion in a more simple and convenient manner than by any other plan ever tried before. There is a cam wheel valve slide for two valves, and two shifting inclined planes used for the purpose stated, but the rest of the machinery is not different from that in other rotary $\in$ ngines.

Artificial Teeth Springs.
Mr. G. Stewart, of Philadelphia, has patented a new method for securing springs on artificial teeth, which he calls he dental lever arms spring. The middle a fine wire (gold) is coiled so as to constitute a spring joint and the outer ends of the wire constitute elastic arms of the lever in combination with the cheekplates and sets of artificial teeth.

## Sawing Machinery.

Mr. J. H. Belter, of this city, has obtained a patent for sawing Arabesque Chair backs, which is considered to be a great improvement for steadying the saw while giving it any required angle to follow the pattern to be cut. It is combined with au adjustable platform.

## Nasmyth's Steam Pllo Driver

Mr. James Nasmyth, of Paticroft, England, hastaken out a patent in the United States, for his ple driving apparatus. His engine is very simple, and portable. He first drives in a pile as the foundation of his engine, by a temporary attachment to his machine. His steam boiler is made of jointed pipes, so that it is capable of varying easily its position enginwith his moveable engine. One of these machines is in operation at the Brooklyn Nar vy Yard.

## HANLEY'S IMPROVED DRILLING LATHE.



This improvement is the invention or Mr. J. Hanley, harp manufacturer, of this city, and it has been used by him with great advantage for more than two years. No patent has been taken out for it and this is published that it-may be of some benefit to those who have much fine drilling either in metal or wood. A, is the Lathe frame, and it is in all respects like those in common use. The peculiarity of the machine is in the using a le ver in place of the screw, as in the common slide. This lever is fixed on a conical sup port, or fulcrum, $D$, and on its short end is cord, $F$, which passes over a pulley, G, supporting a weight which exerts a force more or less on the long end of the lever in proportion as the cord is increased or decreased in distance from the fulcrum. $C$, is a smal shackle bar full of holes, so that as the ope rator stands at his work, he can adjust the lever by pins on the shackle bar in connection with the cylinder, so as to have the lever easily under his control, by moving it with his back, instantly advancing, or drawing out the cylinder from the chuck, using both his hands to manage his work with perfect freedom. By the screw slide, it is well known that one hand
has to be constantly on the screw and when the cylinder has to be withdrawn for the purpose of allowing chippings to escape, the screw has to be turned backwards and much time is lost. By this mode the cylinder is pushed back in a moment and brought forward as quick, and when the article to be drilled has to be lubricated with oil, one hand can easily do that while the other still manages the article. In short, tor fine work this is a most valuable improvement, as it can also be used in connection with the slide rest, by dispensing with its screw and with or without the weight on the and of the easily by advantage the shackle bar C, to the slide. In fair operation the lever used as described, will enable the operator to accomplish abont double the quantity of work, and will do it better than with the screw. We can recommend it as being of great advantage, and the inventor has only the desire of benefitting the mechanic, who can easily put up this improvement with but little expense, and who will not after having done so and used it for a little time, part with it as the inventor says, for any consideration.The model can be seen any time at our office.

## The Loading Rake.

A gentleman in Philadelphia has recently obtained a patent for a new agricultural implement called a Loading Rake. It consists of one or two rakes, similar to the common horse rake, attached to the wagon, which are raised by the onward movement of the team, and deposits their contents in the wagon. By this process, as the hay is taken from the swathe, the labor of eight men is readily performed by wo men and a boy, in three-fourths of the or dinary time. With the force above stated, three-quarters of an acre can be taken up on a fair average, every half hour. The rakecan be adjusted, with some slight alterations, to the ordinary hay wagon, and cau be detached t pleasure.
Such is the account of a Loading Rake, taken from one of our exchanges, and we cannot but think that there must be some mistake about it, as it is morally impossible for any team o take up hay from three quarters of an acre in that time, if it is any kind of crop at all, and or all that has been said about making hay in the swathe, we are convinced that the best way is to spread it out after all. If hay could bedried in the shade, it would be of five times more value than dried in the sun

Tennon Cutting Machine.
Mr. Wm. MacCirne, of Senecaville, Ohio has invented a new way of cutting round tenons on spokes of carriage wheels. The apparatus is said to be different from all other constructed for the same purpose heretofore It is appended to the end of the spoke during he action of cutling.

Couplings for Cars.
Mr . William Bussey, of Rockgrove, Illinois, has invented an improvement whereby the coupling and uncoupling of railroad cars is done in a very speedy and simple manner, by the peculiar arrangement of an eccentric tum bler ard revolving roller

Condensed Air angin
A. Parsey, of England, has taken out a patent in the United States for his condensed air
engine. The principal part of his invention is a spring piston to regulate the elastic force of the air as it passes from the receiver to the cylinder.

Design of Oll Cloth Patterns.
Mr. James Albro, of Elizabethtown, N. J., has taken out a patent for a new design or fig ure to be printed on oil cloth. Of course the size and colors of the design are not the spe cific parts of it, but the pattern and combina tion of different forms

Einglish Patents. Mrachine.
Mr. Kite has taken out letters patent for novel mode of rendering the current of air which nasses a locomotive in its rapid flight subservient to a blast for supporting the fire, and thus saving the amount of power neces sary for the blast. He places a series of deflecting plates on the sides of the ash box-so that, when the engine is in motion, the air impinges upon the plates, and passes through openings between them towards the fire-bar and the furnance. The ash box is divided into three longitudanal chambers, which are intended to prevent any injuricus effect which might result from the introduction of an opposing current of air when the wind happens to be in a line not parallel with the line of motion of the locomotive. A second series of deflecting plates are inserted into the front of the smoke-box, and led into a chamber termina ting in an annular opening which surrounds the exhaust pipe. The atmospheric air with which the deflecting plates arebrought in contact is, in a great measure, by the action of those surfaces, propelled up the chimney, with more or less force, according to the ve locity at the time, and to the direction in which the wind is blowing. The exhaust pipe is made of sufficient size to allow of a free exhaust of steam from the cylinders, with out producing what is termed back action on the piston. Should, however, the driver have, on an emergency, to revert to the ordinary
mode of obtaining a blast by the contraction of the blast-pipe, he has only, by means of a lever handje, to bring down a valve, which will shut off the air from entering the openings between the deflectors, arid drop over the mouth of the exhaust pipe a nozzle which will contract the opening for the escape of the exhaust steam, and put the blast in the same condition as now generally used. When the locomotive is in motion, or the wind is blowing upon the chimney, either in back, front, or sides, a partial vacuum is produced inside, and a corresponding action produced upon the fire, from the rush ot air through it, to supply the vord in the chimney. In some cases, instead of leaving open the top of the chimney, it is proposed to close it up, and leave one or more smaller passages for the escape of the waste steam; or it may be allowed to escape from a pipe placed outside the chimney, in which there will be no occasien for the smaller passages.

## Coating.

Messrs. Morewood and Rogers have taken out patents in England, for several new processes connected with the coating of iron with unoxidisable metals; and also for a machine for corrugating sheet iron for roofs, \&e. The latter consists in a fixed bed, moulded on the upper surface to the form required for the sheet iron; and another mould, the face of which exactly fits the lower one, works in a strong frame on cranks and axle, set in motion by any proper machinery. The former improvements, with respect to coating metals, consist first in the use of a certain alloy of tin and zinc, so as to obtain the production of zinc, combined with the advantages of tin as a covering-at the same time to obtain a harder coating than could possibly result from the use of either of these metals alone. Fifty parts of zinc, and fifty parts of tin, are the proportions of the tnetals employed; and as the tin is diminished in quantity, the adherence of the coating becomes less effectual. Secondly, the coating iron with molten zinc, and using the products of zinc, formed by precipitation of that metal in the bottom of the bath; such products have been heretofore waste, and require great heat to melt them, employing chloride of manganese as a flux. Another description is 50 parts of zinc, 34 of lead and 16 of antımony, well stirred together-the lead and zinc should be melted to a red heat before supplying the antimony. Thirdly, for subjecting sheets of coated metal, revolving in a flux, kept constantly to a rather lower degree than the melting point of the coating metal, by which means the coating will be rendered soft, and is acted on by the pressure;and fourthly, for the employment of certain means of coating iron, to be acted on by muriatic acid, and to prevent, or dissolve, oxide confined above the metal bath, excluding all communication with the atmosphere as much as possible.

## Mortice Machine.

A Mr. Jones, of Goswell street, London, patented a mortice machine last March, and so successful has it been for correctness, freedom and rapidity, that in the space of a few months his orders have so increased to such an extent among the carpenters in the city and distant towns, that it has become almost impossible to fill them.

The Smoke Nulsanee.
The Pittsburghers are making verylaudable efforts to get clear of the smoke raised from the numerous stone coal fires, and which so much mar the beauty of their city.,
We notice in a late numbar of the Gazette, an offer " in addition to the $\$ 100$ offered ' for the best method of consuming smoke in ordinary household stoves and cooking apparatus,' old medals of fifty dollars each to such perons as shall, within three months, present the most satisfactority results in their application of a smoke preventative, or smoke consuming apparatus, in a furnace or factory, and on a steamboat."

First Ocean Steam Engine.
The New Jersey papers state that Daniel Dod, father of the late Professor at Princeton, built the engines which propelled the first steamboat across the Atlantic from Savannah. They were fitted up at Elizabethtown Point.
sian serf, may stand a freeman at his own co-t tage door, aud as he bebolds the locomotive fleeting past, will take off his cap, keel and bless God that the Mechanics of Washington's land were permitted to scatter the seeds of so cial freedom in benighted Russia.
The Press is the vosce of freedom - the Raiiroad its highway of travel, then, to improvements in physical science and to the triumphs of Americau mechanical genius in opening up the great pathway of Russian communication, may we not justly and fondly anticipate a happier day for the social condition of th peasar:try in Europe and Asia.

## The Hammer

The Hammer is the universal emblem of Mechanics. With it are alike forged the sword of contention and the ploughshare of peacefu agriculture, the press of the free and the shackle of the slave. The eloquence of the forum has moved the armies of Greece and Rome to a thousand battle fields, but the eloquence of the hammer has covered those field with victory or defeat. The inspiration of song has kindled up high hopes and noble aspira tions in the bosoms of brave knights and gen tle dames, but the inspiration of the hamme has strewn the field with tattered helm and shield, decided not only the fate of chivalric combat, but the fate of thrones, crowns and kingdoms. The forging of a thunderbolt was ascribed by the Greeks as the highest act of Jove's omnipotence, and their mythology beau tifully ascribes to one of their gods the task o presiding at the labors of the forge. In anci ent warfare, the hammer was a powerful weapon, independent of the blade which it form ed. Many a stout skull was broken through the cap and helm by a blow of Vulcan's wea pon. The armies of the Crescent would have subdued Europe to the sway of Mahomet, bu on the plains of France their progress was arrested, and the brave and simple warrior wh saved Christendom from the sway of the Mussulman was named Martel-"the hammer,"how simple, how appropriate, how grand,"the hammer." The hammer, the saviour and bul wark of Christendom. The hammer is th wealth of nations. By it are forged the pon derous engine and the tiny needle. It is a instrument of the savage and the civilized. Its merry clink points out the abodes of indus try-it is a domestic deity presiding over the grandeur of the most wealthy and ambitiou as well as the most humble and impoverisher Not a stick is shaped, not a house is raised, ship floats, or carriage rolls, a wheel spins, a engines moves, a press speaks, a viol sings, a spade delves, or a flag waves, without the hammer. Without the hammer civilization would be unknown and the human species only as defenceless brutes, but in skilful hands directed by wisdom, it is an instrument of power, of greatness and true glory.

Lightning Speed.
The Washington Union of Aug. 23 says :The administration, having occasion for the services of one of its most dinguished officers, who was then in New York or in Philadel phia, sent him a Telegraphic Message on Friday at 3 o'clock, to both cities. He had, how ever left New York at 5 o'clock on Friday evening, without receiving the message; but at 9 o'clock on that night he received the one sent to him at Philadelphia, and arrived in this city the next morning at 8 o'clock. Thus a message may pass from Washington to Phila delphia at 9 o'clock in the night, and in elev en hours the message reaches Philadelphia an the officer returns to Washington. This is on of the prodigies of the age arising from th immense improvement of art in the applica tions of the principles of science.

## Water Witch Steamer

This vessel which was fitted with Hunte and Loper's propellers, has lately had then taken out and a common cross head engine put in, working downwards, it is said at an angle of 54 degrees. The entire engine is below the shafts-six feet stroke-cylinder $37 \frac{1}{2}$ inches diameter-side wheels-air pump about an angle of 54 degrees-two feet stroke Sh makes easily eleven knots au hour, which i considered remarkably well. Her engine is of seventy five horse power. The mechanics at the Navy Yard, Washington, appear to be proud of her

Mechanical Mamipulations
The pieces of steel, or the blanks intended for files, are forged out of bars of steel, that have been either tilted or rolled as nearly as possible to the sections required, so as to leave but little to be done at the forge the blanks are afterwards annealed with great caution, so that in neither or the processes the temperature known as the blood-red heat may e exceeded The surfaces of the blanks innow renderel accurate in form and quite clear in surface, either by filing or grinding. Where the majority of the files manufactured are small, the blanks are mostly filed into shape as the more exact method; and where the greater number are large, the blanks are most commonly ground on large grindstones as the more expeditions method. The blank before being cut is slightly greased, that the chise may slip freely over it, as will be explained. The file cutter, when at work, is always seaed before a square stake or anvil, and he places the blank straight before him, with the tang towards his person, the ends of the blank are fixed down by two leather straps or loops, one of which is held fast by each foot.
The largest and smallest chisels commonly used in cutting files are here represented in

two views, and half size. The first is a chis l for large rough Sheffield files, the length is about 3 inches, the width $2 \frac{1}{2}$ inches, and the ngle of the edge about 50 degrees, the edge is perfectly straight, but the one bevil is a lit le more inclined than the other, and the keenness of the edge is rounded off, the object be ing to indent, rather than cut the steel ; this

chisel requires a hammer of about 7 or 8 lbs . weight. The smaller one is the chisel used or small superfine files, its length is 2 inches, width $\frac{1}{2}$ an inch, it is very thin and sharpened at about the angle of 35 degrees, the edge is also rounded, but in a smaller degree; it is used with a hammer weighing only one to two unces, as it it will be seen the weight of the blow mainly determines the distance between the teeth. Other chisels are made of the intermediate proportions, but the width of the dge always exceeds the width of the edge to be cut.
The first cut is made at the point of the file he chisel is held in the left hand, at an horizontal angle of about 55 degrees, with the cenral line of the file, as at A A, and with a vertical inclination of about 12 to 4 degrees from the perpendicular, supposing the tang of the file to be on the left-hand side. The blow o he hammer upon thechisel causes the latter to indent and slightly to drive forward the steel, thereby throwing up a trifling ridge or burr, the chisel is immediately replaced on the blank, and slid from the operator, until it encounters the ridge previously thrown up, slipping further back, and thereby determines the succeeding position of the chisel. The heavier the blow, the greater the ridge, and and the greater the distance from the preesding cut, at which the chisel is arrested. The chisel having been placed in its second position, is again struck with the hammer, which is made to give the blows as nearly as possible of uniform strength, and the process is repeated with considerable rapidity and reg-
ularity, 60 to 80 cuts being made in one min ute, until the entire length of the file has bee cut with inclined, parallel, and equi-distan ridges which are collectively denominated the first course. So far as this one face is concerned, the file if intended to be single-cut would be then ready for hardening, and whe greatly enlarged its section would be somewhat as in the diagram annexed
Most files, hower, are double-cut, or have wo series or courses of chisel-cuts, and fo these the surface of the file is now smoothed by passing a smooth file once or twice alon the face of the teeth, to remove only so much of the roughness as would obstruct the chise from sliding along the face in receiving its successive positions, and the file is againgrea succ.
The second course of teeth is now cut, the chisel being inclined vertically as before or at about 12 degrees, but horizontally, only a fow degrees in the opposite direction, or about 5 to 10 degrees from the rectangle, as at B B the blows are now given a little less strongly so as barely to penetrate to the bottom of the first cuts, and from the blows being lighte they throw up small burs, consequently the second course of cuts is somewhat finer than the first. The two series of courses, fill the surface of the file with teeth which are inclined towards the point of the file, and that when highly magnified much resemble in character the points of cutting tools generally, for the burrs which are thrown up and conslitute the tops of the teeth, are slightly inclined above the general outline of the file, minute parts of the original surface of which still remain nearly in their first positions.
If the file is flat and to be cut on two faces it is now turned over, but to protect the teeth trom the hard face of the anvil, a thin plate of pewter is interposed. Triangular and other files require blocks of lead having grooves of the appropriate. sections to support the blanks, so that the surface to be cut may be placed horizontally. Taper files require the teeth to be someweat finer towards the point, to avoid the risk of the blank being weakened or troken in the act of its being cut, which might occur if as much force was used in cutting the teeth at the point of the file, as in those at its central and stronger part.

## Good Wages.

The " blowers," or head-workmen in the German Sheet Glass Works in Lancaster England, receive wages varying from four to seren pounds sterling per week, exclusive of 0 verwork, and in adition a furnished house rent free, and a free passage from and to the continent at the beginning and end of their term of contract. About two thousand persons find. employment in this peculiar branch of the Glass business.

## Changes in the Course of Trade.

Among the articles received from the South by Canal at Toledo, Ohio, during the month of August, forshipment to the North and West were 29,236 lbs. Sugar, 7,152 sacks Hemp, 33,907 lbs Cotton, 197,097 Leaf Tobacco, and 16,445 manufactured do. The receips of Cotton are constantly increasing-the manufacturers of New York having ordered their supplies from the West. The cost of transportation is said to be from 50 to 75 per cent. cheaper

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Wew Property of light in the Action of Chrysammate of Potash upon Common and Polarized Light.
The chrysammate of potash, which crystal lizes in very small, flat rhombic plates, has the metallic lustre of gold, whence it derives its name of golden fluid. When the sun's light is transmitted through the rhombic plates, it has a reddish yellow color, and is wholly polarized in one plane. When the crystals are pressed with the blade of a knife on a piece of glass, they can be spread out like an amalgam. The light transmitted through the thinest films th us produced, consists of two oppositely polarized pencils-the one of a bright carmine red and the other of a pale yellow color. With thicker films, the two pencils approach to two equally bright carmine red pencils. It is to the reflected light, however, and its new properties, that we wish to direct attention. Common light, reflected at a perpendicular meidence from the surface of the crystals, or of the films, has the color of virgin gold. It grows less and less yellow as the incidence increases, till it becomes of a paie bluish white color at every incidence. The compound pencil, thus reflected and colored, consists of two oppositely polarized pencils-one polarirized in the plane or reflection, and a pale bluish white color at all incidences, and the other polarized perpendicular to the plane of reflection, and of a golden yellow color at small meidences, passing successively into a deeper yellow, greenish yellow, green, greenish blue, blue, and light pink, as the argle of incidence increases. This very remarkable property, which Sir David Brewster, discovered also in some other crystals, is not caused by any film of oxide formed upon the natural surface of the crystal, nor is it the result of any change produced upon the surface by external causes. It is exhibited, under the usual modifications, if the surface of the chrysammate is in optical contact with fluids and with glass: and when the crystal is in the act of being dissolved, or when a fresh surface is exposed by mechanical means, the superficial action of the crystal upon light is in both cases the same. When the chrysammate is re-crystallized from an aqueous solution, it appears in tufts or prisms of a bright red color, the golden reflection being overpowered by the transmitted light; but when thesetufts are spread into a film by pressure, the golden yellow color re-appears. When the crystals of chrysammate are heated with a spirit lamp, or above a gas burner, they explode with a flame and smoke like gunpow-
der; and, by continuing the heat, the residue melts and a cross of colorless amorphous crystals is left. The same explosive property is found in the aloetinate of potash.
Mr. Schunck (of Rochdale) Eng. is the discoverer of the chrysammatic acid. It is formed by the action of boiling nitric acid upon aloes, and is one of the last products of that action. The chrysammate of potash is a beautiful and curious salt ; and although so plastic as to be readily moulded into thin plates, is yet so sparingly soluble as to require above
1,500 , times its weight of water to dissolve it.

## Electrle Velocity.

It has been stated, and generally understood, that electricity in high tension travels at the rate of two hundred and eight thousand miles in a second of time-that this is the probable velocity of communications by the magnetic telegraph. But trom recent observations it appears most probable that no space of time whatever is required in the passage of the telegraph current from one station to another, whatever the distance. The induc tion of the fluid $a^{+}$. one end of the wire produces eduction at the other at the same instant.

Pitcairn's Istanct.
This remarkable island was visited on the 26th of February by the British Government brig Spy. The oficers went ashore and were received by George Adams, son of the colony They met with a cordial welcome, and after partaking of a repast in Adam's old cottage the party returned on board the Spy. Fortysix whalers, mostly American, had called du riny the year 1846. It will be remembered thit th s Is'and ( $n$ the South Pacific Ocean) was settl d bout half a century a a 50 by several Enil shmen, mutireers of an English ship who took wita them Otabeitan women.

## Virginia Wheat Fields

A writer in the .Vational Standard says: "We called upon the late President, Mr. Tyer, residing on the north side of the James River, about thirty miles below Richmond To say he is a good cultivator would be small praise. He informs us that when he moved ed on his farm, three years since, a field of wheat of iwo hundred acres, which he showed us, would not produce more than the seed, ed us, would not produce more than the seed,
but is now waving with a crop of twenty bushbut is now waving with a crop of twenty bush-
els to the acre. The dressing he applied to his land was shell marl, together with straw and other manure made on the farm. It abounds in sufficient quantities to last for many years. Ten or fifteen miles above the exPresident's, on the same side of the river, is the family seat of the lamented Harison, also in a high state of cultivation, and perhaps one of the most eligible situations on the James River. From Mr. Tyler's we proceed to the estate of Robert B. Bolling, Esq., at a distance of ten miles. We there found farming conducted on a gigantic scale, such as had not entered our imagination. He went with us through his field of wheat, which contained nine hundred acres ! The prospect for a crop was very fine, and we supposed he would have thirty bushels to the acre. He nextshowthous ins grass field, which contained on not as good as expected, but we thought as good as any of ours. His corn, which looked well though small, in consequence of the cold, amounted to near seven hundred acres The oats, owing to the draught, were back ward. The number of acres in oats, I think he said was three hundred. His entire plantation contained seven thousquad acres of land! The timber, consisting of white and black oak and pine, is very large except the second growth. He uses lime from the North River, which costs him six cents per bushel, together with straw, which he spreads ove his land in the fall and winter-ploughs under and then dresses with lime. This mode has brought his land to a high state of cultivation.

The Mint at Philadelphia
The machinery in the Mint is very beauti ful. The engines are constructed in the very highest sense of mechanical perfection. Symmetry, power and the harmony of the parts are all displayed in beholding their rapid motion and the silence with which the work is performed. Milling in the Mint is an inte resting process. A man takes a basket full o what appears to be the heads of copper nails, and proceeds to pile them flatwise into a bras candlestick setting closely against a steel mill stone that goes swiftly and noiselessly round, catching every single nail head from the brass candlestick, and turning it out in the shape of a pearl edged dead gold button These are given to the die, where, oddly enough, they are first authorised to live. Here being popped into another candlestick, which hold them each a quarter of a second under the foot of a steel-headed lever, which keeps stamping away as of beatrrg time to a perpetual soldier's hornpipe. The last process is the miracle, transforming the dead and dingy button mole into a golden, glowing, bright-faced personality dear to every beholder's hopes and memories

## The best form for Compactness

The forms of cylinders leave large spaces between them. Mathennaticians labored a long time to find out what figure could be used to lose no space; and at last found that it was a six sided figure-also that three planes ending in a point, form the strongest roof or floor.The honey bee discovered the same things a good while ago. Honey comb is made upon six sided figures, and the roof built with three planed surfaces coming together.

## Physical Endurance.

Mr. Kendall says, that the northern troops endure the climate of Mexico better than the southera. Seger, in his history of the expedition to Russia, states that the Italian troops and those from the South of France endured the horrors of the retreat better than the more worthe in men

The Atmosphere.
The atmosphere in which we Jive is an elastic fluid. A portion of it can be compressed so that it shall not occupy a trventieth or a fourtieth part of a space it naturally fills, and yet, on the removal of the pressure by which this condensation has been effected, the air will expand to its original volume. There is a continual tendency in condensed air to do this and the expansive power or force with which the air endeavors to regain the space it pre viously occupied, will of course depend upon the degree to which it is condensed. This is the case with all elastic bodies It we em ploy a slight force to bend a piece of stee watch-spring, it will have a recoil equal to the power employed in bending it. If we em ploy a greater force, the result will be the same; and this holds true, not of a watchspring alone, but of all elastic bodies, and amongst the rest, of the air. It is in order to make available this property of the atmos phere that the air-gun is constructed

## Color of the Atmosphere.

The atmosphere immediately incumbent up on the earth, has the power of absorbing and etaining more of the blue rays of light than that at greater altitudes, and thus when we cast our eyes on high, we look through a volume of the densest air replete with blue light; and so likewise if we look abroad over an extensive tract of country, the horizon of which is formed by distant hills, they appear blue, or in other words, they partake of the color and medium through which they are viewed. If we journey to them, the blue color gradually vanishes, and at length their ordinary colors appear; and now, looking from the hills towards the spot from whence we journeyed, it in turn appears blue. The ridge alled the ' Blue Mountains,' Australia, another of the same name in America, and many thers elsewhere, are not really blue, for they possess all the diversity of scenery which irst discovered, they all at first appear blue, and they have retained the name.

## North Americam Antiquities.

A valuable gift has been presented to the Antiquarian Society of Copenhagen, by Charles Hammond, Esq., in Boston, contairing an earthern vase with two handles, fourteen inches high, at the mouth four and at the base five inches in diameter. It was tound anong the rubbish in the substructions of a house in Nahant, Mass., with two small fragments of ornamented earthen vases used by the Indians. The ornaments were cut and impressed in the wet and yielding lime, and esemble very much the sepulchral vases of the Scandinavians fron the heathen times. They were found on the Island of Martha's Vineyard; a top-stone (steendop) of an oval shape, with a furrow at the one end, which was found near Middleborough; a triangular and perforated stone, one inch and three quarters, long, of a green-yellowish color, and a mall boat anchor, 9 inches in length, with a furrow cut on one sid $\epsilon$, likewise found at Middleborough; then two small stone wedges, eight rough spear-points and arrow-heads, which appear to be a mere preparatory work. n arrow-head with an incision below in order to fasten the shaft. Three triangular ar-row-heads of white quartz, in the shape of the heart; and another like a lancet. From Dr. James Porter, in Plainfield, in Massachusetts, the Museum received four arrow-heads of quartz; the one of which is in the form of a heart, and the other in that of a lancet; all found in assachusetts. Dr. Swift, in Easton, Pennsylvania, presented a round stone, which had been flatened, and which he supposes to have served for a rough hewing stone, adding that he himself has, from different fragments, formed arrow-heads with it, in order to convince himself of its being adapted to that use. This, then, is exactly the same opinion which Professor Nilsson, in Sweden, expressed a long while ago about the same kind ot flattened or rounded stones, so often found in Scandinavia; yet Dr. Swift was not Professor.

Formation of character oflen depends od circumstances ap parently the most trivial.

Mr. Ross Winans, of Baltimore, has lately uilt two engines, of which the Charleston Courier gives the following graphic descripion :-
" Two of the most splendid pieces of mechanism we have ever seen, are the locomotives ' John C. Calhoun,' and ' Rough and Rea$y$,' lately received here. The Calhoun is certainly a splendid engine, of great power, exquisite workmanship and perfect construction. She bids fair, like her illustricus namesake, to take the lead on our road, and to command the admiration of all by her fidelity in keeping the track,' and bearing her train of followers safely through. When we saw her she was in that state ycelpt ' masterly inactivity,' but when her steam's up she'll be some punkins and no mistake. The Rough and Ready is not so polished a craft, and yet is no less wonderful a piece of machinery. Its beauty consists in simplicity, the total absence of or nament ; doubtless constructed on the principle that 'beauty unadorned 's adorned the most.' The former engine is the court beau-ty-arrayed in splendor, glistening up with jewels, proud and magnificent ; the latter, the village maiden, unadorned and yet surpassing fair. The former brings to mind the illustrious statesman, in the purple and splendor of the Senate; the latter, the indomitable hero in his farmer dress, plain, yet invincible on the battle field."

## Flax and Flaxseed.

It is said that Preble County, Ohio, is the greatest flax growing county in the Union.This year the crop exceeds any previous one in the quantity sown, and the yield of seed will be about an average. It is computed that 100,000 bushels of seed will be raised ; of this quantity one tenth will be required for home consumption, leaving 90,000 bushels for market. This, at the price at which seed now rates, 55 cents per bushel, will bring into the county the neat sum of $\$ 47,500$. The flax crop, if some means could be devised for preparing the lint, would be very profitable. Lint just as it comes from the brake, is worth $\$ 15$ per ton.
If as much mechanical genius had been expended in the preparation of flax as there has been on cotton, linen might be nearly as cheap as cotton cloth. We have lately seen a plan of a machine invented by a young man, for cleaning and hatchelling flax. It is good, but his means disqualify him from manufacturing, his machine.

The Oregnnians arezon
The Oregnnians are determined to have . steam tow boat, so that vessels may be brought up the Columbia River with safety. The wind blows down the river five months of the year and vessels are said to be two months in sail ing up 100 miles, whilst the difficulty could be easily overcome by steam, and a large trade opened with the Pacific. A memorial to Congress states that Oregon can already furnish, at short notice, five thousand barrels of flou for the use of our Pacific squadron, three thousand barrels of beef, and two thousand of pork Lumber, tar, pitch, flax and hemp can be hereafter supplied, if a demand should be cre ated for them. The Oregon treaty, by which the boundary was settled with Great Britain, seems not to be very popular with the American emigrants. The appropriations for the year made by the local legislature is $\$ 5,000$, which increases the territorial debt to $\$ 10,000$

## Foot Prints on the Grass

Towards the end of fall may be often observed in the field, marks of footsteps, which ap pear to have scorched the grass like heated iron: a phenomenon formerly regarded with superstitious dread, but can now be explained upon very simple chemioal principles. When the grass becomes crisp by frost, it is exceed ingly brittle, and the foot of a man or even a hild, is sufficiently heavy to break it completely down, and effectually ikill it, therefore, when the sun has thawed the frosty rime from the fields, these foot-tracks appear brown and bare in the midst of the surrounding greed grass.
"Where is your father ?" said an angry master to the son of his tippling domestic. "He is down stairs, sir," replied the boy Getting drunk, I suppose!"" "No sir, he

TO CORRESPONDENTS．
＂W．＇T．J．of－＿一Your article has been received，and will meet with its merited con－ sideration next week．
L．V．W．of Oho，＂－We have heard that there is a machine for pegging boots hysteam or water power，in Woburn，Mass
E．G．of N．Y．＂－Your plan for splitting leather seems to be the very thing desired．－ There can be no doubt but the knife spinning on an axis，will require less power and do work better than by drawing the leather square on the knife．This principle is well under－ stood by all mechanics engaged in turning，or any other branch of mechanical manipulation． It will，however，require a very correct frame to keep the leather true to the knife．Your plan of a roller for that purpose is the best that could be adopted．
＂J．W．of Conn．＂－We have seen no plan as a substitute for the paddle wheel in steam－ boat，at least for ocean navigation．The screw appears to be the best yet experimented upon， but even that，as far as tested，has proved to be inferior．
＂L．V．of Pa．＂一The nitrate of iron is sim－ ply iron thrown into nitric acid．The contact of the iron with the acid is soon shewn by dense volumes of red smoke rising from the acid which boils and fumes in a most extraor－ dinary manner until all its nitrogen is expel－ led．The nitrate of iron is used for dyeing or staining weods black．Also for dyeing as a basis，the beautiful Prussian blue on silk It is also used todye the royal blue on cotton by a mixture of the salts of tin along with the iron． The tin makes the color more fast than to have the iron merely as a mordaunt．
＂R．M．of N．Y．＂－There can be no doubt but that many engines work with a power al－ most double to the common measurement． We have been informed of one little engine of 4 horse power，performing as much labor as some made for eight horse powers．Many for－ get that the power is in the steam．The qua－ lities of the boiler and the condenser－the power of the vacuum－are grand points．The great improvement which appears to us，yet to be made，is using the steam with all its ex－ pansive power，as the steam is cut off at a point when it can exercise the greatest power．－ Those who think，however，that a steam en－ gine can be worked at no expense，are sure－ ly not very reflective，or correct in their judg－ ment．
＂J．J．of N．Y．＂－We sincerely appreciate your good opinion of the style and character of the Scientific American．We have always considered that a chaste and elegant literary style was necessary to give dignity to a scien－ tific paper，as well as a wide spread intimacy with the progress of physical science and an intimate knowledge of first principles．
＂J．R．of Mass．＂－We shall at some future period，present a number of practical statistics selative to the economical difference between steam and water powers
＂W．J of Mass．＂－It is penal to affix the word patent，or the stamp mark or device of any patentee on arry unpatented article．The penalty is $\$ 100$ ．
＂S．W．D．of N．Y．＂－We shall answer you by mail in the course of a week，in refer－ ence to your hydraulic elastic motion，
＂M．R．of Vt．＂一The use of salt in your preparation for dyeing black，is erroneous；it is of no use whatever，and the peachwood is an entire loss．Prepare your common blacks with the sulphate of iron and the sulphate of copper，one part of the latter to three of the former，and after having boiled your goodsone hour，take them out，air them．wash them and then give the logwood．If you use the fustic aleng with the logwood，the goods will be ea－ sier cleaned．The pxclusive use of the sul－ phate of copper gives but a fuyitive color－it looks well for a short period and then becomes grey．
G．V．of N．J．＂－We have answered your letter by mail，and have seat the desired in－ formation
＂J．H．C．of Pa．＂－You can have the back numbers of the Scientific American．

## Mechanics Mutual Protection．

The New Yoik Mechanics Literury Club has organized propitiously．The member bave exhibited a spirit that is yet destined to
exert an influence for the good of the mechan－ ic，especially those whoare，and may become connected with it．Its title bespeaks its char acter．Essays，Recitations，Debates，and friendly philosophic conversations are to be the exercises，from which no member can be
exempied．The officers elected are：－R．Mac arlane，President ：James Gannon，Vice do W．Murray，R．Sec．；Jas．McDonald Cor Sec．；S．Maxwell，Treasurer；Horatio N Warren，Librarian；Henry Hagar，Herald． On Thursday evening last，with J．S．Huy Ler，D．G．P，and a number of members from various Mechanics Protections of New York we visited Jersey City Protection $\mathrm{No}_{0}$ ．1，and were grat ified to see the zeal and interest taken in the welfare of the mechanic by the noble hearted men who met to be initiated into the cords of our unity．The following persons were elected and installed officers：John Mil－ ler，S．P．．M．B．Hart，J．P．；M．Honey man，R．S．；T Brainard，F．S．；J．Cooley T．We venture to predict that a united per serverance in the members of Jersey No． will soon spread the cause in that State

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Diamond Miteroscopes.
Diamond Microscones were first suggested by Dr. Goring, and have been well executed by Mr. Pritchard. Previdus to grinding a diamond into a spherical figure, it should be ground flat and parallel upon both sides, that by looking through it, as opticians try flint glass, we may see whether it has a double or ciple refractive power, as many have, which would render it useless as a lens. Among the fourteen different crystalline forms of the diamond, probably the octahedron and the cube are the only ones that will give single vision. It will, in many cases be advisable to grind diamond lenses, plano-convex, both because this figure gives a low spherical aberration and because it saves the trouble of grinding one side of the gem. A concave tool of cast iron, paved with diamond powder, harnmered into it by a hardened steel punch, was employ ed by Mr. Pritchard. This ingenious artist suc ceeded in completing a double convex of equa radii, of about 1-2.5 of an inch focus, bearing an aperture of $1-30$ of an inch with distinct ness upon opayue objects and its entire diameter upon transparent ones. This lens give vision with a triflıng chromatic aberration; in other respects, like Dr. Goring s Amician reflector, but without its darkness, its light is said to be superior to that of any compound microscope whatever, acting with the same power, and the same angle of aperture. The advantage of seeing an object without aberra tion by the interposition of only a single mag nifier, instead of looking at a picture of it with an eye-glass, is evident. We thus have a simple direct view, whereby we shall se more accurately and minutely the real texture of ohjects.

Electro-Calt ure.
High expectations were once raised, relative to accelerating the growth of vegetables by electricity. Plats of ground were encircled by wires buried beneath the surface of th soil, and connected with upright pointe conductors, for stimulating the growing plants, -the operator forgetting that the moist soil, being a free conductor of electricity, dissipa ting in a moment every particle of the flu that came down the rods
Accurate scientific experiments have been lately made under the supervision of Profes sor Solly, of the London Horticultural Socie ty, which set the matter finally at rest. A large and powerful cylinder electric machin was used, and the plants, in pots, within doors, were kept heavily charged, four hours each day, for four weeks; and although the experiment was varied in many different ways, not the slightest influence could in ary case be perceived, either favorable or detrimental, to vegetable growth The plants operated upon, several pots of each sort being taken, were young French beans; young plants of the common scarlet geranium, plants of the strawberry; seeds of wheat and seeds of mus tard and cress Experiments were afterwards made in the oven air, on a number of different plants, for nearly six weeks, but not the slightst difference could be observed between those electrified and those not.

## Composition for Roofs.

Slack stone lime in a large tub or barrel with boiling water, covering the tub or barrel to keep in all the steam. When thus slacked pass six quarts of it through a fine sieve. It will then be in a state of fine flour. Then to six quarts of this lime, add one quart of rock or Turk's Island salt and one galion of water. then boil the mixture and skim it clean. To every five gallons of this skimmed mixture, add one pound of alum, half a pound of copperas, by slow degrees add three fourths of a pound of potash, and foux quarts of fine sand or hickory ashes sifted. We suppose any kind of hard wood ashes will answer as well as hickory. This mixture will now admit of any coloring matter you please, and may be applied with a brush. It looks beiter than paint, and is as durable as slate. It will stop small leaks in the roof, prevent the moss from growing on
and rotting the wood, and render it incom. bastible from sparks falling upon it. When bastible from sparks falling upon it. When
laid upon brick work it renders the brick imlaid upon brick work it
pervious to rain or wet
The above, which we find in the Maine Far mer, is a good recipe, but it will not take any coloring matter that we may mix with it.Neither is it so beautiful as paint ; but from what we know of chemistry the composition tself will be a very good cream color by the mixture of sulphate of iron and the lime

## Prescrving Grain.

A distinguished agriculturist of Normanảy, has made use successfully for the last thirty years, of a process to preserve corn newly cut from the germination which is too often the result of rains which take place between the cutting of the grain and the making it up into shesves. The Minister of Commerce has just addressed a circular to the perfects to inuce them to extend the knowledge of this process, which is as follows:
As the corn is cut, take in se;eral armsfula quantity of stalks, equivalent to five or six sheaves, weighing 15 kilogrammes ( 40 lbs .) or thereabout, place them standing, so as to form a bundle, to be tied with straw below the head of the grain, open aifterwards this bundle at the bottom in order to give it footing as well as to faciliate the circulation of air in the inide, finally cover it with a hat formed of an rmful of straw tied as near the bottom as possible, in such a way that it can be put over the jundle of grain, the ears of the corn hanging down towards the earth. By this method, which is similar to the one practised with emp the rain glides along down the stalks without penetrating the bundle, even when he rainy season continues for several weeks, he inside of the bundle will remain untouch ed, and the first day of fair weather may be used to make the grain into sheaves, and it will be tound to have suffered no injury except some slight change in the straw on the utside of the bundle.
Farmers who have adopted this custon, have Feen so well pleased with it that they have extended it to the harvesting of oats and bar ley, and they practice it even in the most promising states of the weather

## mechanical movenients.

 Old Dressing Frame.

The old method first used in dressmg warp for the power loom, presented altogether dif erent notions of doing this from the machine used at present. In the above cut we have the brushes used as represented, moving on the warp, one on the tcp and another below while the vibration of the bell cranks on the ight and left produces the requisite movements of the brushes It will be observed tha the motion of the brushes is parallel with th threads end the warp is placed on an angle ri sing upon the roller, so that the motion of th brushes may be equal on the whole warp. The dressing frames now used are propelled by a belt which moves two rollers, or beams by wheels carrying the warp through a reed and a brush extending across the warp. The reed is made of copper, a stout sheet aboul fou inches wide, perforated with smooth holes.The warp receives its starch trom a blanket roller as it leaves the first beam, and under the warp there is a tan which spins around under the warp and drys it before it goes on the moving beam. It requires a great heat to dry warps on the dressing frame, and conse quently it is a very unhealthy occupation.Some factories use pipes heated by steam to dry the warps as they pass on to the beams There is a small toothed wheel or pinion that rikes a bell during its revolution, measuring a cut of cloth, which the dresser marks with red chalk, so that the weaver knows by said move


Here is a plan by which from the same mo tion of one pinion alternate transverse motion will be communicated to the frame. It will easily be observed that the pinion will trave along the whole notches of the eccentric frame, or rather the frame on the pinion. The rollers on which the frame moves will giv ease to the motion. The most perfect of al alternate traversing machines is the self-ope ating spinning mule, and those who would de sire to see such machinezy working in an al most perfect manner, should visit our Cotton factories. In one factory at Cohoes, on the Mohawk, there is a room with eight of thes machines in operation.

Prevention of Rust in Metals
The following simple method of coating me tals by the agency of an acid, so as to secure them most efficiently from the deteriorating influence of oxidation, is recommended by a correspondent of the Glasgow Practical Me anic :-
The article to be coated, is first dipped in a dilute acid, composed of two parts sulphuric acid and one of nitric acid, in nine parts of water. After immersion in this solution, the ar ticle is to be washed in clean water, precau tion being expressly taken to avoid rubbin the metal, or touching it with the fingers. I is then to be allowed to drain, and so soon it appears to be $d r y$, it is to be brushed over with copal or lac varnish; the varnish attaches itself firmly to the acidulated surface of the metal, and never peels off The best species of varnish for this is probably copal, to which is added a little litharge.
Sheet iron thus treated, was subjected to the continued action of sea water for several months without sustaining any injury. It is suggested that a considerable prolongation of the wear of copper on ship's bottoms might result from the application of this method.

New Method of Boring Artesian Wells. Au intelligent artisan named Fauvel, at Per pignan, in France, noticed that in several cases of boring for water with solid iron rods, so soon as the spring was tapped all the tritura ted particles were brought up without the use of the augur. He inferred, therefore, that if the boring could be effected by a hollow tube, about two inches less in diameter than the width of the augur communicating with an injecting force pump by a flexible tube from the surface, the same result would follow by his application of mechanical power, as reulted from the natural power of the rising column. Being a poor man, it was long beore he could get an interest taken in his invention. At last his fellow workmen clubbed ogether and assisted him in his enterprise nd success attended him in his first experi ment. He can bore as much as by the old ystem in one half the time. Fauvel has now orders for about 200 Artesian wells, and he has carried one 6 inches in diameter to the depth of 540 teet.

An 1mprovement in Bread-Maiking.
Persons who are so unfortunate as to b poorly provided with those agents of mastic cation, (good teeth,) will be glad to know that there is a method of baking bread which ob viates the necessity of a hard crust. The crust comrnonly attached to the loaf is not only troublesome to such persons, bur is often the cause of much waste. The way to be rid ot it is as follows: When the loaves are moulded, and before they are set down to rise, take a small quantity of clean lard, warm it, and ub it lightly over the loaves. The result will e a crust beautiful and tender throughout. This is not guess-work.

Prepared Chalk
Take a solution of muriate of lime, and add solution of carbonate of soda as long as it causes precipitation; wash the sediment and dry it.

## rethod of Coating Bobbin Not or Lace with Copper.

Stretch a piece of net or lace by placing a opper wire around it; then black-lead the lace thoroughly with pure powdered plumbago, using a large camel-hair brush for the purpose; then place the lace between two copper plates, positively electrified, connecting at the same time copper wire round the lace with the negative pole of a galvanic battery. The lace becomes rapidly coated with the copper, which can be electro-gilded or silvered, and will give it a beautiful appearance; the lace when so covered with a metallic coating, will be usefui in the manufacture of little articles such as jewel cases, \&c.
To Measure Hay in the Mow or Stack. More than twenty years since I copied the ollowing method of measuring hay from some publication, and, having verified its general accuracy, I have both bought and sold hay by it, and believe it may be useful to many far mers, where the means of weighing are not a hand.
Multiply the length, breadth, and height in each other, and, if the hay is somewhat settled, ten solid yards will make a ton. Clo ver will take from 11 to 12 vards for a ton. Alb. Cult.

The Lacometer.
The Lacometer is a glass tube, raarked at equal distances, and is used for testing the qua ty of milk. The depth of cream is distinct y seen and marked on the glass

The quantity of oil of vitriol annually ma nuf actured in England, Ireland and Scotland is nearly 70,000 tons.

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