

IRON AND STEEL EXTRACTED FROM WASTE IRON CINDERS.

We have received a circular from A. L. Fleury, chemist, Franklin Institute, Philadelphia, in which he states that he has succeeded in extracting good wrought-iron and steel from the waste cinders of puddling and reheating furnaces, which have hitherto been considered a nuisance in their vicinity. He states that, from chemical analysis, he is assured that such cinders contain from 25 to 50 per cent of iron, combined with sulphur, silica, phosphorus, and alumina, forming a brittle compound. Near the large Iron Works at Troy, N. Y., thousands of tons of these cinders are spread over the roads, and in every 100 lbs. there are about 35 lbs. of iron. By reworking this cinder with lime and charcoal, iron had been extracted, but it was invariably red-short (brittle at a red heat), as the sulphur, silicon, and phosphorus remained combined with the iron. Numberless unsuccessful efforts had been made to work this cinder economically. Mr. Fleury states that the problem of extracting the iron from the cinder and removing the impurities, was solved, by taking advantage of the chemical fact that unslacked burnt lime possesses the property of decomposing silicates during the act of being slacked with water. He mixed a proper quantity of powdered burnt lime, with fine ground iron cinder, wetted the whole with water, and exposed the mixture to the atmosphere. When this compound was dry, it was placed in a common puddling furnace, treated like pig iron, and 50 per cent. of wrought iron was obtained. This product, however, was somewhat red-short, as it contained traces of sulphur: but the impurity—Mr. Fleury informs us—he afterwards extracted, by mixing a chlorine salt with the water which he employed to wet the lime mixed with the cinder; and a good quality of iron, we are informed, can be invariably produced when the operations are properly conducted. It is also stated that the cost of preparing the cinder does not exceed \$2 per ton, and the operation of smelting can be executed in puddling, blast, or other suitable furnaces. The invention has been patented in America and Europe.

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week. The claims may be found in the official list:—

Lock for Vehicles.—This invention consists in the employment of one or more hooks, constructed, arranged and applied to a wheel vehicle in such a manner that the driver may, from his seat, by a simple manipulation, cause the hook or hooks to engage with the back wheels of the vehicle so as to stop the rotation of the former, and also readily detach the hooks from the wheels when necessary. The invention is an improvement on the chain and hook originally used for locking the wheels of vehicles in descending eminences, and which were far more efficient than the modern brakes for checking the descent of a vehicle, but were abandoned on account of the trouble of getting in and out of a vehicle to lock and unlock the wheels. The object of this invention is to obviate this difficulty and render the adjustment of the hooks, to lock and unlock the wheels, equally as easy as the adjustment of the hand brakes now in quite general use. J. H. Lee, of Leavenworth, Kansas, is the inventor of this device.

Furnace Grate.—This invention consists in imparting to every alternate grate bar a reciprocating rectilinear in contradistinction to a rising and falling or oscillating motion, in such a manner that the coals are raked over and over by the toothed edges of the movable bars moving past the toothed edges of the stationary bars, and the entire fire is cleaned most effectually of all dust, ashes and small clinkers, and the clinkers are not liable to get under or between the bars, and prevent them from going back, which is the case when the bars have a rising and falling motion; and, furthermore, the coals are evenly distributed throughout the entire furnace. T. T. Holdsworth, of Brooklyn, N. Y., is the inventor of this improvement.

Machine for Dyeing, Bleaching and Washing.—The object of this invention is to furnish to hatters and dyers a machine for beating in their dyes, saving

time and labor, and to bleachers a machine to clear and wash the goods of chemicals and acids, and replace the old dash wheel and rollers, and also to effect the washing of clothes in families in a novel and easy manner, by beating and rubbing them with a hammer constructed of short india-rubber tubes, or of bristles or any other suitable material, through which the water is conducted while the same acts on the goods or clothes. James Young, of New York city, is the inventor of this improvement.

Lightning-rod Inductor.—This invention consists in a certain mode of combining the holder with the insulator, by which it is enabled to be set at any angle necessary to adapt itself to the direction of the conductor, so that the same insulator may be made to serve equally well for walls or roofs. It also consists in a certain construction of the support, by which it is better adapted to roofs or slanting surfaces. Edwin Eagles, of Mamaroneck, N. Y., is the inventor of this improvement.

Mode of Soldering Cans.—The object of this invention is to effect the soldering of the joints of tin cans and other vessels of sheet metal, by dipping the joint into the melted solder, by which means the soldering can be effected more expeditiously, with a smaller quantity of solder; and the use of a cheaper solder, containing a larger proportion of lead, which would not follow a soldering iron, is permitted; and to this end it consists in the employment, for containing the melted solder, in which the joint is to be dipped, of a pan open in the center, and of such form as to contain the solder, in a channel of a form corresponding with that of the joint to be soldered, without allowing any other portions of the can or vessel but those in immediate proximity to the joint, to come into contact with the melted solder. It also consists in constructing such pan with a resting place for the can or vessel to be soldered to insure the dipping of all parts of the joint in the solder to a uniform depth. Herman Miller, of New York city, is the inventor of this improvement.

Going Back to Wood Again.

The price of coal has gone up so high that the New York railroads have commenced using wood, again, for the running of their locomotives, they finding it cheaper. Of course, this can only be a temporary return to this kind of fuel; coal must, from the nature of things, be permanently cheaper than wood. When locomotives first began to run, wood was the only fuel used upon them; but the enormous consumption of the engines soon relieved the face of the country of its forests, and every year wood grew dearer, till it became a question of economy to use coal. Coal has been so long used that the forests of New England and others of the older settled States, which were being rapidly denuded, having had a few years of comparative rest, are now becoming wooded again; and as temporary causes have raised the price of coal, it may be cheaper in States distant from the coal beds, to use wood. The New York Central is running its heavy freight trains with wood at the cost of twelve cents per mile. By experiment on the Baltimore and Ohio Railroad, it was found that one pound of Cumberland coal was equal to 2-55 pounds of pine wood. On the Reading Railroad it was shown that one pound of anthracite was equal to three pounds of pine wood. With this advantage, coal can be considerably higher than wood and be the cheaper fuel.—*Philadelphia Ledger.*

An Extraordinary Piece of Charcoal.

Dr. Rowell, of this city, has shown us a piece of charcoal which he uses to lay gold on to be annealed under the blow-pipe, and which he says he has had for thirty years, and that it has been on fire at least as often as once a day during the whole of that period. It is burned into the form of a shallow trough, but the cavity is not more than an inch in depth; showing that not more than one-thousandth part of an inch has been burned away at each ignition. It is probable that the gases so completely envelope the heated surface that, though this is red hot, no actual burning generally takes place. Dr. Rowell says that he finds great difference in different pieces of charcoal—some burning out very quickly, and he never had any other piece last nearly as long as this.—This piece is of pine.



ISSUED FROM THE UNITED STATES PATENT-OFFICE

FOR THE WEEK ENDING AUGUST 18, 1863.

Reported Officially for the Scientific American.

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39,539.—Process for Finishing Flannels.—Samuel Archer, Globe Village, Mass. :
I claim the process, substantially as above described.

39,540.—Rotary Pump.—Joseph Banks, New York City :
I claim, first, arranging the valves, G G', in slots or recesses, in the edges of the pistons, F, as and for the purpose shown and described. Second, The springs, B B', under the valves, G G', when the same are used in combination with pistons, F, connected by stems, A, in the manner and for the purpose substantially as specified.

[The object of this present improvement is to produce a tight joint between the edges and ends of the sliding pistons and the inner surface and heads of the cylinder of a rotary pump, by simple and easily adjustable means.]

39,541.—Apparatus for Carburetting Gas.—J. A. Bassett, Salem, Mass. Ante-dated March 13, 1863 :
I claim the uniform carburation of gas under varying conditions of temperature, by the direct application of the hydro-carbon liquid to the burner, by the means shown, and the use, in combination, of the flanges, C1 C2, with the deflecting plate, D, or their equivalents, when used for this purpose, the whole apparatus operating together substantially as represented and for the object set forth.

39,542.—Firing Fuses by Electricity.—F. E. Beardslee, College Point, N. Y. :
I claim, connecting the two conducting wires by a feeble conductor, substantially such as herein described, and placed in contact with, or in close proximity to the powder, substantially as set forth.

39,543.—Firing Cannon by Electricity.—G. W. Beardslee, College Point, N. Y. :
I claim combining with the barrel of the cannon, or other fire-arm, an insulated plug, extending through the metal forming the bore to the outside, substantially as specified, to be used with a cartridge having a fuse provided with two conducting wires, so that, when inserted in the bore, one will be in contact with the bore and the other with the insulated plug, as described.

39,544.—Gaiter Boot.—J. C. Breed and C. K. Bradford, Lynn, Mass. :
We claim, first, a gaiter boot, the two parts, A and B, being so constructed as to overlap each other from the sole to the top, with a row of eyelets in the one part directly over and parallel with a similar row in the other part, substantially as set forth and described.

Second, The sliding stop or fastener, F, in combination with the lacing arrangement, substantially as and for the purpose described.

39,545.—Railway Carriage.—N. F. Bryant, East Boston, Mass. :
I claim the automatic combination consisting not only of the check rails, or their mechanical equivalents, applied to the roadway, and the checks, or their mechanical equivalents, applied to the track frame and its wheels, but the two tracks of different gages and their wheel-changing track, or the same and its flange guide rails, the whole being arranged and set as specified, substantially as specified, and in combination therewith, I claim the projections or guides, n n, for the purpose specified.

39,546.—Polishing Machine.—Benj. Q. Budding, Milford, Mass. :
I claim the polishers, F, when arranged so as to be capable of simultaneous pressure against, and reciprocating rotary movement around, the edge or side of the heel, as set forth.

I also claim the combination of arms, G, springs, I, collar, J, and link, K, or their equivalents, for producing the motion of the polishers, against and away from the heel, as above described.

I also claim the arrangement of mechanism consisting of the plate, C, adjustable crank-pin, G, joint, I, and crank wheel, K, or the mechanical equivalent thereof, operating together substantially as described.

I also claim combining a pressure mechanism, as shown by the arm, G, collar, I, link, K, shaft, J, rods, I' L, and treadle, K, or other suitable mechanism for producing a pressure of the polishers, with a shipping mechanism, consisting of lever, Q, rod, P, or their equivalent, for their simultaneous operation, substantially as above set forth.

I also claim, in combination with the bearing plate, A, the springs, C, C, operating in the manner and for the purpose as described above.

39,547.—Pack Saddle.—W. T. Campbell, Philadelphia, Pa. :
I claim, first, The two bars, A and A', connected together and maintained a given distance apart from each other by the wrought-iron arched pieces, B and B', as set forth.

Second, The piece, D, with its projections, d and d', the whole being applied to the two bars, substantially as described.

Third, The detachable pins, E, arranged on the two bars, substantially as set forth.

Fourth, The rings or eyes, M and N, arranged on the two bars for the reception of the binding rope, substantially as described.

39,548.—Hand Corn-planter.—Myron Case, Kasoag, N. Y. :
I claim the combination of the slide, I, provided with the inclined seed aperture, J, passing entirely through it, the recess, N, the back piece, Q below the seed reservoir, the plates, F B partition, H, and gun-discharge cut-off, K, placed within and attached to the seed box, A, the whole being constructed and arranged as and for the purposes specified.

39,549.—Cooking Stove.—A. E. Chamberlain and Wm. Caven, Cincinnati, Ohio :
We claim, first, The deflector, K, in the described combination with the extended box top, G, boiler opening, J, and ventagozzle, L, substantially as set forth.

Second, The construction of an extended box top with the incurved partitions, M M', between the heat chamber, G, and the boiling flue, B, for the provision of an extended stove top within the shortest practicable limits, as explained.

Third, We claim as a new and improved manufacture of extended top cooking stove, the extended box top or chamber, G, having the incurved partitions, M M', deflector, K, supplementary boiler opening, J, and ventagozzle, L, in the rear thereof, the whole being combined and operating together in the manner set forth.

39,550.—Machine for Amalgamating Precious Metals.—Ezra Coleman, San Francisco, Cal. :
I claim the use, in amalgamating pans, of a plate with grinding surfaces, top and bottom, said plate revolving between two other plates.

I also claim the use of a top plate, D, in amalgamating pans for the purpose of regulating the agitation of the pulp, the whole substantially as described and for the uses and purposes as hereinbefore set forth.

- 39,551.—Coal-oil Lamp.—C. E. Corbitt, Corbettsville, N. Y. :
I claim surrounding the tube of the ordinary coal-oil lamp with packing of cotton or other porous substance, as and for the purposes described.
- 39,552.—Spark-extinguishers of Locomotives.—P. H. Corlett, Manchester, Pa. :
I claim, first, a chambered valve, E, with one or more openings, e', so arranged in regard to the throat, A, and discharge orifice, v, that when the discharge orifice is open, the receiving opening is closed, and vice versa, thus preventing the admission of a current of air into the smoke box while the cinders are being discharged, as specified.
Second, I claim working the valve by a crank motion, rock shaft, pawl and ratchet, or gears, as and for the purpose specified.
- 39,553.—Cultivator.—Samuel Cowan, Bloomfield, Iowa :
I claim, in combination with the adjustable and hinged cultivator stocks, herein described, the levers, K, rods, N, O, and treadles, M, substantially in the manner and for the purposes set forth.
I also claim, in combination with the adjustable and hinged cultivator stocks herein described, the lever, H, and transverse bar, C, for the purpose of shifting said cultivators sidewise, substantially in the manner and for the purposes set forth.
- 39,554.—Tea-kettle.—W. C. Davis, Cincinnati, Ohio :
I claim the mode of hinging the covers of tea-kettles and other cast hollow-ware, consisting of the oval socket, D E E', handle, F F', tongue, I, and aperture, H, or their equivalents, the whole being combined and operating as set forth.
- 39,555.—Cooking-stove Cover or Shield.—H. W. De Puy, Jalapa, Nebraska :
I claim the combined stove cover and shield, as shown in figure 2, when used in connection with any cooking utensil, as and for the purpose set forth.
- 39,556.—Manufacture of Textile Fabrics.—T. J. Dunkin, New York City :
I claim the employment or use, in the manufacture of textile fabrics, &c., of the silky down contained in the seed-cells of milk-weed or *Asclepias Syriaca*, substantially in the manner herein set forth and described.
[This invention consists in the employment of the silky down contained in the seed vessels of milk-weed, either pure or by mixing the same in certain proportions with cotton, wool, silk or other fibrous materials, for the purpose of producing textile fabrics of any description, such as silk, thread, twine, or wadding and batting.]
- 39,557.—Spindle of Spinning Machines.—James Eaton, Boston, Mass. :
I claim the small nipple or projection, having its base upon a shoulder, which extends to the periphery of the spindle, by which means the yarn is brought near to the axis of rotation, and at the same time prevented from slipping off the end of the spindles, as herein described.
- 39,558.—Grinding Mill.—G. Eberins and F. A. Heinig, Washington, Mo. :
We claim the introduction of a continuous current of air between the grinding surfaces of mill-stones, in combination with the open space, g, and receiving chamber, h, all being constructed and arranged substantially as and for the purposes set forth.
- 39,559.—Harvester.—D. L. Emerson, Rockford, Ill. :
I claim an extensible finger beam constructed of parts combined together, in such manner that one part overlaps another so as to be capable of extension and contraction by overlapping the parts less or more, substantially as herein set forth.
I also claim the combination of an extensible finger beam with a back beam adapted to secure the rear of the divider frame in different positions, substantially as herein set forth.
I also claim the combination of the gathering board of the divider at its lower edge with the fixed part of the divider, by means of hinge connections and an adjustable controlling instrument, in such manner that this board can be set at a greater or less inclination to gather in less or more grain, substantially as herein set forth.
I also claim the combination of the divided point, with the remainder of the divider, by fastenings, in such manner that it can be set in different positions both laterally and vertically, substantially as herein set forth.
- 39,560.—Hand Cultivator.—R. B. Fitts and J. W. Thackara, Philadelphia, Pa. Ante-dated Jan. 16, 1863 :
We claim, first, the stem, A, in combination with the ring, B, constructed and arranged to receive the detachable teeth, C C C', and cutting scrapers, D D D', substantially in the manner described and set forth, for the purposes specified.
Second, We claim the teeth, C C C', in combination with the ring, B, the said teeth being arranged so that they may be detached, substantially as described, for the purpose specified.
Third, We claim the cutting scrapers, D D D', in combination with the ring, B, the said scrapers being arranged substantially as described, for the purpose specified.
Fourth, We claim in combination with the stem, A, and ring, B, the cylindrical cutter, E, the same being made adjustable on the stem, A, substantially as described and set forth, for the purposes specified.
Fifth, We also claim, in combination with the cylindrical cutter, E, the detachable hilling plates, F F F', the said plates being formed and arranged to operate therewith in the manner substantially as described, for the purpose specified.
- 39,561.—Carriage Wheel.—H. K. Flinchbaugh, Conestoga Center, Pa. :
I claim the wrought-iron spokes, when inserted directly into the ridge, r, on the tire, by means of a screw out on the outer end, bringing their other ends, alternately to the right and left of a central line around the hub, in which they are firmly imbedded, by having the hub molded and cast around them, substantially in the manner specified.
- 39,562.—Shaft Bearing.—J. B. Francis, of Lowell, Mass. :
I claim the employment of mercury as a bearing for upright shafts, substantially in the manner as set forth.
- 39,563.—Wire Fence.—Elbridge Gale, Pavilion, Ill. :
I claim, first, the fastening of the wire firmly to the posts by looping or wrapping the wire around the whole or a portion of the post, or by drawing the wire through the post and bending on either side, as described.
Second, I claim the use of the link, h, in the manner and for the purpose set forth.
- 39,564.—Engine Lever.—T. W. Godwin, Portsmouth, Va. :
I claim, first, the use of the lower cross balance bar, e, having the teeth, g', substantially as and for the purpose described.
Second, The construction and use of the upper cross balance bar, k, in one solid piece, of the form of an inverted cross, substantially as and for the purpose set forth.
- 39,565.—Apparatus for rendering Oils and Fats.—C. E. Gray, St. Louis, Mo. :
I claim, first, the application of a second steam-tight vessel for receiving melted fat or other fluid material that may have been cooked under steam pressure, and for cooling down and purifying the same until it is in a proper condition for exposure to the atmosphere, substantially as before described.
Second, The placing of a glass tube in the draw-off-pipe from the digester, or similar apparatus for the treatment of material under steam pressure for the purpose specified, substantially as before described.
- 39,566.—Stock for Shearing Sheep.—Richard Gregg, Lawrenceburgh, Ind. :
I claim the adjustable upright, D, in combination with the arm, E, formed of two parts, g, h, connected together by a swivel joint, I, and the revolving bar, F, provided with clamps, G, and fitted in the outer end of the arm, E, all being arranged substantially as and for the purpose herein set forth.
[The object of this invention is to obtain a simple and efficient device to aid in shearing sheep, and it consists in the employment of adjustable uprights in connection with adjustable arms, the latter being fitted on the former and provided with swivel stocks or leg clamps.]
- 39,567.—Sewing-machine Shuttle.—T. J. Halligan, New York City :
I claim, first, a shuttle for waxed-thread sewing machines, constructed with the hinged lever bobbin frame and direct-acting tension screw, substantially as shown in figure 3, for the purposes set forth.
Second, The combination and arrangement of a smooth transverse

- bar, c, opening, b', formed as described, and bobbin, b, whereby I am enabled to obtain the desired tension on the thread, and while I pass the thread through the top of the shuttle, prevent the scraping off of the wax from the thread, substantially as described.
- 39,568.—Valve for Pumps.—C. B. & J. Hardick, Brooklyn, N. Y. :
We claim the stops, p, extending from side to side of the valve chest over the seat and receiving the cylindrical or prismatic valves, as specified.
- 39,569.—Stocking.—Emanuel Harmon, Washington, D. C. Ante-dated March 1, 1863 :
I claim as a new article of manufacture sections of stockings made as and for the purposes specified.
- 39,570.—Stocking.—Emanuel Harmon, Washington, D. C. Ante-dated March 12, 1863 :
I claim as an improved article of manufacture, stockings made of any textile material and covered at the heels and toes with flexible leather, or its equivalent, substantially as described.
- 39,571.—Galvanic Battery.—E. A. Hill, Galesburg, Ill. Ante-dated April 9, 1862 :
I claim the peculiar local positions of the elements with reference to each other and the use of two or more saline solutions without a porous position to separate them, substantially as set forth.
- 39,572.—Crochet Needle.—J. M. Hoadley, Derby, Conn. Ante-dated Jan. 17, 1863 :
I claim a crochet needle or instrument, so constructed that the needle may be folded or closed into the handle and distended, or held out firmly, in a working position, at pleasure, substantially as and for the purposes set forth.
- 39,573.—Grate for Furnaces.—T. T. Holdsworth, Brooklyn, N. Y. :
I claim the arrangement of the shaft, D, cams, a, and lever, E, with the alternate toothed bars, in the manner herein shown and described, so as to produce the motion upon said alternate bars in connection with the teeth, all as set forth.
- 39,574.—Case for a Ratchet Wheel for Lamps.—Lewis Hoyer, Chicago, Ill. :
I claim, first, the described manner of securing the cap on the wick tube or burner, by inserting one or both ends of said cap in perforations made in the burner for that purpose.
Second, I claim one or more perforations made in the burner for the fastening of the ends of the cap, and thus constituting a fastening for said cap, as explained.
Third, I claim the cap herein described, when one or both ends are made to act as a spring or wick sustainer, as explained.
- 39,575.—Ice-creeper.—Isaiah S. & John W. Hyatt, Jr., Chicago, Ill. :
We claim this self-locking creeper, herein described, as a new article of manufacture, the same being in a single piece, with the central screw, A, holding spurs, D, and ice-spurs or surfaces, C, arranged to operate together, substantially as herein described.
- 39,576.—Preserving Iron-plated and other Vessels.—Jean Pierre Jouvin, Rochefort, France :
I claim, first, the applying, and the mode of applying on the internal part of the holder of iron ships, zinc sheets, either alone or combined with the use of a metallic zinc paint, or of felt sprinkled with metallic zinc powder, to preserve iron-plated and other ships from the destructive action of sea-water, as hereinbefore described.
Second, The production of a poisonous compound and its application to iron ships' bottoms, and to wood employed to secure dikes, embankments, &c., and for naval and other constructions, in order to prevent, for the former, the deposit of barnacles and sea-weeds, and to protect the latter from injury from teredos, as hereinbefore described.
Third, The application to iron articles of a paint having pulverized metallic zinc for base to replace the red-lead paint, as hereinbefore described.
- 39,577.—Pump.—W. S. Judd, Chanhassen, Minn. :
I claim the peculiar rotating rotating piston rod, G, provided with the piston, K, in combination with the plates, d, placed within the cylinder, A, and provided with valves, M, all arranged to operate as set forth, and either with or without the pipe, N.
[This invention relates to an improved submerged pump, and consists in the employment of a tubular rotating reciprocating piston rod in connection with a piston, valves, and stationary water passages within the cylinder, all arranged in such a manner as to form a very simple and efficient pump of the class specified, and one which may be used to elevate the water to the top of the well only, or to force water at a considerable distance, as may be required.]
- 39,578.—Artificial Limb.—H. A. Kimball, Philadelphia, Pa. :
I claim as a new article of manufacture an artificial limb having its members made of vulcanized gum, castin molds, and in imitation of the exterior form of the natural limb as set forth for the purpose specified.
- 39,579.—Drain Tile Machine.—Henry Knight, Brooklyn, N. Y. :
I claim, first, Guiding and directing the passages of the farming tool through the pipe, in its operation of spreading the cement thereon, by means of a stationary rod, G, substantially as described.
Second, The employment of base and cap rings, a, c, or their equivalents, in conjunction with a conical farming tool, G, substantially as and for the purposes described.
- 39,580.—Hose Coupling.—Willard Knowles, Boston, Mass. :
I claim the said improved hose coupling consisting of the two interlocking connections, C D, and the screws, g, h, constructed, arranged, and applied together, and to the hose necks or tubes, A B, substantially in manner as specified.
- 39,581.—Lock for Wheel Vehicles.—J. H. Lee, Leavenworth, Kansas :
I claim, first, The employment or use of one or two bars, G, attached to the body of the vehicle and arranged with joints in such a manner that they may be moved in both a vertical and horizontal plane, and provided with hooks, I, which, by the movements of the bars aforesaid, may be engaged, either or detached from the wheels, in order to lock and unlock the same as set forth.
Second, The manner of attaching or arranging the hooks, I, with the bars, G, so as to admit of the former being readily released from the wheels, to-wit: by having the hooks, I, attached to rods, H, which are pivoted in slots in the bars, G, and having springs, J, connected with the hooks and arms, J, or any suitable clicks to engage with the rods, H, substantially as set forth.
Third, The shaft, B, provided with the spring, E, the lever, C, and arm, L, with the rods, K, and arms, J, in combination with the bars, G, spring, M, and rods, H, provided with the hooks, I, all arranged to operate substantially as and for the purpose herein set forth.
- 39,582.—Coal Stove.—Dennis G. Littlefield, Albany, N. Y. :
I claim in stoves using a supplying cylinder for reserve coal, and an external case surrounding the same, the suspension or arrangement of the fire-pot, or burning chamber, in a chamber, C, at the base of the stove, entirely shut off, or separated from the chamber which receives the heat directly from the burning fuel, and the heated products of combustion, so that said chamber, C, may separately receive the heat radiated from the outer surfaces of the fire-pot, and transmit it to the surrounding case, and from thence radiate it near the floor, to the apartment, to be warmed, substantially as herein specified.
In combination with the fire-pot, suspended, or arranged in a separate chamber at the base of the stove, I also claim the suspension of the supplying cylinder in the combustion and heat transmitting chamber, G, above and separate from the fire-pot, substantially as and for the purpose herein set forth.
I also claim suspending the detachable soapstone or fire-brick supporting cylinder, to be warmed, substantially as herein specified, by means of the eyes, o, a, and stirrups or hasps, p, n, or their equivalents, in order that the said section may be detached from below, without the necessity of raising it through the supplying cylinder itself; substantially as herein specified.
I also claim the construction and arrangement of the stove, in such a manner that it not only may be a connected individual whole, but may be readily separated into two sections (Figs. 3 and 4), each complete in itself, to the extent described when thus applied in relation to the suspended fire-pot in a separate chamber at the base of the stove, as and for the purposes set forth.

- 39,583.—Variable Exhaust for Locomotives.—Richard McDowell, Lambertsville, N. J. :
I claim the combination of the spring, g, with the wings, b b, and exhaust, D, in the manner herein shown and described.
[By this ingenious device the exhaust regulates itself according to the pressure of the steam.]
- 39,584.—Pantaloon.—Harmon Osler, Philadelphia, Pa. :
I claim a garment having legs, each leg formed by the sutures, C I D H E J, substantially as shown and described.
- 39,585.—Faucet.—William Pinkerman, Bridgeport, Conn. Ante-dated Nov. 12, 1862 :
I claim the double screw faucet, A and B, the inner one traveling in and out by the action of the coupling, D, in the manner described and for the purpose substantially as set forth.
- 39,586.—Lantern.—William Porter, New York City :
I claim the socket, N, provided with a ring, e, of leather, cork, or other suitable material, in connection with the smooth cylindrical part, f, of the cap, substantially as and for the purpose herein set forth.
[This invention relates to an improvement in lanterns which are provided with lamps having flat wick-tubes, and a serrated or notched wheel for raising and lowering the wick. The object of the invention is to obtain a means for admitting of the end of the serrated wheel shaft projecting through the side of the lantern, to enable the wick to be adjusted without detaching the lamp from the lantern, and at the same time admit of the lamp being readily adjusted in the lantern and detached therefrom, and also admit of the cap of the lamp being fitted with facility in the latter, so that the wheel-shaft may always be adjusted in a proper position relatively with the notch in the base of the lantern.]
- 39,587.—Soda Water Cooler.—A. D. Puffer, Somerville, Mass. :
I claim so constructing the inlet and outlet pipes of a series or system of cooling cylinders, and the pipes connecting said cylinders, that the orifices in said pipes shall be adjacent to the nearest ends of said cylinders, substantially as and for the purpose set forth.
- 39,588.—Hay and Cotton Press.—Charles H. Robinson, Bath, Maine :
I claim the levers, B B, and bars, C, connected together as shown, in combination with the follower, G, rods, E, F, and windlass, H, all being arranged and applied to the framing, A, to operate as and for the purpose herein set forth.
[The object of this invention is to obtain a simple, efficient, and portable or compact press, for compressing hay, cotton, and other substances for baling by means of animal or other power. The invention consists in a novel arrangement of levers, connecting rods and fulcrum rods, combined with a follower in such a manner that the desired end is attained.]
- 39,589.—Applying Wash to Sand Molds.—David Robinson, Cold Spring, N. Y. :
I claim the cylinder, A, provided with an internal tube, B, and shell, D, of conical or other form, all arranged and combined substantially as and for the purpose set forth.
[This invention consists in the employment or use of a cylinder provided with an internal tube, one end of which is provided with a hopper or funnel, and the other end fitted in a shell of conical or other form, which is attached to the cylinder in such a manner as to have openings or spaces between the shell and cylinder, all being so arranged that the device may be fitted within the mold, and by pouring the wash into the former the latter will be coated with the wash not only in a superior manner, but far more expeditiously. The invention is more especially designed for applying wash to molds for casting projectiles for ordnance.]
- 39,590.—Machine for making Nuts and Washers.—Ives Scoville, Chicago, Ill. :
I claim, first, In a machine for making perforated nuts or washers, containing a stationary bed, G, with one or more cams, G', on its working face, a rotating die carrying disk and a horizontally oscillating and vertically sliding ring, G', substantially as and for the purpose set forth.
Second, In a machine for making perforated nuts or washers, providing the groove, i, in and around the underside of the die carrying disk, H, substantially as and for the purpose set forth.
Third, In a machine for making perforated nuts or washers, providing the die boxes, g', and within enclosing and supporting walls of the dies of the rotating disk, substantially as and for the purpose set forth.
Fourth, Both swaging and punching nuts or washers at one operation upon the top of perforated sliding die boxes, g', of a rotating disk, H, while the metal out of which the nut is formed is enclosed by the walls of the die, substantially as and for the purpose set forth.
Fifth, In a machine for making perforated nuts or washers, effecting the discharge of the finished nuts or washers at the top of the horizontally rotating die carrying disk, H, by means of sliding perforated die blocks, g', which are carried around with the rotating disk, H, substantially as set forth.
Sixth, In a machine which makes perforated nuts or washers, constructing the bed, G, with a hub in combination with the fitting of the bed and the die carrying disk together, by means of a screw or screws and a spring, substantially as and for the purpose set forth.
Seventh, Fitting the ring, G', to the bed, G, and upon springs, substantially as and for the purpose set forth.
Eighth, Constructing the die carrying disk of a machine which makes perforated nuts or washers with inclines, e', and notches, t, in combination with the constructing of the ring, G', with inclines, e', substantially as and for the purpose set forth.
Ninth, The combination in a machine which makes perforated nuts or washers, of a rock shaft, N, retaining catch, R, inclines, e', and notches, t, substantially as and for the purpose set forth.
Tenth, The combination in a machine which makes perforated nuts or washers of the rock shaft, N, retaining catch, R, notches, t, inclines, e', cams, G', and movable perforated die boxes, g', substantially as and for the purpose set forth.
Eleventh, The combination in a machine which makes perforated nuts or washers, of the flat or plain end cutting tool, K, and a table, L, which has a stationary enclosed guiding and cutting die formed in it, substantially as and for the purpose set forth.
Twelfth, In a machine which makes perforated nuts or washers, the table, L, with its die, k, constructed in it, arranged over the die carrying disk, H, and in the relation described to the pockets, g, and so that it forms an independent or auxiliary die and an enclosing guide for truly delivering the blanks into the pockets, substantially as set forth.
Thirteenth, A stationary die table, L, with ledges, l', and guide die, k, for use in connection with machines which make perforated nuts or washers, substantially as set forth.
Fourteenth, Producing the blanks from a strip of metal within an enclosed auxiliary die and immediately delivering them therefrom into the pockets, g, substantially as and for the purpose set forth.
- 39,591.—Magazine Fire-arms.—Joseph N. Smith, Cincinnati, Ohio. Ante-dated Jan. 21, 1863 :
I claim, first, Constructing the stock of the gun in two parts, with a broad groove, A', so that the cartridges may be placed in said groove horizontally transverse to the stock, substantially as herein set forth.
Second, The wheel, H, and ratchet, 16, used as described, with the cord, 15, and follower, 14, and spring, 18, for moving and stationing the cartridges, substantially as specified.
Third, The turn table, E, with openings for admitting the cartridges laterally, operating substantially as specified, for the purpose of turning the cartridges in the right direction, substantially as set forth.
Fourth, The use of the opening through the breech-piece, at R, corresponding with the opening in cylinder, C, for the purpose herein set forth.
Fifth, The employment of the rack bar, C', in combination with the spring catch or brace, D, constructed, and operating substantially as set forth.
Sixth, The employment of the cam wheel, L, and plate, M, or their equivalents, constructed and operating substantially as set forth.
Seventh, The use of the bar, N, or its equivalent, for operating cylinder, C, and table, E, as herein set forth.
Eighth, The employment of the segment, H, as constructed, when used in connection with the cock and the segment pinion on the shaft, D, arranged substantially as set forth.

Ninth, The employment of the wiper, 8, or its equivalent, and the plate, 7, for the purpose specified.

39,592.—Fire-arm.—Daniel E. Somes, Washington, D. C.: I claim, first, The construction of a gun so that by means of springs or their equivalents, the ball or projectile shall be held at any given point of the barrel until any required force of the charge is exerted upon it.

Second, The sliding bolts, e e e, the springs, f f f, and the gage screws, g g g, substantially as and for the purpose described.

39,593.—Elongated Projectile for Fire-arms.—Joseph Nottingham Smith, New York City:

I claim, first, The combination of the point bolt, E, and cylinder, D, with their powder chambers, m and i, arranged so as to ignite the powder thereto successfully, from the concussion of the projectile in striking, substantially as and for the purpose herein specified.

Second, I also claim the arrangement of the magazine, chamber, h, in the shaft of the projectile, in combination with the powder chambers, i and m, so as to fire the powder in succession, after the firing of the charges in the other chambers, substantially as and for the purposes herein set forth.

39,594.—Stiffening for heels of Boots and Shoes.—E. M. Stevens, Boston, Mass., assignor to Alfred B. Ely, Newton, Mass.:

I claim as a new article of manufacture, for the heels of boots and shoes, a stiffening made of India-rubber, mixed with ground rags, or other suitable fibrous material, substantially as set forth and for the purpose described.

39,595.—Ambulance.—Augustus Wm. Siss, New York City. Ante-dated July 7, 1863:

I claim, first, The movable seats, E E', constructed and secured substantially as set forth.

Second, The hinged seats or stretchers, K K', in the described combination with the movable seats, E E'.

Third, The foot rest and foot rests, M N, applied to the hinged seats, K K', substantially as shown and described.

Fourth, The described arrangement of the water tank, U, and drawer, V, beneath the body, A, of the ambulance.

39,596.—Breach-loading Ordnance.—Elisha A. Sutcliffe, New York City:

I claim connecting the movable breach-piece, C, with the hollow tightening and sustaining screw, B, by means of a pin, c, or its equivalent by which the turning of the said screw in and out is made to raise and lower the breach-piece and so close the breach of the gun substantially as herein described.

[This invention relates to the employment of a movable breach-piece inserted into a mortise provided in the gun, and a tightening and sustaining screw which screws directly into the breach, and is bored out large enough for the passage through it of the projectile and cartridge. It consists in so combining the said breach-piece with the hollow screw that it is opened by the act of turning back the screw.]

39,597.—Cltivator.—James P. Tostevin, Racine, Wis.:

I claim the combination and arrangement of braces, H, hooks, I, nuts, J, and staples, L, operating substantially in the manner and for the purposes set forth.

39,598.—Smut Mill.—B. T. Trimmer, Rochester, N. Y.:

I claim the double faced bearings or lugs, H H, provided with the slots, k k, or their equivalent, in combination with the beaters, I I, for auto-rotating, adjusting, and shifting said beaters, and adapting the machine to be run in either direction, substantially as herein described.

In combination with the beaters thus attached and adjusted, and provided with teeth, m m, I also claim the intermeshing teeth, n n, arranged and operating substantially as and for the purposes herein specified.

39,599.—Artificial Leg.—Thomas Uron, San Francisco, Cal.:

I claim, first, In combination with the toe and metatarsal joints the cord, e, and springs, S and S', for raising and lowering the toe and metatarsal joint, substantially as herein described.

Second, I also claim the cords, a, and strap or cord, a', in combination with the pulleys, p and p', substantially in the manner and for the purpose set forth.

Third, I also claim in combination with pivoted foot, C, the strap, r, passing over pulley, p, for the purpose of giving steadiness to the ankle joint, substantially as herein described.

Fourth, I also claim the knee pan, K, in combination with cords, n, and pulleys, o, for the purpose of retaining the leg in any desired position while in a sitting posture, substantially in the manner herein described.

Fifth, I also claim in combination with the tendon Achilles strap, X, the spring, i, and spring, S'', substantially in the manner and for the purpose herein set forth.

39,600.—Churn Dasher.—Henry P. Westcott, Seneca Falls, N. Y.:

I claim, first, The dasher, h, constructed and made adjustable as and for the purpose set forth.

Second, The adjustable dasher, h, in combination with the dasher, or its equivalent.

39,601.—Ship of War.—John Wheatley, the Royal Navy, England. Patented in England, Dec. 2, 1862:

I claim the arrangement of the sharp bow and glaive, forward of the center of the ship, so as to admit of the sailing and "laying" of the guns, by the steering of the ship, as set forth and shown.

39,602.—Camera Stand.—John A. Whipple, Boston, Mass.:

I claim elevating and arresting the camera by the mechanism arranged and operating substantially as herein described.

39,603.—Cooking Apparatus.—E. Whiteley, Cambridge, Mass.:

I claim casting the kettle, A, in one piece with its steam chamber, B, and solid portions, e, in the manner and for the purpose substantially as described.

39,604.—Construction of Ordnance.—Norman Wiard, New York City:

I claim, first, The within described arrangement in guns of the oblique holes, B, for the purpose of promoting both the longitudinal and radial expansion of the inner metal as herein set forth.

Second, I claim in connection with such holes, B, or with equivalent holes or parts thereof extending parallel or nearly parallel to the axis, the employment of the oblique or curved connections, A3, between the outer and inner metal of a gun for the purpose herein set forth.

Third, I claim the within described arrangement and combination of a highly compressive reinforce, A2, the elastic webs, A3, and the interior metal, A1, of a gun, substantially as and for the purpose herein set forth.

39,605.—Manufacture of Illuminating Gas.—S. Lloyd Wiegand, Philadelphia, Pa.:

I claim, first, The hereinbefore described form of retorts whether cylindrical or prismatic as hereinbefore described, when arranged in the oven in the manner and for the purpose set forth and used as hereinbefore specified.

Second, The arrangement of flues and dampers when combined as set forth with the retorts of the form specified.

Third, The construction of the top of the oven when used in combination with the retorts as hereinbefore specified.

39,606.—Manufacture of Illuminating Gas.—S. Lloyd Wiegand, Philadelphia, Pa.:

I claim the combination of the processes of separating the volatile parts of hydro-carbons, by the aid of superheated steam at a lower temperature than will convert the hydro-carbons into gas and the subsequent decomposition of said volatilized hydro-carbons simultaneously with superheated steam in the presence of incandescent carbon, at temperatures which convert both the steam and hydro-carbon vapors into permanent illuminating gas, when conducted in the manner substantially as set forth or in any other equivalent manner.

39,607.—Distilling Oils and Paraffine from Peat and other Substances.—S. Lloyd Wiegand, Philadelphia, Pa.:

I claim the use of the products of the decomposition of steam by means of incandescent carbon in the separation of hydro-carbon oils and paraffine from peat or coal or other bituminous substances whether used by themselves or in combination with super-heated steam.

support, B, and the drill and cutters or blades, g f f, constructed and applied to a lathe for the purpose of centering shafts as herein set forth.

[This invention consists in the employment or use of a pronged centering device, a rest or support, and a drill and cutter, applied to an ordinary lathe in such a manner as to admit of shafting being readily centered, and the ends turned or cut perfectly square or at right angles to their peripheries.]

39,609.—Machine for dyeing, bleaching, &c.—James Young, New York City. Ante-dated March 13, 1863:

I claim, first, The employment of the reciprocating rising and falling hammer, G, in combination with the endless apron, D, constructed and operating substantially as and for the purpose described.

Second, Passing the liquid or liquids through the hammer into the goods or clothes substantially as and for the purpose set forth.

Third, The arrangement of two or more stirrups, I, in combination with the longitudinally sliding guide roller, J, and with the hammer, G, constructed and operating substantially as and for the purpose specified.

Fourth, The combination with the reciprocating rising and falling hammer, G, of a tank, C, divided into a series of compartments, e g, and provided with faucets, e' f' g', all arranged and operating substantially in the manner and for the purpose described.

Fifth, The arrangement of the apron, D, of L, in combination with the hammer, G, constructed and operating substantially in the manner and for the purpose specified.

Sixth, The employment of corrugated glass rollers, q, in combination with the hammer, G, and apron, D, as and for the purpose set forth.

Seventh, The arrangement and combination of the table, A, tank, C, hammer, G, endless apron, D, and wringer, E, all constructed and operating substantially as and for the purpose described.

39,610.—Refrigerator.—W. M. Baker, Assignor to himself and W. R. Heath, of Walpole, Ind.:

I claim, first, The provision shelves formed of the rods, e, in combination with the inclined plates, f, and filter, or water receptacle, F, and the grooves, i, in the sides of the frames, J, for the purpose of affording an escape for the moisture within the refrigerator as set forth.

Second, The close chambers, k, in connection with the chutes, l, ice-box, K, and filter, or water receptacle, F, all arranged as and for the purpose specified.

Third, The fibrous covering, D, and reservoir, I, in combination with the ventilator, G, and the openings, d, in the walls, B, to operate as, and either with or without the ice-box, K, for the purpose set forth.

Fourth, The combination of the provision shelves, e, inclined plates, f, chamber, k, chutes, l, ice box, K, fibrous covering, D, ventilator, G, and openings, d, all arranged to form a new and improved refrigerator substantially as set forth.

39,611.—Water Elevator.—Moses C. Bignall, Seneca Falls, and R. F. Osgood, Rochester, N. Y., assignors to Downs & Co., of Seneca Falls:

We claim the inclined lever or bar, M, provided with the cross-head, l, resting over the top of the bucket, and striking against the lugs, m m, or their equivalent, on opposite sides thereof, the whole arranged combined and operating substantially as and for the purpose herein specified.

39,612.—Submarine Explosive Projectile.—Mills L. Callender, Assignor to himself, Charles H. Welling and Egbert Perce, New York City. Ante-dated Oct. 16, 1862:

I claim, first, The application and use of a water rocket or self-propelling vessel, or projectile, to move upon or beneath the water, for the purposes, and in the manner substantially as described.

Second, I also claim driving a torpedo or explosive case or magazine under and through the water at any object, by the momentum gained by the moving force of another body, or by discharging it by other force with a view to explode it under or against a vessel or other object under water.

39,613.—Insulator for Lightning Conductors.—Edwin Eagles, Assignor to himself and J. H. Guion, Mamaroneck, N. Y.:

I claim, first, The fitting of the shank, c, of the holder, C, to a socket, or hole, e, in the pin B, which attaches it to the glass, A, substantially as herein described, for the purpose herein set forth.

Second, The support, D, having the eye, d, for the reception of the glass set at a right angle to its shank or stem, A, substantially as and for the purposes herein specified.

39,614.—Boots and Gaiters.—James P. Herron, Assignor to Himself and Daniel E. Somes, of Washington, D. C.:

I claim the opening, b, in the manner and for the purposes set forth.

39,615.—Composition for Lining Lead Pipes and other purposes.—Thomas Hodgson, Assignor to Himself and W. E. Doubleday, Brooklyn, N. Y. Ante-dated Nov. 12, 1862:

I claim the composition for the purposes set forth, composed of the several ingredients herein specified, combined substantially as herein described.

[The object of this invention is to obtain a cheap coating for the interior of leaden and other metallic pipes, or cisterns for conveying or containing water for drinking or culinary purposes, which shall at the same time be innocuous in itself, protect the water from the metal of the pipe, or cistern, and preserve the pipe, and to this end the invention consists in a composition of bees-wax, resin, carbon and silicic acid. Mr. Doubleday has assigned his interest in the patent to Wm. Larder, who may be addressed at 120 Fulton street, New York city, in relation thereto.]

39,616.—Soldering Sheet Metal Cans.—Herman Miller, Assignor to C. T. Raynolds, F. W. Devos and Charles Pratt, New York City:

I claim, first, The employment for containing the melted solder in which the joint of any vessel is to be soldered by dipping, of a solder pan open in the center and containing the solder in a channel of a form corresponding with that of the joint to be soldered, substantially as and for the purpose herein described.

Second, The construction of the solder pan with a resting place, e, or its equivalent, for the can or vessel to be soldered, to regulate the depth to which the joint will enter the said pan, substantially as herein described.

39,617.—Axle Skein.—Henry F. Phillips, Auburn N. Y., Assignor to Messrs. Downs & Co., Seneca Falls, N. Y.:

I claim as a new article of manufacture, the hollow, cast-iron skein or journal, A, provided with the chilled bearing surfaces, f f, extending part way around the same, substantially as herein set forth.

39,618.—Portable Pump.—H. F. Phillips, Iion, N. Y., Assignor to Messrs. Downs & Co., Seneca Falls, N. Y.:

I claim, first, The pump, B, hand bucket, A, handle, C, c, and catch, D, or equivalent, so arranged and combined that the said handle shall serve both for operating the pump, and as a bail for the bucket, as shown and described.

Second, In combination with the foregoing, I claim the stirrup, G, or its equivalent, as herein set forth.

39,619.—Fire Arm.—S. W. Wood, Cornwall, N. Y.:

I claim, the arrangement herein described, of two pawls operating conjointly in the same notch, o, on the face of the hammer, the pawl, D, to discharge the arm by pulling the trigger stump, while the other pawl, w, holds the hammer on guard at full cock, and is liberated by the prong, E, of the pawl, d, hitged to and operated by the trigger, E, to discharge the piece substantially as herein set forth.

RE-ISSUES.

1,523.—Brussels Carpet Loom.—Erastus B. Bjgelow, Boston, Mass. Patented March 20, 1847, and extended: I claim, first, The organized means of operating the pile wires automatically whereby they are successively withdrawn, supported, transferred and inserted substantially as described. Second, The employment of fingers, or the equivalent thereof, as a means of transferring the pile wires towards their desired position

for insertion into the shed of the figuring warps, substantially as described.

Third, The method of introducing the pile wires into the shed of the figuring warps by means of a trough, or the equivalent thereof, which supports and carries them into the shed, drops them therein and then moves back for the succeeding wire, substantially as described.

Fourth, The above-described means of supporting the pile wires, while being transferred toward their desired positions prior to and for insertion into the shed of the figuring warps.

Fifth, The above-described means of supporting the pile wires in positions ready for insertion into the shed of the figuring warps, and all equivalent means of effecting the same end, when said means form a part of an organized method of wholly operating the pile wires automatically.

Sixth, The above-described, and all equivalent means of supporting the pile wires while being inserted into the shed of the figuring warps, when said means form a part of an organized method of wholly operating the pile wires automatically.

Seventh, Making the mechanism which weaves or forms the body of the cloth separate and with a distinct organization from the mechanism which operates the pile wires, each mechanism being operated separately, and the two being connected by an intermediate mechanism which starts one of them as it arrests the other, by shifting what communicates the motive power from the one to the other.

1,524.—Aerating Paste or Dough.—Elisha Fitzgerald, New York City. Patented Oct. 8, 1861:

I claim, first, Fercing the dough or paste into the reservoir, A, against the pressure of the gas.

Second, I claim the process of keeping up a continuous supply of dough or paste, under pressure in the receiver.

1,525.—Solar Time Globe.—Theodore R. Timby, Saratoga Springs, N. Y. Patented July 7, 1863:

I claim, first, A globe, A, surrounded by a ring or dial, D, and revolved with the same once in 24 hours in combination with a stationary index, F, substantially in the manner and for the purpose specified.

Second, The adjustable dial, C, attached to the ring, D, and revolving with the same, and with the globe, A, under a stationary index, F, as and for the purpose set forth.

[The object of this invention is to arrange a terrestrial globe in such relation to a dial plate and index, that the culminating time of the sun and consequently the true solar time and also the difference of time on different localities of the globe can be observed simultaneously at any moment.]

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United States Patent Office, and with the greater part of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office.

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Persons having conceived an idea which they think may be patentable, are advised to make a sketch or model of their invention, and submit it to us, with a full description, for advice. The points of novelty are carefully examined, and a written reply, corresponding with the facts, is promptly sent free of charge. Address MUNN & CO., No. 37 Park Row, New York.

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The service we render gratuitously upon examining an invention does not extend to a search at the Patent Office, to see if a like invention has been presented there, but is an opinion based upon what knowledge we may acquire of a similar invention from the records in our Home Office. But for a fee of \$3, accompanied with a model or drawing and description, we have a special search made at the United States Patent Office, and a report setting forth the prospects of obtaining a patent, &c., made up and mailed to the inventor, with a pamphlet, giving instructions for further proceedings. These preliminary examinations are made through our Branch Office, corner of F and Seventh streets, Washington, by experienced and competent persons. Many thousands of such examinations have been made through this office. Address MUNN & CO., No. 37 Park Row, New York.

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Every applicant for a patent must furnish a model of his invention if susceptible of one; or, if the invention is a chemical production, he must furnish samples of the ingredients of which his composition consists, for the Patent Office. These should be securely packed, the inventor's name marked on them and sent, with the Government fees, by express. The express charge should be pre-paid. Small models from a distance can often be sent cheaper by mail. The safest way to remit money is by draft on New York, payable to the order of MUNN & CO. Persons who live in remote parts of the country can usually purchase drafts from their merchants on their New York correspondents; but, if not convenient to do so, there is but little risk in sending bank-bills by mail, having the letter registered by the postmaster. Address MUNN & CO., No. 37 Park Row, New York.

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Table with 2 columns: Description of patent application type and Fee amount. Includes items like 'On filing each caveat', 'On filing each application for a Patent, except for a design', 'On issuing each original Patent', 'On appeal to Commissioner of Patents', 'On application for Re-issue', 'On application for Extension of Patent', 'On granting the Extension', 'On filing a Disclaimer', 'On filing application for Design, three and a half years', 'On filing application for Design, seven years', 'On application for design, fourteen years'.

The law abolishes discrimination in fees required of foreigners, excepting natives of such countries as discriminate against citizens of the United States—thus allowing Austrian, French, Belgian, English, Russian, Spanish and all other foreigners except the Canadians, to enjoy all the privileges of our patent system (but in cases of designs on the above terms. Foreigners cannot secure their inventions by filing a caveat; to citizens only is this privilege accorded.

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PATENT CLAIMS.—Persons desiring the claim of any invention which has been patented within thirty years, can obtain a copy by addressing a note to this office, stating the name of the patentee and date of patent, when known, and inclosing \$1 as fee for copying. We can also furnish a sketch of any patented machine issued since 1863, to accompany the claim, on receipt of \$2. Address MUNN & CO., Patent Solicitors, No. 37 Park Row, New York.

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NEW PAMPHLETS IN GERMAN.—We have just issued a revised edition of our pamphlet of *Instructions to Inventors*, containing a digest of the fees required under the new Patent Law, &c., printed in the German language, which persons can have gratis upon application at this office. Address MUNN & CO., No. 37 Park-row, New York.

Back Numbers and Volumes of the Scientific American
VOLUMES I., II., III., IV., V., VII. AND VIII. (NEW SERIES) complete (bound) may be had at this office and from periodical dealers. Price, bound, \$2.25 per volume, by mail, \$3.—which includes postage. Every mechanic, inventor or artisan in the United States should have a complete set of this publication for reference. Subscribers should not fail to preserve their numbers for binding. VOL. VI. is out of print and cannot be supplied.

Binding the "Scientific American."

It is important that all works of reference should be well bound. The SCIENTIFIC AMERICAN being the only publication in the country which records the doings of the United States Patent Office, it is preserved by a large class of its patrons, lawyers and others, for reference. Some complaints have been made that our past mode of binding in cloth is not serviceable, and a wish has been expressed that we would adopt the style of binding used on the old series, *i. e.*, heavy board sides covered with marble paper, and morocco backs and corners.

Believing that the latter style of binding will better please a large portion of our readers, we commenced on the expiration of Volume VII. to bind the sheets sent to us for the purpose in heavy board sides, covered with marble paper and leather backs and corners. The price of binding in the above style is 75 cents. We shall be unable hereafter to furnish covers to the trade, but will be happy to receive orders for binding at the publication office, No. 37 Park Row, New York.



Q. C., of Mass.—You will find the formula for calculating the flow of water through pipes in "Nystrom's Handbook for Mechanics," page 228, published by J. B. Lippincott & Co., Philadelphia; but more full in Professor Rankin's work on "Prime Movers," page 102—a London publication.

L. R., of Pa.—There is no business directory for the State of New York published, so far as we know.

G. S., of Pa.—Aniline colors cannot be made from petroleum, by any known process, because it does not contain true benzole.

E. J., of Mass.—Skeleton leaves are prepared by macerating in soft water, and exposing them to the sun for several days, until they ferment, when the soft portions may be easily removed with the fingers, or a brush, leaving the fibrous skeletons perfect. To render them white, steep for a short period in a dilute solution of the chloride of lime, then wash and dry them.

J. T. T., of Mass.—Communicate with Charles Seely, editor of the *American Journal of Photography*, No. 244 Canal street, this city, respecting articles for the photographer, their cost, &c., and the other information which you desire.

G. & T., of Ill.—You state that your iron tanks are cylindrical, five-sixteenths of an inch thick and 60 inches in diameter, and you wish to know what pressure of steam they will bear. The practice is to allow about 52,000 pounds for the strength of a square inch of iron; divide this by the diameter (60) in inches of the tank, or boiler, and the quotient is the bursting pressure. It is customary to use steam at only one-third this pressure, and to allow one-third for the weakening effects of riveting. The pressure for your tanks should, therefore, not exceed 60 pounds on the iron; but if you were to hoop them with half inch rings, eighteen inches apart, they would bear a pressure of 90 pounds.

R. W. G., of Ill.—Thomas Prosser, No. 28 Platt street, this city, will give you information, and furnish you with drawn steel rods.

A. R. S., of Ohio.—The Practical Draughtsman's Book of Industrial Design, published by Henry Carey Baird, Philadelphia, is the best you can obtain upon the designing of gearing. The art of cutting gear wheels, however, can only be learned by practice.

J. M. Z., of Ill.—We do not understand, from your letter, what kind of coating you desire for light hardware, such as door handles, latches, &c. The black coating usually consists of a black varnish, which is manufactured and sold for common use in nearly every city. Porcelain door handles are composed of Chinese clay, molded and baked under a high heat in porcelain kilns.

G. W. S., of Boston.—We have received your communication on the rights of authors and inventors to ideas, as permanent property, like real estate. Having fully investigated this subject many years ago, we consider that your conclusions are unsupported by sound reasoning. You will find the subject discussed on page 122 Vol. IX. (old series) of the SCIENTIFIC AMERICAN, and especially on page 237, Vol. II. (old series) of the SCIENTIFIC AMERICAN.

D. J. T., of Ohio.—There is no first rate work published on rifles and gunnery. At present gunnery is in a transition state. Experiment alone can determine the amount of pressure in front of a bullet moving in the barrel of a rifle. The total pressure of the atmosphere is only 15 pounds on the square inch.

D. K., of N. Y.—You will find it troublesome to work a low pressure engine of the size you mention. You had better let it work high pressure. A boiler 4 feet high, and 18 inches diameter, will do the work, providing it contains five flues one inch in diameter, and 3 feet long, or in that proportion. An old boiler flue will answer if you can get fire enough under it to make steam rapidly.

E. G. C., of Mass.—Mr. Gail Borden's address is 36 Elizabeth street, New York. We shall make use of your perpetual motion item.

L. C., of Maine.—We will send you one of our pamphlets of advice by mail. Generally, in doubtful cases, we advise parties to have preliminary examination made at the Patent Office.

C. B., of N. J.—The patent law provides that a design patent may be extended for seven years, upon the payment of \$100 to the Patent Office, and otherwise complying with the terms of the law. Our pamphlet fully explains all these matters.

H. C., of Mo.—War is always more or less a temporary calamity; but in measuring its consequences we must look beyond mere temporary issues, and contemplate its effects upon the ultimate interests of the nation. We regard disunion as the greatest calamity that could befall the country. It would insure the destruction of our Government, and promote endless border wars. We must be one people living under one Government; then we shall be great and powerful for all purposes.

N. B., of Cal.—The use of silk for wearing apparel may become more extensive in this country, but it will never supersede cotton and flax tissues. You are surprised at the elegant silks worn by all classes and sexes of Chinese in your State! You must remember that the silk worm and the mulberry are indigenous to China, and there are twenty persons there for one in America.

A. T., of Mass.—Between three and four feet is the usual quantity of rain that falls in a year; but this year there was nearly that much during the month of July, in some parts of the United States. During the same month (7th of July) it was so cold in England that a severe frost injured vegetation near London.

C. H., of Pa.—Many new American patented agricultural implements are now introduced to Cuban industry, by Don José Macéas, an enterprising Americanized islander, who has recently established a model farm near Matanzas. Connected with it, he has a stock farm, for raising the best breeds of useful farm animals.

P. T., of Wis.—The longest railway tunnel in the world is that between Lyons and Turin, under Mont Cenis; it is more than seven miles in length, and beats the famous Hoeseac tunnel of Old Bay State, yet unfinished, through solid granite. The first fiscal tunnel we have any account of, is that called the *Grotto di Lipo*, near Naples, Italy, now used as a common roadway. It is through the *tuca* of a mountain spur, between Naples and Barce.

E. R. S., of Md.—You will find an article on petrole for the fuel of steamers on page 415, Vol. I, current series of the SCIENTIFIC AMERICAN. Whoever informed you that petroleum is cheaper than coal for generating steam, and that it is now used in boilers for fuel, must be mistaken.

J. M. G., of Ill.—We see nothing in your device which differs substantially from, or is of more practical value than the well-known hydrostatic paradox. The experiment would be simple and if you are in any doubt try it.

C. C. R., of N. Y.—You will find the price for binding volumes of the SCIENTIFIC AMERICAN on our advertising page.

R. J. A., of Ill.—There is no loss of useful effect by the transmission of work through the crank of an engine, except the friction on the crank pin. It is an erroneous notion entertained by many persons, that a crank consumes power.

Money Received

At the Scientific American Office, on account of Patent Office business, from Wednesday, Aug. 19, to Wednesday, August 26, 1863:—

- A. G., of Pa., \$10; G. B. H., of N. Y., \$20; G. W. H., of Iowa, \$20; F. A., Jr., of Mich., \$20; S. T. S., of Mass., \$20; J. C., of N. Y., \$20; T. W., of Ill., \$20; N. B. B., of N. Y., \$20; W. E. N., of Conn., \$100; J. F., of N. Y., \$20; H. G., of N. Y., \$16; W. McK., of Pa., \$20; W. W., of Cal., \$45; S. & S., of Pa., \$20; W. B. R., of Mich., \$20; M. W. W., of Mo., \$20; C. M., of N. Y., \$25; H. C., of Vt., \$16; H. L., of Mo., \$25; W. D. H., of La., \$25; M. De C., of Ind., \$26; W. X. S., of Mass., \$16; G. G. H., of Conn., \$16; M. & S., of Vt., \$41; M. B. W., of Conn., \$25; T. T., of Pa., \$16; A. S. L., of N. Y., \$16; J. F., of N. C., \$15; H. J., of Conn., \$16; F. & P., of N. Y., \$16; R. W., of N. Y., \$16; M. M. C., of Ill., \$20; C. J. B., of Ill., \$25; H. F. & T. R. B., of Iowa, \$16; E. J. B., of Ill., \$16; J. W. Jr., of Wis., \$5; F. J. K., of Ohio, \$25; W. B. K., of Iowa, \$15; J. D. C., of Ill., \$15; H. & G., of Ill., \$20; C. F., of Ill., \$25; G. G. C., of N. Y., \$16; R. B. Z., of Ohio, \$15; D. I. S., of N. Y., \$25; G. M. L., of N. Y., \$12; W. H. G., of N. Y., \$25; H. K., of N. Y., \$45; J. D., of N. J., \$45; R. B., of Mich., \$45; L. S., of N. Y., \$25; J. S., of N. Y., \$25.

Persons having remitted money to this office will please to examine the above list to see that their initials appear in it, and if they have not received an acknowledgment by mail, and their initials are not to be found in this list, they will please notify us immediately, and inform us the amount, and how it was sent, whether by mail or express.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office from Wednesday, August 19, to Wednesday, August 26, 1863:— E. C., of N. Y. (4 cases); H. & C., of Conn.; W. C., of Ill.; M. & S., of Vt.; F. S. G., of Conn.; C. M., of N. Y.; D. J. S., of N. Y.; O. & F., of N. Y.; L. S., of N. Y.; P. Mc. G., of Iowa; T. J. K., of Ohio; O. F. H., of Mass.; M. B. W., of Conn.; J. C. L., of Mo.; W. D. H., of La.; M. D., of Ind.; C. F., of Ill.; C. C., of N. Y.; J. S., of N. Y.

RATES OF ADVERTISING.

Twenty-five Cents per line for each and every insertion, payable in advance. To enable all to understand how to calculate the amount they must send when they wish advertisements published, we will explain that ten words average one line. Engravings will not be admitted into our advertising columns, and, as heretofore, the publishers reserve to themselves the right to reject any advertisement they may deem objectionable.

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PATENT FOR SALE.—FISHER'S LAWN OR YARD Mower, Patented 1863. Vibrating cutters; lightest machine made, weighs 35 lbs.; a lady can mow with it. For further particulars, address HENRY FISHER, Alliance, Ohio.

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FOWLER'S ADDING MACHINE.—STATE AND COUN try Rights, and Machines for sale. This Machine has no equal on the American continent. Cheapness and simplicity, combined with accuracy and speed, is what I claim for it over all others. For further information, address GEO. B. FOWLER & CO., 37 Park Row, Room 21, New York City, or Box 3212 Chicago, Ill. (See cut and description in SCIENTIFIC AMERICAN, No. 10, Vol. 9.)