Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME 6.] NEW-YORK, JULY 5, 1851. [NUMBER 42.

THE
Scientific American,
CIRCULATION 16,000.
PUBLISHED WEEKLY
At 128 Fulton, street, N. Y., (Sun Building,) and 13 Court street, Boston, Mass.
BY MUNN & COMPANY,

The Principal Office being at New York.
A. T. Hotchkiss, Boston.
Dexter & Bro., New York City.
Weld & Co., New Orleans.
Stokes & Bro., Philadelphia.
R. E. Edwards & Co., Cincinnati, O.
Jno. Thomson, "
Edwards & Ringgold, Louisville, Ky.
Cooke & LeCount, San Francisco, Cal.
Courtenay & Wienges, Charleston, S. C.
John Carruthers, Savannah Ga.
Barlow, Payne & Parken, London.
M. M. Gardissal & Co. Paris.

Responsible Agents may also be found in all the principal cities and towns in the United States.

TERMS---$2 a-year---$1 in advance and the remainder in 6 months.

Rail-Road News.

New York and New Haven Railroad.

We endorse the following commendations of this road from the Daily Sun of the 27th ult. We have travelled not a little over the different roads of the country, and we have never found one better managed in every respect than this. The arrangements are as near perfection as we can expect at present.

"Frobably no road in this country has ever advanced in public favor so quickly, or made money so rapidly since its completion as this road. Its arrangement has been such, as in all respects, to please the travelling community, and it must be a matter of congratulation to the stockholders, that they have such a man at the head, as Robert Schuyler, Esq., who, as a man of judgement and practical experience as a railroad man, is second to none in our community. The conductors are in all respects gentlemen, as all who have had the pleasure of travelling with Messrs. Comstock, Quintard, Dennis, or Oakley can testify, and we believe all the appointments on the road are unexceptionable. The laying of a double track is progressing rapidly, and will probably be completed in the course of the year. Oyster shells are being put upon the road, to prevent the rising of the dust, so annoying to passengers, and in a short time the condition of the track, and the comfort of riding, will be superior to any other road."

Cattle Freight on Railroad.

Railroads are not only a great benefit to distant farmers, but to the people of our cities. No man can estimate the benefits conferred upon mankind by railroads. Cattle are now transported from the Kentucky to this city in half the number of days that it once took weeks to travel. There is no loss of beef by travel, and there is a general saving in the price of each animal of about $20. Is not this a great benefit simply considered in itself? The animals which used to come to this city, after a journey of 500 and 600 miles, looked like scare-crows in comparison with those which now arrive by railroad, after a journey of three times that distance. The citizens have now better beef for less money, and the farmers better prices and less expenditure.

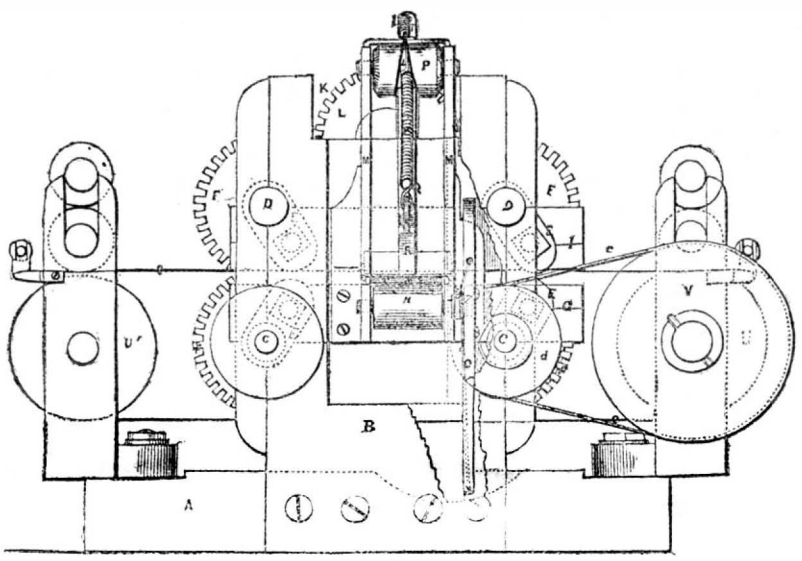
Black Rock Suspension Bridge.

A bill is now before the Legislature authorizing the building of a suspension bridge, over the Niagara River, at Black Rock. It is the intention to build the bridge from nine-five to one hundred feet above the water, so thatthere is no possibility of its interfering with the navigation of the river.

It is now about the season when the Sea Serpent should make his appearance. Some news about his imperial majesty may be expected daily.

DODGE'S NEW PRINTING PRESS.

Fig. 1

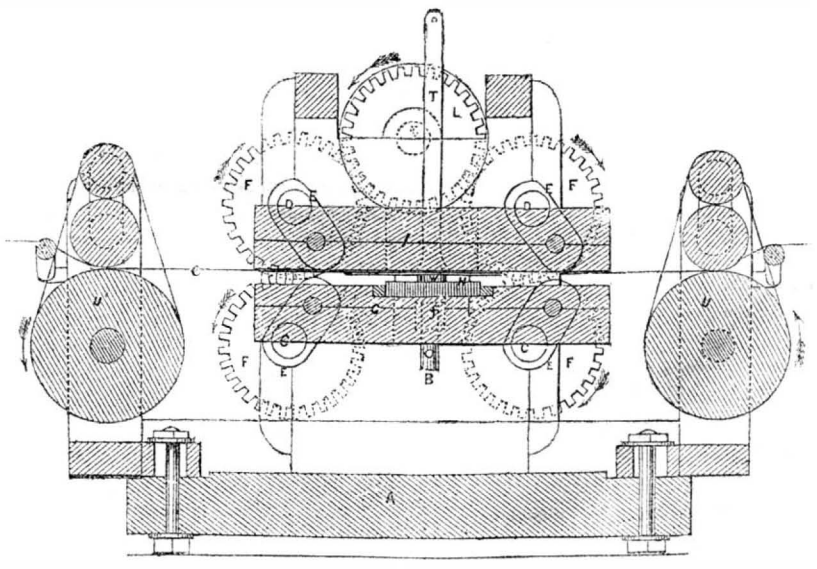


The accompanying engravings represent a new printing press, invented by Mr. Thomas H. Dodge, of Nashau, N. H., who has applied for a patent.

Figure 1 is a side elevation of a press suitable for job work, in which one side of the paper is printed; part of the framing is broken away to show the inking apparatus. Fig. 2 is a longitudinl section of the same, taken near its centre. Fig. 3 is a detached view of the inking apparatus. The same letters refer to like parts.

The plattens and type beds are hung on cranks placed on parallel shafts and so arranged that the plattens and type beds are always parallel or nearly parallel to each other during the revolution of the shafts. Those shafts which carry the type beds revolve contrary to those which carry the plattens, and the cranks on one set are so arranged upon them in relation to those upon the other set acting with them, that each platten moves in the same direction longitudinally as the type bed corresponding with it—both towards and from one another. They are brought together sufficiently close to make the impression (print). The sheet to be printed is in a roll or web, fed in continually at the speed required, and when an impression is made the sheet is cut off. The type is inked by a roller, the motion of which is controlled by the motion of the platten. A B is the framing; C C,′ and D D,′ are short shafts hung in bearings in the standards of the frame, each formed of two parts, one on each side of the frame, in line, so that both have the same axis; C and D are equi-distant, so are C′ and D′; the two first are on the same horizontal

Fig. 2



plane, so are the two last. Upon each part of the said shaft, inside of the bearings, there is a crank, E. All the cranks are of equal length; those with the same axis are placed opposite, to form part of the crank. The cranks on C and C′ are placed in corresponding positions, and the platten bed is hung upon them. The platten is hung upon the cranks, D D′. The shafts C and D are geared together by the cog-wheels, F F, and C′ and D′ are geared together by a similar pair of cog-wheels. C and C′ rotate in opposite directions to D and D′. The wheels are geared so that the cranks on D and D′, and C and C′, always move towards or from one another at the same time; and when one pair are turned upwards in a vertical position, the other pair are turned downwards, and *vice versa*. G is the type bed hung on the cranks on the shafts, C C′, and kept in a horizontal position during their revolution. H is the form of type placed in the bed in the usual way; I is the platten hung upon the cranks on the shafts D D′, and always remaining in a horizontal position; J is a stationary stud or gudgeon, secured on the side of the framing; K is a driving pulley running loosely upon it. L is a cog wheel secured to the driving pulley and gearing into wheels, F F, on shafts, D D′, driving both in the same direction. M M are standards secured to one side of the type bed, they support certain parts of the inking apparatus; N is the distributing roller hung in the lower parts of M M; the upper part of its periphery stands nearly level with the top of the "form." The side of the type bed is recessed, as in figure 3, to let the top part of the roller come close to the bed; *n* is a small grooved pulley on the axis of the roller. O is a small bar of steel or other flexible material attached to the platten and hanging down from it; a cord is attached to it near its upper and lower ends, enclosing the pulley, *n*, and by the upward and downward motion of the platten and type bed, a reciprocating rotary motion is communicated by it to the distributing roller; P is a small barrel cylinder hung in the upper part of the standards, M M, carrying a radial arm, Q, at the end of which is hung a lever, R, having a long and a short arm; the long arm carries a bar, in which the inking roller, S, is hung; the short arm is connected by a spiral spring, *r*, to a small bar, *s*, placed across the standards; this spring has a tendency to push down the inking roller. A tangential bar, *p*, is secured to the barrel, P, and is struck by every upward

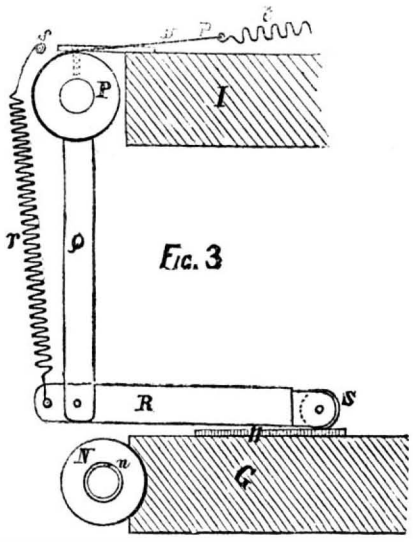


Fig. 3

motion of the platten, throwing it upwards and giving the barrel part of a revolution, by which the arm, Q, is thrown towards the press, and the inking roller, which rests upon the distributing one when not in use—is moved across the type, the spring, *r*, keeping it down upon the type; *p* is an upright type bar, secured to the type bed on the opposite side, and to it is appended a spring, *t*, attached to the cord, *u*, which passes over and is secured to the barrel, P. This spring pulls on the cord turning the barrel, when the bar, *p*, is not acted upon sufficiently to throw back the inking roller to the distributing roller beyond which it is prevented from moving by its frame coming in contact with the standards, M M. U U′ are cylinders hung in bearings in standards at each end of the frame. U carries a pulley, on its shaft which is fitted to it so as to turn freely, driving the cylinder by the stud, *a*, on its face, which comes in contact with a pin inserted transversely in the shaft. The pulley receives motion by the band, *c*, from pulley *d* (figure 1) on shaft C′; U is driven by a band, *e*, running from V. Tapes run over these cylinders for the purpose of carrying the paper to feed to the press. The mode of carrying the paper forms no part of the invention, we therefore do not describe it, excepting to say that the paper will be carried parallel with the face of the type bed and platten and about midway between their centres of motion. W (fig. 2) is the spring presser, which consists of a stud fitting in a socket secured on one side of the type bed; the lower part of this stud is made smaller than the upper part to form a shoulder; under this

shoulder, encircling the stud, a spiral spring, *s*, is placed in the socket, which forces in the stud, but, at the same time, allows it to yield to pressure, causing it to stand up above the face of the type bed at a point exactly under the upper part of the band, *e*. Every time the type bed and platten approach one another, the presser comes in contact with the band and presses it up against the under side of the platten or a plate secured to it, and thus holds the band so that it and the sheet must move at the same speed as the type bed and platten. If the speed of the cylinder, U, U′, which is adjusted as nearly as possible to the speed of the type bed and platten, should be too slow, the manner in which the pulley, V, acts on U, admits of its being moved faster, but if it should go too fast, the speed of the barrel and of the cylinder, U′, will be temporarily retarded.

Operation.—Rotary motion is given to the driving pulley, and the cog-wheel, L, in the direction of the arrow (figure 2); this cog wheel gives motion to the wheels, F F, which, with their shafts, and the cranks upon them, revolve in the directions pointed out by the arrows shown near their peripheries. This gives motion to the type bed and platten. These, by the positions in which the cranks are arranged, always move in the same direction longitudinally or horizontally. The type bed and platten are at a distance apart, but they meet during the revolution of the cranks so as to make the impression on the paper. Just before the platten reaches its highest position, it comes in contact with the bar, *p*, on the barrel, P, pushing it upwards and moving it to the position shown in figure 3, where the inking roller is supposed to have moved forward across the form, and the platten is about to descend and release the bar, *p*, and leave the barrel, P, free to be acted upon by the spring, *t*, and cord, *u*, which throws back the inking roller to the distributing roller. This motion takes place previous to every meeting of the type bed and platten, and gives the proper quantity of ink to the type. If the speed of the cylinders, U U′, be properly regulated, the paper must travel at the proper speed, but in case the driving band should slip, it is necessary to insure its motion by the spring presser W. The paper is cut off into proper sheets after it is printed, by a cutting apparatus at the end of the press; such a contrivance is not new in printing presses.

In connection with printing one side of the paper, a duplicate arrangement of the same machinery can be made to print both sides at one continuous operation. The great object of this press is the arrangement of machinery for rapid motion, yet to make the impression on a plane surface, to produce the best impression—a combination of the rotary and reciprocating printing press, Mr. Dodge has ingeniously accomplished his object.

[Special Correspondence of the Scientific American.

London, June 12th 1851.

Next to the Great Exhibition building itself, the greatest novelty in London, is Mr. Wyld's great model globe. The English appear to indulge in gigantic projects. This globe has a surface of more than 11,000 square feet, and is a great novelty in geographical science.

The diversities of the earth's surface are modelled with minute accuracy, the scale being one inch to a mile vertically, and one inch to ten miles horizontally, the diameter being 60 feet. The spectator is supposed to be in the interior of the earth, and to look up to its concave surface. The different countries are tinted, so as to represent the truth of nature as nearly as possible, and no writing or inscription of any kind disfigures the general appearance of the gigantic model. The visitor enters the model through the South Pacific Ocean, and the southern extremity of Africa is the first land of which he gets a view. Four galleries, one above the other, enable the visitor to examine closely every portion of the model. It is intended to supply the visitors with a kind of index to the model, by arranging the index maps in the different galleries. At present, the shape and relation of the different parts of the model alone explain the identity of the different countries. So exact and minutely accurate, however, is the delineation, that the visitor, moderately educated in geographical science, can see at once the places for which he is in search.

"That nothing may tend to divert the attention from the natural appearances which the earth's surface presents, there is no writing upon the model. The sea is colored blue, and the land of as natural a tint as possible. The great model teaches what no man can teach—the earth's form as a whole, its general aspect, the relative quantities and positions of its several parts, the bearings of its hills, the flow of its great waters, and the seats of its rich dales and its barren wastes.

The top of the globe is made the north pole, and the bottom the south pole, without regard being paid to what is known as the inclination of the ecliptic."

Mr. Wyld's work is something more than a mere exhibition for amusement. It is probably the most useful of all the metropolitan exhibitions. The mere mechanical skill which could build out of thousands of plaster blocks a complete and accurate model of the earth's surface, is no ordinary triumph.

There is one American now in London who is astonishing the natives, this is Mr. Hobbs, the great Lock Man, of New York, who is an exhibitor here, all the great locks—the supposed unpickable ones—yield to his Yankee genius, like the door of the robbers' cave to Ali Babi's "*open sesame.*" His magic word is a crooked Yankee nail, which he carries in his vest pocket, and with it "he picked the heretofore supposed unpickable Chubb lock, which laughed at all the English locksmiths and rogues. It is the reliance of bankers, and secures the archives of the government. He opened the chest in just fifteen minutes, and he proposes to try his hand at several other locks, to the successful opening of which large rewards are offered by the inventors.

One small but good invention is exhibited in the American Department. It is a model key with a revolving end. The object of the invention is to give to housekeepers all the safety against lock-picking which they can derive from having the key inserted in the hole, and there left to prevent the insertion of any burglar's implement, of which it is well known there are a great variety adapted to the different descriptions of locks. The only effect which the burglar can produce on it is to turn round the revolving end.

It is a New York invention, and was patentented, I have been informed a short time ago.

One of the most singular inventions exhibited is the model of a man by Count Danin. It represents the figure of a man five feet high, in the proportion of the Apollo, and from that size the figure can be increased in all its compartments to six feet eight inches. It is intended to facilitate the clothing of an army; and it is so ingenious that the Emperor pardoned and recalled Count Danin, who is a Pole, on seeing this result of many years' labor. The number of pieces composing the model is 700.

Among the gems of sculpture is the 'Veiled Vesta.' It represents a young and exquisitely formed girl, kneeling and offering her oblation of the sacred fire. Her face is veiled, but every feature is as distinctly visible as it were through the folds which cover her face.

Excelsior.

Curious Discovery in Bulgaria.

A very curious discovery has just been made in the province of Bulgaria, in Turkey. Some Greek workmen, in digging near the village of Rahmanileah and the town of Hadzah, found a large table of grey colored marble; they removed it, and found one beneath exactly similar; having removed that also, they saw a great number of objects shining like gold and sliver. They hastened to the captain of the district, and that functionary, assisted by two ecclesiastics, proceeded to make an examination. They found a skeleton of large stature, with a copper helmet on his head, surrounded by a thin crown of gold; the hands and arms up to the elbows were stained with something of a bronze color; in the right hand was a copper chain, with an incense-box of the same metal, covered with verdigris, on the third finger of the left hand was a gold ring, with the figures in Roman characters, 966. By the side of the skeleton were three cups in silver, very brilliant, and 26 cups in iron, very rusty but bearing traces of having been gilded; there were also an immense number of nails, and about 500 arrows, of which the wood was rotten and the points rusty. The skeleton and the different articles were carefully packed up, and sent to Adrianople for examination.

Passages of the Atlantic Mail Steamships from Liverpool to New York, from April 3, to June 1, 1851.

Africa, (B), arrived Thursday, 10th April, at 7 A. M. Left Liverpool 29th March at M. Passage, 11 days 19 hours.

Pacific (A), arrived Saturday, April 19, at 10½ A. M. Left Liverpool on the 9th, at 2 P. M. Passage 9 days 21½ hours.

Asia (B), arrived on Wednesday, April 23, at 10½ A. M. Left Liverpool on the 12th at 5½ P. M. Passage, 10 days 17 hours.

Europa (B.), arrived on Thursday, 7th May, at 7 A. M. Left Liverpool 26th April at M. Passage 11 days 17 hours.

Arctic (A.), arrived Sunday, 11th May, at 7½ A. M. Left Liverpool May 3rd, at 10½ A. M. Passage, 10 days 19 hours.

Africa (B.), arrived Wednesday at 9 A. M., 23rd May. Left Liverpool Saturday, May 12, at 3 P. M. Passage, 10 days 17 hours.

Baltic, (A.), arrived May 25, at 7 P. M. Left Liverpool on the 14th, at M. Passage, 10 days 7 hours.

Asia (B.), arrived on Wednesday, June 4, at 8 A. M. Left Liverpool May 24, at 3½ P. M. Passage 10 days 16½ hours.

Pacific (A.), arrived Saturday, June 7, at M. Left Liverpool Wednesday, 28th May, at 10 A. M. Passage 10 days 2 hours.

Niagara (B.), arrived on Friday, May 20 at 7½ A. M. Left Liverpool on Saturday, the 7th, at 1 P. M. Passage 12 days 16½ hours.

Arctic (A.), arrived on Sunday, June 22, at 2 P. M. Left Liverpool on Wednesday, the 11th, at 9 A. M. Passage 11 days 4 hours.

Extraordinary Effects of Lightning.

A late French newspaper relates a marvellous incident, which is said have occurred during a thunder-storm in the interior department of France. A barn, in which were two goats, was struck by the lightning, but not burnt. After the shower, a woman who had been accustomed to feed the goats, went to the barn, and perceiving that the animals were entirely motionless, approached and touched them, when to her great astonishment and alarm they fell and crumbled to pieces, exhibiting nothing but a mass of cinders.

The Sea Diminishing.

Lieut. Wm. D. Porter, of the navy, has an interesting communication in the Intelligencer, in which he undertakes to show that all the phenomena of change in the ocean line of seacoast, and appearance of rocks above the water, which have been observed and commented on from time to time, are caused by a constant diminution of the waters of the ocean; and that a process is at all times going on by which the substances, held in solution in the ocean waters are converted into solids.—[Ex.

[This will not account for the disappearance of solids—the usurpation by the sea of what was once dry land, as on the coast of England.

A discovery has just been made at Hermiones, in the Peloponnesus, of a certain spring of water which, when mixed with oil, becomes at once a kind of soap. A sample has been submitted to chemical analysis.—[Exchange.

[There are plenty of such springs in the Rocky Mountains. The waters are alkaline. An alkali and oil form soap.

A system of banking is discovered to have prevailed in Babylon at least seven or eight hundred years before the Christain era.—[Exchange.

How and where was it found out friend?

Deep Sea Soundings.

An act of Congress authorizes the vessels of the navy to co-perate with the scientific Lieutenant Maury, in procuring materials for his investigations into the phenomena of the "Great Deep." An order of the Chief of the Bureau of Ordinance requires the commanders of our public cruisers to get a deep sea sounding whenever it is calm. Heretofore this had been a difficult object. The difficulty was in getting a line long enough, and in knowing when the plummet had reached the bottom.

Recourse had been had by other navies to wire of great length and tenuity, and the greatest depth ever known to have been reached, before the subject was taken up here, was the sounding, by an officer of the English navy, in 4,000 fathoms, which was by no means satisfactory. Lieut. Walsh, in the United States schooner Taney, has reported a sounding without bottom, more than a mile deeper than this.

Instead of costly implements used for sounding the depths of the ocean, our vessels are simply supplied with twine, to which they attach a weight, and when the weight ceases to sink they know it is on the bottom; and thus the depths of the ocean, in the deepest parts, may, without trouble or inconvenience, be ascertained in every calm of a few minutes' continuance.

With this simple contrivance the "Albany," Captain Platt, has run a line of deep sea soundings across the Gulf of Mexico, from Tampico to the Straits of Florida.

The basin which holds the waters of this Gulf has thus been ascertained to be about a mile deep, and the Gulf stream in the Florida Pass about 3,000 feet deep.

Capt. Barron of the "John Adams" has been sounding the Atlantic Basin, between the Capes of Virginia and the Island of Madeira, belonging to Portugal. He got bottom with a line of 5,500 fathoms, the deepest, and 1,040 fathoms the shallowest.

Men of science will recognise in these results some of the most interesting and valuable physical discoveries of the day. They reflect the highest credit upon our navy and those who planned and set on foot these simple and beautiful arrangements, which have cleared away the difficulties with which all have found themselves beset who heretofore have undertaken to fathom the sea at great depths.

We hope these facts will strike the gilt gingerbread off the learned *pundits* in this city, who two years ago held a controversy with us, and took the position that a weight could not sink below a certain depth in the ocean—that there was a place where the waters were denser than metal, and that stones and dead men's bones rested in that strata between the bottom and surface, like the fabled coffin of Mahomet in another element.

Purifying Water.

Mr. Editor—I have many times seen in papers, and I think in the Scientific American, that a spoonful of powdered alum stirred in a barrel of water, will cleanse it; I have tried the experiment many times, and always find that soft water is made hard, and hard water, (limestone water, as all waters are in western Vermont,) is but little more soft. Will some of your large number of intelligent correspondents tell us how to make water clean as well as clear? The experiment succeeds admirably in rendering water transparent, and produces a large precipitate of solid substances, but yet leaves in solution something which makes the water unfit for use. H. A. S.

Middlebury, Vt., June 20, 1851.

[The alum can have no effect in rendering lime water soft, for it produces the effect spoken of, it being a peculiar salt, partaking of acidulous astringent qualities. Oxalic acid is the best substance for precipitating lime in water, but we deprecate its employment for that purpose. For domestic use, the only safe mode of purifying water is by filtration.

The thermometer has been ranging above 90° for some days past. The price of tallow as a consequence has advanced.

The gold discoveries in Maine have turned out to be mere shams.

Why there are not More American Exhibitors in London.

In our London correspondence of last week, some of the causes why there are not more exhibitors from the United States, were presented in a clear and candid manner. The letter appeared in the London Times and has cured that paper, in a great measure, of its sarcasm in respect to the American department. It is well known that a central committee was appointed at Washington to devise measures and assist in carrying out the intentions of what was called "central authority," of the United States, but as stated, no funds were provided by Congress, so the committee had to waddle away as best they could. But did they do all they possibly might in the premises? We trow not. They printed a few circulars and had a few meetings, and a respectable bill in all likelihood will be presented to the next Congress, to pay them for bamboozling the whole affair. We received one circular from the executive committee of the central authority, and published it on page 74, this volume, Scientific American, and we should have been glad to have presented all the information we possibly could on the subject to our readers, but we were much in the dark. There was as much energy displayed by these authorities as there is in "prime pork" headed up in a barrel.

Our correspondent says "there was a want of information throughout the length and breadth of the States in reference to the character of the exhibition."

No goods or articles could be received at the exhibition without the certificate of this central authority, and everything was to be examined by their agents, yet what did we, or our countrymen generally, know of the arrangements made, or the persons selected to carry them out? Nothing; all the news we got about them (except in one instance,) was second hand. We do not suppose that any of the State Committees expended as much as would provide each member with a Jonny Cake, in order to spread correct information and stir up the pride and spirit of our people on the subject. The one in this State, at least was eminent for its inefficiency. It would have cost these committees but little to have printed short and pithy circulars, which we would gladly have published, without charging them anything, and then when it is considered that there is not a factory, foundry or machine shop in the United States but receives one or more copies of our paper every week, the effect—the good effect of such publications might have been anticipated. But these committees did not know enough to know this, and our people have now cause to regret it, and wish it had been otherwise.

New Scotch Steamer---Some Peculiarities.

We learn by the Glasgow Daily Mail that a new steamer, for the Glasgow and Dublin Steam Packet Co., has recently been launched on the Clyde, and has some peculiarities about her which are well worthy the attention of our engineers. Let us point them out. She is the first of her class there, having a spacious saloon deck.

The engines are of the kind known as side-levers, the levers being each formed of two plates of malleable iron connected together with studs and eyes. Considerable weight is saved by this substitution of wrought for cast iron, and the possibility of fracture obviated. The cylinders are 60 inches diameter, with five feet stroke. The paddles have feathering floats, actuated by an eccentric on the inner side of a panel. The mechanism for producing this feathering motion is very strong, and yet simple. The floats are larger than usual, being 8 feet 9, by 3 feet 6; but they are fewer in number, as there are only 14 in a wheel of 23 feet in diameter.

This is the "Morgan Paddle Wheel." She is free from all tremor and runs at the rate of 17 knots per hour at 25 strokes per minute.

The two boilers are tubular, and fired from both ends, each pair of furnaces communicating at the centre with an upright box, from which the tubes proceed at a small angle towards the end of the boiler, where the vapor is received into a chamber, and conveyed at once to the chimney. The tubes are 6½ feet long, and 3½ inches diameter. Air is admitted through the ash-pit to the fire bridge, where it meets the smoke and converts it into vapor. The result is, that no smoke is visible at the funnel head, and a serious nuisance to passengers, as well as a heavy loss to the owners in unconsumed carbon, is obviated.

The principal dimensions of the Herald are,

Length over all . . .	200 feet.
Beam	25 "
Depth of hold	15 "
Measured tonnage . .	650 tons

Deck flush, fore and aft, with a top-gallant forecastle. The steering wheel is on the platform amidships.

Her hull was built by Reid, of Port Glasgow, her engines by Messrs. Thompson, Engineers, Glasgow. The steering wheel on the platform is taken from the American river boats.

To Millard Filmore, the President of the United States.

Sir—Permit me to advocate the cause of the inventors, who, from their ignorance of the management of the patent office, and their isolated situation, are unable, if not incompetent to represent their interest.

I am concious that I am not a member of Congress, and although it may appear presumptious for a private citizen even to suggest any particular course to the Chief Magistrate, yet I crave your indulgence as a boon to those whom I wish to serve.

And what I crave is, that the four vacancies in the examining corps in the patent office may be filled with men who are practical machinists or manufacturers. For it is extremely hard upon many meritorious inventors who have spent years in perfecting an invention, and have stinted themselves and their families to save the means to enable them to make an application for a patent, and then to have an examiner who knows nothing of machinery or manufactures practically, reject the application because he does not understand it sufficiently to comprehend its merits. Imagine for a moment the dismay that follows those rejections; when the inventor receives notice that his application is rejected, his fondest hopes are blasted, and his spirit crushed, perhaps forever; for many of the inventors have neither intelligence nor money sufficient to enable them to prosecute the application further, having exhausted their entire capital in perfecting their invention and applying for a patent.

The inventor of the machine for turning lasts, gun-stocks, busts, &c., became so poor before he completed his invention, that his brother refused to trust him with medicine for his sick wife of the value of ten cents.

The reason why practical machinists or manufacturers should be appointed, instead of professional men, is this, because the questions submitted to them are questions of fact, not of law; and the question is simply this,—"is the invention identical with or alike something that existed before?" or, "did it require some invention to make it?" For the law says, sec. 7: "The Commissioner shall make, or cause to be made, an examination of the alleged new invention or discovery; and if, on such examination, it shall not appear to the Commissioner that the same had been invented or discovered by any other person in this country, prior to the alleged invention or discovery thereof by the applicant, or that it had been patented or described in any printed publication, in this or any foreign country; if the Commissioner shall deem it to be sufficiently useful and important, it shall be his duty to issue a patent therefor." And the question for the Examiners to report upon is this,—"could a person with a knowledge of what existed before, have made the invention for which a patent is asked, without further invention?" or, "would it require some thought, some exercise of the mind, some arrangement of new ideas; in fact, some invention?" For an invention is defined in law to be a thought or idea first conceived in the mind by the inventor, then embodied in a material form or representation, so as to be apparent to others; and so as to be comprehended and understood by those skilled in the art to which it appertains.

It appears to be the Examiner's duty to decide whether the invention in question, "has been patented or described in any printed publication in this or any foreign country," consequently he must first understand the invention before he can so decide; and he must not only understand the invention presented to be patented, but the one already patented or described, which is supposed to be similar or identical; and it often requires the most skillful machinist, with the nicest discrimination, to determine where, and at what precise point, the identity ceases and the novelty begins; and it is under such circumstances that the skill of the Examiner is put to the severest test. If he is deficient in skill so as to be unable to solve the problem, and errs in the case, he gives more to the inventor than his invention entitles him to receive, and robs the public; or, he refuses the inventor what belongs to him, and robs him of his just and dearest rights, and gives them to the public.

The 7th section also says, "but whenever, on such examination, it shall appear to the Commissioner that the applicant was not the original and first inventor or discoverer thereof, or that any part of that which is claimed as new had before been invented, or discovered, or patented, or described in any printed publication in this or any foreign country, as aforesaid, or that the description is defective and insufficient, he shall notify the applicant thereof," &c. Now, I believe, it will be readily admitted that the most competent person to decide whether the description is sufficient, or otherwise, is a practical machinist, for the 6th section says, "before any inventor shall receive a patent for any such new invention or discovery, he shall deliver a written description of his invention or discovery, and of the manner and process of making, constructing, using, and compounding the same, in such full, clear, and exact terms, avoiding unnecessary prolixity, as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same, and in case of any machine, he shall fully explain the principle and the several modes in which he has contemplated the application of that principle or character by which it may be distinguished from other inventions; and shall particularly specify and point out the part, improvement, or combination which he claims as his own invention or discovery." The object of this description is to enable the public to make and use the invention after the patent expires; and who is so competent to decide upon the sufficiency of the description as the practical machinist, who would be called upon to make the machine or thing from the description, after the patent had expired?

Let us borrow a little light upon this subject from the practice of the courts in patent cases, and see who it is that is relied upon to decide these questions. The question of identity of the machine involved in the controversy, and the question of the sufficiency of the specification, and what kind of testimony is required. It is not the testimony of professional men, neither is it decided by the lawyers, for they are only advocates; nor by the court, however learned in the law; nor by the jury, until the testimony of the most skillful practical machinists that can be obtained, is had upon the questions in issue; and it is their testimony that decides the case.

Now if a court, however learned in the law, aided by lawyers, however profound they may be, are not able to decide these questions, or present them to an intelligent jury, so that they can decide them understandingly, without the aid and testimony of practical machinists or persons skilled in the art, to explain them; how much less can a lawyer alone (for he has no authority to procure testimony) if he is appointed Examiner, however learned he may be in the law, be able to decide the question of identity of two complex machines, or inventions, without a competent knowledge of machinery, and its operation when in use? And if, after an invention has been known and used, and infringed, courts and juries, with the explanations of the lawyers, cannot decide these questions without the aid of practical machinists or persons skilled in the art, how much more important it is that the Examiner, who has these questions to decide in the first instance, before the invention is communicated to the public, (and that without the aid of testimony,) should be a practical machinist instead of a lawyer. Besides, it would not take a machinist one-tenth of the time to acquire a knowledge of the laws relating to granting patents, that it would take a lawyer to acquire any considerable knowledge of machinery and manufactures, even if it were possible for him to do so, and attend to the duties of his office.

Many valuable inventions have been lost to the inventors, because they were incompetent to describe them so that a theoretical examiner could comprehend them sufficiently to report that the description was insufficient; for the law requires the Commissioner, if he deems the description insufficient, to notify the applicant thereof, giving him briefly such information, &c. Now the kind of information which I consider the Commissioner bound to give the applicant, under the law, is, to inform him what he has omitted to claim or describe, for which a patent could be granted, if there is anything patentable in his alleged invention. If the Commissioner fails to do this the inventor is not the only sufferer, but the public lose the benefit that would be derived by the introduction and use of the invention. Because there are few inventions that would compensate the inventor, or any other person, for the trouble and expense of introducing them into use, if they did not possess the exclusive right to do so.

Numerous inventors have made themselves poor by spending their time and money in making and perfecting inventions, which, from some defect in the specification, they failed to sustain a patent in a suit at law, and are now struggling in poverty, while those who have used the invention, are rioting in luxury upon the profits derived from the skill and ingenuity of the poor inventor.

From the best information that has been obtained, it does not appear that there is any person employed in the Patent Office, in any capacity, who has any practical knowledge of building or operating machinery, or its application to manufacturing purposes. Your most obedient servant,

THE INVENTORS' TRUE ADVOCATE.

Improved Machine for Making Barrel Heads.

Mr. E. G. Brown, of Montville, Waldo Co., Maine has taken measures to secure a patent for certain new and useful improvements in machines for making the heads and ends of barrels and casks, and for cutting other similar shaped parts or pieces. The inventor employs a concaved circular saw, carrying cutters on its inner face which enable the saw to cut the inner and outer bevel on the barrel heads. The pieces of wood are fed to cutters by an inclined table attached to a slide which has a forward motion, the heads being held in a clamp and turned by hand, so as to present continually its edge to the cutting surfaces. This machine operates with great rapidity.

The Coming Cotton Crop.

A correspondent of the Savannah Republican (Ga.) predicts that the cotton crop of this year will be below the average of last year. The reason he adduces—and a good one, we think—is, that "time once lost can never be regained;" and the crops this year are about two weeks behind those of last year at this period. "Cotton," he says, "never before at this season gave promise of so poor a yield." He believes, that the crop of 1851 will prove as great a failure as has been known for several years past.

To Make Water Cold for Summer.

Put the water into a porous earthern ware vessel, and cover it with a thick cotton cloth, or a piece of blanket which must be kept constantly wet. Expose the vessel to the sun, and in a short time the rapid evaporation will carry off the heat from the water inside, reducing it nearly to the freezing point. In Arabia and India this is the plan practised by the natives, who know nothing about the luxuries of ice to cool their waters.

New Inventions.

Improved Grease Faucet.

Mr. Robt. M. Wade, of Wadesville, Va., the ingenious gentleman who invented the improvement on Mill Bushes, which is illustrated on another page, has taken measures to secure a patent, for a valuable improvement on Grease Cocks for lubricating purposes. A cock is made with two plugs fitting in separate sockets at a distance apart, in the same tube or passage, with a chamber between them. The two cock plugs are so connected as to be turned by the same handle, and they have their passages so placed in relation to each other, that when one is open the other is always closed. This cock is attached to any part of a machine in which it is designed to operate in a similar manner to the kind in common use. When it is desired to fill the oil reservoir, the handle is turned so as to open the passage in the outer plug and close the inner one, but when it is desired to admit grease to the inside of the machine, cylinder, &c, the handle is turned so as to close the passage of the outer plug and open the inner one. The outer plug being closed, steam or vapor is prevented from escaping under pressure from within, while the inner one, being open, it allows the grease or oil to enter.

Improved Seed Drill.

Messrs. Newton Foster, Gilbert Jessup, H. L. Brown, and C. P. Brown, of Palmyria, New York, have taken measures to secure a patent for improvements in Cultivators, which improvements have been esteemed very valuable.

The head of the grain box is connected with the axletree by being formed in one casting, and the teeth of the drill (the seed tubes) are so arranged that they can be stopped at any angle, from a right angle to a parallel line with the draw bar. There is a revolving disc which has projections that take the seed from the seed channel and convey it uniformly equal into the seed tubes, which deposit the seeds in the furrows. This cultivator can be made much cheaper than some others which we have seen.

Improvement in Circular Sawing Machines.

Mr. Robert W. Parker, of Roxbury, Mass., has invented an improvement in driving circular saws, which is worthy of attention, as it is asserted that it obviates much of the friction attendant upon the ordinary modes of running such saws. By a peculiar arrangement of belts and pulley, Mr. Parker states that he can easily get, by hand power, 2,600 revolutions of a buzz saw per minute, cutting through a three inch plank in that period by the power of one man at the crank. We commend this improvement to all farmers who have their own firewood to cut, and joiners and carpenters should not look over it. Measures have been taken to secure a patent.

Improved Skiving Machine.

J. Warren, agent for the Wellingsley Machine Works, Plymouth, Mass., has invented a very simple and unique contrivance for splitting or skiving leather that obviates several disadvantages hitherto found in other machines for this purpose. The roller under which the leather passes during the operation of splitting, moves up and down in guides, and is operated by means of a strap connected to a cross bar underneath the platform upon which the cutters are arranged. The roller is held up by means of a spring, and does not swing on its axis like other machines now in use. Set screws are arranged in the top cross standard, by means of which the roller is regulated to the width of the leather to be split.

Improved Clamp.

Mr. George T. McLauthlin, of Plymouth, Mass., has made a valuable improvement in shoe and harness makers clamps. The table is supported by a hollow cast iron standard, and the clamping jaw works upon a centre connected to the treadle, by a strong wire which passes obliquely through the standard. A strong spring is employed to hold the clamps firm while in or out of use. The whole arrangement is more convenient than any we have ever seen, and we have no doubt it will come into general use. The inventor is largely engaged in the manufacture of shoemakers' tools, and furnishes an excellent article. He has made an application for a patent.

Machine for Making Paper Bags.

Another convenience and accommodation is preparing for our grocers, apothecaries, confectioners, seedmen, &c. &c., in the article of paper bags. Francis Wolle, of Bethlehem, Pa., we are informed, has invented and is about putting in operation a machine for making this article of every size and quality, to be sold at but a small advance on the cost of the paper. The operation which was so long an irksome and annoying task—the drudge of the shop boys—is now made simple and pleasant. While one is at the crank turning and another is spreading out the sheets at one end of the machine, the bags are dropped and placed upon files, cut, folded, pasted, and lapped, all ready for use, at the other end.

BROWN'S PREMIUM WINDOW SASH BALANCE.

Figure 1.

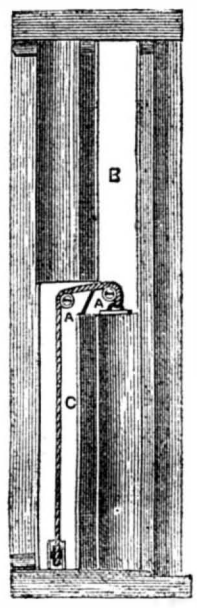


Figure 2.

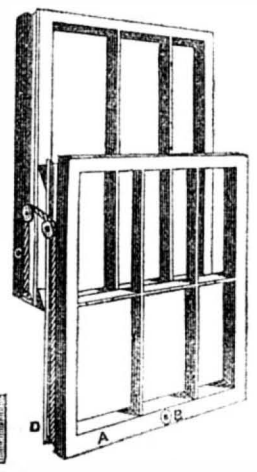
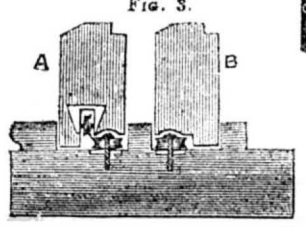


Fig. 3.



The accompanying engravings illustrate an invention of Mr. H. C. Brown, of Xenia, Green Co., Ohio, secured by patent to him. It is a substitute for box frames, and weights of windows, and is applicable to frames now in use.

Figure 1 is a view of the face of one of the window jambs, the light parts representing the edge of the sash. A A are two small pulleys screwed to the jamb opposite the ends of the meeting rails of the sash, to which the sashes are suspended, also the pulley contained in the small triangular case at the bottom corner of the bottom sash. Figure 2 shows the position of the sash when partially opened: the small circle at B, in the bottom rail of the sash, is an enclosed axle within a case upon which the cord is wound to raise either or both of the sashes, and from off which the cord is to be unwound in lowering either one or both of the sashes. The sashes are held at any height desired by a lock pin dropping upon a ratchet wheel on the axle within the case, from the top edge of the bottom rail of the sash; one end of the cord is fastened to the bottom corner of the top sash on one side, and passes immediately over the pulleys, and down the bottom sash stile, running over the friction roller at the bottom corner, along in a groove, and through the axle at B, and passes on in like manner up the other side of the window, the end of the cord being fastened to the top sash as at the first end.

Figure 3 is a cross section of the jamb and sash stiles of one side of the window, showing the pulleys as screwed to the jamb, and the manner of rabeting the sash to pass up and down over the pulleys; also the manner of setting in the friction roller at the bottom corner of the sash.

Figure 4 is a face view of a large pulley

Figure 4.

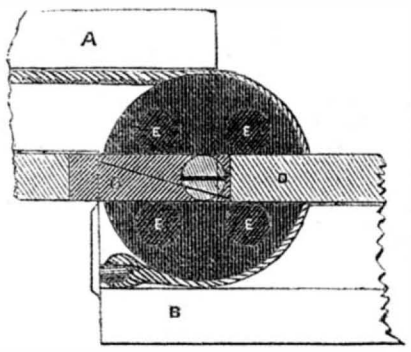
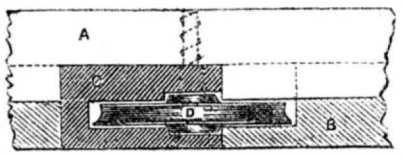


Figure 5.



substituted for the small one in large and heavy windows; also a portion of each sash when the window is closed. C is the front portion of the iron frame containing the pulley. The sashes are rabeted in like manner as for the small pullies, except the hollow for passing over the screw heads.

Figure 5 is an edge view of a portion of the frame and the pulley; C is the pulley frame.

Fig. 6.

A large heavy screw is driven though th frame and pulley into the window jamb as an axle for the pulley to run on.

Figure 6 is a view of the bottom edge of the lower sash rail containing the case and its axle, also the triangular cases and their friction rollers at the corners. The shaded part represents the shape of the groove that is necessary for the winding of the cord on the axle; by allowing sufficient length of cord the top sash may be let a part or all the way down at pleasure; in order to wind or unwind the cord, a small crank handle is inserted in the barrel of the axle, and turned as in winding a clock; thus any person can always run the sash as desired, without ever reaching higher than the bottom rail.

Any common window, already in use, may be hung on this principle at a much less cost than hanging with weights, and much neater, as the cord and pullies are always out of sight and never appear to view in any portion of the sash.

This Sash Balance of Mr. Brown has received very high commendations from architects and others, who have seen it applied and used, and who are well qualified to judge of its merits. Mr. Rogers, an eminent architect in our Western States, has spoken of it in the most favorable terms. Wherever it has been put up and used, it has won the good opinion of all who have seen it, and to us it appears to be really a good invention.

For further particulars about rights, &c., we refer to an advertisement on our advertising page.

Improvement in Thimbles and Scissors.

We learn by the London Patent Journal that a Mr. Charles Marsden, of London, has taken out a patent for an improvement in thimbles and scissors, which is worthy of attention. He makes his thimbles ventilating, so as to permit the free escape of perspiration. There is a metal lining within the large cylinder of the thimble, and this is perforated and attached by metal points to the outside one; this allows the perspiration to pass up out of the thimble.

In cutting with scissors, it is necessary, in order to keep the cutting edges in contact, to give them a side twist, which not only inflicts injury on the fingers but precludes the use of them with both hands. One of the bowl arms, with a vertical projecting arm which presses on the other arm, gives a permanent side pressure to the blades, ensuring proper contact of the cutting edges without effort of the user; this also ensures a good cutting edge from end to end of the blades. Small instruments are liable to be overlooked now-a-days as too insignificant for improving or patenting, but they are the very kind of patents that pay best, and these improvements on the scissors and thimble are very valuable, indeed they are exceedingly useful. While we wear coats and pants, we respect the genius that does not overlook improving the instruments which make them. The ladies, too, will bless Mr. Marsden for his improved thimble.

Gold Washing Machines.

The discovery of gold in California has developed no small amount of mechanical genius in our people. We have counted no less than thirty different kinds of washing machines, every one promising to be better than its neighbor; but it seems that very few, if any, have become popular with the miners, or even fit to use. Machinery to be of any utility must be adapted to circumstances, and it takes practice to invent the proper means to meet the required ends.

It seems that various machines were invented in the gold regions, all of them bearing peculiar names, such as "Long Tom," "The Jack," "The Cradle," "Rocker," &c. The latest invention, and the one said to be the best, are the "Sluice Boxes." These consist of a series of boxes, 10 to 12 inches broad at the bottom, 6 high, and open at the top like the "Tom." They are usually from 30 to 60 feet long, sometimes longer, with low rifle cleets set along the bottom at long intervals, and at an inclination which will give a very strong current to the stream of water which is passed through it. The dirt is then simply shovelled into the boxes at intervals along the upper part, the force of the current driving off both the earth and smaller stones, leaving the gold behind. In this way vast quantities of earth may be washed. Dirt which will not pay more than two dollars to the hand with the rocker, will yield, where it can be readily obtained from 12 to 16 dollars by sluicing.

The Sacramento Transcript says, that the miners will make $80, per day, with the "sluice boxes," when they could not make over $10 with the "Rocker."

Revolver Shirt.

An article called the revolver shirt has been made in France. Punch has several jokes concerning it. It is so made that by turning round a little to the right or left, it is made to display, in succession, the following round of fronts, viz.: first, a colored front; second, a plain front; third, a dress front; fourth, a dishabille front, thus combining four shirts in one.

Corn Sheller Model

A gentleman from the West left with us the model of a corn sheller a few weeks since. It is so much broken that we have been unable to get any idea of its operation, and shall before deciding upon its novelty, require a sketch and description of its construction.

Scientific American

NEW YORK, JULY 5, 1851.

The Republican and Royal Mail Lines of Atlantic Steamships.

By reference to our record of the passages made from Liverpool to New York, during the the last quarter, by the Collins and Cunard Lines of steamships, we are enabled to form a very correct estimate of the relative speed of both lines, and of different vessels in them, by taking the four steamers which made two voyages each in the quarter, viz., the Pacific and Arctic, the Asia and Africa. The two passages of the Pacific occupied 19 days, 23½ hours, average 9 days 23¾ hours. The two passages of the Asia occupied 21 days 8½ hours—average 10 days, 16¼ hours. The two passages of the Artic occuped 21 days 23 hours—average 10 days, 23½ hours. The two passages of the Africa occupied 22 days, 12 hours,—average 11 days 6 hours. These figures are not mere verbose opinions, they are facts, and as Burns says "plain facts are sturdy things which cannot be refuted."

It will be observed that the Pacific and Asia have made the best passages, and by comparing the performances of these two noble vessels, we find the Asia has been beaten by the Pacific 1 day and 19 hours in the two passages. By comparing the voyages of the Artic and Africa, we find the latter to be beaten by the former 13 hours in the two passages. The Pacific made each voyage in 21½ hours less than her opponent; the Arctic in 6½ hours less than hers. The fastest of the Cunard line beat the Arctic 14½ hours in the two voyages, the fastest of the Collins line beat the Africa 2 days 18½ hours in the two voyages.

There is one cheering fact elicited by our record, we allude to the increased speed of Atlantic steamers—the shortening of the duration of voyages. The average duration of the eight voyages of which we have been making comparisons, is 10 days, 17 hours, 22 minutes. Within two years a steam voyage across the Atlantic, has been shortened nearly three days. The increase speed has been about 20 per cent. Some time ago, we predicted that in 20 years from 1851, passages would be made across the Atlantic in seven days. We hope to live to see our reasonable anticipations accomplished.

The increase of speed in these ocean steamers is not attributable to any new principle in the construction of the engines—they have all the old fashioned side levers. The increase of the size of the vessels, and improvements in their form, together with superior management, are the principal causes of the superior results. We will yet see vessels of four and five thousand tons burden navigating the ocean, and in proportion to their tonnage they will meet with less resistance than smaller ones, consequently they will make faster voyages. Below a certain size it is impossible for a steamship to navigate the Atlantic successfully, while the advantages increase with the tonnage, all other things being equal. No doubt there is a line of demarcation, beyond which advantage would cease, but we have not yet reached that line, nor do we truly know how far or near we are to it, experience alone can teach us.

Five peculiar steamships for the California trade have recently been constructed. They are hybrids, having sea hulls and river boat engines—top levers. Two of them, the Prometheus and North America, have made remarkable passages. The latter was to have gone to Ireland, but for some reason did not, for which we are sorry. We should like to see such kind of vessels fairly tested on the stormy Atlantic. The engines are more simple than the side levers, and if they will stand the storms of the Atlantic as well, they are preferable.

Another kind of engine has many advocates, viz., the oscillating kind. Two oscillating engines with cylinders of 85 inches in diameter are now building at the Novelty Works and a pair of equal size at the Allaire Works for the steamers belonging to Howland & Aspinwall, and destined to run between San Francisco and Canton, in China. Out of these different kinds of steamships, valuable improvements may be expected, but experience will decide. These things cannot be determined by speculation, but the desire to improve, and the determination to excel, cannot reasonably fail to produce superior results.

Business at the Patent Office.

It is an outrageous shame that applications for patents are suffered to linger in the dusty pigeon holes of the Patent Office 4, 5, and 6 months before any action is had upon them. Inventors, in many instances, who are subjected to this delay, often, we have no doubt, suffer in their interests very much. We know it is seriously aggravating to their feelings and many times they utter imprecations against the Commissioner and Examiners, which to say the least are unchristian-like and hence the office by such delay, if they do nothing more, increase the quantity of sinners, something that we should not like to be guilty of. In mitigation, however, we can justly assert that the Commissioner is not altogether chargeable with the fault, for hitherto the examining force of the office has been about one half that actually required by the present and prospective wants of the office. Recently, however, four assistant Examiners have been added to the corps of the office, but what are we to expect from their labors if, as the *Herald* says, one of them is a mere boy of 19 years of age? What confidence can we have in the decisions and opinions of a mere youth, who necessarily cannot have gained any considerable amount of practical information especially upon the Arts and Sciences? We recently had an evidence of some of this children's play (although we are not certain it did not emanate from one whose head is generously sprinkled with some of the evidences of decay). In a note accompanying a returned specification to this office, the Examiner, says, "This screw nut will not work in the model where it must do, as it is made a part of the claim and there is no nut whatever." In the first place there is no sense in the sentence, and in the next place, if there was no nut attached to the model, it is a query to us how the Examiner could have tried to work it, as is inferred he did from the first clause of the sentence. We might instance other rich morceaux which emanate from some old growling Examiner, who finds fault with every thing not prepared strictly according his own notions. The Examiners of the Patent Office, although many of them are high minded and honorable, are yet evidently a long way behind the age—specimens of learned dullness, and it seems to be a pity that the soapsuds of prescription fail to cleanse and renovate some of the apartments in this, one of the most important bureaus in the country. The decisions of the office in some instances are marked with a peculiar imbecility, and the moment you undertake to reverse them, a spirit of rancorous hostility commences—and it seems almost impossible to touch the tender cords, or cause a solitary humane vibration. Honied words and sugar plums are gall and aloes. If you undertake to reach them by copying the argument from the most learned men of the age, a new and antagonistic theory comes forward as a rebutter. The sages and philosophers of this department have seldom, if ever, found their equals, but the credit does not seem to reach us.

We throw out these random shots for the purpose of eliciting attention to the interests of American inventors, whose money supports the office. It is unjust—yea, cruel, to keep them suspended between hope and fear for so long a time. A farther increase of the examining force is loudly demanded, unless this shameful evil can be remedied. We hope these suggestions will do good. They are true whether they do or not.

Boston Steamships.

In a quiet but very unexpected way, it was announced a short time ago that a steam propeller ship was launched at Philadelphia for the Boston and Liverpool new line, and would be ready to commence her trips on the 10th of this month. Three more vessels, we hear, are to be constructed after the propeller model of Capt. Richard F. Loper's latest improvement. They are to be fitted up with accommodations for 150 cabin passengers each, and some berths (450) for steerage passengers. The people of Boston are now about to engage energetically in steamships, and it will be a very strange thing if they are not eminently successful.

Paving Streets.---Mud and Dust of London and New York.

"The 300,000 houses of London," says the London Quarterly Review, "are interspersed by a street surface, averaging about 44 square yards per house, and therefore measuring collectively about 13¼ million square yards, of which a large proportion is paved with granite. Upwards of two hundred thousand pairs of wheels, aided by a considerably larger number of iron-shod horses' feet, are constantly grinding this granite to powder; which powder is mixed with from 2 to 10 cartloads of horse-droppings per mile of street per diem, besides an unknown quantity of the sooty deposits discharged from half a million of smoking chimneys. In wet weather these several materials are beaten up into the thin, black, gruel-like compound, known as London mud; of which the watery and gaseous parts evaporate, during sun-shine, into the air we breathe, while the solid particles dry into a subtle dust, whirled up in clouds by the wind and the horses' feet. These dust clouds are deposited on our rooms and furniture; on our skins, our lips, and on the air tubes of our lungs. The close stable-like smell and flavor of the London air, the rapid soiling of our hands, our linen, and the hangings of our rooms, bear ample witness to the reality of this evil; of which every London citizen may find further and more significant indication in the dark hue of the particles deposited by the dust-laden air in its passage through the nasal respiratory channels. To state this matter plainly, and without mincing words—there is not at this moment a man in London, however scrupulously cleanly, nor a woman, however sensitively delicate, whose skin and clothes and nostrils, are not of necessity more or less loaded with a compound of powdered granite, soot, and a still more nauseous substance. The particles which to-day fly in clouds before the scavenger's broom, fly in clouds before the parlor maid's brush, and next day darken the water in our toilet-basins, or are wrung by the laundress from our calico and cambric."

Of New York we cannot say anything less. We can brag of as much dust and as sharp stuff here as any of the Cockneys. We have less moisture to be sure, and less mud, but leaving smoke out of the question, we can make the dust fly in clouds, if not equally black, at least as portentous, as those of London.

The great cause of dust in our city, is repairs of streets. Our streets are paved without skill, with an intention to endure the shortest possible period, and when not a single inch of sand should be left on the top, when all should at once be swept up clean, about three inches of sand are left on top of all repaired pavements, spoiling the goods of our merchants, and raising clouds of dust to render every pedestrian as uncomfortable as possible. Why don't our street inspectors look to this, and why don't our merchants demand a reform? There is no need of using one sixth of the sand that is used. Every extra cart of sand laid down to repair our streets spoils $50 worth of goods, but there is a scheme behind the sand, as the pavers are paid for the quantity which they use.

Byram's American Clocks.

It is not a very uncommon thing for rich people and rich churches in our country to send to England for their clocks—fine clocks. They think that good clocks cannot be made at home. This is all a mistake, and a very great one. "Far off birds have feathers fair," is an old saying, but if our churches knew what fine clocks are made at Sag Harbor, L. I., N. Y., they surely would never send abroad for them. At the Oakland Works, Sag Harbor, Messrs. Sherry & Byram, there are made by Mr. Byram some of the finest clocks in the world. A clock was put up in the Methodist Episcopal church, Sag Harbor, six years ago, and it never varied three minutes in a year. Some of Byram's clocks have chronometer regulators and are as good as any that can be made. There are many who seem willing to pay more for a foreign clock than for one made at home, forgetting that if they would pay the extra, the clock can be made at home as well as elsewhere. What is it that makes the difference in the price of articles but the workmanship? Nothing; then we say, pay a sufficient price for whatever is good at home, and do not be unreasonable about such things.

Phillips' Fire Annihilator.

This apparatus, which is making not a little stir at the present moment, we perceive, by looking over the back volumes of our foreign London papers, was made the subject of lectures in the Royal Polytechnic Institution, London, by Dr. Ryan, in 1845. It is now six years old. In many public trials which have been made with it in London it failed to give satisfactory results. At the time Dr. Ryan lectured, it was advertised as "A new subject in chemistry of much interest—Phillips' Patent Fire Annihilator." It is no argument against the value or merits of an invention that it is "some years old." Many very excellent inventions have taken a long time to win their way into public favor and come into general use; this was the case with Watt's great improvements in the steam engine; it was the case with the steamboat and locomotive. This "Fire Annihilator," however, is nothing more than the employment of carbonic acid gas to put out the flame. It will do well if applied early, when the fire is but small; but what fire has taken place which might not at one time have been extinguished with a gallon of water? Water is the only sure and cheap "Fire Annihilator."

The Potato Rot.

A Mr. Flanders, who has dovoted much attention to this disease and to its causes, informs us that the insects which he is fully satisfied produce the mischief, have already made their appearance in great numbers. He recommends the immediate application of lime to all who would save their potato crop.

New Rotary Cylindrical Engine.

Mr. S. Furman, of Romulus, Seneca Co., N. Y., has applied for a patent for a novel feature in the steam engine. The cylinder is hung so as to rotate by the pressure of rollers attached to the piston rod acting against a fixed curved way, so formed as to guide and direct the cylinder round about to rotate it. One or two piston rods may be used; if two, they are attached at antipodes to the one piston, and work through stuffing boxes on both ends of the cylinder.

Improved Gate.

Mr. Ashley Hotchkins, of Schenevus, Otsego Co., New York, has invented a very excellent improvement in gates, whereby in a simple manner, a gate will swing open both ways, according to the direction in which it is swung. It combined also the self closing principle along with its quality of swinging both ways, thus making it one of the most desirable of gates and a great improvement. Measures have been taken to secure a patent.

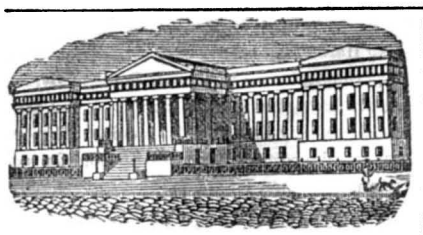
American Flour.

We see it stated in some papers that the character of American flour is suffering in the foreign markets, that it cannot be sold for $4 less per barrel than the Trieste kind. Will our friend the "American Miller tell why?"

Improvement in Treating Pototoes.

A patent has been taken out in London for preparing potatoes for seed, by scooping out the eyes with a very small portion of the potato by a gouge, and then dusting over the eyes or germs with powdered charcoal. It is stated that the germs thus treated answer the purpose as well as whole potatoes, and can thus be conveniently sent in barrels to any distance. This is a subject worthy of the attention of our farmers.

It is stated that the American wheat was ground too close, and was of a bad color.



☞Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.
FOR THE WEEK ENDING JUNE 24, 1851.

To John Cooper (administrator of Benj. Giger, deceased), of Sangamon Co., Illinois, for improvement in Plows.

What is claimed as the invention of Benjamin Giger, is the peculiar form and construction of the standard, with the sockets at the upper extremity and flanges at the lower, and the method of uniting them, so as to form a double machine capable also, of being used for cultivation in its separate parts, as set forth. The whole machine, as above described constitutes Giger's Corn Planter.

To C. A Postley, of Spring Garden, Pa., for self-acting Guard Frog.

I claim the combination of the rising and falling guards, with the levers, by means of an arrangement of levers connecting rods, &c., substantially such as herein specified, and acting in the manner and to produce the results herein set forth.

To John Pepper, of Portsmouth, N. H., (assignor to Crane, Pepper & Crane), for improvement in Knitting Machines.

I claim, first, a sinker, to be used in machines for knitting, so constructed as to form the loops upon the needles used in knitting two separate fabrics at the same time and at one operation, and of sufficient weight to draw the requisite quantity of yarn from the supply to form the loops required.

Second, A slur to be used in knitting machines, so constructed as to let each sinker drop to the falling bar, and draw the requisite quantity of yarn from the supply, to form the loop or loops, between the needles, before it allows the succeeding sinker to drop and act upon the yarn.

Third, a falling bar, so constructed that the slurs and slur boxes traverse upon it instead of traversing a separate bar.

Fourth, the combination of the sinkers, stop bars, combs, and needles that traverse, so arranged as to knit two separate fabrics at the same time, with one and the same set of sinkers and slur.

Fifth, I do not intend to limit myself to the precise construction described in the foregoing specification, but to use such forms of construction as will answer the purpose intended,

To Maria Vaughn (administratrix of J. C. Vaughn, deceased), of Greenbush, N. Y., for machinery for making Wrought Iron Car Wheels.

I claim the machinery and apparatus set forth and described, to wit, the mould blocks or welders, the hammer or ram, with the wedges thereto attached, and the mandrel, in combination with each other, for the purpose set forth.

To Jabez Robins, of Boston, Mass., (assignor to J. R. Morse, of Leominster, Mass.), for improvement in machines for Splitting Horn and Shell.

I claim the cylindrical rotary bed, or drum, in combination with the water cistern, or trough, and its furnace, and machinery over the drum, for bearing the shell or material down upon it during its revolution, as specified, the said drum being provided with a roughened or friction curved surface, such as will adhere to the shell, and cause it to move with it and against the knife, as described.

To Henry Maeser, of Pittsburgh, Pa., for improvement in printing names of subscribers upon newspapers, &c.

The arrangement and construction of a machine for printing names of persons or places on newspapers and other papers, after the manner substantially as described, viz., of a form containing the column of names to be printed set up in types, and being brought under the action of a stamp, by means of a slide moving by degrees, together with the application of a slitted plate, allowing the paper to be printed to be pressed down on the line right beneath the slit of the plate, and shielding the paper from the lines adjoining that under action of the stamp, as described.

To Jacob Selgrath, of Pottsville, Pa., for improvement in Lubricating Compounds.

I claim the combination of ingredients herein described, whether the proportions be the same as herein set forth, or varied to any extent that the same may admit of, without changing the peculiar character of the compound as a lubricator.

To Lawrence Myers, of Philadelphia, Pa., for improvement in Cars for transportation of Coal.

I do not claim the use of cylinders for conveying material upon common roads, as this has been done heretofore, but I claim the combination of a partition or partitions, with a metallic cylinder or cylinders, provided with flanged rims, as herein described, for the purpose of carrying material in bulk, on rail or other roads where high velocities are attained, said material being held in place by centrifugal force, whilst in motion, and prevented from falling or rolling in the cylinder, by the partition or partitions, whilst in the act of stopping or starting, as herein fully described, or by any other means essentially the same.

To Sylvanus Sawyer, of Templeton, Mass., for improvement in machinery for Cutting Rattan, &c.

I claim, first, the combination of the cutters, as described, with the levers, the springs, and cams, or their equivalents, and handles and links, for the purpose of applying said cutters or scrapers, so as to act upon the stick of rattan in the manner herein described, and by which they may all be operated simultaneously, substantially in the manner described.

Second, in the process of cutting cane or rattan into strands, as described, I claim bending the stick at the point at which the cutter is removing the strand from the surface.

Third, I claim the combination of the elements which compose each simple section of the cutting apparatus, that is to say, of the cutter and gauge, with the stock, guide, and bed roller, or their equivalents, substantially as described, for the purpose of bending the stick and removing the strand therefrom, whether said section is used alone or is combined with others, as described.

Fourth, I claim the combination of that part of the machine called the scraper, with the feeding rollers or their equivalents, and the several sections of the cutting apparatus, said sections being so arranged, in relation to each other, as that the stick, in passing from the one to the other, shall be properly bent, and also that the several cutters should act upon different points of its circumference, the whole being arranged and operating substantially as set forth.

To Chas. Starr, of New York, N. Y., for improvement in machines for finishing the Backs of Books.

I do not claim to be the inventor of backing books by means of a roller, as rollers having concave peripheries have been used, which were passed longitudinally over the back, nor do I claim the construction of the clamps or jaws between which the book is held. Nor do I claim to have invented the use of circular engraved tools, or rollers for embossing books, but I claim, first, the use, for the purpose described, of a roller of the whole length or part of the length of the back of the book, either plain, for a plain back book, or grooved for a raised banded book; or having a figure or figures cut or engraved, or otherwise made upon it, rolling over the back of the book, from side to side, or from the centre to the sides, and having a yielding pressure applied to it by weighted levers, or their equivalents, in the manner substantially as described.

Second, I claim clamping or holding the book in a swinging book holder, or its equivalent, which hangs on pivots or journals, and is capable of being swung back and forth, so as to cause the back of the book held in it, to describe an arc of a circle, and bring each part of the back to the roller, so that it shall receive an equal pressure all over its surface, substantially for the purpose as set forth.

Third, the gauges sliding upon an inclined bar, or bars, that they may be set to form guides for placing both ends of the back of the book at an equal or nearly equal elevation in the clamp, so as to cause each part to receive an uniform pressure, and may be drawn back from the book without dragging or rubbing the surface of the back, in the manner substantially as shown.

To S. T. Armstrong, of New York, N. Y., for improvement in making Gutta Percha Hollow Ware.

I claim the method, substantially as described, of moulding articles of gutta percha, or the compounds of gutta percha, with other substances, by first making the same in the form of a pipe, and whilst in a partially heated and plastic state, giving to it the form required in a mould by forcing a liquid inside to expand the gutta percha, as described.

To Wm. & Wm. H. Lewis, of New York, N. Y., for improvement in fastening Pedestals to Columns.

I claim the application of the piece, c, and different shaped lugs, 8 and 9, on the end of the column, to enter the hole, 2, and notches, 3 and 4, so that on turning the columns the lugs take the inclined seats, to attach the column to the pedestal, in combination with the locking piece, to prevent the column turning, substantially as described.

To Wm. H. Start, of Smyrna, Ill., for improvement in Grain Harvesters.

I claim, first, the standard to which the steering wheel is attached, constructed as herein described, so as to perform its own office proper, and also to adjust the cutter at the required height above the surface of the ground.

Second, the discharging rake, which is moved as described, in combination with the endless apron for collecting and discharging the cut grain, as set forth.

To Joseph Wright, of Waterloo, N. Y., for improvement in Mashing Tubs.

I claim, first, the employment of buckets formed by the revolving arms, working within the hopper, for delivering the grain through suitable openings into, and operating in combination with the mashing cylinder having an outlet or outlets, for supplying the cooler, substantially as described.

Second, the use of a mashing cylinder, having beaters within it, and operating in combination with a cooler, carryiag any number of barrels or shafts fitted with projecting pins, essentially as described for the purposes as set forth. [See engraving on page 137, this Vol. Sci. Am]

To Jean Blanc, of New Orleans, La., for improvement in making Hemp from Okra.

I claim preparing of hemp from the bark of the okra plant, in its green state, and the herein described method of preparing it for use.

DESIGNS.

To S. A. House, of Mechanicsville, N. Y., for design for Stoves.

(For the Scientific American.)

Practical Remarks on Illuminating Gas.

[Continued from page 326.]

Complaints have sometimes been made by persons using gas, grounded upon an opinion that it effects the lungs deleteriously; this, however, is seldom, if ever the case, unless the gas is allowed to escape by accident or through carelessness, and then the odor of the air is rendered so unpleasant that a person would naturally escape from the apartment before its effects could be produced upon the lungs. In almost every instance the cause of such unpleasant feelings may be traced directly to the carbonic acid gas emanating from an anthracite coal fire, from hydrogen generated in cess-pools and drains and conveyed through them to the building; or perhaps may result from gas which passes from the burner unconsumed, or, in a close apartment where many lights are burning, to the vitiated air caused by the carbonic acid gas evolved during combustion, and which collects, if proper means are not adopted to secure ventilation. It is so much easier to charge all such unpleasant sensations, all odors and annoyances to the gas, than it is to spend a little time and thought in searching out the true cause, that it is often done, much to the annoyance of gas companies and their agents, and at a great sacrifice of time.

Many consumers have a mistaken idea as regards regulating their burners, to produce an economical consumption of gas: it is a great error where we have, say for instance, five burners, and wish to decrease the light to partially close them all, the proper manner of regulating them would be to entirely close two or three of them as the case may be, and increase the flame in the remaining ones; for by turning them all down, we consume much more gas in proprtion to the quantity of light given; while in the latter case by extinguishing the two or three, we derive the best economical results from the remaining ones burning. A little careful examination will convince every skeptical person of the truthfulness of these statements.

Every gas consumer should learn to read the meter within his premises; and it would be well if he should habituate himself to the calculation of his consumption of gas nightly; by so doing, he could regulate the amount consumed as it may please him, and not only derive benefit but satisfaction thereby. If upon lighting up his burners, and examining his meter he finds that they are consuming more gas than is requisite, he has only to shut off the cocks and reduce the amount; and if he finds upon examination that the expense of one evening's illumination is too large, he can govern himself accordingly and economize upon the following evening; and thus he can make his bill for gas just whatever he pleases; and will know the amount due, even before his bill is presented. Were this course pursued by all gas consumers much trouble and hard-feeling would be saved, and I trust that a matter so simple, and which takes so little time will come into more general custom among the consumers of gas.

Whenever coal gas works are about being located, there is almost invariably a general complaint made by those residing or owning land in the vicinity, conceiving that they will be a great nuisance, and thereby decrease its value. An opinion of this kind expressed, would convey to any practical mind the want of information upon the subject; and any person understanding the nature and the construction of a coal gas apparatus, would, we are convinced never entertain such an opinion. There can be no direct nuisance emanating from a well conducted coal gas establishment, the very nature of the process forbids it. The gas is generated in closed vessels and is conveyed through all its detail progessions from the retort to the burner, unseen, through pipes, and invisible. There is no smoke from the fires, coke being the only fuel used, and this is perfectly free from all smoke or gas, save perhaps a small portion of carbonic acid gas, which is not visible, and cannot be deleterious when escaping in the open air, by means of a suitable chimney.

When the retorts are opened for the renewal of coal, the escaping gas or smoke is ignited immediately and burnt, very little if any passing off unconsumed. And I repeat it, there can be no nuisance or inconvenience arising from a well arranged and well managed coal gas establishment, and there can be no odor of gas without being caused by some accident, or by gross carelessness of the workmen employed.

J. B. B.

[Remainder next week.]

Treatment of Children in Public Schools.

Many physicians in our city complain that it is injurious to the health of children in detaining them as the custom is, around or in the school, during the time they should be at home for dinner. The dinner meal is the most important of any to children.

Professor Dick, of Edinburgh, has prouounced an opinion that hydrophobia is purely a work of imagination.

[The above is going the rounds but is not altogether true. Prof. Dick never said that hydrophobia was purely the work of fiction, but that it had been like many other diseasse produced by the imagination.

Mr. Whitney has been lecturing before the London Geographical Society, on the subject of his railroad to the Pacific through Canada.

TO CORRESPONDENTS.

H. S., of Phila.—We do not see what advantage you could gain by the cylinder surrounding the Loper Propeller; the spiral propeller avoids the evil you wish to obviate. Take a look at the "City of Glasgow" when she next arrives at Philadelphia; the revolving cylinder would destroy the utility of the blades.

J. R., of Pa.—Propeliers are now used on the Delaware and Raritan Canal, but we are unable to say whether your arrangement is like them or not. We cannot fully comprehend the nature of your plan, but would judge from the description that it is similar to some experiments made by Mr. Ewbank on the Harlem River. We could tell much better if furnished with a sketch. $1 received.

Dr. E. C., of Me.—We notice that Dr. Marcy has just published a work on the "Theory and Practice of Homœopathy" It can be had of Wm. Radde, 322 Broadway: of the merits of the work we know nothing.

Dr. J. H., of Ala.—We have sent you Nos. 23 and 28, to complete your file. We are unable to give you the information you desire as to the cost of the planing machine irons, and do not know of any one here to whom we could apply. The side cutters are embraced in the Woodworth patent, hence you would be under the necessity of using saws or buy the right to the use of the side cutters. We think Ball & Rice, of Worcester, Mass., could furnish the disc and gouge, but are not certain.

W. R. H., of Wis.—You can sell your invention to any one who may chose to purchase, without forfeiting the right to take a patent. Whoever advises you to the contrary knows nothing of the subject. If you had read the Scientific American attentively you would have known this, for we have answered the question several times, at least once a month. Sell to all who wish to purchase. A square 2 feet long would answer for a model. The proof of an engraving would not answer for the Patent Office—drawings must be made.

S. T, of Ohio.—We should regard your Corn Sheller as possessing novelty sufficient to warrant an application for a patent. Send along the model in order that we may more fully determine this point.

W. W. B, of O.—We are unable to furnish the information about the mills you desire; it can only be obtained of those who are engaged in the manufacture of the different kinds of machinery you require. We should think James Bogardus, of this city, a proper person to apply to, as he makes mills, and has practical information on the subject.

L. B. G., of Pa.—Your sketch of an alleged improvement in brakes has been examined and believed not to present anything new. In No. 41, Vol. 4, Sci. Am., you will find an engraving of one embracing the essential features. It has been put in operation on a few omnibuses running in this city. $1 received.

O. P. S., of O.—We have examined the sketches of your improved combination for the manufacture of homony: we do not know of any such arrangement, and believe it to be new and patentable. It seems to be a useful contrivance. We cannot now examine the dryer, as we shall not be in Washington during the warm months. $1 received and placed to your credit.

M. R. & D. R. L., of Miss.—Your letter of the 8th inst. is received. We shall wait for the model, which has not yet arrived.

Dr. S. G., of La.—Yours, enclosing $5, came safe to hand, for which we are much obliged.

E. E. J., of Mo.—You are correct about the pressure; it would be equal on all sides. We thank you for the very flattering testimonial to the Sci. Am.; we have many subscribers in your city, and hope you may be able to increase the list: for what you have already done we feel much obliged, and shall endeavor to merit a continuance. Vol. 7 will be better, we hope, than any former one.

F. M., of N. Y.—We are still awaiting further developements about the pendulum—a series of correct experiments with the pendulum vibrating say 24 hours.

Money received on account of Patent Office business since June 24:

L. P., of N. Y., $30; T. B. R., of Mass., $30; J. B., of N. Y., $30; C. S., of N. Y., $15; W. A. C., of Ct., $20; M. M. H., of Pa., $25; E. W., of Mass., $30; A. D. S., of N. Y., $4; M. M., of Wis., $20; W. M. S., of N. Y., $29; E. D. W., of N. Y., $16; A. H., of Y., $55; E. B., of N. Y., $25; T. H. D., of N. H., $30.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2, and 3—none.

Of Volume 4, about 20 Nos., price 50 cts.

Of Volume 5, all, price, in sheets, $2; bound, $2,75.

Of Volume 6, all back Nos., at subscription price

New Edition of the Patent Laws.

We have just issued another edition of the American Patent Laws, which was delayed until after the adjournment of the last Congress, on account of an expected modification in them. The pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office We shall continue to furnish them for 12 1-2 cts. per copy.

Post Office Stamps.

In consequence of the change of rates on the first of next month, we would respectfully notify the public that henceforth, until further notice, Post Office Stamps will not be received at this office in payment for subscriptions to the Scientific American.

Scientific Museum.

Has a Balloon Weight.

NEW ORLEANS, June 20th 1851.

MESSRS. EDITORS.—I want to ask you two questions which I have propounded to a dozen natural philosophers, of this city, and which have been answered in so many different ways that I do not know what to think or believe on the subject.

The first question is, "which is the heaviest, a balloon empty or the same filled with hydrogen gas?"

This question was suggested to me by a flourish of oratory made the other day in course of an argument by a lawyer. He said, "May it please your honor, my adversary's argument weighs no more than a balloon filled with gas." The other answered. "Your argument, sir, weighs less, for it weighs no more than the empty balloon." He emphasized the word "empty," and the whole was thought very witty, but as a tiro in science, I eschew the wit, if any there is, and want to know which was right, in fact.

A friend at my elbow who insists that the empty balloon is lightest, suggests the second question, which he propounds thus:—"Throw an ounce of cork and an ounce of lead into a bowl of water, and tell me which is the heaviest?" Yours truly, YANKEE CREOLE.

The remark of the first lawyer was full of wit, that of the second, empty of it. A balloon full of hydrogen gas in a full court is much lighter than an empty one. It is true, that hydrogen gas has *gravity* when weighed in a vacuum, but it could not be detected in the place where the wit was expended.

The friend at our friend's elbow, who threw the cork and lead into the water, is not a correct logician. He might as well say, "that ball of iron is of the same shape as that ball of wood, therefore, that mountain must be round."

Curious Experiment.

There is a pleasing and profitable experiment which I have often made in my youth—it is this:—If you place your head in the corner of a room, or on a high backed chair, and close one eye, and allow another person to put a candle upon a table; and if you try to snuff your candle with one eye shut, you will find that you cannot do it—in all human probability you will fail nine times out of ten. You will hold the snuffers too near or too distant. You cannot form any estimate of the actual distance. But if you open the other eye the charm is broken; or if, without opening the other eye, you move your head sensibly, you are enabled to judge of the distance. I wish not for my present purpose to speak of the effect of the motion of the head, but to call your attention to the circumstance, that when the head is perfectly still, you will be unable with a single eye to judge with accuracy of the correct distance of the candle.—[Prof. Airy, Royal Astronomer.

New Species of Sheep.

A new species of sheep has just been imported into Rhode Island, by M. B. Ives, of Potowomot. The sheep came from 300 miles in the interior of the East Coast of Africa. The variety is entirely new, and is distinguished by the enormous fatness of the tail, and a singular dewlap resembling that of cattle, and the absence of horns in the ram. The wool is very coarse, more resembling hair than the article which is beginning to form so important a staple in the productions of that State; but in recompense of this the mutton is said to be unrivalled in flavor and tenderness.

Rev. Mr. Muir, of Aberdeen, Scotland, made an experiment in his own church recently, to demonstrate the rotation of the eath. To the great confusion of the assembled *savans*, the machine indicated that the earth was turning the wrong way.

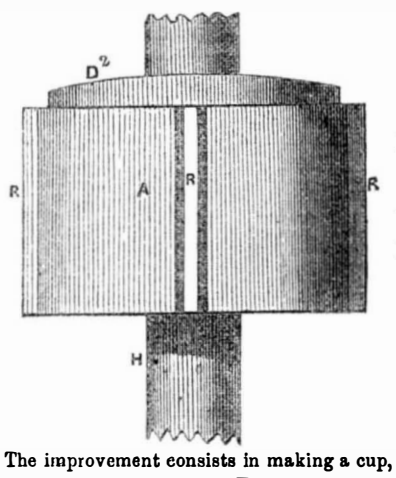
This is all we have heard about the pendulum experiment this week.

Anthracite coal is now selling for $4,50 per ton. This is the time to lay in a supply for winter.

Wade's Patent Mill Bush.

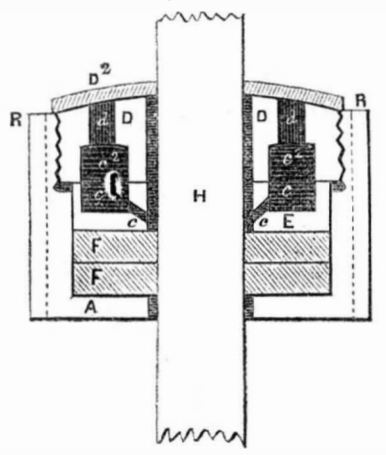
The accompanying engravirgs represent an improvement in Mill Bushes, invented by Mr. Robert M. Wade, of Wadesville, Clark Co., Va., and for which a patent was granted to him on the 5th May, 1844. Figure 1 is a side elevation, and figure 2 a vertical. The same letters refer to like parts.

FIG. 1.



The improvement consists in making a cup, A, containing the packing, F, and oil chamber or circular trough, C, whose bottom is perforated with a round aperture somewhat larger in diameter than the mill spindle, H, which is to pass through said aperture, and whose top, D, (which is also perforated with a round aperture for the spindle, H, to turn in), is a cylindrical piece of metal formed with a right-handed screw on its circumference corresponing with a left-handed screw made on the inside of the cup into which it screws; there is also a circular groove, C, on the underside, to correspond with a similar circular groove of the same diameter, made in the opposite side of the driver, E, which forms the chamber to contain the oil for lubricating the spindle. The cup, D, is perforated with several apertures, *d*, communicating with the oil chamber, C C^2, for supplying it with lubricating material when required. These apertures are kept closed with stoppers and covered with a leathern cap, D^2, which is screwed down upon the top by screws. The said top contains apertures for the insertion of a wrench for turning it. F is the circular packing rings, put into the cup, A, around the spindle, resting on the cup bottom. E is the driver or piston, placed on the ring packing; it forms the lower part of the oil chamber, and is equal to the diameter of the cup. The circular groove, C, in the upper side of the piston, forms one half of the circular oil chamber, it is of less diameter than the cup, but greater than the spindle, H; the other half of the oil chamber is made in the under side of the top. When the top, D, is

FIG. 2.



screwed into the cup and hard upon the piston, the annular chamber, C C^2 is formed and supplied through the apertures, *d*, and discharged through the small apertures, *c*, on the inner ring of the piston next the spindle. Thus the lubricating material flows gradually to the annular rings of packing, lubricating the spindle in the most perfect manner. As the packing wears, the top, D, is secured hard down upon the piston, which expands the rings so as to touch the spindle always. New packing can readily be supplied by unscrewing the top, D, and taking out the piston, E. The outer surface of the cup has ribs, R, which fit into grooves in the bed stone to secure the cup against turning. Wedges may be used in place of these ribs. To fill the oil cup, it is only necessary to raise the leather cap, D^2, take the plug from the aperture, *d*, and pour in the oil. The leather cap, D^2, is principally designed to fit close around the spindle to keep out dirt, &c.

The claim is for the "Mill Bush," constructed with an annular chamber, C C^2, for containing the lubricating material to oil the spindle, by making corresponding circular grooves in the bottom of the screw cap, D, and in the top of the piston, E, which thus answers the two-fold purpose of oil chamber and driver, to keep the annular rings of packing in the cup, A, supplied with oil to lubricate the spindle."

Mr. Wade now places this patented improvement frankly before the public, conscious of its merits, and other information about rights, &c., may be obtained of him by letter.

For the Scientific American.

Hydraulics.

(Continued from page 328.)

Our object in commencing and continuing a series of articles on Hydraulics was chiefly to draw out and present all the information we could collect about "Re-action Water Wheels." America is the country where the great improvements in such kind of wheels have been developed, and more of them are employed in the State of New York alone, than in all the other countries of the world put together. Although this is true, and although patents had been taken out for improvements on them as early as 1808, still there was a great want of general information on the subject. We have supplied that want, in a measure, and the series of articles published, collected together, forms the best work on the subject yet published. Some slips of the pen have been made, which, perhaps, may be corrected at some future time and published in a separate work, along with other practical and profound information on the subject now in our possession.

The progress of improvement has been from 40 and 45 per cent. on the old Barker Mill to at least 72 per cent. in the improved centrifugal wheels. It was the common opinion among all mechanical philosophers once, that no re-action wheel could be built which would give out more than 50 per cent. of the water power. This theory is now exploded. The great improvement made was in giving the water "a whirling motion—feeding it to the wheel in the direction of the wheel's motion." This improvement was claimed as a European invention, but we have satisfactorily proven that it was the subject of an American patent, "Parker's," ten years before it was know in Europe. The originality of the American claim was fully established in a trial before Judge Kane, Philadelphia, on the 7th of last May, 1851, in the alleged infringement of Parker's patent, by the use of one of Fourneyron's French Turbines. The value of this improvement was stated by Judge Kane in his address to the Jury, to be such as to place the inventor in the same category with Oliver Evans and Whitney. Like a great many other inventors, Mr. Parker has the faculty of benefitting others but not himself personally.

A long time ago we received a number of communications from James Sloan, Esq., Floydsburg, Oldham Co., Ky., a scientific and practical millwright of great experience, paying a high compliment to Parker's improvements as being the grand one. His opinion for various reasons, we look upon as that of a candid, scientific, and practical man. We have received two communications on the subject from J. B. Conger, Esq., of Jackson, Tenn., an inventor, and a gentleman who has studied and understands the principles of the Re-action Wheels thoroughly. In all likelihood we will be able to present his views (when more fully communicated) at some other period. The Barker Mill, the French Turbine, Whitelaw & Stirratt's Scotch Motor, Rich's, and Parker's Wheels, have all been illustrated, and in no other work can they be found.

With one or two future illustrated articles on Hydraulic Rams, this series of articles will be terminated.

Astronomy

Lieut. Maury reports that the new Asteroid "Irene," discovered by Mr. Hind, in London, has been observed at the National Observatory, by Profs. Keith, Benedict and Major, with Meridian Instruments, and the Orbit computed for it from these and other observations. A brilliant Meteor was observed in the constellation Scorpio at Washington, on Wednesday last, June 26th.

LITERARY NOTICES.

NEWTON'S LONDON JOURNAL AND REPERTORY OF ARTS. SCIENCES, AND MANUFACTURES, monthly, edited by Messrs. Newton & Sons, Civil Engineers.—This able publication comes to us with great regularity, and constitutes a valuable adjunct to our exchange list. Originally commenced in 1794, it has continued to increase in merit until it is now one of the most useful and popular publications extant, and must remain so while under its present able management. The engravings are finely done upon copper, from drawings by W. Newton, the text is bold and tempting to the eye, and the paper is of the heaviest linen fabric. The price of each number is 2s 6d. sterling, or nearly 62 cents of our money. Office No. 66 Chancery Lane, London.

THE PARTHEON.—A beautifully illustrated work in quarto form, bearing the above title, has just made its appearance, printed on fine paper, with contents unequalled in selection from any thing that has been presented to the public for patronage for some time. Its object is to present original papers from American authors exclusively, and each contribution is signed by the fac simile signature of its author, thus presenting a new and desirable feature. The work is to be issued in 12 numbers, of 40 pages, at $1 each and to those who have a taste for the fine arts, and have a desire to patronize American artists, it is particularly adapted. The work is beautifully embellished with 50 original engravings in each number, by the best artists in the country. Messrs. Loomis, Griswold & Co., publishers, 233 Broadway, to whom orders should be addressed.

THE INTERNATIONAL MAGAZINE, for July, has appeared upon our table: it is superb in illustrations and literary matter. It furnishes a fine portrait of Fitzgreene Halleck, besides several views of the benevolent institutions of the city of New York. This magazine has justly acquired high distinction and is rapidly going forward. Messrs. Stringer & Townsend, publishers, 222 Broadway: 25 cents per number.

"The Countess of Salisbury: A Chronicle of the Order of the Garter," by Alexandre Dumas; published by Stringer & Townsend: price 50 cents.—This is the last work of the great French author, and must command an extensive sale, perhaps equal to the Count of Monte Cristo and other of his popular works. Dumas' name, associated with any publication, is an earnest of its brilliancy.

"Jenny Lind's Tour Through America and Cuba," C. C. Rosenberg, published by Stringer & Townsend. This is a neatly bound volume of 226 pages descriptive of the brilliant tour of Jenny Lind through the United States and Cuba. It forms a most attractive and interesting work and we doubt not will command an extensive sale. It is embellished with a fair portrait of Jenny.