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Poetry.

OH, BE KINDLY.

BY JOHN ANDERSON.

Oh, be kindly ! oh, be kindly !
When you labour 'mong the the vile,
Ne'er forget that vice has blindly
Darken'd all their minds with guile.
If your counsel should not light them
To the haven, as you seek
Oh, in mercy do not blight them
Farther with the words you speak !

Oh, be kindly to the erring !
Let your words be soft and true,
And, countenances cheering,
Try what kindness you can do.
If their gloom you wish to brighten,
Search for hope and nurse it strong ;
Hate has been for ages fighting
On the side of fraud and wrong !

Oh, be kindly to the victim ;
Do not magnify his crime ;
Rather study to convince him—
He may yet redeem the time !
Anger is a bad consoler—
Prison records teaching this ;
Kindness is a sweet condoler—
All its seeds bud into bliss !

Oh, be kindly, when you reason
With the sinner on his sin !
If your precepts are in season.
Active love will lead him in
Look at spring, how she envelopes
Stunted woods in garments rare ;
So with gentleness develope
Moral flowers as bright and fair !

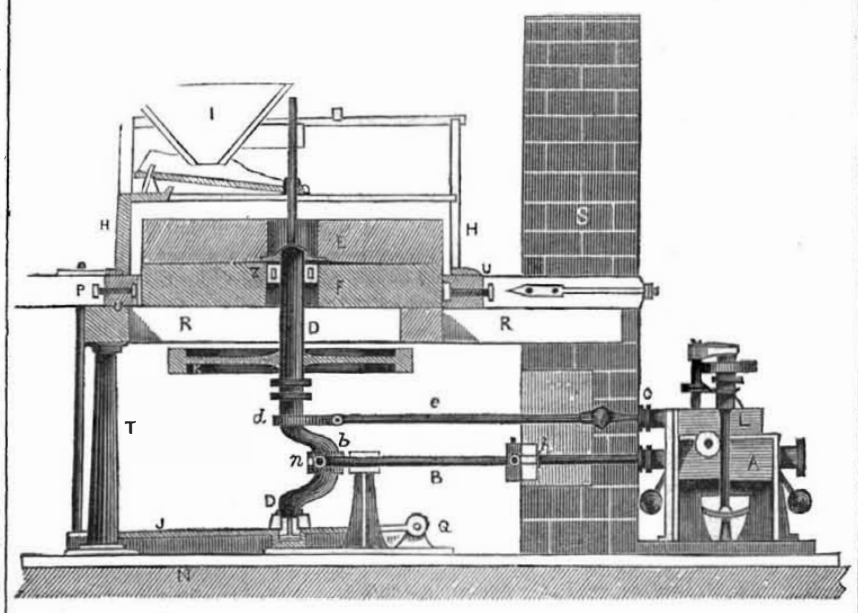
Oh, be kindly, ever smiling
When you show the slave his thrall ;
Few men like to bear reviling
When their hearts are full of gall !
Harshness is a despot's treasure—
Let those copy who esteem ;
Christ has left a golden measure—
Wise men love to follow him !

Zephyr winds are soft and loving,
Oh, their balmy breath is kind ;
See the streamlets in their roving
Better every flower they find !
True it is that nature rages—
Speaks in accents fierce and strong—
But the wreck, like pictured pages,
Seem to say her rage is wrong !

Gentle Words.---Loving Smiles.

The sun may warm the grass to light,
The dew the drooping flower,
And eyes grow bright and watch the light
Of Autumn's opening hour—
But words that breathe of tenderness,
And smiles we know are true,
Are warmer than the summer time,
And brighter than the dew.
It is not much the world can give,
With all its subtle art,
And gold and gems are not the things
To satisfy the heart :
But O, if those who cluster round
The altar and the hearth,
Have gentle words and loving smiles,
How beautiful is earth !

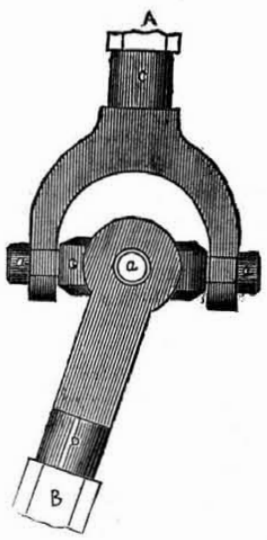
IMPROVED METHOD TO PRODUCE CONTINUOUS ROTARY MOTION FOR MILLS FROM A STEAM ENGINE.



This engraving is a side elevation showing the application of steam power to one pair of mill stones. A is the horizontal steam cylinder, high pressure. B, is the connecting to the piston rod, jointed at *h*, to the piston rod, at one end and to the crank *b*, of the vertical shaft by *n*. The joints are universal, capable of motion in all directions, like the one below. E, is the upper running mill stone, and F, the lower stationary one. H, is a case enclosing the stones and the hopper I. K, is a small fly wheel on the shaft D. It is made broad and may be used as a band wheel to drive some light connected machinery. *d*, is an eccentric to which the valve rod *e*, is connected in the usual way to work the slide within the steam box L. The steam cylinder is supported upon two legs fastened to the bed plate N, which extends below the upright shaft D. The lower end of this shaft is secured in proper bearings, elevated a little above the bed plate to retain the shaft in its proper vertical position, and to turn freely round in its brasses. There is a small standard erected from the bed plate close to the crank of D, to sustain a guide for the end of the connecting rod to allow its oblique action, and the piston rod may be guided straight by a slide block on it moving in a horizontal guide frame in the usual way. Q, is a low standard from whence a lever J, is suspended by a strong screw bolt, above, which being turned will raise or lower the end to set the stone to any degree of accuracy, as the upright of J, passes through a beam connected with R R, on which the lower stone F, rests. These beams are supported at one end on an iron column T, and at the other end are built into the wall S. The stone F, is also regulated in its horizontal position to suit the vertical axis of D, by four large set screws P passing through U, an outside wooden frame to the lower stone. Z, is a collar fixed in the central hole of the lower stone, by wedging. The engine may be of the oscillating kind placed on trunnions and sustained by the fixtures herein represented or otherwise. The connecting rod B, in this engraving, is formed of two bars secured at the respective joints on each side.

This arrangement of machinery was invented by Mr. John Hastie, of Greenock, Scotland, and as such things are of interest to many of our readers, we select this as forming part of his patent which relates simply to the combination of the piston rod in the way set forth, with the shaft D.

Hook's Universal Joint.



This Joint was invented by Dr. Hook, and exhibits a decided improvement over the old Universal Joint for coupling shafts that are inclined to each other This will form a useful accompaniment to the above engraving as exhibiting on an enlarged scale, the manner in which the piston rod and the connecting rod *b*, are united together. A and B are two shafts the ends of which within the bearings C and D, are of a forked form. G, is a circular iron ring with four pins or pivots *a a a a*, (three only of which are seen,) on its circumference, which fit into holes in the ends of the forks, by that means uniting them together, and at the same time allowing freedom of motion. In this way rotary motion may be conveyed from one shaft to another when they have considerable inclination, but this is not advisable if the angle of the shafts be more than 15 degrees, but for a coupling joint in some cases, such as a skilful millwright or engineer will always judge best, this joint will answer an excellent purpose.

Squirrels Reared by a Cat.

The Indiana Whig gives a curious instance of the transfer of maternal affection and solicitude. A young man in Boone county, Kentucky, found a nest of three young squirrels, and on carrying them into the house, he placed them with a bevy of young kittens and, strange to tell, the mother cat, adopted the little foundlings into her family, bestowing as much care and kindness upon them as upon her own offspring. The squirrels are now about a month old, and have become entirely domesticated, living upon the same pap, and adopting the habits of the feline brothers and sisters.

RAILROAD NEWS.

New Haven and New York Railroad.

The New Haven and New York Railroad Co. and the Hartford and New Haven Railroad Co. have come to an arrangement and formed a settlement. The result to the travelling community is, that the Hartford Co. agree to run all the trains in connection with the New York trains. The portion of the New York track which extends from the depot in New Haven to the junction of the Hartford track, is to be used by the Hartford trains as well as the New York depot. The Hartford track from the junction to the wharf is to be disused, excepting for freight trains. The day-boats of the Hartford Company are to be taken off, and all the business of the line thrown on to the New York road, excepting the freighting, which is to be done as heretofore by the night-boats of the Hartford Company. This junction will accomodate the public materially, as the whole line of roads from New York to Boston will now run by a common schedule. The effect of the arrangement of this affair upon the New-Haven Road, it is supposed, will be an increase in the receipts of $50,000 or $60,000 per annum.

Plank Roads.

The first plank road in this state was built sixteen years ago in Cayuga Co. It was three miles in length, and was constructed under the supervision of Mr. C. Edwards Lester.—It was made across a swamp, caused by an inlet or bay, at the end of Cayuga Lake. All the tolls received, were by voluntary contribution. A box was placed at each end of the road, and those who passed, put in as much as they pleased,—some a penny, some a sixpence, and some a dollar. The amount received in this manner the first year, was equal to the cost of the road.

[The above paragraph, we see, is going the rounds of the newspapers, and it certainly places the author of "The Glory and Shame of England," at a very early age among our Civil Engineers. Dr. Cox could probably tell whether he was so early distinguished for engineering abilities, as at that time we suppose he was under his birch at Auburn.

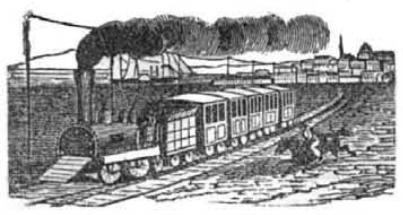
A Road Made of Charcoal.

There is a Road leading from Washington County to Dodge County in Wisconsin, about 17 miles long made of charcoal, and it has been in successful operation for two years.—The cost of this road was from five hundred to five hnndred and twenty dollars per mile, and the repairs to the road have not exceeded five dollars per mile each year. The repairs were necessary on account of some soft spongy places in the earth, where the coal was not put on with sufficient thickness to prevent the ground from giving way under the immense loads that past over it during the wet season. The number of wagons that passed over this road in the year 1847 was over 18,000, many of them carrying 3500 or 4,000 pounds at a load, and drawn by three horses with perfect ease.

The mode of construction is, to cut down the trees, place them on the road, and cover up as in making charcoal at a pit, and then fired. When burnt, the coal is raked down into shape, and with a little earth thrown on it to fill the interstices, the road is complete.

[It is quite common to construct roads in Britain with the ashes of the bituminious coal burned under boilers. Such roads however are not to be compared to those made of broken stones.

Among the eminent travellers who are proceeding to California, in James Arago, a brother of the astronomer. He has a large fortune in France, but goes out to ascertain th physical character of the country.



To our Contemporaries.

To Editors generally, we extend our warmest thanks for their complimentary notices of the Scientific American, we should gladly make room for them all, but the crowded state of our columns will not allow us the pleasure. We are highly gratified with the manner in which the "Prize Essay has been received by them, and it speaks well for the journals that have copied the suggestions made by the author (Mr. Maher) inasmuch as it manifests their willingness to benefit that class of individuals whose efforts demand the earnest co-operation of legislators. Our object has been to awaken a more general interest in behalf of inventors, and if possible to create a reform in the existing Patent laws. If we have contributed in any degree to accomplish this required reformation, we shall feel abundantly rewarded.

There is not a paper published in this country that has not more or less subscribers, who feel a deep interest in mechanical improvements, and we take it upon ourselves to say that any suggestions upon this subject will be read by them with satisfaction and profit.

We advise mechanics in every village to hold meetings and be prepared to present petitions as soon as Congress assembles in December and not trust their interests in the hands of a few demagogues whose sole object is to secure some lucrative office under the Government. Any petitions sent to us (post paid) will be promptly forwarded to Washington as soon as Congress assembles. Now is a good time for action and we shall be pleased to hear from as many as may deem these suggestions worthy of notice.

GRIFFIN, Geo. May 1st 1848.

MESSRS. MUNN & Co.

GENTLEMEN.—Enclosed I send you the amount of another year's subscription to your valuable journal. I assure you, I wish the Scientific American to obtain a wide spread circulation, I wish it as well for your advantage and for the benefits it must yield to all classes, and particularly to those for whom it is more expressly designed. I am not a mechanic nor an inventor, yet I feel a lively interest in all the improvements and discoveries of the age, besides I have in several instances derived actual profit from the perusal of your paper, in the various articles of domestic economy. We see in almost every newspaper of the day receipts for various purposes, which when tried are seldom found to succeed, I am happy however to say that those which come approved by the Editors of the Scientific American may be invariably depended upon.

I am, Gentlemen, yours truly

J. C. M——

(The above is from one of our oldest subscribers, and is but a stereotype of letters received by us weekly.—EDS.

Hydraulic Engine.

The Glasgow (Scotland) Citizen, says: "In noticing the hydraulic cranes at the General Terminus Railway Company's Wharf, some months since, we stated our conviction that the time was not distant that the new power or new application of power—the pressure of water in air tight pipes—would be made largely available as a motive force. We have now the satisfaction of stating that there is no longer any doubt as to the applicability of this power to machinery. We have had the pleasure of inspecting a model engine in the office of the Corbals Gravitation Water Company, Portland-Street—and which is the most beautiful and simple contrivance we ever saw.—The model is about one-horse power, with a horizontal cylinder, and having a twelve-inch stroke. The water, which here has a pressure of about 201 feet, is introduced to it from a common house-pipe; and such is the simplicity of the machine, that a child could work it and regulate its speed at pleasure by the mere turning of a handle. The great advantage of this engine consists in the fact that it can be put up in any flat of a house of any street,—wherever, in fact, there is a water-pipe. It takes up very little room; it registers the quantity of water it used (which by the way, may be again available for several purposes, as it leaves the engine as pure as when it entered;) and it may be erected in those localities in cities where steam-power is prohibited on account of danger and nuisance from smoke, and without raising the rate of insurance. It will be much cheaper in every respect than a steam-power engine. The model has been constructed by Messrs. James Steel and Sons, Dundee. In all processes requiring engines of from two to six or eight horse-power such as coffee-grinding, baking, turning, letter-press machine printing &c, the gravitating water-power engine must speedily come into general use."

The engraving and description of an hydraulic engine, will be found on page 213. vol. 2 Scientific Ameriean, invented by Mr. E. Bishop. We have heard that there are two such engines in operation in Liverpool, England, and in some other places. They are in successful operation, and might be very useful in some parts of our country.

New Electrical Instrument.

M. Chevaler, a French gentleman who has paid some attention to electric phenomena, has brought to perfection an apparatus, which early as the days of Franklin was suggested by some of the experimentalists, by whose means an electric shock can be conveyed at a considerable distance, even through a whole line of individuals. It is of so small a compass that it can be carried in the pocket; by means of a string thrown from amidst a flock of sheep twelve fell down And the shock may be so violent as to cause instantaneous death without the hand of the perpetrator being visible or recognized. The discovery is rather a mischievous than a useful one.

[The above we copy from an exchange and know not the one from which we took it The fact of prostrating the sheep we consider to be equal to any feat ever accomplished by the famous Munchausen.

A Curiosity.

An English paper states that there has been exhibiting at the Egyptian Hall London, a full length miniature of a female discovered by Mr. Eades in a block of marble which he was preparing for an obelisk; discovered perfect in itself. Mr. Eades thus describes it:

"This unprecedented phenomena of human nature is a most mysterious and truly astonishing full length miniature of a lady, three inches in height, in the costume of the aristocracy of the present time: possessing the most accurate and pleasing features, graceful figure, beautifulringlets—upon the head of an elegant cottage bonnet, to which is attached a superb veil; under her arm she carries a a fashionable muff, which has the appearance of one of the most recherche of the Hudson Bay Company. The incomparable miniature has been examined by several eminent antiquaries, scientific gentlemen, first rate artists, and numerous distinguished ladies and gentlemen, who have unanimously pronounced it to be the finest specimen beheld, and may be challenged against the world!—so perfecly uniform in every particular, combining grace and elegance that it appears a production of Mr. Martin's or some other celebrated artist."

Weather, Fruits, &c.

In Ohio, the horticulturists say the Fruit, owing to its backwardness, has escaped the late frosts without injury. Accounts, however from Georgia, South Carolina, Alabama, and a portion of Florida, generally agree that the Wheat crop, and that portion of the Cotton crop which was up, have been almost entirely destroyed. The Corn has suffered great injury also, but this can be remedied by replanting. If the weather has been so severe in Mississippi, Louisiana, Texas and Arkansas, as it was in Georgia, it must have the effect of geeatly curtailing the cotton and wheat crops, and consequently of raising prices.—There is not Cotton seed enough in the country to replant the crop, but the injury to the Wheat may, in some degree, be repaired by planting more largely of Corn.

Great Seizure of Counterfeiting Apparatus.

In the vicinity of Blazing Star, New Jersey, Officers Brown and Leonard of this city made a most extensive seizure on the 1st, inst of an immense coining apparatus for coining counterfeit Mexican dollars and American quarter and half dollars. The apparatus was contained in 16 boxes. There is among it a powerful screw press; the lever used in operating with it is eight feet long, and has at each end a 32 pound cannon ball. The rest of the apparatus seized consisted of a bed-plate milling apparatus, crucibles, a large quantity of tools, chemicals, &c. and some boxes of counterfeit coin in a finished and unfinished state. The dies were not found, but the officers have impressions from them which exhibit the highest degree of perfection in their manufacture. The coin cannot be detected either by sound or weight from the genuine The place were the counterfeiters carried on their operations was built by a man named Sweet and his accomplices, and was so constructed that it afforded abundance of light, and at the same time, the operators could not be seen or heard from without. One man started for California a month or two since, it is supposed with a large quantity of the counterfeit coin in his possession, intending, no doubt to speculate with it. The Government have dispatched an agent there to arrest him, but it is feared he will have disposed of a large amount of the coin before the officer arrives.

Pineapples in Florida.

A writer in the Savannah Georgian says that one gentleman set out 46 slips of pine on the 20th of August, 1843, and they ripened to fruit July 10, 1845; he has now 3,500 plants, half which will bear next July. The apple does as well at St. Lucia, if not better, than in Cuba; the fruit is larger and better. About 18,000 pines can be produced to the acre.—This fruit from the pine plants of South Florida need not be plucked till it has quite matured, when it will come into market in a better condition, and of finer flavor than any other. The average value of the pine then will be at least 5 cents, and an acre will yield $800 or $900, while the produce of the orange is about $750 per acre.

Medical Convention at Boston

In the American Medical Convention, in session at Boston, on Wednesday, last week, Dr. Nathan R. Smith, of Maryland, read a long report from the Committee on Surgery, most unequivocally defending the use of chloroform. The report says:

"It has been administered to millions of subjects, and we have but fifteen cases of authenticated deaths supervening from its use. Alarm, therefore, on the subject is needless. Much more cause is there for alarm, much more reason to apprehend a fatal termination in taking an ordinary railroad journey, than in inhaling chloroform, at the hands of a judicious and careful practitioner.

"It is admissible to proceed with a surgical operation in dangerous cases, without the use of choloform, because safety and immunity from pain are secured. It should not be used where there is a disease of the heart; and in inhalation care should be taken that atmospheric air be mixed with the chloroform Inhalation should stop the moment that insensibility is attained. Professor Simpson has published his opinion that one hundred lives have been preserved by the use of chloroform where one has been lost by it. He further says that the mortality, where chloroform is used, is much less than in similar cases where it is dispensed with."

The Committee on Obstetrics also reported decidedly in favor of the use of Chloroform, and the 'wonderful advantages' Obstetric practice has gained through the introduction of Anasthetical agents. Etherization has now been used in thousands of cases, and in no one instance has the slightest injury resulted to the mother. It is added that anasthetics may not only be given in all cases of labor, but that they may not rightfully be withheld.

The funniest article yet, is a patent iron shirt with precusion collars. It never wears out, and by touching a spring, a new collar jumps up, until a half-dozen are exhausted.—A patent sheet-iron neckcloth accompanies it.

A New Poison.

In the last number of the Medical Examiner, there is a description of a new poison which was discovered in 1847, by Sobrero, a Spanish Chemist. Dr. W. F. Jackson, of Maine, has made a number of experiments with it, and the article in the Examiner is taken from an address of the Doctor.

The poison is obtained by a process similar to that for procuring gun cotton, with the exception that instead of cotton, the liquid called glycerine, the well known sweet principle of oils, is exposed to the reaction of a mixture of strong sulphuric and nitric acids, refrigerated. It is an oleaginous, honey-like substance, which sinks in water, but is soluble in alcohol; and it was the alcoholic tincture (the strength not mentioned) which Dr. Jackson employed in his experiments.

The general properties of this substance, which as yet has no name, are those of a most powerful excitant or stimulant, the effects being exhibited by the violent action of the arteries and brain. One-third of a drop was always found sufficient to quicken the pulse, within sixty seconds, from sixty-five to ninety-five and even one hundred and twelve beats a minute, causing intense headache, protruding eyes, and scintillating vision, with disturbed heart, &c., symptoms which subsided in about half an hour. A larger dose produced similar effects, only of a more violent character; the pulse being raised to one hundred and twenty-four beats and becoming hard and almost incompressible.

Three drops of this poison killed a cat in two minutes.

The Benefit of a Strong Beaver.

Parson Brownlow, of the Jonesborough whig was attacked at night, while returning from church, and struck down by a club in the hands of John Ryland, whom he had published as a deserter in Mexico. The Rev. Editor after 15 days' confinement from his injuries, comes down on his assailant in a column of invective and characteristically says, in conclusion, "I owe my existence, under God, to a strong beaver hat I had on at the time.

The parson's hat is equal to the famous one of George Buchanan. Perhaps he carries a sheet iron crown in it.

Heavy Damages for Breach of Privilege in Partnership.

By the proceedings of the Superior Court lately held in this city, Judge Sandford Presiding, we see that Mr. A. G. Bagley, the Gold Pen Manufacturer, was awarded a verdict as plaintiff of $7,500, for damages for a breach of the articles of co-partnership by G. and E. Smith, his former partners.

The Canal Locks at Lockport.

The combined ten Locks at Lockport, in this State, were completed last week, and they are justly considered as monuments of engineering and architectural skill. The Locks are in two tiers, 5 in each tier. Each lock has a lift of nearly 8 feet. There are 31,020 yards of masonry in the work and the cost of the whole has been about $600.000.

Propeller Sarah Sands.

The propeller Sarah Sands on her last voyage from Liverpool broke the piston rod of her engine when she was five days out. The accident was occasioned by the screw getting foul of something in the water, and she had therefore to make the rest of the voyage by her sails, the screw at the same time acting as a drag to impede her progress.

Gas Works Explosion.

The Gas Works at Rochester, N. Y., were completely destroyed by explosion on the 23d. The explosion was occasioned by one of the workmen going into the building and lighting a match. The gas exploded on the instant the match was lighted. Two of the workmen belonging to the works, were seriously injured by the explosion, one very badly burned and the other had his leg broken.

Some oil cakes, from Holland, were examined recently at the London Custom House, which proved to be *snuff*. As there were sixty tons, and, as the duty on snuff is now six shillings sterling per pound, the government would have been defrauded to the large amount of £40,000.

The Mineralogist.---The description and locality of every important Mineral in the United States.

(*Continued.*)

GOLD.

Occurs amorphous, crystalized, and in long tortuous, hair like portions, or masses having tree like appearances. Colors, golden or orange yellow. When fractured, it presents sharp protruding points. Malleable and soft; metallic lustre. Fuses under the blowpipe; dissolves in aqua regia, which solution colors the skin an indelible purple. Specific gravity 14.85 to 19.35. The auriferous mines range along the eastern slope of the Apalachian chain: but are mostly confined to Virginia, the Carolinas and Georgia. The gold district of California begins near the mouth of the Sacramento in lat. 39 N. and long. 122½ W. being about 100 miles N.E. from the San Francisco Bay, and extending northwards up the valley, and into several valleys on the east.—Its malleability will distinguish it from pyrites and yellow mica.

GREEN EARTH.

Occurs in masses, or in lining cavities. Color, greenish. Yields to the nail; fracture earthy; adheres to the tongue; slightly unctuous. Fusible. Specific gravity 2.5. Found near Boston and Deerfield, Mass.; on the Hudson, N. Y.; near Imlaytown, in Paterson, N. J.

HELIOTROPE. (BLOODSTONE.)

Color, deep green, interspersed with colored spots. Translucent on the edges. Lustre, resinous. Specific gravity 2.63. Infusible.—Found near Troy, N. Y.

HORNBLENDE.

Occurs massive and in prismatic crystals, of a dark green color. It has a shining lustre, and grayish green powder. Yields to the knife. Easily fusible. Specific gravity 3.15 to 3.38. Found at Franconia and Jericho, Vt.; Brunswick, Me.; Litchfield, Ct.; Cumberland, R. I.; Chester, Mass.; Newton, N. J.; Amity, Willsborough and Edinsville, N. Y.; Schuylkill River, Pa.

HORNSTONE.

Occurs massive and modular, of a yellowish or grayish white color, with shades of brown or green. It has a glimmering lustre, and specific gravity of 2.6. Infusible. Found at Orwell, Cornwall, Bridgport, Middlebury and W. Haven, Vt.; Albany Co., Saratoga Springs, Bern and Bethlehem, N. Y.; W. Goshen and Newlin, Pa.; west side of Blue Ridge, near Baltimore, Md.

HYPERSTHENE.

Occurs in masses of a dark green or brown color dark greenish gray powder; and lamellar structure. It scratches glass, and yields to the knife. Fuses with difficulty. Found at Hingham, Mass.; Warwick and Essex, N. Y.; on Brandywine Creek, Pa.

ICHTHYOPHTHELMITE (APOPHYLLITE.)

Occurs in crystals, of a whitish, greenish or reddish color; pearly lustre; foliated structure; and specific gravity of 2 5. Scales off and finally melts into a glass, under the blowpipe. Flakes in aquafortis. Occurs near Saybrook, Ct.; and Lake Champlain, N. Y.

IDOCRASE (VESUVIAN.)

Occurs crystallized and massive, of a greenish, reddish yellow, or blackish brown color. Translucent and fusible. Scratches feldspath. Found at Worcester, Mass.; Cumberland, R. I.; Salisbury, Ct.; Amity, N. Y.; Newton, N. J.

INDICOLITE.

Occurs in crystals of a dark blue color.—Found at Bellows Falls, Vt.; Hinsdale, N. H.; Goshen and Chesterfield, Mass.; and Harlem Heights, N. Y.

ARSENICAL IRON.

Occurs in crystals and masses of the color of tin with a shade of yellow; metallic lustre; granular fracture; of the odor of garlic when struck; specific gravity of 6.5. Hard and brittle; gives fire with steel. Fusible. Found in Paris, Me.; in Franconia, N. H.; Chatham and Munroe, Ct.; Worcester and Boston, Mass.; Warwick, N. Y.

To render Paper Hangings Washable when up.

Give the paper two or three coats of size, and then varnish over, with good spirit varnish, it will then bear washing with soap and water

Blanchard's Patent.

(*Continued.*)

Opinion delivered by Judge Kane in the United States Circuit Court in the case of Blanchard *vs.* Eldridge, on a motion of attachment because of a breach of injunction—for an infringement of Blanchard's Gun Stock Turning Lathe as applied to turning Shoemakers' Lasts, March 8th, 1849.

The patent right of Mr. Blanchard has been the subject of examination before me in two trials at law, the present defendent being a party. Although no verdicts were rendered, I was fully satisfied by the evidence, that the patent was a highly meritorious one, of ancient date, and that the defendant had violated it. I did not hesitate, therefore, to grant an injunction against him, upon the proper proceedings being instituted in equity. This injunction being still in force, the defendant has devised a new machine, and is now using it,—as the complainant asserts, in violation of the injunction. The question is thus presented, whether the new machine of the defendant infringes the complainant's patent right.

In my charge to the jury on the other side of this Court. I spoke of Mr. Blanchard's machine as follows:—"It is a turning machine, capable of producing with rapidity from the rough material, by a single operation, an irregular form, similar or proportional in all respects to a given model. It consists essentially of a model, revolving in contact with a friction tracer, while the rough material revolves, with the same velocity, in like contact with a rapidly moving cutter wheel;—either the model and material, or else the friction tracer and cutter wheel, having a progressive lateral motion, so that by the revolutions of the model and material all the points of their respective surfaces are presented in succession to the touch of the friction tracer and the action of the cutter wheel respectively; that is to say, all the points of the surface of the model successively to the touch of the tracer, and the corresponding points on the surface of the material to the action of the cutter wheel. Its value consists in this, that it combines the accurate imitation of a slowly revolving model with the rapid action of a cutter wheel. Its principle is the combination of the cutter wheel, model, and friction tracer, with the arrangement for effecting the lateral motion."

Between this and the respondent's present machine, there appears to be but a single point of difference.

"The peculiar novelty of the respondent's machine, according to the report of the Commissioner, William W. Hubbell Esq., appears to be in the formation, suspension, and manner of propelling the cutting instrument, to shape the last from the rough block, without finishing. The cutting instrument consists of a double edged curved knife of about the same curve or periphery as the friction column; it is bolted to a perpendicular iron bar, about an inch square, which plays up and down between and through two iron straps, fastened to the main transverse carriage. This cutting instrument receives its motion from a pitman, attached to a crank, put in very rapid revolution, and thereby with great velocity moves the cutting instrument in a straight perpendicular line up and down, which being sharp on both the upper and lower edges, in passing the rough material, cuts it both in its ascent and descent. Attached to the crank shaft are a fly wheel and balance weight.

The two machines then, have the same object; and they attain it by the same means, operating in the same manner, except that Mr. Blanchard's cutters are set on the periphery of a wheel, and act in the curved line of its motion, while in Mr. Eldridge's, the circular motion is transferred to a shaft, and the cutters being affixed to this, with an alternating movement in a right line.

It is not contended that the shaft is an improvement on the wheel, that it is more economical of structure or use, or that it does its work more effectively or rapidly. On the contrary, it is evident that, if well made, it must be more costly at first, that it must exact the expenditure of more power of working, must do the work less rapidly and less perfectly, and must be less durable. The only question to be decided is whether it differs in principle, or by a modification of details merely, a substitution of equivalents,—whether, in a word, it is or is not an evasion of the complainant's patent.

I have heretofore spoken of the principle of the patented machine, as involving the combination of a cutter wheel with certain other parts. This language was sufficiently accurate, perhaps for the purposes of the occasion, since there was then no controversy regarding a machine without a cutter wheel. But it was rather a description of Mr. Blanchard's machine as in use, than a definition of its principle. The patentee evidently had a broader view of his invention. In his specification he says, "Moreover the cutters may be made sharp on both edges, and the cutter wheel may be made to turn a quarter of a circle or less, backward and forward, and so the cutters be made to cut by both edges; but the continued circular movement is believed to be preferable to any other."

(*To be continued.*)

Dyeing Home Made Clothes.

WINE COLOR.—One half a pound of camwood is required for one pound of cloth. The camwood is to be boiled in water twenty or thirty minutes. Then put in the cloth and keep it thirty minutes scalding hot; take it out and air it, put it in again and keep it in thirty minutes. Then put into the dye a teaspoonful of copperas and a table spoonful of vitriol; boil and skim the dye. Put in the cloth, and stir it for fifteen or twenty minutes while scalding hot.

TO COLOR BLUE.—For nine pounds of yarn dissolve three-fourths of a pound of alum in water in a brass kettle. Keep the yarn in this solution two hours. Boil three pounds of logwood in an iron kettle two hours. Also boil, in a seperate iron kettle, three bushels of purslain, at the same time. Strain the liquid from the logwood and purslain, and mix it together. Put the yarn into this, and keep it boiling two hours; then wash it in soap suds, and rinse it clean.

MADDER RED.—The following articles are required to color one pound of yarn or cloth, viz: one-half pound of madder, three ounces of alum, one ounce of cream tartar, and one-half an ounce of stone lime.

MANNER OF COLORING.—Put five gallons of water into a brass or copper kettle; put into the alum, cream tartar, and the yarn or cloth you intend to color. Boil it two hours; then take it out and rinse it well in clean water. Throw away the alum and cream tartar water, and put five gallons of clean water into the kettle. Put the madder in also; heat it moderately until it becomes as hot as you can bear your hand in it. Then put in your cloth or yarn, stir it one hour and keep it scalding hot; then boil it five minutes. Take it out and rinse it in cold water. Put into the kettle a half a pint of lime water, made with the half ounce of lime, then put in your cloth again, and stir it ten minutes, keeping it still hot. Then take it out, wash it in strong soap suds, and rinse it clean.

[The above is taken from the Maine Farmer, and as the season is now at hand when many of our readers will be preparing their wool, we presume, that they will be of some use. With regard to their ability we can confidently assert that the fullest trust may be reposed in them. One thing should always be remembered—have the wool or cloth perfectly free from grease and dirt and well washed before it is put into the dye kettle. The wine color mentioned above would be greatly improved by adding half a pound of fustic to the pound of camwood. Half a pound of camwood and one pound of fustic to two pounds of cloth makes a good brown. A little sumac and logwood with about a quarter of an ounce of copperas should be used for the finishing dip in the camwood kettle. Boil the goods well instead of mere scalding, the colors will be more permanent. The blue mentioned above is not a fast color but the madder red is, and the camwood brown or wine color, is a very durable color. The fustic gives the wine color, is a very durable color. The fustic gives the wine color a rich appearance of which it is devoid by the use of camwood alone.

The Chemical Character of Steel.

BY J. NAPIER, ESQ.

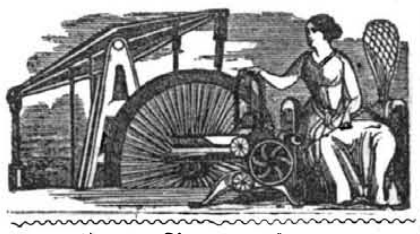
Steel is found by surrounding bars of wrought iron, with charcoal placed in fire-brick troughs from which air is excluded, and keeping the iron bars and charcoal in contact, and at full red heat for several days; at the end of which time the iron bars are found to be converted into steel. What is the nature of the change which the iron has undergone we have no certain knowledge; the ordinary explanation is, that the iron has absorbed and combined with a portion of the charcoal or carbon, and has, in consequence, been converted into a carburet of iron. But it has ever been a mystery that on analysis, so very minute and questionable a portion of carbon is exhibited. It appears that the grand error in the above view of the subject consists in our not understanding the nature of the change which carbon undergoes in its combination with iron in the formation of steel. Those who are familiar with the conversion of iron into steel, must have observed the remarkable change in the outward aspect of the bars of iron, after their conversion, namely, that they are covered with blisters. These blisters indicate the evolution of a very elastic gas, which it sets free from the carbon in the act of its combination with the iron. I have the strongest reasons to think that these blisters are the result of the decomposition of the carbon; whose metallic base enters into union with the iron and forms with it an alloy, while the other component element of the carbon is given forth, and so produces in its escape the blisters in question. On this assumption we come to a very interesting question—What is the nature of this gas? In order to examine this, all that is requisite is to fill a wrought iron retort with a mixture of pure carbon and iron filings, subject it to a long-continued red heat, and receive the evolved gas over mercury. Having obtained the gas in question in this manner, then permit a piece of polished steel to come in contact with this gas, and in all probability we shall then have reproduced on the surface of the steel a coat of carbon resulting from the reunion of its two elements, namely, that of the metallic base of the carbon then existing in the steel with the, as yet, unknown gas; thus synthetically, as well as by analytic process, eliminating the true nature of steel, and that of the elements or components of carbon.

Passage of Hydrogen Gas through Solid Bodies.

M. Louyet, states that if a current of Hydrogen Gas emanating from a capillary orifice be directed against a sheet of paper held a few millimetres from the orifice, so that the current be perpendicular to it, the paper is traversed by the gas. But the gas is not sifted through as might have been expected; it passes as a current and may be inflamed behind the paper as though nothing intervened between the gaseous current and the ignited matter; and farther, spongy platinum becomes incandescent behind the paper, in the path of the current, if the paper be three or four centimetres from the orifice, provided the metal is placed against the paper, or, at least, a very slight distance from it. The pressure under which the phenomenon is produced does not exceed from 10 to twelve centimetres of water. To M. Louyet's great surprise, he has established that hydrogen gas traverses with equal facility gold leaf and beaten silver. Thus, surround spongy platinum with several folds of gold or silver leaf, and direct against it a current of hydrogen, the platinum will become incandescent, and the gold or silver will adhere to its surface. Behind leaf tin, also, spongy platinum is, in like manner, strongly heated Through a thin membrane of gutta percha, such as is obtained by evaporation, a slight layer of it from a solution in chloroform, hydrogen also passes; but hydrogen gas does not sensibly pass through pellicles of blown glass, however thin they may be.

This is a fact for ærial navigators, many of whom are so very ignorant of chemical science.

A wheel will run without grease, and a man may do business without advertising, but it is hard work. A truer sentiment was never uttered.



New Inventions.

Improved Steam Regulator.

We understand that Messrs. A. & J. Judson of Rochester, N. Y. have made an improvement that does away with one of the most objectionable features of stationary steam engines. The improvement consists in the instantaneous action of the regulator valve in letting steam into the cylinder in such accurate proportion to the resistance of the machinery that the motion is kept or held uniform and the variation of speed is hardly perceptible, when suddenly throwing off a part or all of the machinery the engine may be propelling and can be left entirely under control of the Governor of their construction (so long as a uniform speed is required) let the resistance of machinery or pressure of steam in the boiler be ever so variable, and there is no necessity of closing or opening the throttle valve under the greatest variations of either. The inventors have made application for a patent.

Improved Water Gate for Canal Locks.

Mr. A. Bell of Nunda, N. Y., has made a very excdllent improvement in the construction of Water Gates for Canal Locks, which cannot fail to supersede those at present in use. By this improvement the gate can be lifted with but very little power exercised, its motion being easy, and thus removing one great cause of breakage, and adds two great benefits, viz., duration and ease in operation. The improvement lies in having the water gate lifted by a carriage which runs in side grooves on friction wheels set on an inclination, and this carriage takes into openings in the gate on an incline, and running up on it, on the friction wheels. This carriage is raised and lowered by a lever above which has a friction roller on its connecting rod that allows it to work with but little friction in its guide groove. This invention has been highly approved of by some eminent engineers and the inventor has been induced to secure it by patent.

Another Sewing Machine.

Mr. A. B. Wilson, of Pittsfield, Mass., has taken measures to secure a patent for a new sewing machine, which makes very excellent work, judging from the sample which has been sent us. As this machine will in all likelihood be presented to our readers with an engraving, at some future time, we will withhold saying any more about it at present.

Life Preserving Mattress.

Messrs. Shegog & Chapin, of Columbia, S. C., have sent on to this city an improved Mattress, which answers the purpose of a life presserver at the same time, it being capable of being transformed into a kind of jacket in a very short period. There are plenty of Life Preserving Mattresses for sale in this city, but this one is different, inasmuch as it can be secured round the person, nearly like a jacket, whereas all the other life preserving mattresses that we have seen, had no such arrangement, and consequently they are anything but easily managed in a stormy sea

Combined Chimney and Screw.

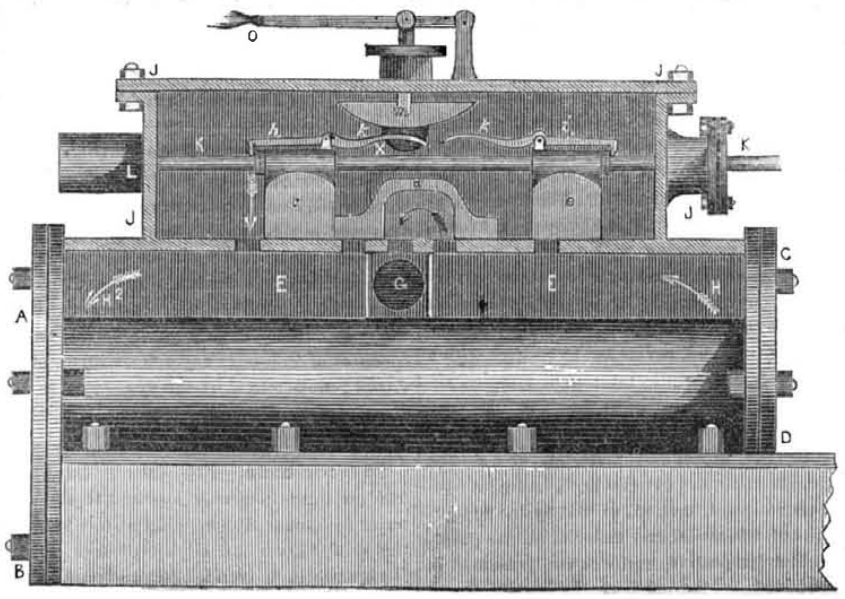
Mr. Abner Chapman of Fairfax, Vermont, has invented a new chimney combination, which answers for a spark arrester, and elongated flue and self cleaner, at the same time. The combination is the placing of a flange screw of considerable pitch in a flue or chimney so as to throw the draft around the flue in a spiral direction, making the heated air act upon the heating surface for a greater length of time, than by mere worm flues. It will effectually arrest all sparks, and when the flue or chimney gets foul, by simply turning the screw by a crank for that purpose all the dirt is thrown out.

He has made application for a patent, but further information may be derived by enquiry at No. 91 West st., this city.

Improvement in Band Boxes.

There is just as much necessity for improvement in small things, as large things. In fact, we are perhaps more benefitted by the perfection in the minutia of those articles that make up part of the sum total of domestic convenience, than we are by those great machines, which have deservedly conferred so much honor upon their inventors, or those works of art that have handed down the names of their authors from generation to generation. Good watches are subjects of more importance and confer greater benefits upon the mass of mankind, than lofty spires and far famed clocks, and in making such comparisons we do not blush to claim merits of no ordinary kind for our band box, especially as we know that we are backed by the approving smiles of our fair countrywomen. We like to see attention paid to their comforts and tastes. Well, this band box is the invention of Mr. Tabele, of Harlem, N. Y. and its object is to protect the bottom from damp and wet and the top from being crushed, tf by any accident some heavy article should get placed on it.—The sides too are also much stronger than the common kind. The bottom is fitted into a concave groove in the sides at a little distance above the lower edge, thus protecting the crown in perfect shape. The cover is made rounding above, and there is a secondary cover fitted into a concave groove like the bottom, which thus makes the cover double and of great strength by this very simple combination—which Mr. Tabele has taken measures to secure by patent.

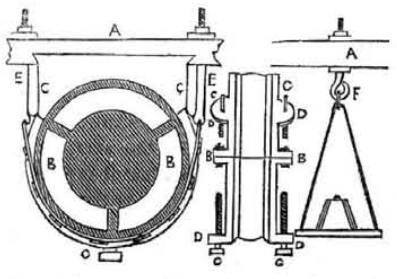
WINNE'S IMPROVED SLIDING CUT OFF VALVE.



This is the invention of Mr. Simon P. Winne, of Albany, N. Y. and has just been patented, as would be observed on our patent list two weeks ago. This engraving is a vertical longitudinal section of the steam chest and passages of a cylinder, with the valves in their place and ready to act. A B C D, represent a steam cylinder having on its top A C, the usual hollow steam channel E E, divided by partitions to separate the entering from the issuing steam in the usual way with the exit passage G, and openings into the cylinder at H H. J J J J, is a steam chest made a little longer than the ordinary kind, but of the same form. The steam entering in by the passage X, fills the chest, from which, as will be noticed, there are four openings into the channels E E, and one into the exit passage G.—They are all properly faced with slides and arranged in reference to the valves to move over them, as seen in the engraving. *c d e*, are the three slide valves. *c* and *e* have solid bottom surfaces and *d*, the central valve, has the usual chambered passage to effect a communication together between two of the three central passages from the chest into the steam channel. The valve rod K, passes through a stuffing box at the one end and has the other end passed through a stuffing box or into a chamber L, bored out to receive support and steady its movements. The rod passes through the upper parts of the valves *c e*, which are pierced to receive it, but it is not attached but moves freely through them The rod K, moved by the eccentric communicates motion to the valves by means of two stop nuts which screw upon a thread in the rod for adjusting the cut off. These nuts will readily be noticed at the ends of the catches. Upon the two valves *c* and *e*, are mounted catches *h* and *i*, moving on pivots and have handles *k k*. The catch drops down upon the valve rod and is held in this position by its own weight or a spring, as may be found most suitable. *m*, is a metallic plate placed over the centre of the valve range. It has its lower edge curved or made flat as may be desired. Its chord is parallel with the rod K. This plate is attached to a spindle at right angles to it, which passes through a stuffing box, where it is attached to the handle O, for raising and depressing it, thus attaching and detaching the catches *h* und *i*, from the nuts on the rod K. The valve *d*, lies upon its bed unattached to the rod and is only moved by the impulse of *c* and *e* alternately. Between these two valves and *d* there is a space to be determined by the portion of the stroke of the piston at which the steam is to be cut off.

Operation.—The valves are to be attached to the rod by the catches when the cut off is to be used. The engine in the engraving is represented as having just began the stroke of its piston from left to right and the valve rod from right to left. Before the piston has passed over one third of its stroke, *e* will have covered the first opening cutting off all passage of steam from the chest to the opening H, of the cylinder, and will keep it covered during the remainder of the stroke during which valve *d* is kept stationary passing steam from the right passage of the cylinder H, through the two passages indicated by the middle arrow, and out of G, until the valve *e* impels it to the left, and the valve *c* is carried over the other opening, and opening the other exit passage. This completes the stroke and the same operations are repeated continuously from left to right and right to left. When it is desired to give the engine full steam, the lever O is depressed, by which the catches are raised to allow the three valves to act in concert, operating as a single slide driven by a cam. The stroke can be cut off and regulated by the handle O. It is only necessary to depress the bar plate *m* to permit the proper catch to drop over the stop nuts and the required cut off will be effected. The valves when used for upright engines may be kept in their places by springs during the absence of steam pressure. Rights for sale.

Morin's Friction Brake to test the Power of Water Wheels.



This engraving represents an annular collar of cast iron formed in two parts and united at B B, with ears and screws—the middle figure showing an edge view, and the two outside figures a side view of the whole brake. C C C are square headed screws disposed symmetrically on its exterior. These screws pass through the projecting ears D D D D. The ring is placed upon the shaft as represented, and the outer surface is easily adjusted by the centring screws, but this must be done with great care. The collar being mounted on the shaft it is ready to receive the friction band, which is a flat chain composed of pieces of sheet iron, hinged together as represented.—This chain is terminated by two strong half links connected to the two large bolts E E.—The annular ring has therefore a strong flange with a rim on it to receive and retain this friction chain. The bolts E E, pass perpendicularly through the lever A A. The under side of this lever receives a cushion of hard wood by notching as represented, the underside cut to the form of the collar on which it rests. F, is a hook for the scale that is to hold the weights to load the brake. The essential parts of this friction brake are the collar, the friction band, the cushion, the lever, the scale and a wrench to adjust the screws

The wheel must be properly examined to see that it is properly centred, so that the axis of rotation may coincide with its centre of gravity. This being done, the wheel end of the lever must pass between two cross beams, as supports, at such a distance apart from one another as will allow it to oscillate through an arc of two or three degrees. If the shaft of the wheel is of wood, there is danger of the screws piercing into it, but in all cases be it of wood or iron it must be well lubricated during the experiments. This Friction Brake is simple being made to fit on to the wheel shaft and the weights in the scale are employed like weighing any substance, so that a number of experiments with different heads of water may be tried in a short time and it also enables us by the determinate weights, to determine the velocity under which the wheel acts most advantageously. This Brake is only for horizontal shafts and consequently would not answer for a vertical shaft. We will at another time present De Prony's for vertical shafts. With this brake a number of experiments were made by Captain Morin in Prussia and a minute account of them in the German language was published in Berlin.

New Composition for Sign Letters.

Mr. John A. Parks, of this city, has discovered a new composition for making ornamental letters for signs and for making mouldings and other works of an ornamental character. The composition can be struck out with dies in a press while in a soft state and afterwards it becomes quite hard, but possesses great tenacity, and is not easily broken.—For sign letters it is a thousand fold better than wood, and can be manufactured at one half the cost. It is capable of taking a very fine polish, and for durability it may be said to be imperishable.

New Process of Manufacturing Carbonate or White Lead.

Sheets of lead of about two feet long, one broad and the 1-16th of an inch thick are suspended in an air tight chamber on the floor of which is placed a tub containing about eight pecks of malt, two pounds of sugar, six pints of yeast and twelve gallons of water. The temperature of the chamber is kept at 92 degrees. The malt, &c. induces fermentation, and the gas evolved acts energetically upon the lead plates. The whole of the materials are allowed to remain in the tub till the liquid becomes mouldy, when it is withdrawn and mixed with two gallons of vinegar, heated by steam, and passed back again into the chamber through a pipe; when the first charge of the fermenting ingredients is withdrawn, another is put in its place, and this is repeated till the lead is converted into white lead.

The gases evolved from Breweries may be employed for making white lead, if conducted by proper tubes into an air tight chamber in which the sheets of lead may be suspended. The pressure of the gases may be regulated by a safety valve.

A machine has been invented in Connecticut to cut out clothes of every shape without shears.

NEW YORK, MAY 12, 1849.

A Characteristic of the Age.

When we look abroad upon the world and scan its most striking features and compare them with the features of the days gone by, we cannot fail to perceive that there is one trait at least which eminently characterises and distinguishes the present from all others that have preceded it; we refer to the spirit of rapidity in locomotion. It was the boast of Cæsar that his legions in one season had conquered in Asia and Europe, but in the same space of time which Cæsar's legions took to come from Rome to Albion's coast, an army could now be transported from the Thames to the Indus, or across the wide Atlantic—that ocean which to the ancients was a vast unknown.—History records with pride the feats of swiftness performed by their sure footed " steeds of metal true," but what is the speed of the swiftest animal in animated nature, in comparison with the swift winged messenger that travels along the copper wire of the Telegraph, or the disc-footed courser that pants unwearied on his iron girdled course from Lake to Ocean. Last year our country was thrilled by a famous horse on Long Island trotting 100 miles in 10 hours, and 15 years ago Mr. Osbaldistone in England, astonished the world by riding 200 miles in 10 hours by relays of famous racers; but what are all these feats in comparison with the feats of a few iron wheels driven with expanded water? The crippled soldier whose luckless limbs were left on some well fought field, can by the aid of science travel as quietly as if setting at his own fireside from Albany to Buffalo, during the time the swiftest footed racer could gallop one fourth of the distance. We may boast of " the speed of the Arab steed," and we may admire the eagle in his flight through the air, but neither the race of the one, nor the flight of the other have so much poetic inspiration in them, as the locomotive that fleets faster that the whirlwind or the steamship that marches proudly against wind and wave over the stormy deep.

Tinning.

The affinity between tin and iron, copper and brass, renders the process of tinning of much importance in the arts. By covering iron with a thin coat of tin its surface is preserved from oxidization. to which it is greatly disposed, and by covering brass and copper with tin, such as kettles, they are preserved from communicating poisonous effects, by the prevention of oxidization, owing to the coat of tin. The art of tinning plates is one for which England is at present more highly distinguished than any other nation. This art, however, was not practised in England previous to 1725, and it was derived from the Germans.

The process as at present pursued in England is somewhat different from the old process, and as it is much better, we will, as is our wont, compress as much knowledge as we can on the subject into the smallest possible space. The iron plates to be tinned are made of metal from the common English ore with a large portion of fine *hematite* from Ulverstone in Lancashire, and all are smelted with charcoal. The ore is first reduced to pigs, then to flat bars, and then reduced to plates by heating the bars red hot, and running them between case hardened steel cylinders to reduce the plates to an even surface of equal thinness in the whole sheet. Every inequality must be removed in the fine rolling or the sheets are considered unfit for tinning.—After this the plates are steeped in weak sulphuric acid liquor and then they are taken out and scoured thoroughly with sand and bran, so as to be quite bright to enable the tin to adhere. The tin is melted in deep rectangular crucibles and kept in a molten state by a moderate fire underneath. A quantity of suet is kept floating on the top of the molten tin.—The iron plate is then taken up by one corner with a pair of pincers and dipped vertically into the tin and when withdrawn it is resplendent with the coating of tin which adheres to it. The dipping is repeated three times for what is called single plate and six times for the double plate.

The following process is for tinning without acids and was the subject of a patent in France a few years ago :—

The iron plates are scoured or cleansed in a large wooden vessel containing ten pounds of rye flour to 100 of water which is left to ferment with the plates in it until the scaly portion of the plates has been wholly separated, when they must be perfectly scoured to brightness by sand. When this is done the vessel for tinning is prepared with 80 pounds of fine tin to which is added 12 pounds of beef and 12 pounds of mutton fat, previously melted and poured into the tin which should also be melted. After this an ounce of silver is added and melted and the vessel is then fit to receive the sheets. Before the scoured iron sheets are dipped into the melted tin, they are dipped into a vessel into which is dissolved half an ounce of sal ammoniac for every three pounds of water, and from this lifted quickly and dipped into the cauldron containing the melted tin and fat. The sheets should be dipped vertically and lifted vertically, getting two or three lifts and dips before they are finally taken out. This process produces a coat of tin with a very minute *laminæ* of silver, which makes the tinning very hard and solid and well adapted for exposure to the atmosphere. Small articles, such as tacks, &c. may be tinned in a stoneware vessel, by first cleaning the articles well and then treating them as has been described for the plates only melting the tin in a stoneware vessel over a charcoal fire.

Our Prize Essay.

The Prize Essay on our last page is now completed. It is not long, and therefore embraces as stated the outlines of the reforms deemed necessary for the better protection of Inventors' rights. We have received quite a number of other communications on the same subject. Some of these we will condense, and present in future numbers, especially those from the pen of *Junius Redivivus*.—They are terse and of an attractive nature.

E. Maher, Esq. the author of the Essay, is at present residing in Philadelphia. He is minutely acquainted with the business of the Patent Office, and has talents which might elevate him to some of the most distinguished stations in our country.

In respect to improvements or reforms in our Patent Laws, our own personal attention has been directed lately to the evils and injuries arising from the present mode of contesting patentees' rtghts. The articles of the person referred to above touches this point, as will be seen when published.

Iron Stores.

Five iron stores have been erected on the corner of Murray and Washington streets, this city, by Mr. E. H. Lang. Each store is 20 by 56 feet long, and they have been erected without dirt, bustle, bricks or mortar, the usual attendants of brick houses, which incommode our streets more than any thing we know of. Each story is supported by rows of fluted pilasters, the courses between which are compactly bolted, and the seams of panels completely covered and concealed from the view by an ornamental cornice. Thus the walls are in fact one solid iron block, capable of supporting an immense weight. There are about 150 tons of iron in the buildings. The first row of pillars and panels was cast at the West Point Foundry, the 3d and 5th at the Novelty Works and James's Works, and the 2d and 4th at Burdon's Works in Brooklyn.—The cornice and ornaments were made by W. L. Miller, 40 Eldridge st. The mason work required was done by Messrs. A. & J. White, and the carpenter work by Samuel Martin.—The entire cost is stated to be about $20,000. They have been put up in the course of two months. The only danger apprehended from iron buildings is the expansive nature of the metal. This should be guarded against as well as possible.

Pressure of the Ocean.

Mr. Editor.—It is a common remark with both landsmen and seamen that if a common empty glass bottle be tightly corked, carefully sealed, and then by suitable means lowered to a great depth in the sea, that it will come up partly filled with water, although upon examination the cork and sealing wax are in as perfect a state as they were before being lowered. It is also the opinion of many that the immense pressure which must evidently be experienced at such a great depth forces the water to press through the pores of the glass, and thus to partly fill the bottle. Being in a position to test the truth or falsity of the above remark I took the opportunity of examining the subject and give below the experiments and their results.

A common empty green bottle was carefully corked, sealed and lowered to the depth of about sixty fathoms. Upon hauling it immediately up again the bottle was found to contain about one fourth its capacity of water although the cork and sealing were apparently undisturbed. This experiment proves therefore, plainly, that the above remark is correct and that the water actually forced its way into the bottle. There being a great diversity of opinion at the time by those witnessing the above experiment in regard to the manner in which the water entered the bottle; the following experiment was made expressly to determine that point.

An empty glass tube was carefully closed at both ends by means of a spirit lamp and blow pipe and lowered to the depth of eighty nine fathoms, where it was allowed to remain fifteen minutes by the particular request of those who believed that the water actually forced its way through the glass. Their belief was, however, suddenly changed when the tube was hauled up containing not the least particle of water. The water evidently passed through the cork since the latter experiment proves that the water could not have passed through the glass.

These experiments on the pressure of the ocean were made on account of the difference of opinion of the passengers on board. Indeed I was surprised that such a difference of opinion could exist.

We have been about forty days out and as we have the south-east trades we will be in Rio Janeiro in fifty days or thereabouts, by the 3d of March.

Yours respectfully, S. N.

On board ship Tarolinta, Lat. 3° 55' S.; Long. 28° W. Feb. 22, 1849.

Steam and Water Power.

A water-mill is necessarily located in the country afar from the cities, the markets and magazines of labor, upon which it must be dependent. Water appears to run very cheaply, but it always rents for a pretty high price, and the first cost of dams, races, water-wheels &c., is on the average quite as great as that of a steam engine and equipage, and the annual repairs are, at least, equal. No casualty, entailing unexpected expense, ever need happen to a steam engine; while water mills are always liable to injury or destruction, from floods; and the interruption of work from low water is a continual and very expensive drawback. A man sets down his steam-engine where he pleases—that is, where it is most to his interest to plant it, in the midst of the industry and markets, both for supply and consumption of a great city,—where he is sure of always having hands near him, without loss of time in seeking for them, and where he can buy his raw materials and sell his goods, without adding the expense of a double transportation.

The expense of a steam engine is not much if it is well managed. It should be of sufficient capacity to work all the machinery with ease, without using steam at a high pressure. It should be as carefully attended as a clock—nothing should be suffered to go out of repair from carelessness, and nothing should be wasted from neglect.

Wages in Germany.

Thousands of stocking weavers in Germany—adult men—get only 40 cents a week in the stocking weaving business. The employers add to these wages two slight meals per day.

Hoe's Printing Presses.

A paragraph is going the rounds of the papers to the effect that over $3000 worth of papers are spoiled per annum in the New York Sun establishment, by the use of Hoe's lightning presses, and that therefore they are a disadvantage compared with other printing machines. We venture to assert that there are no other printing presses in the world upon which the immense edition of this paper can be printed, even at one half the speed, which will not spoil a far greater amount of papers that are now lost. Previous to our lightning presses, three of the most approved double cylinder machines were employed, and the number of spoiled sheets was much greater then than now, though our edition at present is much larger.—*New York Sun.*

[We saw the paragraph referred to above in one of our Philadelphia exchanges—the Gazette we think, and we were not a little surprised at it. It was a correspondent's letter. This settles the question.

Huge Casting of a Propeller Wheel.

On the 26th ult. there was cast at the People's Works, Kensington, Philadelphia, a huge Loper propeller wheel 11 feet in diameter for the steamship Carolinian, now building in that city. The whole job was accomplished in less than a month from the commencement of the pattern, and more than two weeks of this time was occupied in drying the mould properly. The metal used was a composition of brass and copper, 16,000 pounds of which was melted in a single cupola in about two hours time, the pouring into the mould being accomplished in *less than a minute.* An examination of the casting has proved that it is perfect in every respect.

Great Pail Factory.

At Niagara Falls, where there is as much water-power as might drive all the machinery in the world, there is a factory for the manufacture of wooden pails, which is believed to be the largest in the world. The factory is owned by Messrs. Patterson and Murray, and is a large four story stone building. They have in operation as much machinery as can turn out 1000 pails per day and about 500 tubs. The factory consumes a million feet of pine logs a year, and band and wire iron in proportion. The machinery is all of the latest and most improved description, and the facility and rapidity with which the pails are now made are in striking contrast with the slow and laborious process of hand manufacture practised a few years since. And the beauty and uniformity of the article are as striking as the celerity with which it is manufactured.

Great Shafts.

The shafts for the engines of the steamship Atlantic, E. K. Collins' Line, have just been completed at the forge of L. B. Ward, foot of 59th street, N. R., and weighs 87,397 pounds. The cranks of the same ship weigh 43,154 pounds, making the weight of shafts and cranks as forged, upwards of 65 tons.

Patents Issued.

In the list of Patents this week is one to Mr. J. Van Kuran for an improved cast iron Railroad Car Wheel. Prof. Morse's patent for his Chemical Telegraph is also issued, and we shall be able to present an engraving and description of Mr. W. M. Haines' Calculating Machine in a few weeks. It is a very simple and durable one.

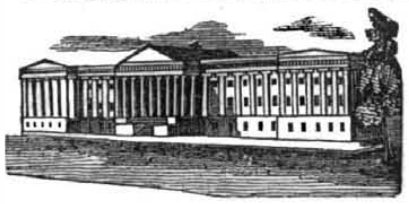
Back Volumes of the Scientific American.

A few more copies of complete sets of vol. 3 of the Scientific American may be had at the office, either bound or in sheets. Price neatly bound $2 75, in sheets suitable for mailing $2. Send in your orders early if you desire them filled for we have but a few more copies left, and the number is growing less every day.

Our London Patrons.

We are happy in being able to inform our English patrons that such arrangements have been completed with the London Patent Office that the Scientific American may hereafter be found there. Messrs. Barlow & Payne are agents at 89 Chancery Lane, and will receive remittances on account of the Scientific American from those who may desire to subscribe.

Terms—3 dollars per year and postage paid out of the United States.



LIST OF PATENTS.

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending May 1, 1849.

To R. H. Emerson, of Portland, Me., for Locomotive with driving axle above the Boiler. Patented May 1, 1849.

To William W. Boggs, of Southborough, Mass., for improvement in Ships' Cabins. Patented May 1, 1849.

To William M. Haines, Rochester, N. Y., for improvement in Calculating Machines.—Patented May 1, 1849.

To W. M. Shaw and Ezra Gould, of Newark, N. J. for improvement in Printing Paper Hangings. Patented May 1, 1849.

To Abijah Smith, of New York City, for improvement in Trusses. Patented May 1, 1849.

To Henry Lawrence, of Philadelphia, Pa., for improvement in Artificial Teeth. Patented May 1, 1849.

To Edwin Allen, of Windham, Conn. for improvement in Education Tables. Patented May 1, 1849.

To W. H. Jennison, of New York City, for Self-adjusting Filtering Diaphragms. Patented May 1, 1849.

To Livingston, Roggin & Adams of Pittsburgh, Pa. for improved right or left hand Lock. Patented May 1, 1849.

To Lewis Jennings of New York City, for improved Gold Washer. Patented May 1, 1849.

To J. A. Gridley of Southampton, Mass. for improvement in Churn Dashers. Patented May 1, 1849.

To Hodgman & Wyckoff, of New York City, for improvement in Machinery for making Mats, &c. Patented May 1, 1849.

To William, Mix, of Prospect, Conn, for improved method of making wire strengthened spoons. Patented May 1, 1849.

To T. R. Scowden of Cincinnati, O. for improvement in valve seats, &c., for Water Maines. Patented May 1, 1849.

To Isaac Van Kuran of Rochester, N. Y. for improvement in Cast Iron Car wheels. Patented May 1, 1849.

To Augustus Clark, of New York City, for improvement in Easy Chairs. Patented May 1, 1849.

To J. N. Bolles & H. G. Knight, of Providence, R. I. for improved method of turning the drill in rock drilling machines. Patented May 1, 1849.

To John Fowler, of New York City assignee of Henry Jones, Bristol, England, for improvement in the preparation of Flour for Bread Making. Patented May 1, 1849.

To Charles Mowry of Elbridge, N. Y. for improvement in Jointing and Cutting Staves. Patented May 1, 1849.

To Samuel F. B. Morse, of Poughkeepsie, N. Y. for improvement in Electric Telegraphs. Patented May 1, 1849.

RE-ISSUE.

To John Thomas, of Elizabethtown, N. J. for improvement in Floating Dry Docks. Patented December 20, 1837. Re-issued May 1, 1849.

To Charles F. Tuttle, of Williamsburg N. Y. for improvement in Hot-air Registers. Patented Jan 23, 1849. Re-issued May 1, 1849.

National Importance of Health.

Health and strength are a nation's best possession in peace, and her surest defence in war. In both, the power of making great, rapid, and continuous efforts is, at least, as important as the possession of ingenious machines and powerful artillery; and the time, perhaps, is not far distant when the cost of provisions and mechanical skill and dexterity shall be so nearly equalised, that superiority shall mainly turn on the strength and power of endurance of the mechanic and soldier; and that nation which has best husbanded its living resources shall be most prosperous in peace, and most certainly successful in war.

Correspondence of the Sci. American.

PANAMA, March 24, 1849.

MESSRS. MUNN & Co.

GENTLEMEN.—I promised when I left you to communicate such facts as I might deem interesting to the many readers of your valuable journal. Our company arrived here safe, after having experienced an indescribable amount of sea sickness, so much so, that we had no choice between life and death, except that perhaps the latter would have been a welcome messenger of relief from the horrible feelings that are consequent upon this dreadful sickness. Well, "here we are," and yesterday I supposed we might remain for a month to come, but our nerves were quieted in a great measure by the unexpected arrival of a vessel from San Francisco.

Of all the abominable trips a man can make commend me to the one from Chagres to Panama. A concise and innumerable quantity of mud holes with the small cavities at the bottom filled with small rocks so admirably rounded, that a juggler would find it difficult to keep on top of them, then imagine miniature precipices and precipitous steeps with an occasional attempt at level ground that always proves a failure, and then on top of all that, place a beautiful, soft, slippery loam, and you have *my* idea of the road from Gorgona, to Panama. In connection with all this we have swarms of musquitoes, ants, flies, and other interesting specimens of "American vermin" and you may well suppose that a lazy man will gain great credit for his industry in contending against these antagonists. The mules (the Lord forgive me for even such a *partial* libel upon flesh as is included in the erection of these animals) are lazy, weak and puny things, but one great virtue however is their sure footedness—if they cannot get along they are sure to lie down. I bought a noble beast at Gorgona about 5 feet by 3, and nearly all head like a tadpole, paying for the beauty (or the beast) $10. He brought over the road nearly 100 lbs. and fainted on the way; having no *sal-volatile* on hand we were obliged to wait patiently until he came to us of his own accord.

The return trip, with no ballast to steady him was altogether too much for his energies and he laid himself down on the road side, there to die, "not a drum was heard, not a funeral note" reads the burial of Sir John Moore, for the requiem of poor Plug. We all accomplished a feat of pedestrianism unsurpassed by Gildersleeve in his palmiest days,—and slept as soundly as a good man with a quiet conscience. Twenty four miles of such a road is no fool's job, *though it may be often walked by such.* It is almost impossible for me to describe Panama on account of the difficulty in drawing a proper comparison.

I should say that if you took about 300 "Pennsylvania Stone Barns" with balconies, and cut off the cupalo's without adding chimneys. and then enclose them by a stone wall, putting them as far apart as you pleased, you would get a very correct idea of this place.

The people too are very singular, instead of carrying baskets and cans of water in their hands they put them on their heads, thrusting both hands into their pockets trudge along perfectly independent, and if they wish to pass a Sunday in an agreeable and *Christian* like manner they go to church in the morning, worship devoutly, and attend a *quiet social* sort of a cock fight after dinner, a practice not uncommon here. They have also their *fandangos*, another agreeable method of passing away the small hours. We are all pleasantly situated here, having six rooms for twelve of us and living *very high*,—in the third story. Our fare is *very unfair* in price and quality—the best bread we have is a sea biscuit, which is worth *only* 20 cents per pound, but the last lot we purchased they threw in the mould, and expectant worms, rightly premising I suppose that if we eventually must become food for them, we had better anticipate their attack by making them food for us. We have engaged a man to go to California with us, a Dutchman who is a sort of nautical admirable personage, and does every thing required of him but fight,—this part of the business we have contracted for, and shall not let out the job.

We board ourselves and do our own washing,—the latter is generally taken by the natives, but as they are in the habit of *taking in* those who hire it done at the rate of two or three dollars per dozen, we prefer not to patronize them.

Being among Spaniards, I am picking up a little Spanish but do not succeed well. Water in Spanish is *agua*; what brandy is I don't know but have seen some Americans who can tell, I am confident.

I wish you could see the soldiers here; unlike the old saying they are easier described than imagined, because there is so little to describe, Barefooted and with no superfluity of clothing, they roam where the "darkies are seen, sucking the juice of the sugar cane green."

I think a good smart American could whip about six at sun rise, and after a slight repast finish Company A, before night, and thus go through the regiment in 10 days. I merely offer my own opinion, without wishing to engage in the experiment. It costs very high to cross the Isthmus, and the journey is far from being pleasant, still we are willing to undergo any sacrifice while feasting upon the anticipated results of the Eldorado. I shall forward you communications at every opportunity and hope to hear of your success.

Yours truly, C. W. H.

A Criticism.

Our worthy contemporary the "Farmer and Mechanic," give us credit in last week's number for Mr. Froelich's rail road brake to prevent collisions. Our friend indulges in some misgivings about its qualities, well we like to see the criticism and the credit. But why was there nothing said about Mr. Gladney's new water wheel, taken from the Scientific American, also the article on the effects of steam on timber, which was translated for and appeared first in our columns.

TO COLOR COTTON BLACK.—Put clear cold water into a tub, sufficient to cover the goods, then put into it two and a half ounces of chloride of lime, then put in the goods a half an hour—take out and wring, then fill a tub a second time with clear water, put into it two ounces of the sulphate of iron, put in the goods ten minutes, then take out and wring; then put the sulphate of iron water into your dye kettle, and as much clear water as will cover the goods; then put in four ounces of the extract of logwood, one and a half ounce of the sulphate of copper, then boil in the goods from fifteen to thirty minutes.

NOTE.—After coloring, dip the cotton goods two or three times in the chloride of lime water, then wash well in hot strong soap suds and warm water.

INDIGO BLUE.—Pulverise two ounces of indigo; put in eight ounces of sulphuric acid, in a pitcher; put the indigo into the acid—a little at a time, and keep stirring it with a stick until all the indigo is in the acid. Let this mixture stand eight hours before you color, then boil water sufficient to cover the goods. Put in the mixture of indigo and acid, then your goods immediately afterwards—let them boil five minutes. This is designed for woolen or silks.—*Farmer and Mechanic.*

☞ Useful receipts are valuable, if correct, but if they are not correct they may be the means of doing much mischief. We copy the above receipts to point out their errors as some of our readers may chance to read them, and be led astray thereby. There are a great many receipts of a like character, which we see copied into various papers, just because they are receipts. The reason of this is, that there are not many who are sufficiently versed in practical chemistry to detect and point out unscientific errors.

1st.—The above receipt, will not color cotton black. The chloride of lime is not used for any purpose in the way of dyeing, it is only used by Physicians and Chemists, in frigorific mixtures to produce intense cold by mixing it with snow.

The way to dye black in cotton is this;—Boil your cotton goods in clear water, then wring them, then let them steep twelve hours in sumach liquor, at the rate of 2½ pounds boiled or scalded for every 10 pounds of cotton goods. After this wring them out of the sumach and handle them evenly in lime water, (hydrate not chloride of lime) for 15 minutes, wring them out of this and handle them well for 15 minutes in a solution of copperas, (sulphate of copper,) at the strength of one pound of copperas to ten pounds of cotton, wring them out of this and air them well, then run them through a weak solution of lime water (very weak) and afterwards wash them well, and wring them—they are then ready for the logwood. A solution of warm boiled logwood, at the rate of 4 pounds (of the kinds now to be got,) should be allowed for every ten pounds of the cotton goods, if yarn. In this liquor they should be handled for half an hour and afterwards dried.

We warrant this receipt to dye a good black on cotton goods, but there are some little things that can make it much faster, but the previous receipt is a burlesque on practical chemistry. Whoever heard of any person boiling cotton goods to dye a black, and then washing them in hot soap suds. Why the whole receipt is a compound of bleaching and dyeing mixed up together, producing the same effect in Chemistry as it would in practical mechanics to work an engine by raising the steam and then letting it escape without going into the cylinder.

2d.—The Indigo blue produced by the sulphate of indigo (chemic of the dyer,) is a fugitive color, it will not dye cotton, but by neutralizing the acid with chalk, but we warn every person from using it in the manner directed above, no silk goods should be boiled, in dyeing it would spoil the lustre of the silk

The receipt which we have given for black will be valuable to many of our readers who have small jobs of coloring for home made clothes.

Cohesion.

Is that species of attraction which, uniting particle to particle, retains together the component parts of the same mass; being thus distinguished from adhesion or that species of attraction which takes place between the surfaces of similar or dissimilar bodies. The absolute cohesion of solids is measured by the force necessary to pull them asunder. Thus, if a rod of iron be suspended in a vertical position, having weight attached to its lower extremity till the rod breaks, the whole weight attached to the rod, at the time of fracture, will be the measure of its cohesive force, or absolute cohesion.

The particles of solid bodies, in their natural state, are arranged in such a manner, that they are in equilibrium in respect to the forces which operate on them; therefore, when any new force is applied, it is evident that the equilibrium will be destroyed, and that the particles will move among themselves till it be restored. When the new force is applied to pull the body asunder, the body becomes longer in the direction of the force, which is called the extension; and its area at right angles to the direction of the force, contracts. When the force is applied to compress the body, it becomes shorter in the direction of the force which is called the compression; and the area of its section at right angles to the force, expands. In either case, a part of the heat, or any fluid that occupies the pores or interstices of the body, before the new force was made to act upon it, will be expelled.

The Upas Tree.

While Mr. Brooke, the Sultan of Saranah, was making geological examinations in Borneo for coal, he with his friends discovered an isolated Upas tree, nearly forty feet high. Its trunk was almost straight, its head a dense mass of dark green glossy foliage. The ground beneath its shade is crowded with tombs, yet vegetation flourished luxuriantly around its roots.

In tapping it, no bad effects were experienced from the effluvia. But on cutting it to obtain a portion of the wood, bark and juice, a man was so much stupified that he was obliged to desist. It is ascertained that the bread fruit tree, the mulberry, and cow tree of South America, belong to the same natural order as the deadly Upas.

Swarms of Locusts, or grasshoppers, have appeared in Texas, literally covering the ground in some places, and devouring the wheat and corn. In other parts of the State the corn and cotton have been much injured by cut worms.

TO CORRESPONDENTS.

" S. L D. of Va."—The Condensing Engine plates can be forwarded by Express, to any office of importance near you.

" R. C. T. of Ky."—We are unable to find such a publication in this city. We can furnish you with the " Transactions of the Civil Engineers of London," for $20.

" W. W. of Wis."—One copy of Minifie's book sent on the 5th inst.

" H. H. B. of N. Y."—$3 received, for which please accept our thanks. The Commissioner will acknowledge the receipt of your papers, if they arrived safe.

" S. F. G. of Boston."—Your arrangement is entirely new and convenient. Send us a model as soon as possible

" W. H. S. of Mass."—We cannot furnish a practical work upon the subject referred to.

" D. V. of N. Y."—Your model should be made as small as convenient, representing the construction and operation of the improvement. It is not necessary for you to send the oath. The specification must be sworn to before a Justice of the Peace.

" I. L. O. of Conn."—We shall not be able to give our opinion without a model ; please send one as soon as convenient.

" R. J. McC. of S. C."—Your plan would destroy the effect of the fly wheel entirely, by converting it into a cogged wheel or driving pulley. The object of the fly wheel is to give it free action. Papers sent.

" J. E. B. of Tenn."—Your method of propulsion is not new. We have seen several plans combining the same principle, within the last year. Experiments have been made with it, which proved unsuccessful. You had better not spend time or money, in experimenting with it.

" J. H. B. of Ill."—Your communication of the 8th inst. reached us in due time. Your method of laying telegraphic wires is precisely the same as used by Professor Wheatstone, in the construction of his first telegraph. The plan works well, but the great expense attending it has proved a barrier against its general introduction. The principle is well understood by Profs. Morse, Bain and House. $2 received

" L. B. T. of Ill."—We have examined the drawings accompanying yours of the 13th ult. The manner of forming the segments straight, does not constitute a patentable novelty. The method of folding the frame work, whereby it is made portable, is the only point upon which a claim could be instituted. We confess that we do not understand it from the drawing.—You had better construct a model and forward it for examination. $2 received.

" W. L. G. of Mass."—Your plan for hoisting weights, presents nothing patentable. We have known its existence for several years.—$2 received and credited.

" A. H. of Pa."—Yours of the 3d inst. came safe, and the back numbers duly forwarded as per request. Your explanation is perfectly satisfactory.

" W. H. S. of N. Y."—Your draft came safe, and the engine will be shipped immediately, and receipts forwarded.

" A. B. W. of Mass." " C. B. F. of Ct." " W. N. G. of R. I." and " A. B. of N. Y."—If you will please return those Caveat papers you will greatly oblige us.

" J. S. of Pa."—You shall hear from us soon—probably next week.

" R. L of N. Y."—Your loom is now receiving attention and the papers will be sent you for inspection in a few days It is a hard subject to explain and particularly to properly represent with drawings. We ought to have charged you $50 for attending to the business.

" H. T. of S. C."—Your favor of the 3d came to hand, with $45 safely enclosed. We will forward those drawing books as soon as we receive a fresh supply from the publishers.

" J. C. L. of Geo."—You will hear from another party soon in regard to a water wheel. Your draft was paid by Mr. C.

" W. B. L of Pa."—We have made several attempts to procure practical works upon painting, but have not been successful.

" G. R. N. of Washington."—We forwarded your papers by the next mail after receiving your telegraphic despatch. We hope you received them duly.

" R. S. T. of C. W."—For minute particulars respecting a machine address Norcross & Co. 60 Nassau st , *post paid.*

" Mrs. D. of N. Y." " C. M. M. of Pa." " J. H. of O." and T. & F. of Ct."—Why do you not return to us your specifications. It is nearly three weeks since they were forwarded to you and it is for your interest that they be immediately returned.

" C. C. of Ct." " S. & C. of S. C." " E. J. of Mass." " I. M. of Pa." " R. S. and W. N. D. of N. Y." " L S. W. of Mich." " R. V. D. N. C. C. and W. L. S of O."—Your specifications have been prepared and forwarded to your address for signatures since our last issue. Please make as little delay as possible in executing them and return the papers to us as early as convenient.

" A. J. F. of Mass."—Your specification was altered and duly forwarded to the Patent Office.

" Z. P. of Philadelphia."—We are unable to communicate with you farther, as the letter from the other parties is wholly indefinite in regard to the three questions proposed by you. We shall direct them to address you more definite.

" C. J. V. of Ohio."—$5 received ; papers and receipts forwarded per request.

" S. & C. of S. C."—Your model came safe by the Southerner and will be examined soon.

" A. C. B. of N. C."—We shipped your articles on board the schr. Ariade. We have received the funds from Mr. F.

" A H. of Pa."—We have forwarded the back numbers of the Scientific American except No 1, which we have not on hand. Your ideas of a machine for boring post holes are very good, and would answer for soil free from rocks.

" J. H. E. of N. Y."—We will give yours more attention, but as yet we see no just grounds for your calculations.

" T. B. of N. Y."—Yours has come to hand but we do not know how it was so very long about it.

Mr. G. W. Van Vleck, of Belfast, or Syracuse, will please report himself immediately. All persons are cautioned against paying money on our account to L. Van Vleck. We have reason to suppose that he is soliciting subscribers in the name of G. W. Van Vleck.

If we remember right, Bro. Eaton of the Boston Museum (an excellent paper) was seized with ecstatic fits a short time since in consequence of having received a new desk. If he should visit our city we should be pleased to have him call upon us and receive our congratulations, for we've got one.

A large and beautiful locomotive engine, costing 7,000 dollars, has just been turned out from the foundry of Mr Uriah Wells, Petersburg, Va., for the Petersburg and Roanoke Railroad.

Advertisements.

PRIZE ESSAY.

Essay on the Patent Laws.

WITH SUGGESTIONS OF ALTERATIONS AND ADDITIONS FOR THEIR IMPROVEMENT.

By Edmund Maher, Civil and Mechanical Engineer, Washington, D. C.

(*Concluded.*)

Lastly—I propose that the 12th section of Act 1836, shall be so amended as to require a person to make oath to his Caveat, for an alleged invention or discovery, and in default of so doing, to be deprived of all benefit of examination of the same, when an application for a patent for an invention or discovery, on an analagous subject is under adjudication before the Examining Board. This amendment would not be objectionable to persons having *really* made an invention or discovery, and would in a great degree, prevent mischievous and dishonest persons from entering Caveats for machines, or other articles, containing the essential features of pending applications for patents, for similar machines, or other articles to which they have no rightful claim; merely for the purpose of delaying the issue of the patents to the real inventors, to the extentof the period allowed a caveator to convert his caveat into an application for a patent, in cases of interference, in order that they may use such machines or other articles, to the fullest extent with impunity, and finally, decline complying with the oath prescribed for an application. Whereas, if this requirement were exacted in the first instance, of all persons entering caveats, few, other than those believing themselves to be the original inventors of an aricle, would be willing to subject themselves to the charge and penalty of perjury, involved in making a false oath and thus much delay might, in many cases, be avoided.

In the foregoing suggestions, I have merely given an outline of the alterations proposed to the present Patent Laws, without giving in detail, the advantages likely to accrue from their adoption. These I think will be apparent to those of my readers acquainted with the subject, and will to some extent, remove the evils under which the poor inventor is now laboring. If the proposed alterations should be engrafted in proper form into the present code of laws, and should in their operation produce beneficial results, toward improvements in the various elements of the arts, and tend to remove the obstacles in the way of inventors to a just and fair reward of their genius and toil, then, the main object of my design will have been accomplished. But if otherwise, I shall have at least the proud consciousness of knowing, that in making the attempt, I have performed a duty toward a harshly dealt with class of meritorious and useful citizens, who will fully appreciate my labors and motives, and in so doing, have in a manner, acknowledged my obligation to them for the many benefits developed by their genius with which I, in common with the rest of mankind, have been favored.

Let us in conclusion glance at the spirit of improvement and invention exhibited in our countrymen and indulge in a few suggestive reflections.

The progress of science and mechanical developement in our country for the last fifty years, has been *rapid*. Improvements and inventions have not, it is true, sprung up at once into luxuriant maturity, but slowly, surely, like the acorn to a tree, and the rivulet to a river, they have gone on enlarging, widening, expanding into beauty and magnificence, until their tremendous influence is now recognised, not only fertilizing and sheltering the land which gave them birth, but penetrating into the remotest corner of the habitable earth.

The nineteenth century stands out in *basso relievo* upon the rock of Time, as the epoch of discovery and fruition—as the inceptive period of mighty truths, such as the world knew not before, and which in their culminating progress, are destined to embrace the universal family of humanity in the circle of their immense results. The key with which our immortal Franklin unlocked the mysteries of the storm, was also the talisman which may in aftertimes reveal the secret machinery of life itself. Already have the "sightless couriers of the air" woven their web of lightning over the face of creation, realizing, aye and surpassing the ambition of him, who would have "put a girdle round the earth in forty minutes." Already have the mountains bowed, and the "little hills skipped like lambs" before the track of the iron horse, whose limbs are tireless, and whose breath fails not in the race.

The popular mind of our country is essentially inventive. Almost as soon as the American child can think, he enquires—demands illustrations, and suggests changes. The Anglo Saxon superiority of intellect requires independent and individual developement,—which, under a republican form of government is almost certainly obtained; for each man born into the community, feels, that in himself lies his destiny, and that equally with another he may aspire to all the rewards of enterprise. The North American mind seldom dreams—seldom indulges in vague or chimerical speculations; it must have a tangible foothold, a solid standing point, and thence it will upbuild the loftiest structures, that intellect can conceive or action execute. It never stagnates, and seldom is at rest; for in viewing a mountain torrent, the American plans a water power that shall perform the work of a thousand men, and in examining a pebble he may divine the locality of untold treasures hid in the bowels of the earth.

It is this national trait of observation and application, that gives our countrymen a peculiar proclivity, if I may use the term, towards invention and improvement. Nothing is passed by them without enquiry and examination; and errors are detected, mistakes rectified, and crude hints reduced to practice, with a facility that is truly wonderful.—Throughout all classes this trait is noticeable, its developement, perhaps but partial and incomplete, yet still marked and recognizable, as a feature of our national physiognomy.

It is this which sweeps away every vestige of the ruined past, and replaces it with solid monuments of the present. It is this which diverts our rivers, hundreds of miles from their natural courses, to top the resources of inland commerce. It is this which crosses and recrosses our fertile plains with a woof of perpetual traffic, over which fly continually those mighty shuttles, the steam engines, weaving yet closer and denser, the fabric of our prosperity. It is this which builds ships in the backwoods, launches them upon canals and inland lakes, or transports them piecemeal to the mighty ocean—to assume their place among the navies of the world. It is this which paints our glowing scenery on miles of canvass, revealing our natural and national life to millions beyond the Atlantic, who thus behold, as it were, face to face, a people who exist four thousand miles away.—Our flails thresh the corn which grows around the tomb of Pharaoh; our saws sever the cedars of Lebanon; our steam whistle startles the echoes of the Black Forest and the Baltic; our cotton forms the Moslem's turban; our palm leaf shelters the Sumatra planter.—We cool the nabobs sherbet with our ices—and we heat the Creole's sugar boiler with our coals.

No nation in the history of the world has illustrated the spirit of improvement to the extent of ours; and this, because every man has been a self acting motive power in the grand machinery of progression. We exhibit the ideality of materialism in every thing—grounding on the smallest foundation, a superstructure of practicable theory. A churn, a lock, a door knob, a plough, these are not objects *merely*, to a Yankee's mind, but are problems, which he endeavors at once to resolve into an "*improved*" churn or lock, or door knob, or plough. And the problem presents itself, and must be solved throughout all the handiwork of man.

With this universal *genius*, then, for invention, the American mind requires but two things to make its influence effective, and constant in its great results; and these are education, and governmental protection in its offspring. Our rambling, luxuriant, eccentric inventive talent, must be controlled and directed by a wise system of scientific instruction, as well as protected by law in its results.

A Bureau of Arts, supervised by practical men, should be as distinct a department of our national government as that of the Treasury, or of State. It should ever be the policy of a far-seeing statesman to encourage these manifestions of popular intellect which result in practical fruits, which exhibit new modes and means of producing tangible good, whether it be in the perfection of mechanics, agriculture, or the fine arts: for all these things directly advance a nation, and of course create wealth, prosperity, and social honor for all the integrals of that nation.

The institution of a National Academy under the patronage of government, where mechanics, manufactures, and agriculture, should have their appropriate Professorships; where the children of the people might be instructed in all the great truths which form the educated workingman; where the cumbrous details of patenteeism should be reduced to a simple codification; where premiums and honorable prizes should be awarded to successful inventors, discoveries, or improvers; where lectures upon all the branches of art should be given by the great scientific men of our country; where a gallery of models and catalogues of all the inventions and discoveries of ancient and modern times should be accessible to all; such an Institute as this would do more to elevate our national character, and ennoble our countrymen, than all the victories of a thousand wars, or the acquisition of all the mines of the universe.

With such a fostering Institution, the American mechanic could lead the world, in all that adorns and benefits mankind. He could hold up to the gaze of nations a model and a standard of scientific developement, that would fire all men with emulation. Then could he grasp and guide the awful elements of nature, curb the ocean and the sky, and overcome the forces of evil throughout creation. Then could he banish miasma from the face of earth, disarm pestilence, avert famine, regulate climates, and make deserts "blossom as the rose." This power exerted for the good of mankind, and encouraged to its utmost capacity, would be equal to all labors, and superior to all obstacles. Then indeed could we address to him the apostrophe of the Poet—

"Lift, then, thy hand to heaven!
Spread thy Toil-sceptre o'er the sea and land!
Thou hast the world entrusted to thy hand—
Earth to thy charge is given!"

Useful Problems.

PROBLEM 1. The quantity of timber being the same, a beam will be stronger in proportion as the depth is greater; but there is a certain proportion between the depth and the breadth, which, if it be exceeded, the beam would be liable to overturn and break sidewise. To avoid this, what should be the least breadth of a beam 20 feet long and 9 inches deep?

2. There is a cylindric tree one foot in diameter, which is to be formed into a prismatic beam by flattening its sides; of what dimensions shall we make it to gain the greatest stiffness and also the greatest strength?

3. Suppose an observer to be elevated two miles from the earth; what part of its surface would be visible to him?

4. There are two certain bodies, in which, although containing the same elements in the same proportions, and presenting the very same crystalline form, the relative order of the elements is not the same. Required their names?

Razor Paper.

This a subject not intended for our Turks, or Long Beards, as these gentlemen prefer to live and trim their beards after their own fierce looking fashion. But for gentlemen who choose to keep a decent yankee chin like ourselves, we have just lighted on the following paragraph in a London Paper.

Mr. Frederic Barker of Dorcas Terrace, Hammersmith has put forth a new kind of razor paper, which is introduced for wiping the razor while shaving, the finest edge that can be prodnced by any other means is greatly improved and constantly preserved in the most perfect order, without the loss of time, labor and uncertainty attending the use of the hone and strop. By wiping the operative razor o this paper, it is sharp-set, as well as clean-set; thus contriving a double debt to pay.

There are many who know how to shave with paper a little better than Mr. Frederic Barker of Dorcas Terrace, Hammersmith.

LITERARY NOTICES.

The Pictorial National Library. Wm. Simonds, Boston. G. W. Adriance, 177 Bowery, N. Y.

We have always warmly recommended this beautiful Magazine for its intrinsic merits as a useful publication for family reading. The May number is before us, splendidly illustrated with a portrait of John C. Calhoun, and biography; "View of the State Reform School at Westboro, Mass.;" Portraits of John Langdon and Edmund Burke, with many other illustrated scenes. 12 numbers of this work cost only $2, and when bound, will make a book of nearly 600 pages. Any person wishing the 12 numbers in our possession can have them for $5, but the publisher will supply them for $2. We don't wish to sell.

Agricultural Document.

We have received from the Editor of that excellent periodical, the Ohio Cultivator, the "Third Annual Report of the Board of Agriculture of the State of Ohio, 1849." We are much obliged to our respected brother in the field of useful information, for this document, as it is one of no ordinary value, and is highly creditable to the first Agricultural State in the Union.

The Water Cure Manual, is the title of a very excellent publication just issued by Messrs. Fowlers & Wells, 131 Nassau st. It embraces description of the various modes of bathing, the hygienic and curative effects of air. exercise, clothing, occupation, diet, water, drinking, &c. together with descriptions of disease and the hydropathic means to be employed therein. The subject is treated in Dr. Shew's usual able manner, and should meet with an extensive sale. Price 50 cents, with 280 pages.

The American Railroad Journal has wonderfully improved lately. It is an excellent paper and we see that Mr. J. T. Hodge, an eminent mineralogist, is now associated with Mr. Poor, as Editor.

We return our thanks to Richard M. Young Commissioner of the General Land Office, for his able and useful Report for 1848.

The Phrenological Journal for May is an excellent number, published by Fowlers & Wells, N. Y. It contains a likeness and phrenological dissertation on the Rev. Henry W. Beecher, the popular preacher.