Scientific American.

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

VOLUME X.] NEW-YORK, AUGUST 25, 1855. [NUMBER 50.

THE
Scientific American,
PUBLISHED WEEKLY
At 128 Fulton Street, N. Y. (Sun Buildings.)
BY MUNN & COMPANY.

O. D. MUNN, S. H. WALES, A. E. BEACH.

Agents.

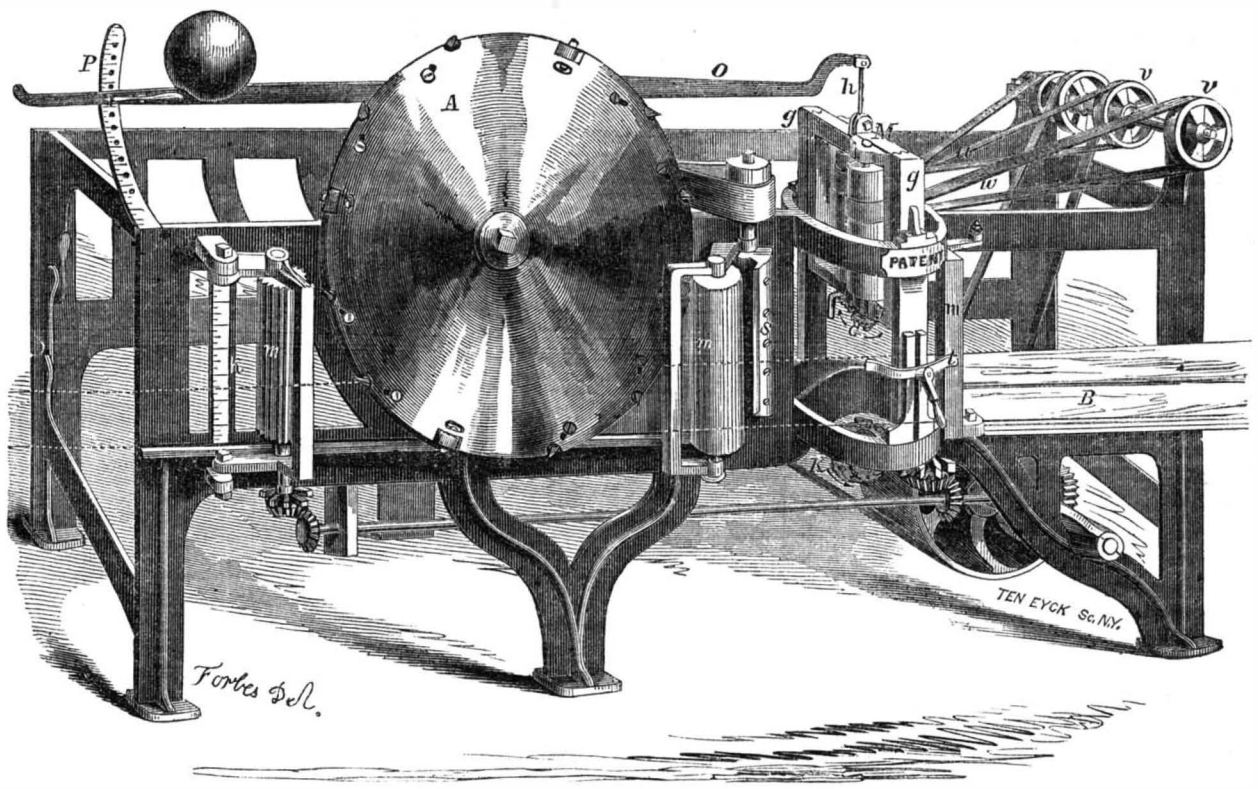
Federhen & Co., Boston. | Dexter & Bro., New York
A. Winch, Philadelphia. | E. E. Fuller, Halifax, N.S.
A. G. Courtenay, Charleston. | S. W. Pease, Cincinnati, O.
Avery, Bellford & Co., London | MM. Gardissal & Co., Paris

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

Single copies of the paper are on sale at all the periodical stores in this city, Brooklyn, and Jersey City.

TERMS—$2 a-year,—$1 in advance and the remainder in six months.

PLANING AND MATCHING MACHINE.



Planing and Matching Machine.

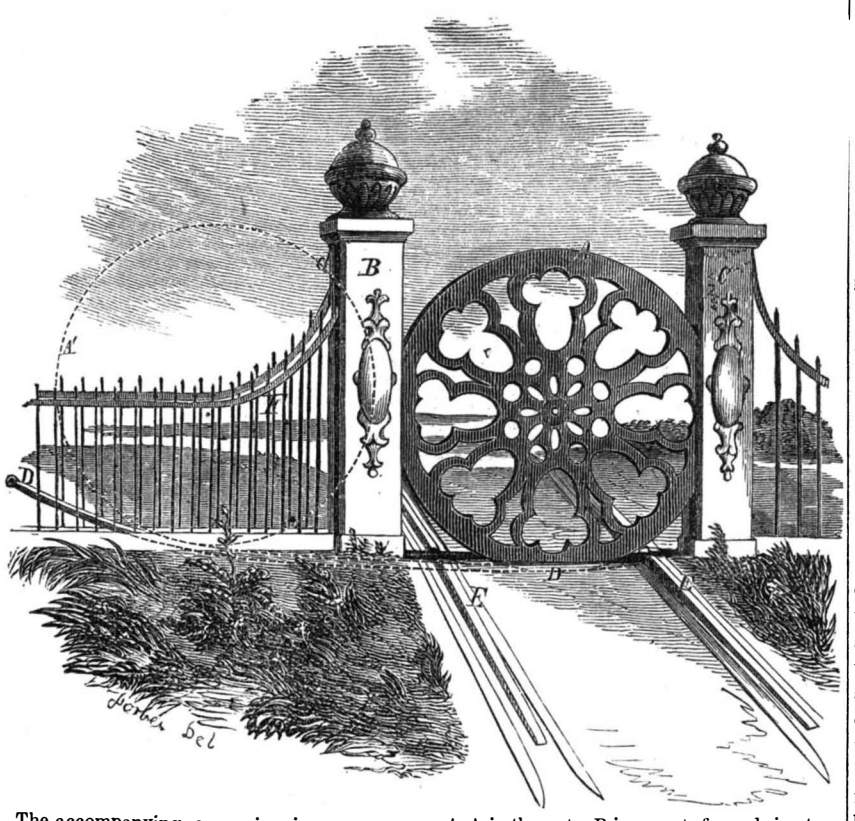
The annexed engraving is a perspective view of improvements in planing and matching machinery, for which a patent was granted to Cyrus B. Morse, of Rhinebeck, N. Y., on the 9th of January last. The object of the invention is to obviate the necessity which exists with all planing, tonguing, and grooving machines, now in use, of reducing the lumber to a given width preparatory to planing, tonguing, and grooving. The devices employed in this machine render it capable of reducing, planing, tonguing and grooving boards of different widths, in successive order, without changing the adjustment of the machine for every width of board to be operated on.

A is the facing planing wheel, having a series of cutters around its edge to remove the surplus wood; it is also provided with planers to smooth the face of the board. S is a rotary cutter, presenting an edge to take off an even layer of wood next the stationary bed; *m m* are geared feed rollers to carry the plank or boards through the machine; M is an adjustable carriage working in grooved uprights, *g g*, and is supported by a weighted lever, O, which is connected to it by a rod, *h*, at one end; its other end rests on an arc, P, and is adjustable by a pin at different hights. C C are cutters on the lower ends of vertical shafts in frame M. Owing to their peculiar form they cut longitudinal grooves on each side of the boards or planks, leaving any required thickness for a tongue between them, and cutting off the taper or waste part at the same operation. K is the jointing and grooving cutter stock provided with a cutter to joint the other edge of the plank. A set of adjustable saw teeth to cut the groove, may be operated together or separately, as required. The lumber is delivered to the machine as it comes from the saw mill, without any reducing, and it is fed into the machine between the feed rollers. B is a plank, and the dotted lines show its course through the machine. K is a gauge to regulate the width of plank to be cut, and the lever, O, is adjusted in the arc, P, according to the gauge, K, (which gauges the width of board in inches,) to depress the frame, M, with the reducing cutters, C C, to reduce the plank to its proper width, as it passes along, and the taper or waste is also carried forward and out at the end of the machine. The plank being carried along is reduced to an equal thickness by the cutters on the wheel, A. The belts, *w w*, rotate the cutters, C C, and a belt passing down from the shaft on which are the pulleys, *v v*, drives the shaft of the matching cutters, *k*. On its shaft is a pulley, which gives motion to a belt that drives the shaft of the cutter, S, on the top of which is a pulley, round which passes the cross belt for driving the shaft of the wheel, A. Planing and matching machines have received great attention during the past twenty years, and yet for them all, the planks or boards are first prepared and reduced in a separate machine, prior to planing and tonguing and grooving.

The reducing of the boards or planks in the manner described, and the mode of adjusting the frame, M, to do so is a very excellent improvement in lumber dressing machines, as combined and effecting the objects described. It saves the expense of handling, measuring, and selecting the boards of different widths, and of preparing them on a separate machine. This constitutes the improvement embraced in the patent, and it is applicable at no great expense to all planing and matching machines now in use.

A machine with these improvements may be seen in operation at Messrs. Hewes & Phillips' machine shop, Newark, N. J. Machines are manufactured and old ones altered by the patentee, from whom more information may be obtained by letter addressed to him at Rhinebeck, N. Y.

CIRCULAR SELF-ACTING GATE.



The accompanying engraving is a perspective view of an improved peculiarly self-acting gate, for which a patent was granted to Wm. Thompson, Esq., of Nashville, Tenn., on the 19th of June last. The invention relates to gates for farms, parks, and enclosures of any kind, and consists in constructing the gate, A, of a circular form like a wheel, as shown, and allowing it to rest when closed on a vibrating rail, D, which is operated by a person, wagon, or carriage on the track, to make the gate roll to the one side and open when approaching it, and then roll back, when the carriage or wagon has passed through, to close it.

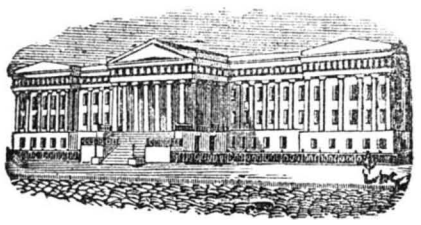
A A is the gate, B is a post formed in two separate pieces to leave a channel, *d*, between them from the bottom to the cap piece. F is a double fence at one side, to allow wheel A, to roll through the channel of the post, B, to the left hand side, as shown by the dotted lines, A', when the gate is open. C is the right hand post, with a channel in it but not through it, to receive a part of one side of gate A, and retain it when the gate is closed.

The gate rests on a vibratory lever, D, sunk a little below the roadway at the middle of the track but elevated at the one side. This lever railway is hung upon a pivot, with its long end towards the opening of the gate, so as by its weight at that end to tilt down the gate into its place, self-acting, when the lighter end is relieved from the weight or pressure of a carriage, &c., on the roadway, after it has passed through. E is the platform; it is secured to the short end of the rail, D, at the left hand side, and extends both in front and back of the gate. Supposing a person or carriage to be approaching the gate, his weight or that of the carriage on the platform, will depress the now elevated end of lever D, at the left, and the gate will roll into the position shown in dotted lines, A', until the person or carriage has passed off the platform, E, on the other side; the lever, D, will then rise to the position as shown in the figure, and tilt the gate into its place and close it. The vibrating rail, D, may be so hung that its long end will be to the left of the pivot or vibrating point, as by a weight on the platform it can be so adjusted to open and close the gate independent of the point at which it is hung on its pivot. Different methods of securing the platform to the tilting rail may be employed. The platform, also, may be provided with any suitable fastening, such as a spring switch with a vertical lever at one side, which will set free a catch on the platform, and allow it to act so as to prevent animals opening the gate by merely getting on the platform.

The inside corners of the posts at the ground may be extended as close to the gate as possible, so as to fill up the space between the gate and the posts, to prevent hogs, &c., from thus passing through. The filling up of these spaces may be executed neatly, to accord with the general contour of the gate.

Various modifications of this gate, different from that in the figure, yet embracing the same principles of construction and operation, may be adopted, according to the taste or opinions of those who may put them up. The invention is quite an original one, and embraces very attractive features.

More information may be obtained by letter addressed to the patentee.



[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office,

FOR THE WEEK ENDING AUG. 14, 1855.

EGG HOLDER—Francis Arnold, of Haddam, Conn.: I claim securing or holding eggs within boxes, or on table casters and other articles, by means of the elastic clamps, b, constructed as shown and described, or in any equivalent manner, for the purposes specified.

[An egg safe constructed under this patent consists of a suitable box having a number of vertical curved springs attached by their lower ends to the bottom of the case. The eggs are slipped in between the springs, which hold them firm yet gently, preventing them from coming in contact or being broken by any ordinary concussion. This is a simple contrivance, but it answers a very useful purpose.]

GOVERNORS FOR STEAM ENGINES, &c.—John & Evan Arthur, of New Brunswick, N. J.: We do not claim the invention of a governor which acts by the agency of a centrifugal force to move a slide lengthwise on a spindle, and through it to act upon the device which controls the power and speed, as the common ball governor acts on that principle.

But we claim a governor composed of one or more arcs, rings, or bands of elastic material applied to a revolving spindle with a rigid attachment to the said spindle at one point, and a loose or sliding attachment at another point, the sliding part or parts being connected with the throttle valve, a device which controls the power or speed, the whole operating as described.

[Ball governors are the kinds now almost exclusively used on all stationary steam engines; they are not adapted to marine purposes, because they always require to stand plumb. In all cases they are comparatively sluggish in their operations: where the driver is required to run fast the old-fashioned governor must be geared to a slow speed, for if it goes beyond a certain velocity it will not operate. And when thus geared, the machinery at times almost has a chance to run away before the governor affects the throttle valve. The improvement of the Messrs. Arthur is an ingenious one: instead of swinging arms and balls, they use slender elastic springs or ribs, which, when applied to the governor spindle, look—to use a homely comparison—like the frame of an oyster balloon stripped of its covering. These ribs are attached at one of their ends to a collar fixed fast on the spindle. The other ends terminate on a sliding collar which connects with the throttle. When rapid motion is communicated to the spindle the elasticity of the ribs is overcome by centrifugal force, and they bulge out in the center: in other words, their poles flatten, just as the earth does in revolving; the result is, that the movable collar slides up or down on the spindle, in conformity with any variation in speed, and operates the throttle in accordance. It will be evident to any mechanic that this governor will be more sensitive than the ordinary kind, since it may be geared to run at a higher speed than the engine, and thus caused to move the throttle, in case the velocity changes, before the machinery could make even a quarter of a revolution. As a marine governor this improvement seems to be also well suited, since the position in which it is placed, makes no difference with its operation. It is much cheaper in construction than the ordinary governors. We commend this invention to the attention of engineers. We believe they will find it to be very valuable. Owners of steamboats navigating the Lakes will do well to consider its merits.]

FURNACES FOR HEATING BUILDINGS—Joseph Leeds, of Philadelphia, Pa.: I claim combining with the cylinder or fire pot of an air heating furnace, a reservoir or fountain of water, M, which furnishes a web surface against which the incoming air strikes for moistening it and depositing its dust, and a series of curved, zig-zag, fluted, or corrugated plates, in the manner described for enlarging the heating surface of the furnace, and forming air ducts for the heated air to pass through, substantially as described.

REPLACING CARS—F. L. Bailey, of Freeport, Ind.: I do not claim the use of cams for lifting the cars merely, for I am aware that has been done.

But I claim the arrangement of eccentric wheels on either side of the rails; the outer ones being slightly smaller than the inner ones, so counterpoised that the smaller portion of said eccentrics shall remain downward when not in use, for the purpose of lifting and directing the cars on to the track, when they have been thrown off by rolling upon said eccentric wheels, substantially as described.

WHIFFLETREES—Oramel C. Barnes & O. J. Barnes, of Stockbridge, Vt.: We do not claim the turning hook, nor the sliding catch; but we claim the application of the angle shaped iron, forming the solid iron groove, together with the wedge and bearing for the hook.

CORN PLANTERS—Andrew J. Barnhart, of Schoolcraft, Mich.: I am aware that a box or cylinder and plunger have been previously used for the purpose described. A patent has been granted to me in which such device was used, though differently arranged and operated from the way shown.

I do not claim, therefore, the box and plunger for the purpose shown, irrespective of the mode of operating the same.

But operating the box, D, and plunger, E, by means of the rods, i j, attached to an oscillating arm, h, which is placed on the shaft of the distributing roller, C, whereby the box and plunger are made to move simultaneously in opposite directions, as shown, and for the purpose as set forth

[This is a corn planter for hand use, which embraces the advantages of simplicity, lightness, and cheapness of construction. We could not convey a clear idea of its parts without engravings. Every good improvement connected with agriculture is a step in the right direction, and merits attention. This patent is an excellent one; the invention is of great utility.]

COMPOSITIONS FOR TREATING RUBBER AND GUTTA PERCHA—Francis Baschnagel, of New York City: What I claim is not an improvement in the restoration of caoutchouc, gutta percha, and other similar gums," " by first treating the vulcanized gum with alkalies," &c., " for extracting the sulphur," &c., " and then submitting the mass to the action of heat and turpentine, or any other liquor known to be a solvent of the gum in its natural condition," all of which quotations are in the patent granted to Feuchtwanger & Beers, assignees of Beers, May 29, 1855, being " an improvement in de-vulcanizing india rubber."

But I claim the conversion or restoration of caoutchouc or gutta percha, whether they have been vulcanized or not, into a soft, plastic and workable state, by a combination of chemical agents, so that they may be re-manufactured, in a state already vulcanized or not, according as the substance converted or restored had or had not been vulcanized. The substances which I use for this purpose being bi-sulphurate of carbon in conjunction with alcohol absolute, and not common alcohol, without the addition of any other chemical agent, and without the application of heat, substantially as set forth.

CHURNS—Jacob Boyers, of Granville, Va.: I claim the shaft, E, in combination with the dashers, D D, when arranged and combined in the manner and for the purpose substantially as set forth.

STRAINING SAWS BY ATMOSPHERIC PRESSURE—A. Brown & Abel Coffin, Jr., of Sabine City, Texas: We claim nothing new of itself in the arrangement of the cylinders and straining pistons in relation to the saw, and straining the latter by atmospheric pressure produced by a vacuum maintained between the pistons and cylinder head, as such has before been done, and steam and compressed air have likewise been similarly employed.

But we claim providing the closed ends or heads of the cylinders, B B', with snifting valves, a a', opening outwardly, as described, and freely hung or operating, when the said cylinders, with their pistons, are arranged in relation to the saw, and the pistons and valves operate together, as specified, whereby the reciprocating action of the saw is made to clear the cylinders, without the aid of a separate exhaust pump, as set forth.

[Many attempts have been made to dispense with, and so save the power required to drive, the cumbersome sashes used in all saw mills, by introducing an independent means of straining the saw blade. In some instances steam has been employed; in others, air cylinders have been placed at each end of the saw, to which pistons, traversing the cylinders, were attached. The cylinders were exhausted by means of an air pump employed for that special purpose, and the saws thus strained between the pistons. In the above improvement the straining is accomplished in a similar manner, except that no pump or extra gearing is involved. A flat valve, opening outwardly, is placed in the bottom of each cylinder, which, by the alternate movement of its piston, opens and closes, thus producing the required exhaust or discharge. By this simple means the saw blade is at all times kept evenly strained, by a yielding self-adjusting pressure, which prevents the possibility of accident, economizes the motive power, and saves trouble on the part of the operator. This is a valuable patent; it reflects credit on the ingenious Texians by whom it was invented.]

HAND PRESS FOR PRINTING—D. H. Chamberlain, of West Roxbury, Mass.: I claim the described percussion hand press, consisting essentially of the block or type carrier, E, sliding upon the lever, C, the ink roller, G, and bed, I, operating in the manner and for the purpose substantially as described.

Second, I claim the method substantially as described, of adjusting the head to the surface of the types, whatever may be the thickness of the plate which carries them, for the purpose set forth.

VENTILATING FAUCET—Charles Cleveland, of Ashfield, Mass.: I claim the combination of a venteduct, D, with a faucet, constructed in any manner substantially the same and for the purpose set forth and described.

STEAM BOILERS—J. J. Dutcher, of New Haven, Conn. I claim, first, placing within the cylindrical water body, B, of a boiler, one or more cylindrical flues' C or D, terminating at their ends in frustums of cones, which frustums all have the truncated ends towards the fire box, and the bases toward the chimney, and serve to form communication through the cylinders from the fire box and toward the chimney, substantially as set forth.

Second, the arrangement of the two cylinders, C D, cones, a b d f, pipes, c g, passages, h and l, as fully described.

[The improvements here patented consist in a peculiar construction of the boiler, so as, while entirely dispensing with tubes, and their consequent expense, an equal if not a larger fire surface, is preserved. We are informed that test experiments have been made, with a boiler constructed on this plan, in connection with a common tubular boiler, both holding exactly the same quantity of water. The result was very favorable to Mr. Dutcher's improvement, steam having been raised quicker, and retained on less fuel, than in the tubular boiler. If this is so, the invention is one of more than usual importance. Mr. D. is the patentee of some other valuable steam boiler inventions.]

COTTON PRESSES—H. H. Fultz, of Lexington, Miss.: I claim nothing new in the manner of operating the follower by rack bar or rod and pawls, as described; nor yet in the addition of retaining pawls acting in concert with drivers, and am aware that the application of springs to the back of the pawls is old; neither do I claim, of itself, arranging the springs so that the pawls may be relieved of their pressure.

But I claim the arrangement with the retaining and driving pawls, P and O, on either side of the follower rod, or rack bar, I, of the one spring, Q, bearing at its opposite ends on the said pawls, and hung upon an intermediate pivot, e, in relation thereto, so that, upon turning the spring, as described, both the retaining and driving pawls are expeditiously and simultaneously relieved from or thrown into spring gear with the follower rod, and the working of the follower in its reverse directions is expedited, as specified.

[Without suitable engravings, it would be difficult to give an understandable description of the construction of the above Cotton Press. It is, however, one of the simplest in construction, cheapest in cost, and most powerful in its effects, of any machines of the kind, with which we are acquainted. It is adapted not only to the pressing of cotton, but hay, hemp, and all substances of a fibrous nature. In the South and West, such implements are much needed. The present patent can hardly fail to meet with extensive introduction.]

ALLOYS FOR JOURNAL BOXES—Joseph Garratt, Sen., of Indianapolis, Ind.: I claim the production of an alloy of a bluish gray color, which, while it has unsurpassable anti-friction qualities, has also sufficient tenacity to allow of journal boxes being formed of it, that do not require the protection of outer casings of a harder metal; the said alloy being composed of zinc, copper, and antimony, in about the following proportions, viz., seventeen parts zinc, one part copper and one part and a half of antimony or any other mixture substantially the same, and which will produce the same effect.

[Journal boxes formed of the alloy above described, possess inherent strength and hardness sufficient to prevent them being pressed out of form, as is the case with Babbitt metal. The latter has to be encased with brass or some very hard substance. This new alloy causes as little, if not less friction, than brass boxes, or those formed with the Babbitt metal. They are easily worked, receive an excellent polish, and as they can be manufactured much cheaper than common boxes, their use on railroads and every species of machinery, would probably effect an important economy.]

MAKING ZINC WHITE—J. E. Burrows, of Newark, N. J.: I claim the manufacture of white oxyd of zinc from ores of zinc or franklinite, prepared substantially as set forth, by means of a furnace having perforated grate bars, and an air chamber underneath them, in which hot or cold blasts of air are forced to unite with the ignited mass of fuel in a different state, by passing through the perforations of the grate bars to liberate the zinc in the form of vapor, in manner of construction and mode of operation, substantially as set forth.

ZINC WHITE—S. T. Jones, of New York City: I claim the manufacture of white oxyd of zinc from ores of zinc or franklinite, by means of a furnace having perforated grate bars, and an air chamber underneath them, in which hot or cold blasts of air are forced to unite with the ignited mass of fuel in a diffused state, by passing through the perforations of the grate bars, to liberate the zinc in the form of vapor, in manner of construction and mode of operstion, substantially as set forth.

[The two foregoing patents, it will be observed, are both for the same purpose, and both have the same claims. We have known two different patents to be granted, at intervals, for similar inventions, but do not remember any instance where the claims read so exactly alike. What does it mean? Is there no mistake, messieurs engrossing clerks of the Patent Office?]

EXTENSION VEHICLE—B. W. Gay, of New London, N H.: I claim, first, the screw perch, constructed and operated in the manner and for the purposes set forth

Second, the application in combination with said screw perch, of the rods, as described.

WINDLASSES—W. N. Gesner, of Fair Haven, Conn.: I claim the employment or use of the guide pulley, F, attached to the frame, E, the frame being connected to the framing or block, A, substantially as shown and described, for the purpose set forth.

[In the operation of almost every species of ships' windlasses or winches, it is necessary to apply the rope to be heaved at right angles to the barrel of the windlass; otherwise the rope would not wind easy or even. For this purpose temporary guide posts or pulley blocks are usually rigged, which, of course, are more or less inconvenient, troublesome, and in the end expensive.

Mr. Gesner, in his invention, provides a frame of iron or other material, which is attached to the ends of the windlass shaft, just like the bail of a kettle on a large scale, The guide block is attached to the center of the frame. The latter, it is apparent, will always be on hand when wanted, and never in the way at other times, for it can be thrown up or turned down for use instantly, at pleasure. No vessel should be without this attachment.]

HERNIAL TRUSSES—E. B. Graham, of Middletown, N. Y.: I do not claim of itself the invention of a square toothed rack, square pointed spring catch.

I claim the described means of adjusting and securing the pads in any desirable position, consisting of the square toothed rack, c, the adjustable square toothed and slotted spring catch, d, and screw, e, all combined and applied substantially as set forth.

[In trusses of the common kind, the pad lever catch is secured by a ratchet with beveled teeth, which prevent the catch slipping in one direction and not in the other. When worn by workmen, or whenever a blow or pressure is given against the pad, the catch is liable to slip over the teeth and tighten the truss. This invention consists chiefly in employing a rack with square notches to receive the square end of the spring catch and prevent the shifting of the pad either toward or from the body, thus entirely obviating the difficulties just mentioned. This truss also has other advantages. It is a good thing, and will, no doubt, be properly appreciated by those who are so unfortunate as to require the use of such instruments.]

CUTTING APPARATUS OF HARVESTERS—R. J. Morrison, of Richmond, Va.: I claim the hinging of the lids, and allowing them to rest severally and independently upon the moving cutters, in the manner and for the purpose, substantially as set forth.

FORGING MACHINE—D. Noyes, of Abington, Mass.: I claim, first, attaching the hammer or hammers of a forging machine, each by a pivot to a revolving disk or crank, so as to revolve therewith, and controling the position thereof by stops attached to the face of the disk or crank, in the manner substantially herein specified, whereby, after the hammer has been caused to strike on the anvil by the revolution of the disk or crank, it will be, by the continuous revolution thereof, drawn lengthwise off the anvil, to enable its revolution to continue for another blow, substantially as described.

Second, The employment of an anvil with a face forming the interior of a right angle in combination with two hammers operating at right angles to each against the said faces, substantially as described.

Third, The arrangement of the movable carriage or rest relatively to the two faced anvil and the hammers, F F', substantially in the manner described.

[This invention consists in a novel, simple and effective method of applying the hammers of forging machines; also, in an anvil having a face which forms the interior of an angle, to be employed in connection with two hammers striking at an angle to each other; also in a movable carriage or rest, to remove the piece of metal away from one side of the angular face against the other, as required by the alternate strokes of the hammers. The machine is adapted to the forging of almost all kinds of wrought iron work. Four sides of a square bar are hammered simultaneously. Hence, the manufacture of wrought nails is one of its uses. Mr. Noyes is the patentee of other valuable machinery for iron forging. The above invention, we look upon as one of his happiest efforts.]

HANGING WINDOW SASHES—L. E. Payne, of Yazoo City, Miss.: I do not claim attaching the cords, a a, to each sash, so that one sash will balance the other, for that has been previously done; but I claim applying the cords, a a, to the sashes, B B', as herein shown, viz.: the cords passing around the lower sash, so that the cords may work around the lower sash, B, or said sash B may be raised or lowered without moving the cords, as described for the purpose set forth.

[The window sashes in this invention balance each other. Cords are arranged, one on each side, extending from one sash over a pulley in the window frame, to the other; so that, for example, when you raise the lower sash, the upper one slides down, and vice versa. There is nothing new in this portion of the device. The improvement is for elongating the cord, and bringing it down around the sides, underneath the lower sash, so as to enable the operator to raise the same without dropping the upper sash. This is done by pulling tight the cord under the lower sash, as fast as the latter rises. Cheapness and simplicity are prominent features of the above patent.]

GATHERING COTTON STALKS—R. Ray, of Louisport, Ky.: I claim the arrangement of the apron, K, plate, E, and rake, G, all operated in the manner described, for the purposes of pulling up and gathering stalks of cotton, as described.

GAS REGULATORS—S. P. Ruggles, of Boston, Mass.: I am aware that a disk valve without an opening in itself, but in connection with side openings both above and below it, has been used, and that a valve with an opening has been used: but in neither case is the valve the regulator of the entire flow. These I do not claim; but I claim in combination with a gas burner, a floating valve which stands across, and controls the flow of gas through the gas way, substantially in the manner and for the purpose set forth.

HARVESTERS—F. Russell, of Boston, Mass.: I claim, so arranging the rocker frame, I, that it may rotate in the end of the lever, G, while said rocker frame is operated upon by the serpentine cam wheel which it embraces, essentially as specified.

FURNACES FOR HEATING BUILDINGS—S. B. Sexton, of Baltimore, Md.: I claim the convertible covers, D D', of the fire chamber, in combination with the pipe, H, constructed, arranged, and operating substantially as, and for the purposes specified.

RAILROAD CAR BRAKE—G. A. Somerby & C. W. Fogg, of Waltham, Mass.: We do not claim the application of the brake to the wheel, so that either may be moved toward the other while the carriage is in motion, and whether by the momentum of the carriage or by any other power, but we claim applying the wheel axle to the frame by means of pendulous bars, b b, arranged substantially as described, in order that the gravity or weight of the carriage, when the latter is at rest (as well as when it is in motion,) may be employed to press the wheels against the brakes, by acting through such bars, when they are inclined from the vertical, and are left free to be moved toward the brakes.

We also claim, so combining with either or both the lower brakes, H H, operated by the wheels, as described, one or more other brakes or brake mechanisms, L L, that the latter may be put in action by the operation of the wheels on the former, as specified:

We also claim, in combination with wheels applied so as to be movable towards and away from their brakes, H H, as specified, a mechanism substantially as described, whereby the power that produces draft of the carriage or puts it in motion, as described, shall move such wheels away from their brakes, so as to relieve the said brakes from being moved or pressed by their respective wheels.

COTTON GINS—J. Simpson, of Lewisville, S. C.: I claim making the alternate saws of a greater diameter, than the intermediate saws, in order that no two adjacent ones may seize the same fibres, and thereby break them; but at the same time to gin as completely and rapidly as if the saws were all of the same diameter.

I also claim arranging the brushes which sweep the smaller saws, upon alternate wings projecting out from the center as much further than the intermediate wings which bear the brushes for sweeping the larger saws, as said saws project beyond the others, for the purpose of rendering the brushes of a uniform and suitable length.

I also claim arranging the mote board, I, so as to slide backward or forward, for regulating the strength and direction of the blast, and properly separating the motes from the cotton; and also to be used as a lid to entirely close said space, when the gin is not in use, substantially in the manner set forth.

GUN LOCKS—M. Tromley, of Mt. Vernon, Ill.: I claim constructing the lock by having the lower part of the hammer, B, formed of two prongs, d e, against one of which, d, the spring, c, bears; and having the upper end of the tumbler, f, attached to the other prong, e: the lower end of said tumbler being attached to the upper end of the trigger, d; the front end of the spring, c, having a small spring, l, attached to it—which spring, l, bears against the trigger, D, as shown and described.

[The intention of the inventor, in the above improvement, has been to improve, and yet to simplify. So far as we can judge, he has been entirely successful. He has produced a lock capable of application to almost every species of fire-arms in use, which not only costs less in the construction, but is more durable and otherwise superior. The working parts are fewer in number and ingeniously devised, so as not to wear out by friction. Neither can the hammer be sprung if it receives an accidental blow. The reverse of this is the case with the common locks, and is the cause of many sad casualties every year. In its peculiar class this improvement may be considered as important. We trust it will find a very general introduction.]

TANNING COMPOUNDS—O, B. Wattles, of Waddington, N. Y.: First, I claim the employment or use of soap combined with salt and lime, for unhairing or depilating the hides.

Second. I claim the employment or use of soap combined with the tan liquor for tanning the hides, substantially as described.

[The above process consists in the use of the ingredients specified in the claim for the purpose of softening the hide, improving its quality, and preventing the injurious effects which have hitherto resulted from the use of lime in unhairing. Mr. Wattles uses the soap, salt and lime in unhairing, and the soap and tannin liquors in tanning. The great study of all good tanners has been to turn out the leather with little injury to the gelatine of which it is so largely composed. But their efforts have generally been fruitless. One of the best improvements, in this direction, was a patent granted for the use of potash in combination with lime and salt. In this process the potash robbed the skin of some of its gelatine and formed soap. The quality of the leather thus produced though better than that which the old mode permits, is still defective. Mr. Wattles claims to have discovered the philosopher's stone. The application of a special soap bate, while it cleanses out the lime, softens the skin and opens its pores for the reception of the tannin liquor, without in any way impairing the gelatine. The combination of soap with the tannin liquor also has an important effect in mollifying the latter, whereby green hides may be introduced without any danger of becoming hard. Indeed, the soap, by neutralizing undue acidity and opening the pores, causes the liquor to penetrate the skin, and unite quickly and thoroughly with the gelatine; the result being the production of a firm, pliable and superior quality of leather. We regard this as a valuable improvement, well worthy the attention of those to whose special interests it relates.]

PORTABLE STEAM SAWING MACHINE—S. R. Wilmot, of New York City: I claim, first, the attachment of the opposite ends of the steam cylinder, to that at which the saw works, by a pivot to the main frame or bed piece, A, of the engine; so that the cylinder may swing to and from the said frame or bed piece, for the purpose of allowing the saw a proper range, and feeding it, substantially as described.

Second. I claim furnishing the main frame or bed piece, A, of the engine, with dogs, b b, to drive into the tree or log on opposite sides of the saw, substantially as described, whereby greater stability is given to the engine and saw when in operation, without making the engine or its frame of great weight

[The above is a truly novel invention—nothing more nor less than a steam hand saw. The handle is made round and hollow, and has a steam piston fitted within, to which the saw is fastened. Steam is admitted at the back end of the handle, through a flexible pipe made of canvas or rubber. The rapidity with which the saw is made to move back and forth, is astonishing. The principal object of this invention is to cut down trees in forests, or swamps, or wherever the nature of the ground is such that it is desirable to have a very light, but effective cutting apparatus. The operator takes up the saw by the handle—which is only two or three inches in diameter—holds it against the base of the tree, and lets on the steam. The next thing seen by the spectator, is the tree in the act of falling—so quickly has it been cut through. Where the trees are very large, a light frame is employed in which the steam saw is held when at work. The extreme portability of this apparatus enables the operator to cut up a tree into logs, after it is felled, with the utmost facility. The boiler is of sheet iron, and, though amply strong, is easily carried about by one man. The flexible steam-pipe permits the saw to be taken from tree to tree, in any direction around the boiler; the only limit of the distance, being the length of the hose. This apparatus, we are informed, has been thoroughly tested, and found to operate with the most practical success. The expense of construction is a mere nothing. The patent will probably prove a fortune to its holder.]

MILLS FOR COMPRESSING AND GRINDING GRAPES, AND OTHER SMALL FRUITS—Z. C. Robbins, of Washington, D. C., (assignor to A. Martin, of Norwich, Conn.): I am aware that a reciprocating knocker or compresser has been employed within the hopper of fruit-grinding machines, in combination with a concave and a grinding cylinder; also that two cylindrical rollers have been employed in combination with a feeding-roller within the fruit-hopper. I disclaim both of these arrangements, also these devices separately considered. But, I claim the combination and joint action of the compresser, I', and the cylinders, A, and B, for compressing and grinding purposes, substantially as set forth.

[We are pleased to observe the name of our old friend, Z. C. Robbins, among the list of patentees, this week. At first we thought he was out of his element or that the name was wrong. His invention seems to be extremely ingenious. It effects an important object.]

APPARATUS FOR SIFTING—E. L. Seymour, of New York City, (assignor to W. O. Bourne, of New York aforesaid): I claim the described rotary sifter, in the several cylindrical sieves, one within the other, provided with conduits so arranged as to deliver the proceeds continuously, substantially as described.

DRAWING WATER FROM WELLS—C. Winegar, of Union Springs, N. Y.: I claim the guiding of the bucket by means of two wires, or their equivalents; suspending two weights near the bottom of the well, in combination with the gate frame, in the manner described

COFFEE ROASTERS—S. Pierce, of Troy, N. Y., (assignor to C. B. Pierce, of Troy, aforesaid): I am aware that it is not new to combine a cylindrical or a spherical roasting vessel with a portable furnace or other heater, nor to make the journals of a cylindrical roasting vessel hollow; and I do not claim any such combinations or modes of construction.

I claim constructing the roasting vessel of a series of alternate, longitudinal angular parts, projecting inward, and co-extensive concave portions swelling outward, substantially as described, for the purpose specified.

OPENING AND CLOSING GATES—C. Winegar, of Union Springs, N. Y.: I claim the fan wheel, T, and shaft, 2,—and cog wheel, N, the ratchet wheel, V, and spring catch, W, as applied to said invention.

All else I disclaim in this patent, as having been patented to me in said original machine. Date of patent May 29, 1855, and held by me under said patent; not intending in these claims to limit myself to the precise arrangements of the parts described, but to vary the same at pleasure, while I attain the same ends by means substantially the same.

[The above gate is a *ne plus ultra*, in its way. Nothing can be more pleasing or satisfactory than its operations. If you are approaching one of them, in a carriage, you reach out the hand and touch a small lever, placed on a side post—when, presto, the gate opens and you pass through. Having passed, you touch another lever and the gate closes, in the same magic manner. The contrivance is quite simple and its cost is very moderate. It cannot fail to become very popular. Foreign patents have been secured through the Scientific American Agency.]

RE-ISSUES.

HOT WATER APPARATUS—John Brown, of New York City. Original Patent dated May 30, 1854. I claim connecting the ends of the horizontal, or nearly horizontal water pipes of hot water warming apparatus, by means of return bends or elbows of less caliber, and entering within the end or ends of such pipe or pipes, substantially as, and for the purposes specified.

And I also claim making each horizontal or nearly horizontal pipe having the bend or elbow at one end of reduced caliber, with the calibers at top in the same line, substantially as, and for the purposes specified, whether made in one piece, or the bend or elbow separate, and then united; the said elbow being connected with the next pipe above it, by entering the end thereof, substantially as, and for the purposes specified.

And I claim the construction and arrangement of the apparatus for the purposes substantially as specified.

BATHING TUBS—J. L. Mott, of Mott Haven, N. Y.—Original patent dated Sept. 27, 1853: I do not claim broadly as of my invention, the connection of the hot and cold water pipes of a vessel, so as to discharge hot and cold water together, as this has before been done by a pipe or pipes coupled with the bottom of the vessel and discharging upwards.

Nor do I claim broadly the use of an overflow pipe, for carrying off the water, and preventing the water in the tub from overflowing, as a separate device has before been used for this purpose, but when so used it was so connected with the waste and supply pipes, as to necessitate the use of a valve within the waste pipe, or a double coupling therewith, together with all its attendant disadvantages. And although I have described my said improvements in connection with and as applied to a bath tub, it will be obvious from the foregoing that they are equally applicable to other and analogous vessels, such as wash basins, wash tubs, or vats, sinks for kitchens, &c.

I claim as my invention, the mode of combining with a bathing-tub or other like vessel, either one or both of the channel-ways, substantially as described, and making, when constructed, part of the tub or vessel, one of which channel-ways connects the overflow and waster or discharge holes, with the waste pipe, and the other channel-way is adapted to the insertion of the hot and cold water pipes, and discharging the hot and cold water together, at or near the bottom of the vessel, and in a horizontal or nearly horizontal direction, substantially in the manner, and for the purposes specified.

WARMING AND VENTILATING BUILDINGS—Henry Ruttan, of Cobourg, Canada West.—Original patent dated Dec. 5, 1848; ante-dated June 23, 1848: I claim, first, the mode described of warming and ventilating buildings railroad cars, and apartments of every known description, the same consisting in introducing the air from without, by conducting it under the floor of the building or apartment, and directly under the air warmer or ventilator, for the purpose of being warmed for distribution; the air after being thus warmed, rising in a central or otherwise convenient apartment or passage, and thence being admitted into the various rooms of the building, or into the apartment near the ceiling or roof without the aid of pipes, and thence passing downwards and through openings in the lower part of the rooms, or apartment, and thence outwards through the various channels provided, connected with the foul air shaft. I do not claim simply introducing warm air at the top of a room, and discharging it at the bottom, but only intend to claim this when effected in the manner substantially as described.

Second. I claim the arrangement of the radiating pipes, or flues of the air warmer in combination with the fire chamber situated within or between them, in the manner substantially as set forth.

Third. In combination with the elevated air chamber and flues of the air warmer, I claim the arrangement of the openings for admitting heated air above the fire, to complete combustion, as set forth.

Fourth. I claim the construction of the fire grate, as set forth, viz.: with one or more grates of cylindrical or other form, raised above the ordinary grate floor; said raised grates being capped and covered in such manner as to protect the vertical bars from the fuel, substantially as set forth, and the principle of their action being substantially as set forth.

Fifth. I claim the mode of conducting the air into the pure air shafts, whatever may be the direction of the wind, or of the external currents of air, by placing a swinging valve or shutter at the mouth of said shafts, substantially in the manner set forth.

Sixth. I claim so constructing or placing the mouths of the pure air shafts for the ventilation of railroad cars, that by the motion of the car, the in-coming pure air may be increased in quantity, as set forth.

[It will be observed that the above claims are very broad. They almost cover the idea of ventilation in any shape, except through ordinary doors and windows. Certain it is that scarce any car ventilator can be used without infringing this patent, for the plan of employing a flaring mouth-piece of any sort, to catch air, is specially secured to the patentee.

It may seem strange to many persons that a patent carrying such a wide range, over an apparently well known field, should be granted at this late day. But it will be observed that the above is an old patent re-issued with its claims, which were originally defective, corrected.

Mr. Ruttan is a patriarch in the science of ventilation. Years ago, before fresh air breathing was ever thought of by any one else, he devoted himself to the subject. This identical patent was the first ever granted in this country, for any mode of ventilation. Since that time the public knowledge of the subject has slightly improved. Wealthy gentlemen, when they build, are getting into the habit of having little holes cut in the chimneys of some of the rooms of their dwellings, to allow the escape of foul air. Many of the city school-houses, churches, and public edifices, where large crowds of people gather, have diminutive apertures left in their ceilings, for the same purpose. Railroad cars also have holes through their roofs; but these are generally covered with fine gauze, and the thick, sickening atmosphere, cannot escape. Great brags are made about good ventilation, when any of these plans are adopted. The truth is, the public know really little about the subject. The grossest ignorance still prevails.

No apartment, building, or car, can be said to be ventilated, unless some plan is adopted which moves and renews continually the entire mass of air. Ruttan's system accomplishes this. No other does, that we are acquainted with. In winter or summer its operation is the same

We do wish that our architects, school committees, public building committees, would open their eyes on the subject of ventilation.

FOR DESIGNS.

ORNAMENTING STOVE PLATES—S. W. Gibbs, of Albany, N. Y., (assignor to A. H. McArthur & Co., of Hudson, N. Y.)

COOKING STOVES—Apollos Richmond, of Providence, R. I., (assignor to A. C. Barstow & Co., of Providence.)

American Association for the Advancement of Science.—No. 1.

The Association commenced its Ninth Annual meeting in Brown University, Providence, R. I., on the 15th inst. Prof. Torrey, of New York city, was elected President for the year; Dr. Wolcott Gibbs, Sec. The members of the Association were welcomed in the morning by a neat address, and in the evening by a brilliant entertainment from the venerable Dr. Wayland.

COMBUSTION OF FUEL.—The first paper read was by Prof. Henry, of the Smithsonian Institute, on the importance of combustion. For a number of years he had been prosecuting experiments with fire and flame, and had repeated those made many years since by our eminent countryman, Count Rumford, who noticed that more heat was evolved by burning a mixture of clay and sea coal than from sea coal alone. He also found that when the sides and back of a chimney were lined with fire brick, more heat was given out than from coal itself, These results seemed to be paradoxical—as they showed an increase of the quantity of heat without the decomposition of any material to supply it. Prof. Henry's experiments verified the results of Rumford's, and he seems to have discovered the cause. He supposes that the substances introduced into the coal did not increase the absolute amount of heat, but converted some of the heat of *combination* into that of *radiation*. He took a slip of mica and introduced it into the flame of a lamp, about midway, and then placed a platinum wire in the apex of the flame, where the heat is most intense. The result showed that the mica radiated both heat and light, while the apex of the flame in contact with the platinum was cooled. The conclusions to be drawn from these experiments are that a certain quantity of coal employed to generate steam will have its useful effects diminished by inserting in the fire a better radiating surface than the fuel itself; but in heating rooms, the opposite results will be produced.

HEAT OF THE PLANETS.—Prof. Loomis, of New York city, read a paper on this subject, which brought on a sharp discussion. By his calculations, he showed that the temperature of Jupiter was 80° below zero, and the other large planets as low; and that of the moon 40° He therefore contended that the planets could not be inhabited, and that animal and vegetable life could not exist in them. In those planets nearer the sun than the earth, he contended that animal life could not exist for the greater heat, except round the poles of Venus, which were 52°. He also contended that if the earth possessed any internal heat, it was of no effect upon its surface; that the sun was the great heating agent.

Prof. Rogers contended for the central heat theory, and for the other planets beside the earth, being the abodes of intelligent beings.

Prof. Agassiz stated that vegetable existence was found at the summits of high mountains, for he had obtained lichens on the Alps, at an altitude of 11,000 feet.

Prof. Henry treated the whole matter as a scientific speculation, but contended that all things were changing; that the outer old planets were past the epoch necessary to life, and the sun itself was fading. His views amounted to this:—that this earth was once a mass of fire; that it is now cooling, and will at last become an icicle in the heavens, and so with the sun.

THE TIDES.—Prof. Bache, of the coast survey, in referring to the tides, stated that on our coast, in the Atlantic, they flow from east to west; in England, from west to east; while on the Pacific coast their motion is rotary. They sweep round by Asia, then turn and flow back.

Prof. Caswell stated that the tides was still a difficult subject, and so was the habitability of the planets. He preferred to remain in ignorance and omit conclusions, rather than to proceed and base opinions upon unfixed data, which was at least the case with the internal heat of the earth, and that of the planets.

[We will endeavor to present the substance of the useful, practical, and interesting papers read before the Association in future numbers.

Improvement in Safety Railroad Drawbridges.

Among the recent patents issued at the Patent Office in Washington, is one called a Safety Railroad Drawbridge, the invention of Messrs. John K. Gamble and Wm. P. Gamble, of this city. From an examination of a working model, now on exhibition at the store of the firm, No. 8 Margaretta street, below Front, we should presume that the invention will be a very valuable one. The invention consists of a novel manner of combining and arranging switch rails and inclined sidelings with a drawbridge, whereby the switch rails can be unlocked and moved in connection with the inclined sidelings, and locked simultaneously with the slightest opening of the draw, and again unlocked and thrown in connection with the main track with the closing of the draw, thus rendering the drawbridge perfectly safe, as no contingencies whatever are left, and the safety of passengers does not depend upon the sobriety or carefulness of the attendants at the bridge. The arrangement of this invention is in every respect self-adjusting.—*Phila. Ledger.*

[Engravings of this invention will be illustrated in our columns next week.

A Great Planetarium.

J. W. and W. B. Hatch, of Utica, N. Y., have recently constructed the largest planetarium ever exhibited in America. By it the planets are made to revolve in vertical orbits. These are projected on a screen or medium, behind which all the machinery is concealed, so that there appears no visible sustaining power between the planets and the sun.

The whole is arranged with folding curtains, by which the celestial scenery can be brought on with a beautiful theatrical effect. The eclipses of the satellites take place as they come into that part of their orbits relative to the sun to produce those results. To add to the splendor of the scene, the great comet of 1680 is represented traversing an elliptic orbit through a circuit of fifty feet.

The Instrument is designed to accompany lectures on astronomy before Scientific Associations.

One great beauty of the instrument, and what appears to be the distinctive peculiarity of the contrivance, is the fact that not only the sun, but every planet and satellite is illuminated.

A Cheap Disinfector.

The following is attributed to Prof. Nash, of Amherst College; we have seen it in a number of our exchanges:—"Take one barrel of lime and one bushel of salt dissolved in as little water as possible, which pour upon the lime and slack it, so as to form a thick paste. The result will be an impure chloride of lime, a very powerful deodorizer—equally good for outdoor purposes, with the article (chloride of lime) bought at the apothecaries, and not costing one-twentieth as much. It should be kept moist and applied wherever offensive odors are generated."

Chemists have denied that any decomposition of salt takes place—to set free its chlorine—when mixed with lime. This formed a subject of dispute not long since, among the "wise-acres" of the New York Farmers' Club. There was division among them on the subject and like many other topics discussed by them, it was left as clear and as fully settled, as before they commence to consider it. There can be no doubt, however, that the above compost of salt and lime, will make a cheap and good deodorizer, whether the chlorine be set free or not. It is, therefore, useful information.

Mechanics for Russia.

George Hamlin, a machinist, and for a long time foreman at Winans' machine shop, together with some five other Baltimore mechanics, started this morning for New York, *en route* for Russia, where they go to take charge of important positions on the great Russian Railroad. A half dozen other Baltimore machinists are already in England on their way out, and some twenty-five or thirty altogether will be sent out. All the Englishmen formerly employed in Russia have been compelled to quit their situations on account of the war, and their places are to be supplied in a great measure by Americans.—[Baltimore Patriot, Aug. 9.

Solidified and Artificial Milk.

Many experiments have been made in various parts of the world to produce a preparation of milk that will keep sweet in any climate and for a long time. The most successful experimenter among us is Gail Borden, Jr., inventor of the "Meat Biscuit," whose prepared milk we have used months after it was made, and found it to be as sweet as on the day when it was prepared. In Europe, the two kinds of milk indicated by the heading of this article, have lately been brought into public notice, and described as follows by one of our foreign exchanges:—

"These two substances are perfect types of our knowledge in organic chemistry. The solidified milk has been patented by M. Fadenike, London; the artificial milk is the invention of Mr. S. Piesse. Both these substances will confer a lasting benefit upon the maritime interests of the world, being so useful for a long sea voyage, especially for emigrants with children. Either of these materials being mixed with water, produces a real milk, which, with tea or coffee, cannot be distinguished from ordinary milk." For the public benefit, Mr. Piesse has given his recipe for preparing his Lactine, or Artificial Milk, which we subjoin:—Honey, four ounces; gum arabic, in powder, half an ounce; three yolks of eggs; fine salad oil, six ounces. Mix the honey and the gum first, then add the egg, and, finally, gradually mix in the oil. It will at once be seen that all the ingredients employed are perfectly nutritious, wonderfully representing the known composition of real milk. The oil is for the butter principle; the egg is the animal, or cheese matter; and the honey and gum are for the sugar, found in all milk. One ounce of lactine, dissolved in half a pint of water, produces half a pint of artificial milk. By a slight modification of the process, Mr. Piesse hopes shortly to produce artificial butter.

Inter-Oceanic Ship Canal.

The Washington *Star* learns from a reliable source, that some enterprssing citizens of the United States and New Granada have discovered and explored the long sought for route for connecting the Atlantic and Pacific oceans by means of a slip canal. This great derideratum to the commercial world is certainly the most grand and important enterprise of this age, and worthy the attention and consideration of every civilized people and government. The plan, as the *Star* understands, is to go to the Atrato river, some fifty miles from its mouth, with a depth of from six to ten fathoms, and from thence to the Pacific, a distance of some sixty miles more, without a single lock or obstruction in the contemplated canal. A liberal grant has been made by the government of New Granada to the persons engaged in this grand undertaking; and the whole route, from one ocean to the other, has been accurately surveyed, and the facts developed are beyond doubt or question, so far as the feasibility of the work is concerned.

[We are acquainted with the gentlemen engaged in this enterprise, and have examined maps of the surveys and diagrams of the work to be executed. Judging from these, and the reports made on them—if they are correct—we conclude that the project is a practical one, and hope it will meet with success.

Parisian Telegraphs.

In Paris the telegraph wires are laid under ground, no poles being seen in the streets. A trench is dug twelve or fifteen inches wide, in which the wires are placed side by side, but so as not to touch each other. Liquid bitumen is then poured on, which surrounds the wires, and completely isolates them. It secures them from damage by accident or design, and from being deranged by atmospheric influence. The same plan is to be adopted at Lyons.

Ligneous Paper Mill.

A very large mill is now in the course of erection at Little Falls, N. Y., by G. W. Beardslee, of Albany, for the purpose of making paper from various kinds of wood. Its dimensions are to be 81 by 100 feet for the main building, with a wing 50 by 90 feet. Twenty paper machines will be employed, and about fifty tuns of pulp prepared weekly. It is intended to have it in operation about the middle of October next.

New Inventions.

Oil Used on Railroads.

We are indebted to Edward H. Jones, master mechanic, Albany, N. Y., for tables of the quantity of oil used by each engine on the different divisions of the Central Railroad, New York, during the month of May last. The following is the gross amount used on each division of the road.

Divisions.	Miles run.	Pints oil used.	Mls. run to 1 pint oil.
Albany and Utica, -	49,988	3,624	13 4-5
Schenectady and Utica,	39,035	4,055	9 5-8
Troy and Schnectady, -	8,162	1,048	7 4-5
Syracuse and Utica -	39,265	3,266	12
Syracuse and Rochester	78,659	5,804	13 1-2
Rochester & Buffalo and Roch'r & Niag. Falls,	102,676	11,637	8 5-6
Total - - - -	317,785	29,434	10 4 5

It will be observed by our readers that there is a very great difference in the quantity of oil used on the different divisions of this road, the distance run on the Albany and Utica section, to one pint of oil, being nearly double to that on the Troy and Schenectady branch. There must be some reason for this; is it the fault of the track? We find in the particular tables, giving an account of the performance of each engine, that there is also a great difference in use of oil, by different engines. Thus, on the Albany and Utica division, the engine *Mechanic* only run 6 4-7 miles with one pint of oil, whereas *No.* 22 run 22 1-6 miles—more than three times the distance. How is this to be accounted for? Is the fault in the engine or the engineer? On the Utica and Schenectady division we find a still greater difference between the performance of two engines with one pint of oil; thus, *No.* 6 run only 3 2-3 miles, while *No.* 65 run 14 1-3—more than four times the distance. On the Syracuse and Utica division, engine *Oneida* consumed one pint of oil every 4 7-8 miles, while the engine *Mars* run 15 1-4 miles. On the Syracuse and Rochester division, the engine *Thayer* run only 3 3-5 miles with one pint of oil, while engine *No.* 51 run 16 3-4 miles—about five times the distance. On the Rochester and Buffalo and Rochester and Niagara Falls division, the engine *Orleans* consumed one pint of oil for every 3 2-3 miles run, while the engine *W. W. Corcoran* run 26 miles with one pint of oil—eight times the distance. We have taken the minimum and maximum performances of engines with one pint of oil. We cannot well understand why the *W. W. Corcoran* should run 836 miles, and use only 32 pints, while the *Orleans* should run but 720 miles and use 196 pints. Some reliable information relative to the causes of such discrepancies in the use of oil on different engines, would be of great value to the railroad interests of our country. The master mechanics can form the best opinions on this subject, because they know the capacity and condition of each engine—the track on each division being the same for all. The plan of keeping separate accounts with the engines, relative to repairs, oil, and fuel, is a good one, and will no doubt result in a great saving to all the railroads which pursue the system.

Ships' Pumps.

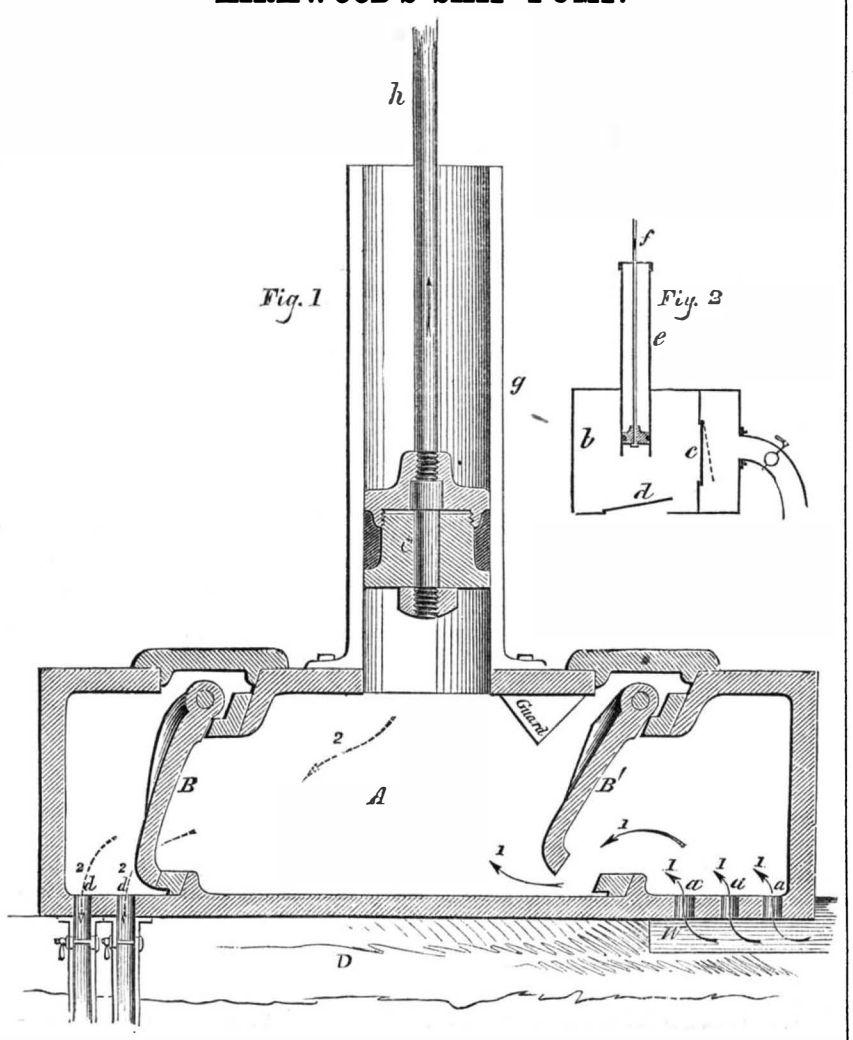
The accompanying figures (1 and 2) are vertical sections of an improvement in ship pumps patented by Alexander Kirkwood, of Pascagoula, Mississippi.

The nature of the invention consists in forcing the bilge water out at the bottom of a vessel, instead of raising it above the level of the water, in order to save the labor of raising it.

Figure 1 shows an oblong box about six inches wide, 4 deep, and 14 long. It is made with transverse partitions, which thus divide it into three compartments. B and B represent a valve on each partition. Holes or openings, *a a a*, are made in the bottom of the box, near one end, and other openings, *d d*, near the other end. The box is secured to the inside bottom, D, of the vessel by screw bolts, in such a manner as to allow the bilge water at the recess, W, to pass up into the box through the openings, *a a a*. The water is discharged through the tubes, *d d*, which are screwed and fitted water-tight in the bottom of the box, and pass through the bottom of the vessel. These pipes are fitted with stop cocks to close the communication, when required, between the box and the water on the outside of the vessel. J is a cylinder or large tube bolted to the box, in which works a packed piston, C, the rod, *h*, of which passes up and is operated by a lever in the common way.

When the piston, C, is drawn up, the water will flow up into the box through the openings, *a a a*, as shown by the arrows, 1 1 1, then through the valve, B', into the compartment, A. When the piston, C, is forced down, the valve, B', closes, the one B opens, and the water is forced down tubes, *d d*, out of the vessel through its bottom, as shown by arrows, 2 2.

KIRKWOOD'S SHIP PUMP.



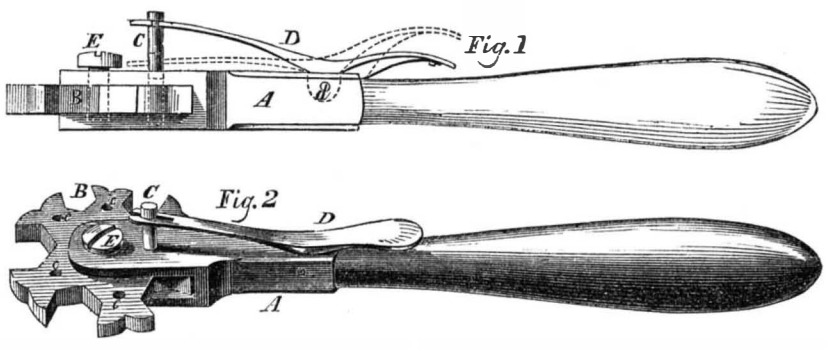
The box and pump are easily shifted, taken apart, and put together.

Fig. 2 is a modification of fig. 1, with a box, *b*, deeper but not so long. It is bolted to the vessel's inside bottom in such a manner as will allow the bilge water to flow under it. *e* is its piston cylinder, and *f* its rod. *d* is the inlet valve placed on the bottom of the box, and the outlet valve, *c*, on one partition. It saves one partition in the box, and is more simple than fig. 1. It is a force pump, and in this respect differs from the marine chain and lifting pumps. It is a simple and convenient force pump for the purpose.

The claim is for "the attachment of the foregoing described pump, or of any ordinary force pump, to the bottom of a vessel, so as to force water out at her bottom, thereby avoiding the labor and expense of raising the bilge water above the level of the water in which the vessel floats."

More information may be obtained by letter addressed to the patentee.

BRISTOL'S ROTARY WRENCH.



The accompanying figures represent a rotary Wrench invented by C. B. Bristol, of Naugatuck, Conn. Fig. 1 is a side elevation, and fig. 2 a perspective view of the tool, A. Its head is composed of a number of jaws, B, to suit different sizes of nuts. It is fixed on a center pin, E, which secures it between two plates, and on which it turns, to bring any jaw suitable to operate the nut into the proper position for work. There are a number of holes, *c c*, in the rotary jaw head for holding the jaws firm in place by pin C; this pin is operated by the small spring lever, D. By pressing with the thumb on the spring at D, the pin, C, will be raised out of a hole, *c*, and the rotary head of the wrench can be turned round with the left hand, to bring the proper jaw into place. When this is done, the thumb is raised from lever spring, D, and pin C is pressed into its hole *c*, and holds the jaw head firm. Fig. 1 shows the spring lever, D, and its fulcrum, *d*, in two positions, to illustrate how pin C is operated. No further description is necessary to explain this convenient tool. Every mechanic wil understand it at once.

More information respecting it may be obtained by letter addressed to Mr. Bristol.

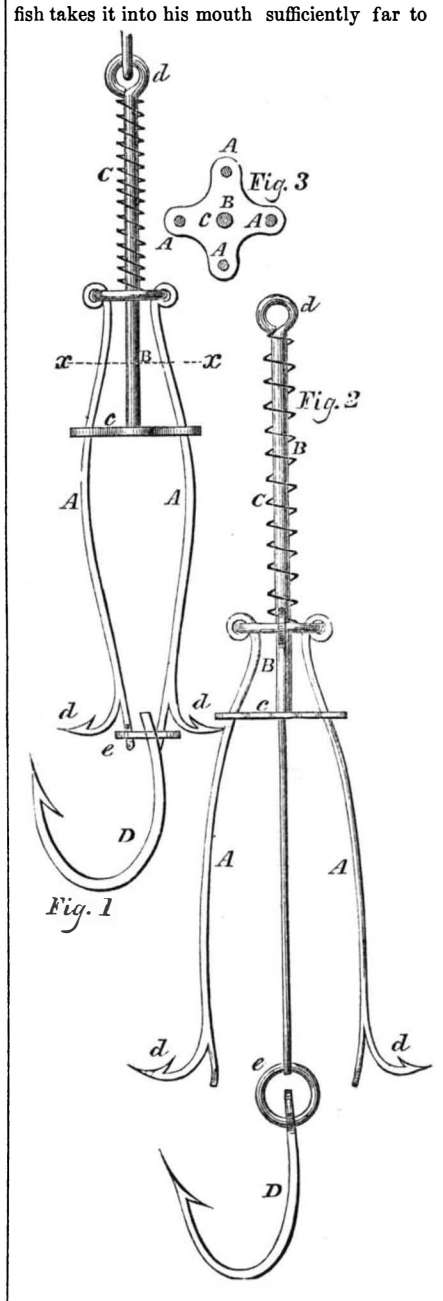
New Patent Fish Hook.

The accompanying figures represent an improved fish hook, for which a patent was granted to Richard F. Cook, of Troy, Pike county, Ala., on the 19th of June last. The invention relates to the kind of hook known as the "Sockdologer," and used especially for catching large fish; and the object of the improvement is to render the hook more certain in action, and capable in every instance of catching and holding the fish securely the moment it takes the bait hook, and points of the spring or barbs into its mouth and pulls slightly.

Fig. 1 shows the hook ready for fishing.—Fig. 2. shows it unset, and fig. 3 is a plan view of the adjusting ring plate taken at *x x*, fig. 1. Similar letters refer to like parts.

A A A A represent four light steel strips or rods made bow shaped, so as to be elastic, these rods are attached loosely to a ring or plate, *a*, by their upper ends, and have barbs or hooks, *d d*, found at right angles on them near their lower ends, in the manner represented. B is a small vertical rod passing down through the ring or plate, *a*, between the strips or rods, A A A A, and connecting fast with a horizontal plate or collar, *c*, which confines the strips, A A A A, as shown in fig. 3. C is a spiral spring placed round the rod, B, between the ring or plate, and the ring, *d*, at the upper end of the rod, B. D is the bait hook, it is connected to the lower end of one of the strips by a ring, *e*, and hangs a short distance below the barbs or hooks, *d d*, as shown.

Operation—Suppose the hook to be as shown in fig. 2, and it is desired to set it ready for fishing, as shown in fig, 1, the ring or collar, *c*, is moved down from the position shown in fig. 2 to the position shown in fig. 1, and held so by the elasticity of the strips; this causes the lower ends of the spring strips, A A A A, to move close enough together to allow the ring, *e*, to be placed round them as shown. The hook is now ready for use, and after being baited is let down into the water. In case a fish takes it into his mouth sufficiently far to



bring the barbs or hooks *d d*, between his jaws, and then pulls slightly upon the bait hook, D, it will be sprung, as shown in fig. 2, or unset, and the barbs, by the action of the spiral spring, C, caused to move laterally from each other, and consequently take into the top, bottom, and sides of the fish's mouth, and confine him securely, and thus relieve the bait hook of nearly all the strain.

Having the lower ends of the steel strips carrying the barbed hooks move towards each other in setting the hook, and from one another when the hook is sprung by a fish, constitutes the invention. By this arrangement the barbs are brought into nearly as small a compass as that occupied by the bait hook, and thus causes the fish to take them with the bait hook into his mouth, and place himself under the immediate action of the barbs, the moment the bait hook is pulled slightly. Whereas in other hooks only the bait hooks enters the fish's mouth, and very often the fish gets loose before the spring relief hook comes in contact with him. More information may be obtained by letter addressed to the patentee.

Scientific American.

NEW-YORK, AUGUST, 25, 1855.

Scientific American Anniversary.

Another year in the history of our journal has almost rolled around, and the time has come for us to enter upon a new campaign. Two issues more, and the tenth volume of the SCIENTIFIC AMERICAN will be complete, henceforth to stand among the records of the past To us it seems as if the wheels of old Time were advancing with a steady increase of pace, for as each year draws to a close, its duration appears to have been less than its predecessor.

But however brief the past twelve months have been, we derive some satisfaction in believing that our labors during this period have not been wholly thrown away; that useful results have, to some extent, attended them; that the number of our friends and patrons have in nowise diminished. This latter fact affords us substantial encouragement for the future, and fills us with increasing desire to merit their continued approbation, by deeper study and more extended explorations in their behalf, into the realms of knowledge.

In reminding our subscribers that the period has come for the renewal of their annual subscriptions, we take occasion to say, that if they have enjoyed any benefit or satisfaction from the pages of our journal during the year now past, they may count upon an increase in their pleasures, from the same source, throughout the year to come. It will be our constant aim to make the SCIENTIFIC AMERICAN more attractive, more useful, and more valuable to every class of readers than it has ever been before.

But all our efforts are, of course, more or less dependent upon the countenance and cooperation of our friends. This year we make a special appeal for their assistance, and we hope the response will be hearty and effective. Thus supported, we shall be rendered strong, and be enabled to go forward in the discharge of our peculiar duties with renewed confidence and augmented ardor.

Will not each of our subscribers cast about a little in the locality of his residence, and see if there is not at least *one* person of his acquaintance to whom the SCIENTIFIC AMERICAN would be a welcome visitor? Will not each of our friends exhibit the prospectus, show our paper, and try to send us at least *one* new subscriber with his own name? We not only ask our readers to do this as a personal favor—which we assure them will be appreciated—but we base our request upon broader grounds.

The influence of the SCIENTIFIC AMERICAN is good. Its tendency is to counteract and destroy every species of error and vice, by attracting the human mind away from evil towards the consideration of useful, absorbing, and delightful subjects. Whoever increases its circulation, even by a single copy, renders a good service to humanity.

For those who are willing to devote a portion of their time exclusively to our service, by canvassing extensively—of course we cannot expect all to do so—we have prepared a list of liberal cash premiums, which are duly set forth in another column. It will be observed that all clubs, societies, and canvassers, are entitled to receive the paper at club rates, which are very liberal; and in addition to this they may take a prize. The crops this year are abundant, money every where is plenty, and business of all kinds is on the increase. Our friends will have no difficulty in sending us large lists of subscribers.

Experiments with the Blades of Paddle Wheels.

A valuable paper on the above named subject has been contributed to the last number of the *Journal of the Franklin Institute*, by B. F. Isherwood, Chief Engineer U. S. N. The proper number of paddles for a wheel has been a matter of some dispute, and the question has been discussed by Mr. Ewbank, in his essay on propellers. Those who assume the position that too many paddles are generally employed, base their opinions on the assumption that "every blade, according to its thickness, forms part of a solid rim, and detracts from the propelling efficiency of the wheel," hence they insist that the number of paddles generally used on paddle wheels should be reduced. The paper referred to throws light on this very point, and seems to settle the question. The experiments to test the question were made on the U. S. steam frigate *Mississippi*, during her cruise in the Mediterranean, in the years 1849, 1850, and 1851, under the direction of the Chief Engineer, Jesse E. Gray. The frigate had occasion to make a considerable number of short trips between Spezzia and Leghorn, a distance of 37 1-2 geographical miles. These passages were made in fine weather—light breezes and a smooth sea—and the dip of the paddles was about equal in all cases. Eight passages were made with the usual number of paddles—21—on each wheel, and the number of revolutions taken with a counter. Every other paddle on each wheel was then removed, reducing the number to 11 (leaving two for the odd number,) in their former position, and one voyage was made with the wheels in this state, and the number of revolutions was also counted. This last performance was not repeated, for the concussion of the paddles on their entrance into the water was so great as to cause an excessive vibration and shaking in every part of the vessel, the paddles struck the water, as if acting upon a solid instead of a fluid substance. "This was the more remarkable, as with 21 paddles in each wheel not the slightest vibration of the hull had ever been experienced from the action of the machinery, the *Mississippi* being noted for solidity and steadiness." When 21 paddles were again restored to the wheels the vibrations and shaking of the hull of the frigate ceased, and all was smooth, steady, and pleasant as before. With the eleven paddles the frigate's wheels made 3536 revolutions in the 37 1-2 miles, while with the 21 paddles she only made 3011 that being the mean of eight passages. The amount of slip with the 11 paddles was 25·74 per cent; with the 21 paddles 12·79 per cent. The slip therefore of the lesser number of paddles was twice as much as the greater number. The paddles at the periphery of the wheel—when 21 were used—were 4·338 feet apart; with the eleven 8·676 feet apart. This relationship of the paddles, and the different results produced by them are scientific data of very great importance.

The $10,000 Reward for a Marble Sawing Machine.

Two weeks ago we published a proposal from Mr. M. M. Manly, of Vermont, in which he offered a reward of $10,000 for the production of a machine which would saw, on a taper, both sides of a block of marble at once.

Since that time we have had submitted to us quite a number of devices for doing the work, accompanied with requests for our opinion as to their probable effectiveness and patentability, which we have given. We have also learned some further particulars as to the requirements which will be expected in the invention. Satisfactory information has likewise reached us relative to the responsibility of the party who offers the prize.

Mr. Manly we are pleased to learn, is a gentleman of great respectability, extensively engaged in the marble business, and of undoubted responsibility. In offering to pay ten thousand dollars for the patent right for an invention which will accomplish the purposes named, he means what he says.

There seems to be a prevailing impression that the invention and construction of a machine that will saw two tapering sides of a marble block at once, is an easy affair, requiring but very little study or labor. We have reasons to believe that this is erroneous. Mr. Manly is, as we have stated, a practical man, and has himself tried many different devices for doing the work, but thus far without the desired success. He, for one, is satisfied that it is no easy job. A machine, to be successful, must do the work cheaper and quicker (all things considered) than it can be done by the single saw. It must, withal, be simple, easy, convenient in handling, and adapted to all the various changes of dimensions required in marble cutting. It must also have been patented. These are the main requisites.

In our previous announcement we cautioned inventors against boring Mr. Manly with letters declaring themselves to be discoverers of the improvement, and demanding the reward before ever they had secured their right, or practically tested their improvements. Circumstances require us to repeat this caution. Time thus spent is worse than wasted. Those who feel satisfied that they have found out the secret, and are willing to risk a few dollars' expense in securing the same, should seek the protection of the Patent Laws without delay. An individual may make ever so good a discovery, but in the present instance, if any one else should patent the same thing before him, he stands a chance of being in an unpleasant predicament. The invention may be very good, but if the right cannot be secured, it is not worth a farthing. Mr. Manly, probably, will not be so foolish as to advance money on an untried and unpatented device.

The improvement now called for is one of an important nature, and is well worthy of the careful study and attention of all inventors. We advise none to be discouraged under the idea that a good many individuals may all be looking in the same direction at once. All stand an equal chance. Those who fail cannot be otherwise than benefitted by making the attempt.

We shall be happy, as always, to consult with inventors, either personally or by letter, respecting the novelty of this and all other improvements. For such consultations and advice we make no charge; but we expect them to send a stamp to prepay the reply. If by any service of this kind, whether personally or through the influence of our paper, the aforesaid invention can be called out, we shall consider ourselves well repaid, for we shall have done a good deed for some one.

The French Industrial Exhibition.

We had hoped that the distressing wail of anguish which has been emanating from the neighborhood of the French Crystal Palace, for several months past, on account of the poor show of goods made by American citizens, would ere this come to an end But it appears these hopes were not destined for so easy a realization.

M. Vattemare, (whose name we honor, and to whom we intend no disrespect,) has lately published a long manifesto at Paris, excusatory, on the one hand, for what our citizens have come short in the Exhibition; and laudatory, on the other, for the miserable little display we do make.

M. Vattemare talks about the disappointment experienced at the London Exhibition, financial hard times, stupor of the North, lack of government aid, difference in language, great distance to send, &c., as constituting the chief reasons why our show is so diminutive.

These apologies are uncalled for. It is well known hereabouts that our countrymen are proof against all such cobwebs. No trouble, difficulty, labor, expense, or distance, ever prevents them from carrying out a purpose:—neither the hights of Arctic ridges, nor the depths of Indian seas, present barriers to their advance. Wherever a palpable object is to be gained, Americans are always on hand. They believe in the proverb, "Where there's a will there's a way."

The reason why our people did not compete more generally at this Exhibition, is very simple,—*no sufficient inducement offered.* They knew, intuitively, that it could not remunerate them for the time and trouble. They are excessively occupied in home enterprises, and have no time or money to waste on outside speculations that "won't pay." This is the true explanation of the whole matter.

But M. Vattemare also labors to prove that the American show is "some pumpkins," after all; at least that it ought to be so considered, since the few individuals who do exhibit, went through fire and water to get there. They were also compelled to sustain upon their scarce, but devoted and patriotic shoulders, the entire weight of their country's national dignity—besides carrying about in their bosoms an immense amount of "affection for France."

After some highly complimentary remarks upon the value and beauty of various American books and charts, Mons. V. notices the mechanical branch of our exhibit, and says:—

"The renown of the Americans, as constructors of agricultural and other machines is universal; the few models exposed demonstrate abundantly that they are not below their reputation. Without dwelling upon this subject I should remark that these models will be the more admired in reflecting upon the numberless difficulties which the exhibitors have had to surmount to bring them to Paris."

[The difficulty of conveying a few models to Paris must have been appalling,—harder than sending troops to the Crimea.]

"Some of these agricultural machines come from the solitudes of the interior, and traversed lakes and mountains before reaching the port of embarkation. For example, the reaping and mowing machines sent from Illinois, and which are sold for about $160 each occasioned a cost of transport for each of the gentlemen sending them an expense of $3000."

What a wonderful feat in transportation, to ship a mowing machine from Chicago to New York! Traversing lakes on a steamboat and interior solitudes, mountains and all, in a freight car, is equally extraordinary. But the most singular item is the expense,—*three thousand dollars* for sending a mowing machine to Paris! Why, an entire ship could have been chartered for less money than that. Either M. Vattemare is joking, or else some follower of Munchausen has been experimenting on his credulity.

We trust we have said and quoted enough to show the folly of this continual blating about the "American Department of the French Exhibition." Compared with other nations, our display it insignificant, and hardly worth mentioning. The least said about it the better. Grandeur and importance there is none; the torture of high sounding words and overdrawn statements, in support of the contrary, is useless. No "whipping-around" can alter the fact. Far more creditable to us, will it be under the circumstances, if we stick to the modest truth, and drop all vain pretensions.

Activity and Progress among Inventors.

The business of the U. S. Patent Office appears to experience no falling off. Since the commencement of the present year there has been a steady increase in the number of applications made and patents granted. The indications are equally promising for the forthcoming six months. It is also observable that the character of inventions improves; they are more ingenious, more useful, and more of them are valuable than formerly. No one, we think, can examine the list of patents which we herewith publish, without being struck with this fact. Many of the claims are interesting and important. These circumstances show that the inventors of our country are progressing in knowledge and intellectual power.

It is a matter of some personal gratification to us to state that almost *one half*—fifteen—of the entire number of the patents whose claims we this week record, were prepared and conducted by ourselves.

Wind vs. Steam.

A Paris correspondent of the *National Intelligencer* says that the steam line-of-battle ship *Navarino* was detailed to accompany the famous American clipper ship the *Great Republic*, on her voyage from Marseilles to the Crimea, "and, if necessary, to tow her; but it appears the latter was obliged to furl all her canvas except three topsails to enable the *Navarino* to keep up with her. The French officers were utterly confounded at her fleetness."

Subsitute for Money.

The SCIENTIFIC AMERICAN at $2 a year. Tell it to your friends.

SPLENDID CASH PRIZES!

The proprietors of the SCIENTIFIC AMERICAN will pay in cash the following splendid prizes for the fourteen largest list of subscribers sent in between the present time and the 1st of January, 1856; to wit:

For the largest List	$100
For the 2d largest List	75
For the 3d largest List	65
For the 4th largest List	55
For the 5th largest List	50
For the 6th largest List	45
For the 7th largest List	40
For the 8th largest List	35
For the 9th largest List	30
For the 10th largest List	25
For the 11th largest List	20
For the 12th largest List	15
For the 13th largest List	10
For the 14th largest List	5

Names can be sent in at different times, and from different Post Offices. The cash will be paid to the order of the successful competitor immediately after the 1st of January, 1856.—Southern, Western, and Canada money taken for subscriptions. Post-pay all letters, and direct to

MUNN & CO., 128 Fulton st., New York.

☞See prospectus on the last page.

[For the Scientific American.]

Variation of the Magnetic Needle.

The Legislature of Pennsylvania passed a law in 1850, among the provisions of which the county commissioners of each county were required to establish and mark near the Court House of each a true meridian line, and a fixed standard measure for a two pole chain. The same law requires every land surveyor to adjust and verify his compass, and to ascertain the variation of its needle from the said meridian, and enter the same whether east or west, and the day on which he made the adjustment, and subscribe his name thereto in a book to be kept for that purpose by the said commissioners. This has to be done during the month of April every year. Any surveyor who shall neglect or refuse to comply with the requirements of the law, by making a survey with an adjustable compass or chain, shall for every such neglect or refusal pay the sum of ten dollars, on complaint made by any person interested in such survey.

In accordance with the requirements of this law in the year 1852, 45 surveyors adjusted their compasses and chains, and made the necessary entries, the result of which was an average variation of four degrees, twenty minutes, and nineteen forty-fifths west of north.—In the year 1853, thirty-three entries were made, showing an average variation of four degrees, twenty minutes, and nineteen thirty-thirds west of north, being an increase of sixteen seconds. In 1854, thirty-one entries were made, the average of which is four degrees, twenty-three minntes, and one-thirtieth, being an increase of two minutes and twenty-seven seconds over the year previous. The entries made in the same month show a difference of three-quarters of a degree, thus showing the difference of compasses at the same time and on the same fixed line. There is a difference in the variation at different times of the day. One surveyor made two entries on the same day, with the same instrument, on precisely the same line, and found a difference of seven minutes between six A. M. and six P. M. The lowest variation entered during the years 1852, 1853, and 1854, is four degrees, and the highest four degrees and three-quarters west of north. This shows the amount of error in instruments, and the use thereof.

By a letter I lately received from the city engineer in St. Louis, it appears that the variation at that place is seven degrees and fifty-seven minutes east of north.

Not having seen any answer to several questions propounded in my letter published in the Scientific American, June 30th, 1855, page 331, I hope you or some of your numerous scientific readers will favor us with answers, or refer us to where they may be found.

George P. Davis.

Kennett Square, Pa., July 21, 1855.

[Our correspondent's questions were as follows: First, "where does the line of magnetic no-variation pass through the United States north of North Carolina?" A paper on the subject of magnetic variations in different States, by Dr. Lock, will be found in the Transactions of the Smithsonian Institute, which may give him all the required information. Second, "Is there more than one magnetic pole?" There are two. Third, "Do they shift?" They do.—Fourth, "Is the line of no-variation straight or crooked." It is very irregular. Fifth, "does the line of magnetic no-variation change from east to west in a given number of years, and if so, what is the cause?" It has been so changing since 1629. The cause is unknown. There is much that is mysterious and to learn, connected with the magnet, but every year new developements are made.

Raw Hide Bearing Boxes.

Messrs. Editors:—You have published several articles lately upon Wood Bearings. In the last number of your paper a writer says that wood prepared according to his plan, makes the best journal box of any known substance. I have not tried the experiment; but I have reason to believe that strips of hard and well seasoned raw hide, inserted in journal boxes, will wear longer than wood, and with less friction. It is used by machinists for "steps" instead of steel, and it is quite superior for this purpose. Samuel Brown.

Piermont, N. Y. Aug. 6, 1855.

Remarks on Reaping Machines.

Messrs. Editors—I have frequently marked the inefficiency of committee reports on agricultural machinery, and was struck by the judicious observations in your paper of the 28th ult. respecting the trial of reaping machines. The absurd statement of a committee that they had not time to examine the machinery, the very soul of the whole implement, showed how unfit said committee were for the examination.—Every one using the machines know they are hard to pull; why have no accurate experiments been made on this point. I own one of Ketchum's machines, and Mr. Allen having sent one of his machines to this neighborhood, he wished me to cut some of my grass with it to exhibit it. Notice having been given, a number of farmers met, and were fully convinced of the advantage in lightness of draught and simplicity of construction of this machine over Ketchum's and on a subsequent trial over Manny's. They were worked with the same team, and my driver said it made a difference of one third in the power. All the mowers did the work equally as well, but Allen's machine has not required to be touched since I have had it, and Ketchum's has required a great deal of repairs. Ketchum's crank is out of sight, is a difficult piece to make, as short bends in a small piece of iron are seldom entirely sound, and the nuts on the crank boxes are apt to shake off. In all this, Allen's will be seen by any machinist to be very superior. All the gearing is in sight, and the simplicity of the machinery for putting it in and out of gear is no small advantage in an implement which a multitude of accidents show is not a safe one in careless hands. I cut an acre in 52 minutes with either machine; Ketchum's with three horses, Allen's with two, heavy grass, and a very hot day. Wm. H. Denning.

Fishkill Landing, N. Y., Aug. 1855.

Coach Painting.

Messrs. Editors.—The Editor of the *Coachmaker's Magazine*, on page 310 Scientific American, undertakes to correct a "novel error" of mine in a friendly manner. I still hold that coach and body varnish are copal varnishes; there are various qualities of copal varnish used for various purposes, made to suit by the addition of more or less oil, gum, or rosin, to increase the luster, dry harder, or quicker, or to make it tougher or to cheapen it. And so far as I know, the coach varnish is the purest and best copal varnish used. If it is not so, and the Editor wishes to correct my "novel error," he must tell of what it is made. I did not give my recipe for making varnish as the best or only way, but will venture that he cannot give a recipe more easily followed to answer better for every purpose. The filling for bodies submitted to my consideration is good, and well known, among coach and carriage painters; so with his rubbing down and finishing; and as my article was intended for such as were not themselves, and could not obtain experienced workmen, they can try both, and if they are benefitted my object is attained. I think the Editor of the *Coachmaker's Magazine* overlooked one very material feature in my plan for painting, viz., filling and varnishing; as but little cutting down and leveling with pumice-stone, will be found necessary. I would still advise the use of the coarse linen cloth, as I know it to be good, and there is not much danger of scratching the painting by rubbing the varnish. A. W. H.

Platte City, Mo., Aug., 1855.

Double and Single Steam Engines.

Messrs. Editors—Can any of the readers of the Scientific American furnish the results of working a pair of steam engines together, and also one of them by itself? Can one engine use steam to the same advantage as two engines of the same caliber? Upon this point there is a difference of opinion among engineers. This question ought to be settled by competent authority, as it is one of interest to many persons, as well as to the writer of this. I would like to know if one engine can use steam—theoretically and practically—as economically as two. What is your opinion, Mr. Editor? Yours, respectfully, J. E. Barber.

New London, Ct., Aug. 8, 1855.

[We can advance no reason why a pair of steam engines should use steam more economically than one of the same capacity as the two.—Ed.

Recent Foreign Inventions.

Coating Metals with Tin, Nickel, and Aluminum—Mr. Thomas, of Fulham, and Mr. Tilley, of Holborn, Eng., have recently obtained a patent for plating metals with other metals, particularly the three named above. In preparing the solutions of the metal to plate with, for tin they dissolve a sufficient quantity in nitro-muriatic acid, and then precipitate the metal by an alkali or alkaline salt; the ferro-cyanide of potassium is preferred. Sulphuric or muriatic acid is then mixed with the precipitated oxyd, and a portion of water added, boiled in an iron vessel, with a small portion of ferro-cyanide of potassium, and the liquor filtered. Another process is to pass a stream of sulphuric acid gas through the filtered solution. For nickel, the metal is dissolved in nitro-muriatic acid, and the oxyd then precipitated by ferro-cyanide of potassium, washed in distilled water, cyanide of potassium added, boiled and filtered. For aluminum, they dissolve alum in water, and add ammonia until it ceases to precipitate; it is then washed, filtered, boiled with distilled water and cyanide of pottassium, and filtered. Having obtained either of these solutions, the articles to be plated are suspended by copper or brass rods in a bath of the required solution, and attached to the zinc pole of a galvanic battery, to the positive pole of which is attached, in the case of tin, a piece of platinum; for nickel, a pole of tin, and a bag of oxyd of nickel; and in the case of a bath of aluminum, a bag of aluminum, a pole of aluminum, and a piece of platinum."

Ornamenting and Printing Surfaces—Guiseppe Devincenzi, of London, patentee—The following is in substance taken form Newton's *London Journal*, and appears to be an important invention, of extensive application.

For the production of impressions suitable for printing from, and for other like purposes, sheets or surfaces of hard metals, such as steel or copper, engraved by pressure, are employed; or, for some particular purpose, softer metals, or a great number of alloys, and even other substances, such, for example, as wood, are used. When sheets of hard metal are employed, they are first rendered as soft as possible, either by annealing or other means capable of rendering them fit to receive impressions, and they are then placed on the objects from which the impression is to be obtained; whether such objects be natural, as feathers, leaves, &c., or manufactured, as lace, embroidery, paper cut out in figures, or generally any object which either possesses or can be made to possess sufficient hardness, either by desiccation or otherwise. The metal plates and the objects on them are then subjected to strong pressure, and an impress of the objects is obtained. To give the pressure, two rollers of very hard steel, which work in the manner of common flatting rollers, are employed. When it is desired to obtain a sunk impression on a cylinder or roller, the object from which the impression is to be taken is introduced between that roller and an ordinary pressing roller. When the impression of both sides of the same object is required, as for example, the two sides of a leaf, the object is pressed between two sheets or surfaces of metal, and the plates of metal are subsequently hardened in the usual way; or, as in the case of copper, become sufficiently hardened by the compression they undergo in the process of producing the impression.

By this part of the invention, figures or designs are drawn upon the surface of a softened sheet of metal, with varnish or gum, upon which hard granular matters, such as emery or other hard body, are dusted; or the granular matters are mixed with the varnish or adhesive material, previous to applying the same to the surface of the softened metal; or these matters are formed into pencils or sticks, with which the figures or designs are drawn upon the surface of the softened metal. When the figures or designs are well dried, the sheet of metal is subjected to pressure, and thus a perfect impression of the figures or design is obtained. The pat ntee sometimes forms the designs on surfaces of hardened steel, or on paper, or other like substances, and then applies these surfaces against other sheets or surfaces of softened metal, which, by means of pressure, are caused to receive the sunk impressions. After having obtained the sunk impressions, whether of natural or manufactured objects, on softened metal plates or surfaces, he again hardens the plates or surfaces, if of steel or other like metal, by the means ordinarily employed for that purpose. An impression of figures or designs, produced by the method described, is sometimes obtained on soft metals, such as lead, or on other soft materials, such as gutta-percha, and galvano-plastic copies are taken therefrom. Or impressions of natural or manufactured objects, or of designs or figures on metal or other materials, may be taken in plaster of Paris, and copied by the stereotype process. When an impression in relief of a sunk design or pattern is required, the latter is used as a mold. In order to give to the impressions, whether obtained by the galvano-plastic process or by stereotyping, the necessary relief for printing from them, some material is applied to cover those parts of the plate that serve as the mold, which are not occupied by the impression to be reproduced; and sometimes the graver, or the action of acids, is employed, either on the impression which serves as the mold, or on the impression reproduced.

In order to harden objects which would not otherwise bear the pressure to which they are submitted, a solution of bi-chloride of mercury and of chloride of ammonium, is used as a bath to receive the fleshy or other substance, and it is allowed to remain there until the required effect is produced. Or the substances may be hardened by submitting them to dry heat until they are sufficiently solidified. The plates or surfaces, whether metallic or non-metallic, on which impressions have been produced by the improved modes of operating, may be employed for a large number of uses.

Western Rivers.

The Hon. Erastus Corning, of New York, and other heavy capitalists, are said to have joined the company which has in charge the improvement of Fox river and its connections in Wisconsin. It is estimated that the company will have a surplus of from one million to fifteen hundred thousand acres of the land appropriated by Congress, after completing the improvement. This it is proposed to put into a railroad between St. Paul and Green Bay. The road will be nearly five hundred miles in length, and as the lands are located in the pineries of Northern Wisconsin, they will go far toward the completion of the road.

The Plague of Grasshoppers.

Some parts of our country have suffered as severely from innumerable hosts of grasshoppers, as districts in Africa and Asia often suffer by locusts. They have actually consumed "every green thing," this season, in various parts of California, and in the Mormon settlements around Salt Lake. The California *Chronicle*, (San Francisco,) states that their ravages have been very destructive in the Valley of the Sacramento. The Pomological Gardens of Sacramento City, and the other Gardens in the neighborhood, have been completely ruined.

Anointing with Oil and Washing with Water.

C. Dowden, of Newark, N. J., has communicated to us by letter his reasons why anointing with oil, as recommended by Mr. Septimus Piesse, should not be substituted for washing with water in our country. Water containing some alkali in solution, he states, is necessary for removing the acids generated by perspiration. It is not with us as with the natives of India who anoint with oil, as they go mostly nude. Evening, he states, is the best period to perform our ablutions. His views are very good, but both customs of the Hebrews—anointing with oil and frequent washings—are not incompatible with one another.

Manufactures from Slag.

A joint stock company has been formed in London with a capital of $600,000, for the purpose of converting the slag or refuse of iron works into various articles for which marble is now used, such as table slabs, mantel pieces, &c.

California Slate.

A large and long ledge of purple colored talcose slate has been discovered by I. W. Underwood, near the mining precinct of Washington, which lies some twenty-five miles above Nevada, on the South Yuba. The Sacramento *Union* says that this ledge, in some places crops out of the ground some five or six feet, and extends to a much greater depth below the surface of the earth; the supply is inexhaustible.

TO CORRESPONDENTS.

H. B. T., of Fort Howard.—We have no copy of the Annual of Scientific Discovery to furnish you. It is published by Gould & Kendall, Boston. The article on Benzole is in the Vol. for 1850, page 191. Be sure of obtaining a supply at $1 per gallon, before you commence to use it.

W. G., of Pa.—The model need only show such portions of the engine as relate to your improvement. It must be sufficiently perfect, however, to show the exact nature and operation of the invention.

J. J. F., of Ill.—A double crank arrangement, substantially like yours, was employed many years ago to operate two pistons in the same steam cylinder, the cylinder receiving the steam between and outside of the pistons, alternately, and the pistons receding from and advancing towards each other. It was proposed to apply this to locomotive, marine, or other engines. Two cylinders have also been arranged to communicate with cranks opposite to each other, though perhaps not in locomotives. We are doubtful whether you can secure a patent unless it be on some limited claim for arrangement of parts. The fly fan or windmill is not new, the same th g has been applied to a dining table to be operated by a treddle.

G. W. B., of N. Y.—Mr. Manly does not care what sort of saws are used, whether straight or circular, so long as the work is done quicker and cheaper than at present.

P. A., of N. Y.—Your article on the Farmers' Club, &c., is correct, but too personal for publication.

H. Glessner & Co., of Elizabeth, Ill., want to know where they can get the best kind of knitting machine for heavy woolen yarn—one that will do a large amount of work.

D. D., of N. Y.—The cheapest solution for preserving timber is sulphate of copper and alum; steep the timber in this in a tank—one pound of each to 20 cubic feet of water—for a few days, then take it out and dry it well. It would be well to coat with tar before you drive in your spiles; if boards, paint them with white lead.

W. T. C., of Mass.—The Commissioner has no power over a patent already granted. He may declare an interference to exist between the original patent, and a subsequent applicant for the same. If he decided in favor of the latter, he may grant him a patent. Two patents will then exist for the same invention, and both will continue to be valid until one party sues the other for infringement. The courts will then decide the matter by giving damages against the infringer, and thus give one of the patents its quietus. Our laws are defective in this particular. Two patents for the same invention should never be granted.

S. S., of Me.—An extra seat, attached to the center of the ordinary seat of a carriage, so that the occupant of the former will appear to be sitting between persons seated on the latter, is very old. Using an iron wrench of the right length, as a support for said extra seat, would not be patentable.

S. B., of ——.—We have been told that elderberry wine is excellent when well made, but we are not practically acquainted with the mode of making it. Also that two pounds of loaf sugar added to a gallon of the berry juice mixed with one gallon of water put into a cask and left standing in the cellar for three months, makes good wine.

E. R. B., of N. J.—Black shellac varnish can be made by adding ivory black to the varnish, or the same to copal varnish; this latter will do for making black pins for mourning, as it is black japan.

W. R.—You could, without any doubt, propel a carriage by means of springs as proposed. There is nothing patentable in the idea. Perhaps in carrying out the detail you would introduce something new. Your plan, as thus far presented to us, contains no patentable novelty. We are of opinion that vehicles could not be thus propelled with economy, compared with horses or steam. You omitted to give your address.

J. H. S., of S. C.—We are obliged to you for the diagram of your 1250 foot artesian well, and will publish an illustration of it in the Scientific American in some future number.

S. J. S., of Iowa—Your article is solid and profound, but in the present state of knowledge relating to the history of the earth it may be considered "an exhausted subject."

H. S., of Ohio—Your device for sawing marble looks to us as if it would do the work. Still the practical test may reveal some inherent defect. Your chances for a patent are good. Send the model and government fee to this office, by express, whenever you desire to have us proceed.

B. C. S., of Va.—The plan you describe for feeding papers has not been tried that we know of—think it is new. Several devices for feeding the sheets of paper into the printing press have been made, which work successfully in passing them in the first time, when they are all laid even. But the sheets do not come out quite straight from the press, and the sticking point is to straighten them so that they will all start right the second time.

G. E., of N. Y.—We think there is a machine for punching holes in harness and other leather for sewing. Can not inform you as to Barber's rotary engine.

G. F. J. C., of—The patentee of the latest typographer is Robert S. Thomas, of Wilmington, N. C. Address him for information. You did not state your residence.

D. W. G., of Fla.—As far as you describe your rotary engine there is nothing in it but what is common to all rotaries, and no patentable feature.

G. M., of Ill.—We filed a caveat for a gentleman several years since for an arrangement equivalent to yours—putting cotton bags between the cars. We think that no railroad company would adopt it, although in the event of collision it would no doubt be useful.

J. D. H., of Ill.—The idea of raising water by placing a vessel in the bottom of the well into which the liquid flows, and then forcing air down one pipe so as to cause the water to rise through another by atmospheric pressure, is not new. Such devices have long been known and used. They possess no advantage whatever over the common pump. Indeed they are not as good. There is always the weight of water to lift, and whether it is done by atmospheric pressure or direct action, the amount of power required will be the same in both cases.

S. K., of N. Y.—There is nothing patentable in merely swaging out an article instead of making it by a more tedious process. Neither is there in the substitution of one metal or quality of metal for another. Such changes are not now regarded by our government as inventions. A few years ago, however, it was common to grant such patents. Your cultivator shank and tooth are not patentable.

F. T., of Mass.—See an article on page 211, Vol. 8, Sci. M., on the method of making gun cotton.

W. B. G., of N. Y.—The latest work on naval architecture is that of J. Griffiths, this city, editor of the *Nautical Magazine*.

A. Y. E., of N. Y.—Glass is not porous, and will answer your purpose to exclude the air from articles confined in it.

L. G., of Ind.—Watson & Renwick, of Washington, D C., obtained a patent for a mower, to reap and bind the sheaves at one continuous operation. We have never heard of the machine being used.

J. W. S., of N. Y.—We have refused to insert a number of good articles because of the signs used in demonstrating problems. Errors are too likely to occur when the author cannot correct his own proof; we therefore decline to publish his MS.

T. M., Jr., Ct.—It would require too much space to describe the construction and operation of marble saws.—Go to some marble yard and see for yourself. That will be far better than any printed description.

S. C., of Pa.—Smart's patent for a fly trap was granted in 1851. See Sci. Am., Vol, 9, page 389, for illustration of Flander's Patent Trap.

G. W., of Vt.—It has often been proposed to make trains record their passage over certain places by the electric telegraph. Your plan possesses novelty, but it could not be easily introduced. We do not think it would remunerate you.

D. W. D., of Ohio—We do not know where you can obtain a spiral spring of the kind you want. We have an interesting article on flying by J. B. Conger, but have not yet found space for its publication.

R. McD., of N. Y.—The vacuum tube is an old invention. Mr. Richardson has never claimed to be the author of sending packages in this manner, only a peculiar mode of doing it.

W. B. R., of Pa.—The manufacture of blocks from slag of furnaces for pavements is not patentable, and is not new.

F. W., of Phila.—You are correct about the lime for absorbing noxious gases in wells; the reasons for its action as you assert, were correct. This has been our experience.

F. J. M., of Mass.—The only object in sawing two sides of a tapering block of marble at once is to save time and labor.

C. R. F., of Ill.—The engravings of your saw mill will appear in next week's paper. The cuts, model, &c., will be sent agreeable to your order as soon as we are through using the former.

F. H. P., of Ct.—The circular which accompanied your letters patent when sent to you by the department, simply relates to the prices charged for recording assignments, copying specifications, etc., which may be ordered by other parties than the patentee. It has nothing to do with the engrossing of your patent or for any other services already rendered, but merely a scale of prices, that you may know the amount to remit with an assignment, if you wish one recorded.

M. C., of Pa.—We do not know where you can procure the Alfalfa clover seed.

J. G., of Ohio—Heat your punches to a red heat and dip them in cold water. They require tempering so often that this is the most economical method to pursue.

H. W. A., of N. C.—Have you not made some mistake about the quantity of water; it does not amount to seven cubic feet per minute, and on a fifteen feet fall is not one horse power. It will not suffice to drive a Mulley saw, no matter what wheel you use.

H. G. B., of Mich.—The tube through the interior of Pearsal's flour barrels does not bring the air into nearer contact with the flour; it excludes the air, but tends to keep the center of the flour cool. This is its object, and you have misunderstood it.

H. J. T., of Me.—Any new and useful improvement is patentable, and yours on box-making machines appears to embrace these qualities, and a patent can no doubt be obtained.

R. J., of N. Y.—Your fall being 20 feet and the water 60 cubic feet per second, it will be 136 horse power; it is a fine water power.

W. T., of New York.—We will show how shallow the information of the person you speak of is, on the atmospheric resistance of railway trains, before we leave the subject. Your information is very useful.

Money received at the Scientific American Office on account of Patent Office business for the week ending Saturday, Aug. 18, 1855:—

T. C., of Wis., $55; A. H., of N. Y., $30; W. G. H., of Pa., $25; G. W. W., of N. Y., $30; W. R. C., of Tenn., $20; W. N. M., of Mass., $25; G. & W., of N. C., $30; R. G. P., of N. J., $30; W. & M., of N. Y., $55; R. B., of Pa., $25; J. T., of Ct., $25; C. P. S. W., of N. H., $30; E. W., of N. Y., $30; J. K. T., of N. Y., $30; B. & F., of N. Y., $20; J. W., of N. Y., $35; A. F. A., of Ct., $30; G. W. B., of N. Y., $55; H. R. S., of N. Y., $25; A. W. S., of Vt., $30; W. & B., of Mich., $30; L. E. S., of Ct., $25; D. B., of Vt., $13; W. H., of O., $30; N. W., of Ala., $15; E. G., of Mass., $19; J. B. B., of La., $40; H. A. G., of N. Y., $15; L. K., of N. Y., $27; J. C. H., of N. J., $25; J. W., of N. J., $25; C. T. C., of N. Y., $12.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Aug. 18:—

J. W., of N. J.; C. J. C., of Pa.; W. R. C., of Tenn.; W. N. M., of Mass.; R. B., of Pa.; C, T. C., of N. Y.; T. C., of Wis.; J. T., of Ct.; H. R. S., of N. Y.; D. B. o Vt.; T. D., of Ala.; L. E. S., of Ct.; L. K., of N. Y. J. D. H., of Ya.; E. G., of Mass.; J. W., of N. Y.

Important Items.

Back Numbers and Volumes—We have the following numbers and volumes of the Scientific American, which we can supply at the annexed prices:—Of Volume 5, 40 numbers, bound, $1,75. Of Volume 6, all,—price in sheets, $2; bound, $2,75. Of Volume 8, none complete, but about 30 numbers in sheets, which will be sold at 50 cents per set. Of Volume 9, bound, $2,75. Of Volume 10, all except Nos. 17, 25, 26, 27, and 28, at the subscription price.

Patent Claims—Persons desiring the claim of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office, stating the name of the patentee, and enclosing $1 for fees for copying.

Receipts—When money is paid at the office for subscription, a receipt for it will always be given; but when subscribers remit their money by mail, they may consider the arrival of the first paper a bona fide acknowledgment of the receipt of their funds.

Science and Art.

The Art of Dyeing.—No. 35.

Coloring Straw—As much straw is made into hats in our country, and as colored hats sometimes become fashionable, in which case old white ones may be made "equal to the fashion," a knowledge of the processes of coloring them will be very useful to many persons.

For all colors except black, straw hats should be thoroughly cleaned, to remove all grease from them before they are dyed. This is done by steeping them for fifteen minutes in strong soap suds, then rinsing them well in hot water. It is sometimes necessary to rub bar soap on the inside of a hat at the center of the front, where it comes in contact with the head, and to brush it on a board, before all the grease can be extracted.

Peach Blossom Color—Take a small clean copper kettle, and add four ounces of cudbear and one of soda to one gallon of water, and boil one bonnet in this for half an hour, it will then be colored. It is now taken out, washed well in clean cold water, and dried.

Silver Gray—Add to the old liquor in which the foregoing hat was dyed, half an ounce of alum and one of the extract of indigo (this is now to be found in almost all druggists' stores,) and boil a hat in this for twenty minutes, when it will be colored. It is then taken out and washed.

Light Blue—To one gallon of water, in a clean vessel, add one ounce of the extract of indigo and half an ounce of alum, and boil the hat or bonnet in this for twenty minutes. It is then washed in cold water and dried in a cool place.

Dark Blue—Into one gallon of water put half an ounce of crude tartar and one-fourth of a pound of copperas, and boil a hat in this for fifteen minutes. It is then taken out and rinsed in cold water. Into another like vessel containing one gallon of water, add one ounce of the yellow prussiate of potash, and boil the hat in this for ten minutes. It is then lifted and cooled a few degrees below the scalding point, and a little vitriol added, so as to render the liquor slightly sour in taste. The hat is then entered in this, and soon becomes a rich deep blue. If not dark enough, let it be redipped for five minutes in the copperas liquor, and again in prussiate liquor. It is then washed and dried. Great care must be exercised in introducing vitriol into hot water. It should be first mixed with ten times its quantity of cold water, and thus poured into the hot, for when vitriol comes in contact with hot water a small explosion takes place, and the vitriol may be thrown out into the face of the person introducing it. This advice is of some import to young chemists and inexperienced bleachers, dyers, and color makers.

Light Fawn—Boil four ounces of sumac, four ounces of crop madder, four ounces of fustic, and half an ounce of alum in one gallon of water for five minutes, then introduce the hat and boil it for ten minutes. It is then lifted, and a piece of copperas about the size of a Lima bean introduced into the liquor, which is now well stirred up, and the hat re-introduced and boiled for five minutes longer, when it will be ready for washing.

Lavender and Slate—To one gallon of water add half a pound of logwood and one ounce of alum; boil the hat in this for twenty minutes, then take it out, and add one-eighth of an ounce of blue vitriol (sulphate of copper,) and boil the hat in this for ten minutes. By adding about one-fourth more logwood to this liquor, and one-fourth of an ounce of copperas, and boiling a bonnet in it for fifteen minutes, it will be colored a slate.

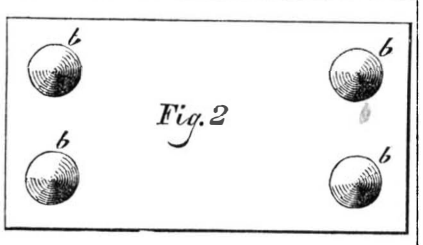
Another Method—A few years ago slate colored bonnets were very fashionable. The way most of them were dyed was by boiling in a weak logwood liquor and a little muriate of tin for ten minutes, so as to dye them a light purple. On the top of this they were dyed a light blue with the sulphate of indigo in hot water. All shades of lavender and slate may be dyed on straw hats by this method, which appears to be the best. The quantity of dye stuff must be proportioned to the depth of shade. It is an easy matter to add more when the shade is too light, but if too dark at the first dip, the color must be removed with hot soap, and the process commenced again. How necessary then to commence with a weak liquor to work up to a pattern or particular shade.

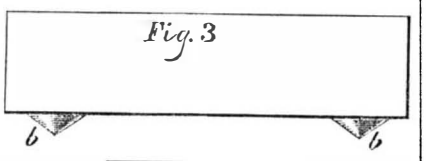
Brown—Into one gallon of water introduce half a pound of logwood, one pound of peachwood, and one of fustic, and one fourth of an ounce of alum. A hat is boiled in this for twenty minutes, then lifted, and half an ounce of copperas introduced, stirred up well, and the hat re-entered, and boiled for ten minutes, then lifted and washed. More dye stuffs will make a darker shade. A deep brown can also be dyed on bonnets with catechu, by pursuing the same process as that described for dyeing brown on cotton in the preceding articles; the only difference in the process is simply to use hotter liquors for the straw.

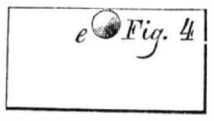
Another Method—Boil the bonnet in one ounce of blue stone and four ounces of alum in one gallon of water, for twenty minutes.—Lift it out and rinse it, then boil for half an hour in a clean liquor containing half a pound of peachwood, the same of fustic, and two ounces of logwood, in one gallon of water. It is then lifted out, and one ounce of copperas introduced and stirred up in the liquor. The hat is now re-entered and boiled for ten minutes longer.

The alum, blue stone, and copperas must be entirely dissolved before a hat is placed in the liquor; if this is not done, it (the hat) will be spotted. By using a larger kettle than the one specified for dyeing one hat at once, any number of hats can be so colored at one operation, by using a proportionate amount of dye stuffs to those laid down for dyeing one hat. Coarse hard straw is far more difficult to dye than Leghorn or Tuscan. Chip hats are also dyed in the manner described, but do not require so much dye stuffs. Straw hats must be handled with great care, so as not to break the braids. Horse hair hats can also be colored in the manner described,

Patent Brick.

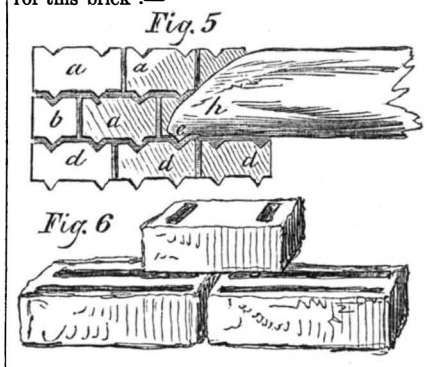






The annexed figures are views of an improved brick, for which a patent was granted to Levi Till, of Sandusky, Ohio, on the 19th of last June. The nature of the improvement consists in forming each brick with channels or grooves upon the top, and with projecting conical spurs upon the bottom and upon one of its ends.

Figure 1 shows the two channels or grooves, *a a*. Fig. 2 represents four projecting conical spurs intended to fit into the grooves, *a a*,—the spurs of one brick fitting into the grooves, *a a* of another, and vice versa. Fig. 3 is a side view of a brick, showing the conical spurs, *b b*, in elevation. Fig. 4 represents a small spur, *c*, intended only to keep the bricks as laid in the wall, at such an exact and uniform distance apart as shall leave the *proper* space for mortar. Figure 5 shows a section of wall with the end of a joint, *h*, laid upon it, which can be done by the carpenters on each story, as soon as the bricks are laid. *a a* and *d d* show the ends of brick, and *b* is the half brick. A piece, *e*, is nailed on the end of the joist to fit into the channel of brick, and which acts as a tie. Fig. 6 is a perspective view of three of these bricks. The following extract from the specification sets forth the advantages claimed for this brick :—



"It will be perceived at once that in bricks made upon this plan, the improvements will consist, 1st, in the greater security and strength of the walls locked and bound together by this device. 2nd, the bricklayer is enabled to lay several courses without the use of the line, and with much greater rapidity and accuracy than with common brick, it being scarcely possible to go wrong; and, 3rd, the spaces for mortar between the bricks are necessarily uniform, exact, and equal.

"These improvements are believed to distinguish my invention from all others, and especially that of Edmund Cartwright, patented in 1795, inasmuch as my bricks rest firmly upon their several conical projections within the grooves, and are at the same time imbedded in mortar, while those of Cartwright cannot come in contact with each other to resist external force, until the mortar is first ruptured, thus destroying the solidity of the wall. Another essential difference may be added, that bricks made on Cartwright's plan are much more costly, and must be varied in form, to suit the various kinds of work to be executed, while mine are cheap and suited to all kinds of work, without change of pattern."

These bricks, united together, form a continuous chain—very suitable for the construction of domes and other such structures, as they are well adapted for resisting outward thrust, and they can be united by any "bend" which is possible for common brick. The wall cannot separate, while there is sufficient weight on the top to keep the spurs in their channels. Such bricks will be good for building deep shafts in mines.

More information respecting them may be obtained by letter addressed to the patentee at Sandusky.

State Agricultural Shows, 1855.

Connecticut, at Hartford, October 9–12.
Alabama, at Montgomery, October 23–26.
Canada East, at Sherbrooke, Sept. 11–14.
Canada West, at Coburg, October 9–12.
East Tennessee, October 23–25.
Georgia, at Atlanta, Sept. 10–13.
Illinois, at Chicago, second week in October.
Indiana, at Indianapolis, October 17–19.
Kentucky, at Paris, Sept. 25–28.
Maryland, at Baltimore, last week in Oct.
Michigan, at Detroit, October 2–5.
New Hampshire, Sept. 12–14.
New Jersey, at Camden, Sept. 19–21.
New York, at Elmira, October 2–5.
North Carolina, October 16–19.
Ohio, at Columbus, Sept. 18–21.
Pennsylvania, Sept. 25–28.
Tennessee, at Nashville, first week in October
Vermont, at Rutland, Sept. 11–13.
Virginia, at Richmond, Oct. 30 to Nov. 2.
Western Virginia, at Wheeling Island, Sept 26–28.
Philadelphia Society for Promotion of Agriculture, at Powelton, Sept. 12–15.

The Red River raft, which has so long choked up the navigation of the Red River of Texas, Louisiana, and Arkansas, still remains undisturbed, and furnishes newspapers with occasional items respecting attempts at its removal. From the *Washington* (Ark.) *Telegraph*, we learn that the work is now in progress for the latter purpose, under the direction of Gov. Fuller, of the U. S. Topographical Engineers. Additional machinery and boats are also being prepared at Louisville for these operations.

New Project for Crossing the Atlantic in Three Days.

The Boston *Advertiser* states that an engineer named John Ross, residing in Montreal, has addressed a letter to the Mayor of Boston, requesting the assistance of fifteen hundred dollars to complete the invention of a new motive power which will be able to waft a ship across the Atlantic in three days. Let John Ross just publish a description of his new motive power, and if it has merit in it equal to that claimed, there are those who can easily appreciate it, and he will not be long in finding assistance. But we suspect that the news is too good to be true, and that John Ross is laboring under a delusion, or is attempting to delude others.

Water Faucet.

Mr. Tuthill, of Boston, has introduced to the public some self-closing faucets for the supply of water or other fluids; the peculiarity being that there is no drip nor waste, and also an instantaneous full stream. It is, in the truest practical sense, a self-closing contrivance, as the fluid can only run so long as the pressure of the hand is upon the valve.—[Ex.

[An invention similar to this has been in use in our office for about ten years.