



[Reported Officially for the Scientific American.]

## LIST OF PATENT CLAIMS

Issued from the United States Patent Office FOR THE WEEK ENDING NOVEMBER 23, 1853.

**JOINING AND RIVETING METALLIC PLATES**—By Wm. Beschke, of Alexandria, Va.: I claim the method of equally dividing the weakness resulting from the joining of iron, steel, or any other metallic plates, and is effected by putting said plates together so as to break-joint at the ends, and riveting over these another similar set of plates, so as to break-joint at the sides and ends with the first, thus entirely covering the joints of the first, the rivets over the surface being equi-distant from each other, and from those confining the edges.

**BODY BRACES**—By G. S. Browne, M. D., of Hartford, Conn.: I claim uniting the shoulder and abdominal brace, by pliable springs, so arranged and constructed that they shall be confined on each side of the spine to the abdominal brace, and when fastened at one end, permit a limited vibration, and when fastened to the other end, be rigid, as described, whereby the same brace can be adapted to a variety of patients in different stages of disease, or to different stages of disease in the same patient.

**NUT MACHINES**—Henry Carter & James Rees, of Pittsburgh, Pa. Antedated June 3, 1853: We claim the arrangement of the devices, as described, for reducing the end of the blank bar to a given thickness, preparatory to severing the blank, whereby nuts of uniform thickness are produced from bars of irregular thickness and the machine is protected against injurious strains.

**TRANSPORTING BRIDGES**—By Thomas & Samuel Champion, of Washington, D. C. Antedated May 22, 1853: We claim building bridges on shore, on a level, or thereabouts, with their resting places on the abutments, and then setting them in place by moving them into position, as set forth.

**VENTILATING RAILROAD CARS**—By S. A. Clemens, of Springfield, Mass.: I do not claim the covering planes for gathering and condensing a current of air, nor a mode of filtering air by causing it to pass through a porous or fibrous substance or material, which is in a dry state, or unprovided with arrangements for securing a continual supply of moisture to replace that which is evaporated by the air passing through it; nor the arrangement for blowing the sparks outwards through a narrow opening in the back of the ventilator. I claim the mode of ventilating railroad cars, etc., by causing the air to pass through sponge or other suitable porous or fibrous substance or material, said material being provided with means for a continual supply of water to moisten it and replace that which is evaporated by the air which passes through, as set forth.

**LOOMS**—By O. A. Kelly, of Woonsocket, R. I.: I claim first, the arrangement of levers connected by a spring or elastic connecting rod, in combination with the tappet wheel, whereby the shuttle boxes are raised and lowered by a yielding mechanism, which diminishes greatly the liability to breakage, as specified. Second, the method of balancing the shuttle boxes on the lay, in combination with mechanism for simultaneously raising one set and depressing the other, as specified.

Third, the reciprocating and rotating pattern cylinder, in combination with the vibrating lever or the equivalent thereof, for the purpose of rendering the intervals between the changes of the shuttles regular or irregular, as set forth. Fourth, the rack cylinder or equivalent, in combination with the mechanism for throwing them alternately into or out of gear, or the equivalent, whereby the racks are moved in alternately opposite directions, with a variable range of motion, as required, for operating the pattern cylinder. Fifth, a series of pins, or their equivalent, on the inner end of the row of holes in the pattern cylinder, a disc having a corresponding number of pins or teeth on its periphery placed loosely on the axis of the rack cylinder and the paws which turn the disc and pins, in combination with the rack cylinder, whereby the latter is turned at each extreme of its vibration, so as to throw one pinion out of gear with the racks and the other in, to reverse the motion.

Sixth, the method of uniting the pattern cylinder, or its equivalent, by a yielding or slip coupling operating as specified, whereby the danger of breaking the mechanism when it happens to become deranged, is greatly lessened. Seventh, the method of working the same row of holes in the pattern cylinder, left in succession, in case the cylinder should not have holes enough to work the ornamental design in the cloth by working the holes once only, whereby a cylinder of a given size will be capable of producing a much more elaborate design or larger figure than if the holes could be used but once in the production of the same figure.

**WATER WHEEL**—By Frederick Smith, of Pontiac, N. Y.: I claim ventilating water wheels enclosed by a curb, scroll, or box by means of a tube communicating with the wheel, or in any other manner substantially the same, in combination with the buckets, constructed and arranged, as set forth.

**CUTTING SCREWS ON BEDSTEAD RAILS**—By James R. Kane, of Tiffin City, Ohio: I claim the combination of the spiral-faced plates, with the arms and spring, for securing the rail in the machine, as specified. I further claim the catch, in combination with the notched tie and pins, as specified, for carrying the right and left nuts against the screw and securing them in position, as set forth.

**BOXES FOR SUPPLYING BUSINESS CARDS**—By Wm. Lewis & W. H. Lewis, of New York City: We claim the lip or slide, combined with the gate, to draw out one card at a time, as specified.

**PLATFORM SCALES**—S. T. McDougall, of New York City: I claim the arrangement of the triangular lever and the two independent side levers, having their long arms suspended from knife edges attached to said lever, whereby the final adjustment necessary to make the scale give the same weight on all parts of the platform, may be made by moving the bar only, which carries the two last named knife edges, without the necessity of any precise adjustment of the two knife edges upon the levers, to equal distances from the fulcra of those two levers.

**CUTTING SCREWS ON BEDSTEAD RAILS**, &c.—By J. Parsons Owen, of Norwalk, Ohio: I claim supporting the mandrel in the oscillating frame, as described, which in combination with the lever and wedge, permits either mandrel to be brought effectively into operation for cutting, as set forth. I also claim the eccentric grooves of the cam, in combination with the bars, as set forth.

**CUTTERS OF GRAIN AND GRASS HARVESTERS**—By W. Pierpont, of Salem, N. J.: I claim hanging the cutter blade at each end to a crank, so as to cause the rotary draw cut in form of a circle, as described, in combination with the counter rod, for insuring the perfect revolution of both shafts in unison.

**REVOLVING FIRE-ARMS**—By M. L. Rood, of Marshall, Mich.: I do not claim the revolving cylinder, nor the crank, rock shaft, tightening cam, tumbler, stirrup, revolving lever, or spiral spring, nor the ratchet teeth, nor the cylinder groove on the end of the cylinder, nor the adjusting spring or the guards, or their equivalents, they having been before used. Nor do I claim a slotted arm, as merely connecting the hammer with the crank; nor do I claim the smoke guards.

But I claim the peculiar arrangement in fire-arms described, by which the guide pin, in connection with the stop notches, adjusting spring, and the hook connection between the smoke guards and rock shaft, causes a more perfect joint, and more sure connection between the cylinder and barrel, thus preventing all leakage, keeping the cylinder tight, its attachments clean, and protecting the surrounding charges from taking fire. I also claim the arrangement of the slotted arm and the hammer, by means of which the gun may be cocked with or without moving the cylinder.

**BLASTING POWDER**—By Wm. Silver, Jr., of Pittsford, Pa.: I claim the blasting powder, as set forth, the same consisting in an unglazed powder, composed of the coal, nitre, and sulphur, in the proportions specified, prepared and treated with chlorate of potash, according to the direction, as set forth. I do not claim the use of chlorate of potash as a means of preventing smoke in mine-blasting, except when combined with charcoal, sulphur, and nitre, as set forth.

[This is a very valuable invention, and has been secured in foreign countries through the Scientific American Patent Agency.]

**CUTTING SCREWS ON BEDSTEAD RAILS, &c.**—By Hiram Smith, of Norwalk, O.: I claim, first, the formation of cutters, as described, in sections, of the cutter heads, which are secured by means of screwbolts, substantially as set forth. Second, securing the section of cutter head containing the post V cutter, by means of a polygonal headed bolt passing, as described, through the hollow spindle, cutter head, and section base, which arrangement, in addition to securely holding the V cutter, admits of the adjustment of the cutter, as described, for ensuring the formation of tight joints between the post and rail.

Third, the method described of attaching the tenon socket to the spindle. Fourth, the arrangement of the standards and clamp upon the blocks, by which the machine is secured to the post and raise, and the operation of cutting facilitated, as set forth.

**FACING ENDS OF PERCUSSION CAPS**—By Dr. Jos. Goldmark, of New York City: I claim, in combination with the platform, the actuating levers, and the pressing power, in such a manner as to enable the platform to be laterally expanded or contracted, as set forth.

**BANK LOCKS**—By J. H. Orygier, of New York City: I do not claim the slotted discs, nor the index plate, nor the manner of adjusting the slotted discs, nor the slots in the discs may be placed inclined with the ledges in the bolt for circular plates, having letters or characters upon them, arranged with an index plate, have been previously used; neither do I claim the lever guards irrespective of the arrangement described. But I claim, first, the actuating levers, or use of the lever guards, constructed as shown, and arranged so as to operate against the discs, and prevent them from turning, as the bolt tumbler is raised, as described. Second, I claim connecting the ratchets to the circular toothed discs by means of pawls, and operating said pawls by means of the tumbler or its equivalent, whereby the ratchets may be connected and disconnected from the several discs simultaneously, and the changes effected with the greatest facility.

[A notice of this ingenious invention is published in No. 11, this Vol. Sci. Am.]

**LIFE BOAT**—By L. F. Frazee, of New Brunswick, N. J.: I am aware that bags of textile material, filled with cork or varnished rushes, or their equivalents, are not new as floats, neither are rafts made of such balsas a new device, neither is it new to put the bottom of a boat half way between the bottom of the sides and the top thereof, as that feature is well described as applied to a life raft, in an early volume of the Transactions of the Society of Arts, and its application to a metallic boat has been lately patented—all these points I know to be old, and I claim none of them, simply.

But I claim the combination of the balsas, shaped and arranged with respect to each other as described, with the frame which keeps them in shape and position, and is itself protected by the balsas, said frame being constructed as described, and the whole constituting a life float having the qualities set forth.

**GRASS HARVESTERS**—By Wm. H. Hall, of Philippi, Va.: I claim the tram in combination with the staples on the arms, as described.

**SELF-ACTING PRESSES**—By S. R. Holt, of Worthington, Ohio: I do not claim, in general, the device of making the weight of the article pressed act as the pressing power by making the press itself rise and fall on the system of levers or other mechanical powers. But I claim so arranging the lever, and providing it with a self-adjusting follower in combination with the lever and the bed plate, with its supporting frame, that the motion of the article pressed may be transmitted to the long end of the lever, or near the fixed center of motion of the frame, causing the weight of the press and article to be pressed, to exert power on the follower, and thereby gradually press the article into a more compact and solid form, the power being increased when the weight of the article is not sufficient, by means of the pinion and rackbar which receive motion from a driving shaft, the whole being constructed, arranged, and operating as set forth.

[See notice of this invention in No. 6, this Vol.]

**MACHINES FOR DRESSING MILLSTONES**—By W. B. Cummings, of Tyngsborough, Mass., and N. P. Dadman, of Chelmsford, Mass., and C. A. Blood, of North Chelmsford, Mass.: We claim the lever, and the cam, constructed and operating as set forth.

**OIL PRESSES**—By D. L. Latourrette, of St. Louis, Mo. Patented originally Oct. 28, 1851: I claim, first, the pipes sliding into and out of stuffing boxes, in combination with the press, the lever, and the fixed center of motion of the frame, causing the weight of the press and article to be pressed, to exert power on the follower, and thereby gradually press the article into a more compact and solid form, the power being increased when the weight of the article is not sufficient, by means of the pinion and rackbar which receive motion from a driving shaft, the whole being constructed, arranged, and operating as set forth.

RE-ISSUE.

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**ATTACHING VITRIFIABLE MATTER TO METAL**—By T. G. Clinton (assignee of Joshua Laird, now deceased) of Cincinnati, Ohio: patented originally May 23, 1849: What is claimed is attaching mineral vitrifiable matter to metal by inserting a metallic tubular shank, involving the characteristics of thinness, yet stiffness enough to resist lateral strain, elasticity, and entervent, into the mineral vitrified matter, as described, so that the quantity of

metal in proportion to the bulk of mineral admissible in the case being thus very small, the vitrified mineral enjoys the capacity to embrace and attach itself to the metal without any strain in or upon itself during its crystallization the difference between the expansibility and contractibility of the metal and the mineral, the one to the other being also reduced below any practically injurious degree, that is to say, the glass being just as strong with or without such a shank.

### The Tonnage Laws of Ships.

The following important letter from J. W. Griffiths—the well-known nautical architect and author—to the Secretary of the Treasury, has been furnished by the author for the "Scientific American," and we request for it the special attention of our people.

TO THE HON. JAMES GUTHRIE, Secretary of the Treasury, Washington, D. C.

Your letter of inquiry, in relation to the revenue laws, as applied to the admeasurement of vessels, has been the subject of a very considerable amount of reflection. I have examined not only the present law of the United States, but that of England, France, Prussia, and other European Governments, and can arrive at no other conclusion than this, that there should be an "International Tonnage Law," and I would respectfully add, that in my judgment such a law (if based on equitable principles) would do more to foster commercial enterprise than all the protective laws that have ever been enacted. It is impossible to frame a law, that recognizes the dimensions of a vessel in feet and inches that will not be subject to infraction. For example, if the length of vessels are to be measured at a definite locality, they very soon become contracted at that locality and are expanded in other parts to make up the deficiency; the same may be said of breadth, and so also of the depth—if the breadth is to be measured at the load water line or above water, vessels then soon become narrower at those points than they are below water, and when the depth or height of all the covered decks are to be measured at certain localities, the upper deck at those points will be left open, to be covered when convenient with gratings. The present tonnage law of the United States and of Russia (for they are alike) have been the means of trammelling the genius of the country beyond the power of conception, from the single reason (if there were no other) that those laws recognize the dimensions of vessels only, whereas the law should measure the bulk regardless of the dimensions. The results of the passage of such law would be that modelling would be left entirely free—the ship owner might select such dimensions as the ship builder would propose, as being best adapted to the bulk of the vessel, without fear of his being warped in judgment by his own immediate interest. The merchant, the mechanic, and the government would be placed on equal terms. The size of the vessel would be most accurately determined by the cavity made by the floating vessel, if decks were added, whether at the time of building or at any subsequent period, the increased number of cubic feet of water displaced, would determine the additional advantage to be derived. The water into which the vessel was launched would serve as a hydrostatic balance to determine both the bulk and weight of the vessel. The process of computation being simple, all parties connected with commercial operations, and having an ordinary stock of knowledge in the rudiments of arithmetic, could determine the tonnage of a vessel at any given line of flotation. In order that this manner of computing the displacement or weight of a vessel may appear quite clear, we will assume that from the model of a ship we find the displacement or the number of cubic feet of water displaced at every parallel line of flotation equally spaced three inches apart from the keel to gunwale, this should be done while the vessel is building and registered; immediately after the vessel is launched, and as soon as her appurtenances are on board, the line of flotation is ascertained, and the number of cubic feet of water displaced below this line, is the weight of the vessel, this weight deducted from that shown at any subsequent line of flotation, will leave a remainder equal to the actual tonnage at its corresponding line of flotation—this tonnage is the actual weight of the cargo, or whatever else may have been placed on board subsequent to the determination of the weight of the vessel itself.

A single example will serve to make the matter quite clear: suppose a ship to displace 1000 tons or 35,000 cubic feet of water at her launching line of flotation, and that she gains 50 tons or 1750 cubic feet of displacement for every three inches above that launching line,—we will again suppose that she is loaded 8 feet above the launching line, which would equal 32 of the 3 inch spaces, we then have 32 x 50 = 1600 tons as the burthen of the vessel, her total displacement being 2600 tons and 1000 tons deducted for the weight of the hull. If the vessel should be loaded deeper, the tonnage would of course be increased, and this rule of displacement will apply universally to vessels of every form and of every size. If it should be thought best to make allowance for the engines of steam vessels, the weight might readily be determined in the same manner, and the deduction registered. It may be well to remark that 35 cubic feet of salt water are equal to one ton, this would cover such freight as is called dead weight, for lighter goods 40 should be the divisor, inasmuch as 40 cubic feet of measurement goods are only equal to one ton of displacement. This tonnage admeasurement, it will be perceived recognizes the weight or bulk of the cargo, and has no further connection with the vessel than to use her as a pair of scales or a measure to weigh or determine the bulk of the cargo, if she is but half full the merchant pays dues on only half, or what she has on board; if she is overloaded, he pays dues on the increased amount.

I have recently received a letter with a copy of Mr. Moore's book upon this subject, from London,—this gentleman was a member of the committee appointed by the British Parliament to investigate and report, and will do so at its coming session. You will perceive that he advocates a much more complex mode of measurement, and one which will be subject to infraction, consequent upon measuring the dimensions of the vessel. With the highest consideration I have the honor to be your obedient servant. JOHN W. GRIFFITHS. New York, Oct. 27, 1853.

### Property in Inventions.

Colonel Vergnaud, of the French Artillery, some time since memorialized the Minister of War for a grant of money by way of reward for certain inventions by him of the application of fulminating mercury to the priming of guns. The Minister rejected his application, on the ground that in reality these applications were known before; but in doing so enunciated the following somewhat startling doctrine:—That an officer in the army devotes himself entirely to the service of his country, and that the produce of his labors and of his genius belong solely to it; and that if he needs any other recompense than that which is to be found in his conscience, and the performance of his duties, the approbation of his commander, and the satisfaction of the Minister of the Department, ought to be all-sufficient. Upon this Colonel Vergnaud again memorialized the Minister, pointing out that in making his claim he was doing nothing more than had been previously done by others in the service, who had had their claims admitted, and rewards in money granted. He did not admit the doctrine, that an officer entering the army devoted all the produce of his labors of mind and body to the State, alleging that such a doctrine was a variance with moral and intellectual progress—the aim of all society; for it took away from individuals the hope of reward. He characterizes the doctrine as unworthy the enlightenment of the times, and fitted only for the days of Louis XIV.

### United States Engineers.

It is announced in the "Washington Star" that an examination of candidates for admission into the corps of United States Engineers, and for promotion into that corps, is to take place at the Washington Navy Yard, commencing on the 5th—Monday next. The board is to consist of Engineer-in-Chief Martin, and Chief Engineers Wood and Hunt. Any engineer in civil life who desires to enter the service, on applying to the Department, will probably receive a permit to be examined, on the presentation of which to the board at the time and place specified above, he will be duly examined.