

ments about the size of a brick, to hold the various samples of wheat, rye, barley, flour or meal which he may have at the time for sale, and on each sample he lays his business card, with a minute of the number of bushels or barrels which he has corresponding with the sample, as, for instance:—

HILL & THOMAS,
No. 27 Pearl street.
2,392 barrels—Rochester mills.

The buyers, passing round from one table to another, are able to see what lots of produce are for sale at the time in the city much more easily and quickly than they could by going to the several stores, and the sellers are enabled to present their lots to all the buyers.

Each table having specimens of flour is provided with a little block-tin teapot of water for mixing the flour into dough, in order that it may be examined in that state, and gentlemen are seen in the crowd molding and pulling little pieces of dough, some of them with dabs of flour on their coats or faces received in the operation.

The course of the trade in grain is essentially the same as that in dry goods, but it is more largely for cash, and where credits are given they are for shorter periods. Proprietors of flouring mills throughout the country consign flour to commission merchants in New York, who charge 2½ per cent for selling it. A large portion of the manufacturers get advances from the commission merchants, but there is a material difference in the system of making advances from that which prevails in the dry-goods trade. With the latter it is a general rule not to advance on any consignment until the goods are in store, but the grain and flour dealers make a regular practice of paying advances so soon as the goods are shipped. The mill owner puts a quantity of flour on board a canal boat, steamer, or railroad car, and gets a bill of lading, which is the carrier's receipt agreeing to deliver the flour to a certain commission merchant in New York, and, at the same time, he draws on the commission merchant for a large part of the value of the flour, generally within a dollar per barrel of the market price, and on the receipt of the bill of lading, the commission merchant pays the draft if it is drawn at sight, or accepts it if it is on time. The drafts are drawn as may have been previously agreed upon—at the present time they are usually drawn payable at sight, or within ten days.

Commission merchants sell large lots of 50 to 1,000 barrels of flour in a lot of 100 barrels, who sell by the single barrel or more to retailers. The regular credit to jobbers is seven days. Grain is collected from farmers by traders throughout the country, from whom commission merchants in the city receive it for sale.

This is the way that, in the present organization of trade, grain and flour are first collected in the great marts and then distributed to consumers.

The National Debt.

Secretary McCulloch has promulgated the statement of the public debt as it appears from the books of the Treasurer's returns, and requisitions in the department on the 31st of October, 1865. The recapitulation shows the following:—

Debt bearing interest in coin	\$1,161,137,691 80
Debt bearing interest in lawful money	1,191,819,787 46
Debt on which interest has ceased	1,373,920 09
Debt bearing no interest	386,523,359 51

Total amount outstanding \$3,740,854,758 86

The total interest is \$138,938,078 59, of which \$67,670,340 50 is in coin, and \$71,267,738 09 is in lawful money.

The Legal-tender notes in circulation are as follows:—

One and two years five per cent	\$32,536,901
United States notes, old issue	392,070
United States notes, new issue	427,768,469
Compound-interest notes	173,012,131

Total \$633,709,581

The following is the amount in the Treasury:—

In coin	\$34,654,987 15
In currency	33,800,591 54
Total	\$68,455,578 69
Fractional currency on hand	\$26,067,469

The above exhibit of the National Debt shows several gratifying facts. The principal is reduced \$4,000,000 since September 30th. The aggregate interest is increased \$1,400,000, owing to the conver-

sion of Legal Tenders into Gold-bearing 5-20s. The debt bearing interest in coin is increased \$44,479,100, being the amount of 5-20s thus far issued in exchange for Legal Tenders.



ISSUED FROM THE UNITED STATES PATENT-OFFICE

FOR THE WEEK ENDING OCTOBER 31, 1865.

Reported *officially* for the Scientific American.

Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

50,671.—Machine for Pressing Beefsteak, Paring Apples, and Sharpening Knives.—Benjamin F. Alexander, Glen Hope, Pa.

I claim the combined machine consisting of an apple-parer, steak-tender, and knife-sharpener, arranged and constructed and described and represented as shown in the drawings.

50,672.—Cutter Sleigh.—Alfred Arneman, Guttenberg, Iowa.

I claim the combination of two pairs of S-shaped runners of different heights, with a sleigh, the body of which is constructed of the form substantially as described.

50,673.—Buckle.—Henry Aschenbach, Washington, D. C.

I claim the buckle, substantially as herein described, to wit, constructed with a convex portion, A, and with a pivoted loop, B, which has a holding bar, P, formed on it so as to bind upon the strap, as shown, all substantially as described, and for the purpose set forth.

50,674.—Stand for Preserve Jars.—Kate E. Ashley, Williamsburgh, N. Y.

I claim, First, The stand, A, composed of one or more disks or their equivalents, capable of supporting the jars while the latter are introduced in or lifted from the vessel containing boiling water, substantially as and for the purpose set forth.

Second, Making the holes, C, in the disk, A, adjustable by cams, F, or their equivalents, substantially as and for the purpose described.

[This invention relates particularly to a stand to be used for lifting jars in and out of hot water, when they are to be used in the process of preserving fruits and vegetables.]

50,675.—Apparatus for Carbureting Air.—John A. Bassett, Salem, Mass.

I claim, First, The impregnation of air or gases with the vapor of a hydro-carbon evolved from the surfaces of the perforated fans partially immersed in the hydro-carbon, and operated in the manner substantially as shown and specified.

Second, The use of an air-holder, either at a distance from or connected with a gas generator, when used in combination with the valve, as described.

50,676.—Attaching Cross-cut Saws to their Handles.—David Bearly, New York.

I claim the construction of the fastening, B, in combination with the knob, G, as described, and for the purposes set forth.

50,677.—Cutter for Barrel Heads.—Wm. H. Bennett, Utica, N. Y.

I claim an improved hand tool for making barrel heads, consisting of the working bar, B, central pivot, C, adjustable cutter, F, and gage, E, the said parts being combined and operating substantially as herein described.

50,678.—Gas Heater.—John Q. Birkey, Philadelphia, Pa.

I claim, First, The combination of the hollow, inverted, arched cone, B, the wire gauze or perforated plate, P, and a suitable tip, G, the whole being arranged substantially as and for the purpose herein set forth.

Second, In combination with the above, I claim the concentrating tube, H, for the purpose specified.

50,679.—Vegetable Cutter.—A. T. Bleyley, Ottumwa, Iowa.

I claim the vegetable cutter, arranged and operating substantially as shown in the drawings, and herein described.

[This invention relates to a novel construction of a vegetable cutter, whereby many important advantages are obtained.]

50,680.—Making Chilled Castings.—George W. Bollman and William Neemes, Pittsburgh, Pa.

We claim the use of thin metallic molds or chills, for making chilled rolls, shafting, and other large castings, when the exterior of the chill in which the casting is formed is surrounded with cold water, for the purpose of abstracting the heat from the surface of the roll, thus preventing the warping of the chill, and of chilling the casting from the surface more rapidly and to a greater depth, a constant stream of cold water being applied to take the place of that which, having become heated, is allowed to escape, in the manner substantially as hereinbefore described.

50,681.—Photographic Lens.—Charles B. Boyle, New York City. Antedated Oct. 25, 1865.

I claim constructing a photographic lens of three pieces of glass, as described in the specifications, and laid down in the drawings.

I also claim the mode, herein described, of flattening or bending back the focal plain of the photographic lens, by placing the chromatic dispersion of the flint glass over that of its associate crown glass lens.

50,682.—Attaching Traces to Whiffletrees of Vehicles.—Edwin Brown, Leominster, Mass.

I claim, as a new article of manufacture, spring botes for attaching to and detaching traces from whiffletrees arranged within a casing, which is provided with bearings and a protecting cap for operation, substantially as shown and described.

50,683.—Quartz Crusher.—Andrew Buchanan, Brooklyn, N. Y.

I claim, First, The employment of two segments, C, with curved crushing faces, either plain or corrugated, in combination with a mechanism for imparting to the same an oscillating motion, substantially as and for the purpose set forth.

Second, The oscillating lever, D, in combination with the segment, C, constructed and operating substantially as and for the purpose described.

50,684.—Churn.—Thomas J. Burke and S. B. Gassette, Chicago, Ill.

We claim, First, The combination of the frame, G and D, with the standards, I, and crane, B, as set forth.

Second, The combination of the flange, F, with the barrel of the churn, A, as set forth.

Third, The combination of the washers, N, with the arms, M, and substantially as described and for the purposes set forth.

50,685.—Combined Coal Scuttle and Ash Screen.—A. F. Carling and L. Rockwell, Ellenville, N. Y.

We claim the combination of the cylindrical screen, E, with a coal scuttle, A, provided with a partition plate, B, having doors, C, C', and all arranged substantially as and for the purpose specified.

[This invention consists in combining with a coal scuttle a cylindrical oscillating screen and an ash receptacle, arranged in such a manner that ashes may be screened with the greatest facility, without allowing the dust to escape from the device, and the cinders discharged into the scuttle compartment from the screen, so that they may be thrown upon the fire from the scuttle; the whole forming a very convenient and economical device for household use.]

50,686.—Filter for Artesian Wells.—John Clary and Elijah B. Torrey, Ithaca, N. Y.

We claim the filtering jacket or inclosing coil which surrounds the lower section of the well or pump tube, forming a strainer for that portion into which the water enters, substantially as described.

50,687.—Mechanical Movement.—Josiah A. Clippingier, Newton, Iowa.

I claim, First, The employment of the self-adjusting friction brake, or its equivalent, in combination with a train of wheels and a spring, substantially as and for the purpose set forth.

Second, So constructing a friction brake that its action will be controlled automatically, and its resistance diminished in proportion as the force of the power exerted by the spring to be overcome diminishes, substantially as described.

Third, The combination of a driving wheel, D, which is adapted to serve as a crank wheel for winding up the spring, C, with the adjustable pinion, E, and a train of wheels, substantially as and for the purpose set forth.

Fourth, Arranging the shafts of the wheels, D and G, so as to operate at right angles to each other, when these parts are operated by springs and controlled by a brake, substantially as described.

50,688.—Strap Ring or Clamp.—Joseph Cogan, Boston, Mass.

I claim a halter, or strap ring, or clamp, in which the strap is confined between clamping surfaces or plates, substantially as and for the purposes described.

50,689.—Gaging and Ullaging Casks.—Wm. W. Cooper, Washington, D. C.

I claim an instrument, constructed substantially as herein described for gaging or determining the capacities and interior dimensions of casks, by the combined use of one or more diagonal angles, with linear measures of the cask diagonal.

Second, In connection with the process of gaging, I claim the invention as herein described, of a scale adapted to casks of all sizes, for ascertaining by inspection the per centage wanting in any given cask that may not be full, in particular the application of the said scale to the outer surface of a tube, in which case, the scale taking a spiral arrangement, may be applied inside of the cask.

Third, As a necessary adjunct for the angular measurements peculiar to my system of cask gaging, I claim the invention of the implement described and shown for use in the bungs of casks.

50,690.—Stump Extractor.—Thomas Crane, Fort Atkinson, Wis.

I claim, First, The combination of the tripod lifting frame, G G F, triangular base, A, and windlass, D, operating substantially as described.

Second, Sustaining the lower end of the lifting beam, F, upon a rope or chain, C, of the windlass, D, substantially as described.

Third, The combination of the pulley, E, draft rope, A, windlass, D, and the chain, C, and the lifting beam, F, of the tripod, substantially as described.

50,691.—Scroll Chuck.—A. F. Cushman, Hartford, Conn.

I claim the combination of the head, A, with its disk, D, and scroll collar, C, with the jaws, E, the latter provided on its outer surface with teeth, which engage the scroll of the collar, as described and represented.

[This invention consists in combining the jaws of scroll chuck with a revolving cap and stationary scroll in such a manner that, by turning the cap, a double motion is imparted to said jaws, viz.: a revolving motion with said cap, and a radially sliding motion by the action of the scroll, and by these means said jaws are rendered self-tightening; that is to say, if a drill, for instance, is placed between them, and the point of the drill begins to act, imparting to it a tendency to turn in the jaws, the effect is to tighten the jaws, and the liability of a spontaneous disengagement of said drill or other tool or piece of work held between the jaws is avoided.]

50,692.—Sabot for Projectiles.—Edward A. Dana, Brookline, Mass.

I claim, First, The combination of a shot or shell, the hinder part of which is shaped as above described, viz.: with a sloping or wedge-shaped portion, B, and also with a straight or cylindrical portion, D, of less diameter than the body of the shot, with a rifling cup or packing of softer material, adapted thereto, but cast separately therefrom, which can be detached for the purposes of storage or transportation, and placed on the projectile when wanted for use, the whole of which is driven forward on the shot when the gun is fired.

Second, I also claim, in combination with the above, the circular groove, H, on the rear part of the projectile, this groove being so placed that the metal of the rifling cup may be driven into it by the discharge of the gun.

50,693.—Harvester.—John S. Davis, Tiffin, Ohio.

I claim, First, The construction and arrangement of the drag bar, A, A', and the standard, B, for the purpose of balancing the machine upon the axle, substantially in the manner and for the purpose set forth.

Second, I claim the gearing, P H J J', in combination with the drag bar, A, A', and frame, F F', for working the cutters, and allowing the inner beam to rise and fall, substantially as specified.

Third, I claim the frame, K P', constructed as set forth, and hinged to the shoe and drag bar, substantially in the manner described.

Fourth, I claim the construction and arrangement of the shoe, G, substantially as and for the purpose set forth.

Fifth, I claim the spring, T, in combination with the hinged shoe, G, constructed and arranged in the manner and for the purpose set forth.

50,694.—Barrel for Holding Petroleum.—Lester Day and Henry Chapman, Buffalo, N. Y.

We claim a combined metal and wood barrel, made in a bilge barrel form, the metal part having a flange or rim, K', formed thereon, which, with the wood head, enters the crozing of the wood barrel, for the purposes and substantially as described.

50,695.—Reciprocating Crank Motion.—Benjamin R. Dorwart, Lancaster, Pa.

I claim, First, The cross-slotted head or disk, D, with the prolonged arm, D A, in combination with a double-ended crank, C, and lugs, S S and S', constructed and operating substantially in the manner and for the purpose specified.

I claim the lever arm, L, with its short side arm, L', in combination with the connecting link, U, U', constructed and operated substantially as and for the purpose specified.

I also claim the rod, L A, in combination with the lever, L, and prolonged arm, D A, or the disk or slotted cross head, D, arranged in the manner and for the purpose specified.

50,696.—Case for Inclosing Stoves.—John P. Driver, Marengo, Iowa.

I claim, First, Inclosing cooking and other stoves within a double-walled case fitted with air conducting pipes, for the purpose of carrying off the heat of such stoves, substantially as and for the purposes shown.

I also claim the provision in the above described double-walled case, of the passages, C, C', for conveying off the fumes made by cooking as herein described.

[This invention consists in inclosing a cooking stove within a case of sheet metal, say tin or iron, for the purpose of intercepting heat

which radiates from the stove, and so keep the kitchen cool in summer, and for the further purpose of enabling one to conduct hot air from the stove to another apartment in the cold seasons, the same conducting pipe which serves to lead the hot air out doors in summer serving also to conduct it into other rooms when it is desired to keep the hot air in a house.

50,697.—Metallic Packing for Steam Pistons.—Henry D. Dunbar, Springfield, Mass.

I claim, First, The segmental packing ring, C, in combination with a spring, or equivalent, placed between two contiguous ends of the segments for the purpose set forth.
Second, In combination with the segmental packing ring, C, the L-shaped plate, d, to cover the joint, substantially as described.
Third, The link, F, in combination with the packing ring, C, substantially as described.
Fourth, The arrangement of the parts by which to vary the relative areas of the frictional surface, and steam pressure surface of the segmental packing ring, c, for the purpose of regulating and reducing the effect of such pressure to the lowest point consistent with the proper action of the packing ring, substantially as described.
Fifth, In combination with the elastic packing ring of a steam piston head, the stop, p, with its stop of pin, for the purpose of allowing a limited circular motion of said ring, substantially as described.

50,698.—Railway Bag Receiver.—Charles D. Everett, Cleveland, Ohio.

I claim, First, Involving the arms, B and D, together, and hinging the same to the side or door frame of the car, substantially as and for the purpose specified.
Second, I claim automatically taking off from mail stations on railroads, the mail bag, and conveying the same to the mail car, while the train is in motion, substantially as set forth.
Third, I claim the arms, B and D, the spring, H, the lever, G, and spring, b, or their equivalents, arranged substantially as, and for the purpose specified.
Fourth, I claim the brace, P, and spring, n, in combination with the arms, B and D, substantially as and for the purpose set forth.

50,699.—Toy Watch.—Lysander Flagg, and Geo. D. Briggs, Pawtucket, R. I.

We claim the toy watch herein described consisting of the case, A, back, a, dial, b, mica covering, c, and retaining lips, d, all constructed and combined as specified.
[This invention consists in the employment or use of mica in place of glass, as a covering for the dial of a toy watch, clock, or other article in which a dial is used, covered with some transparent material, also in the use of points punched out of the flange or plate which supports the dial and its transparent covering, and turned up and over the edge of said dial and covering in such a manner that when these points are punched out and turned up the dial and its covering can be readily adjusted in their places, and by the simple operation of turning these points down, the dial and its covering are secured in their places without requiring an extra ring or an increased amount of stock, and at a trifling expense in time and labor.]

50,700.—Shaft Coupling.—George H. Fox, Boston, Mass.

I claim the coupling constructed substantially as described, that is to say, with the central and elongated keyhole in the coupling, and the central keyholes in the shafts, the shaft ends being made of tapering form, and the keys wedge-shaped as specified.

50,701.—Scrubbing Brush, Mop, and Wringer.—Lucas Frey, and John Hahn, Chicago, Ill.

We claim the combination of the scrubbing brush, M, rollers, D E, mop C, and wiper, L, arranged and operating substantially as specified.

50,702.—Feathering Paddle Wheel.—Stephen F. Gates, Boston, Mass.

I claim the construction of a paddle wheel, by which its floats are feathered by means of a motor, independent in its action from the motor by which the wheel is rotated.

50,703.—Ore Crusher.—Alexander W. Hall, New York City.

I claim a stamping mill having an air-tight battery, into which air is forced or drawn through one or more inlets, and from which the pulverized material is carried with the escaping air, to a suitable receiver, substantially as, and for the purpose specified.

50,704.—Mills for Rolling Iron and Steel.—Daniel Hall, Pittsburgh, Pa.

I claim, First, The use in one set of housing of two pairs of rolls, arranged with their axes all in the same vertical plane, the upper pair being geared together so as to pass the iron or steel through between them in one direction, and the lower pair being geared together so as to pass the iron or steel through between them in the opposite direction, for the purpose of enabling a continuous strip or band of metal to be passed backwards and forwards between the rolls and thus operated upon at several points at the same time, and for other purposes herein set forth.
Second, Also the combination of the guide roller, v, and adjustable guide, w, and curved guide box, z, with one or more pairs of rolls, in the manner and for the purposes hereinbefore set forth.

50,705.—Wind Wheel.—A. M. Hansen, Stockton, Cal.

I claim the combination and arrangement of Q, C and R, for the purpose as herein described.

50,706.—Buckle.—Charles B. Hatfield, Boston, Mass.

I claim the improved buckle made substantially as described, viz., of the two plates, A B, hinged together, and formed with the tongue, a, and the recess, b, and the slot, d, arranged as specified.

50,707.—Carriage Jack.—Aaron Higley, South Bend, Ind.

I claim the forked arm, E, pivoted to the plates, F, resting and turning upon the shoulder, G, and the lever, B, when joined to and constructed with the pedestal, A, arranged so as to operate conjointly in the manner and for the purpose specified.

50,708.—Candlestick.—William H. H. Hinds, Groton, Mass.

I claim the hand regulator, H, for the purpose set forth.

50,709.—Annunciator.—Henry Horsfall, New York City.

First, I claim the stand or pillar affixed to the lever, c, and projecting through the face in combination with the pendulum that hangs in front of said face for the purposes and as specified.
Second, I claim the arm, 5, at the end of the rock shaft, i, connected to the slide, k, in which is the dog, l, in combination with the hammer, t, and bell, m, as and for the purposes set forth.
Third, I claim the toes on the sides, f, f, of the cam, to discharge the rock shaft, i, and mechanism connecting with the bell, said toes acting against the rock shaft to move the same as set forth.

50,710.—Oil Ejector.—Wm. Wheeler Hubbell, Philadelphia, Pa.

First, I claim the inverted coned cup or deflector, with its cone opposite the mouth of the air tube and within the case, r', r'', as and for the purpose described.
Second, The coned mouth, c, of the air tube inside of the inverted cup, to assist the air to sweep around from a descending to an ascending column in the cup as described.
Third, The open mouth of the vertical air tube, discharging downward, and coned or otherwise opposite the base of the cup, with its sides, r, r', extending up around the edge of the air tube, to discharge the air down into the cup in a solid column, and discharge upward in an annular column, inside of the oil or outer case for the purpose as described.
Fourth, The enlarged case, r', with the channel, l, around and above the inverted cup, in combination with the air tube and the annular space, o, around it, formed by the contracted case, r, with its radial ribs, to force over the air current of the cup, to supply and force up the oil as described.
Fifth, The gas and oil separator and accelerator, 88, inside of the case r', and operating as described.
Sixth, The hollow foot, 4, to support the ejector and allow the oil to enter its base, as described.
Seventh, The air tube and flowing tube side by side in the well, with a double bend at the parts, t and p, Fig. 2, and the air tube entering the flowing tube, to a concentric position over the inverted cup, for the purposes and as described.
Eighth, The braces, g, placed below the inverted cup, to support

it to resist the great force of air exerted on it, and allow the air to descend and pass out of it again, in solid columns, as described.
Ninth, The combination of the accelerating surface, j, the enlarged case, r', r', the inverted cup and the air tube, with the annular space, o, formed over the cup, to accelerate the oil and gas from the enlarged case, to the space, o, aided by the air from the tube and cup, as described.

50,711.—Incendiary Shell.—William Wheeler Hubbell, Philadelphia, Pa.

First, I claim casting the cast iron of the shell on to a wrought iron tube, to form an inner and outer chamber, separable when the explosion occurs, as and for the purpose described.
Second, The composition or filling of wood, quickmatch, sulphur and meal or gunpowder in the inner chamber of wrought iron, constructed and applied as described.
Third, The firing chamber of gunpowder, q, surrounded by the burning composition for ignition as described.
Fourth, The quickmatch and sulphur prepared and used in the inner chamber, or in any equivalent manner in the explosive shell within a wrought iron chamber, as described.
Fifth, The combination of the exploding or gunpowder chamber, H H, with or around the firing chamber of wrought iron, constructed and secured as described, so as to combine the explosive destructive effect with the firing or suffocating effect in a practical manner as set forth.

50,712.—Cover for Rollers of Washing Machines.—R. B. Huguin, Cleveland, Ohio.

I claim the rubber or other non-absorbent cloth-supported covers, A, A, A, etc., Figs. 1, 2 and 4, etc., whether made or vulcanized directly upon the shaft as described or separately and afterwards applied to the shaft, substantially as and for the purpose specified.

50,713.—Bed Bottom.—Platt C. Ingersoll, Green Point, N. Y.

Having fully described my improved slat for bedsteads and its operation, I make the following claim slat, B, standards, a, and metallic strips, b, as shown and for the purpose set forth.

50,714.—Propeller.—Fritz Jacob, New York City.

I claim the combination of fins, D, with the hollow wings, B, of a screw propeller, substantially as and for the purpose set forth.

[This invention relates to a certain improvement on that class of propellers which are constructed with hollow wings, and on which a patent was granted, Jan. 24, 1865. This improvement consists in the application of fins formed by a prolongation of the rear side of each wing in such a manner that the propelling surface of said wings is increased, and that a propeller of the ordinary construction can be easily converted into a hollow wing propeller, simply by securing to its blades the hollow wings either by rivets or any other suitable means.]

50,715.—Hand Stamp.—Albert Jones, Buffalo, N. Y.

I claim, First, The combination and arrangement with the inked ribbon and spools of the ratchet wheels, G G', and reversible pawl, H, in the manner and for the purpose described.

Second, The combination of the mortised die, c, notched dating type, c2, and retaining rod, cl, in the manner and for the purpose described.

Third, I claim the double curved arm or bracket B B', the one part stationary and the other movable, and carrying the die and ribbon spools as described.

50,716.—Fire Shrinking Machine.—J. M. Kellogg, Duquoin, Ill.

I claim, First, The construction of the immovable slotted jaws, A side abutment, A', slotted bed plate, A2, and end abutment, A2, in combination with a movable slotted jaw, B, substantially as described.

Second, The combination with the subject matter contained in the first claim, of the hooked tenon, b, and tenon guide, b, and wedge, J, substantially as described.

Third, The combination of the movable back support, G, in the side abutment, A, and jaws, A, B, substantially as described.

Fourth, Adapting the concave faced back support, G, to serve for tires of different diameters, substantially as described.

Second, The combination of the wedged jaws, G C, for securing the tires to the jaws, A B, substantially as described.

50,717.—Furnace for Treating Ores.—W. Kendrick, New York City.

I claim the arched base, N or N', between the fire-place or fire-places and the calcining or oxidizing chambers, substantially as and for the purpose set forth.
Second, The flues, j m n or j' m' n', and dampers, k l or k' l', in combination with the chambers above and below the arched base, N or N', constructed and operating substantially as and for the purpose described.

Third, Causing jets of steam or air to issue between the flames and the heated ores, substantially as and for the purpose specified.
Fourth, The arrangement of a pair of water chambers, c or c', containing one or more water chambers, g or g', and one or more air chambers, h or h', in combination with the fire-place or fire-places and with the hearth or base on which the ore is placed, substantially as and for the purpose herein set forth.

Fifth, The water chambers, x, with jets, a, in combination with the heated base, N, and fire flues, q, constructed and operating substantially as and for the purpose described.

Sixth, The arrangement of the radiating flues r or r', in combination with fire flues, q or q', escape flues, S or S', and with a suitable suction blower, substantially as and for the purpose set forth.

Seventh, The annular air flue, b, in the furnace wall, M, in combination with the radiating flues, r, and escape flue, S, constructed and operating substantially as and for the purpose described.

Eighth, The arrangement of air flues, f, in combination with the fire flues, q or q', partition wall, c or c', and within a hearth or base of the furnace, constructed and operating substantially as and for the purpose specified.

Ninth, The employment of one or more condensers, Q, in combination with the escape flue, S or S', leading from the furnace and with a suitable suction blower, constructed and operating substantially as and for the purpose set forth.

50,718.—Reverberatory Furnace.—W. Kendrick, New York City.

First, I claim the arrangement of one or more fire-places, on the same or on opposite sides of the hearth, Q, in combination with said hearth, and with one or more bridge walls, e, containing steam and water channels, by which jets of steam and air can be thrown between the ore and the flames, substantially as and for the purpose described.

Second, The chamber, t, below the hearth, in combination with suitable fire flues, constructed and operating substantially as and for the purpose set forth.

Third, The flues, q x y z and a', in combination with the hearth, Q, and with or without the chamber, t, constructed and operating substantially as and for the purpose described.

Fourth, The arrangement of a suitable section below, with or without a condenser, in combination with the escape flue, S, and with the flues, r, q and n, and hearth, Q, constructed and operating substantially as and for the purpose set forth.

Fifth, The arrangement of air flues, g, in combination with the fire-place, or pipes, a', bridge wall, e, and hearth, Q, constructed and operating substantially as and for the purpose described.

50,719.—Lubricator.—S. E. Kleinschmidt, Cleveland, Ohio.

I claim, as an improved article of manufacture, an oil cup or lubricator, composed of feed cup, a', faucet, E, opening, d, chamber or reservoir, f, faucet, E, and openings, h and g, when the latter are extended by means of a tube, g', to near the top of chamber for the passage of steam through it above the oil.

50,720.—Snap Hook.—Homer W. Knowlton, Saratoga Springs, N. Y.

I claim the snap hook herein described, the same being composed of a single piece of wire, and formed with the convolution, A, and check loop, a, substantially as and for the purpose set forth.

[This invention relates to a new and improved snap hook, for harnesses and for other purposes, and it consists in constructing the hook out of a single piece of wire, and in such a manner as to form a very simple, strong, and durable hook, suitable for all purposes to which said hooks are generally applied.]

50,721.—Die for Curving Springs.—A. Komp, New York City.

I claim a female die, with one or more longitudinal grooves wide

enough to receive the wire to be curved, and with one or more cavities, intended to receive the blade or blades or the pin or pins of the punch, substantially as and for the purpose set forth.

Second, A die, with transverse grooves and one or more longitudinal grooves, wide enough to receive the wire to be curved, in combination with a suitable punch, constructed and operating substantially as and for the purpose described.

[This invention relates to an improved method of curving such springs as are extensively used, for the purpose of strengthening or stiffening the brims of hats. Such springs are generally made of narrow strips of sheet steel, bent like a hoop, and, in order to accommodate them to the desired shape of the brim, they must be curved edgewise at those places which correspond to the sides of the hat.]

50,722.—Catarrhal Syringe.—A. P. Lighthill, Boston, Mass.

I claim the construction of the bulb, a, elliptical or oval in its longitudinal and transverse sections; and I also claim the improved arrangements of the bulb and its stem, or the construction of the latter with the sudden bend at its junction with the bulb, whereby the axes of the bulb and stem are caused to be at, or nearly at, right angles to each other, as represented.

50,723.—Wrought-iron Bridge.—J. H. Lenville, Pittsburgh, and John L. Piper, Altoona, Pa.

First, We claim the use of posts for wrought-iron truss frames, having a curved or polygonal section, composed of two or more plates of rolled or wrought iron, with flanged edges secured together by means of rivets passing through such flanges, and through ferrules interposed between them, to give any desired enlargement to the posts, and leave space for the passage of the counter braces without cutting any or weakening the posts, such posts being completed with my bases and capitals of wrought or cast iron riveted thereto, substantially as and for the purposes hereinbefore described.

Second, The use of upper cords or compression beams, formed by a combination of L-shaped rolled beams or channel bars, or both riveted at top and bottom to plates of wrought iron, so as to form in each cord or beam a series of rectangular tubes or cells, for the purpose of affording great transverse strength to support the weight of passing trains in railroad or other bridges, combined with great resistance to compressive force, substantially as hereinbefore described.

Third, The use for the lower cords of truss frames of wide and thin-rolled bars, with enlarged ends formed by upsetting the iron when heated by compression into molds of the required shape, for the purpose of increasing the density, toughness and strength of the eye of the rod, and enlarging the eye without diminishing its transverse section, substantially as hereinbefore described.

50,724.—Meat-pounder and Potato-masher.—John A. McNeil, Grand Rapids, Mich.

I claim an instrument for pounding meat, mashing potatoes, working butter, etc., constructed substantially as herein shown and described.

50,725.—Lantern.—R. M. Merrill, Chicago, Ill.

I claim, First, As an article of manufacture, the within-described lantern globe or protector, having its maximum diameter at its base or lower part, substantially as and for the purpose shown and described.

Second, The globe or protector, B, in combination with the frame or casing of a lantern, and a device for holding it in position, substantially as shown and described, and for the purpose set forth.

Third, Operating the connecting spring, of a lantern by a partial rotary movement of one part of the same upon the other, substantially as shown and described, and for the purpose set forth.

Fourth, In combination with a spring or springs secured to one part of a lantern, the slots, li, or their equivalents, on the other part, so that the two parts may be firmly locked together, or released from their connection by a partial rotary motion of one part upon the other, substantially as and for the purpose herein described and shown.

Fifth, Attaching the burner to the lamp by means of a hinged collar, e, or its equivalent, in such a manner that it can have no material lateral or rotary motion in its collar, substantially as shown and for the purpose set forth.

Sixth, In combination with the burner, D, and regulator, f, the worm wheel and its spindle, arranged and operating substantially as described and for the purpose set forth.

50,726.—Sorghum Evaporator.—L. N. Myers, Wilmington, Ohio.

I claim the application of the steam generated in the evaporation of sorghum and other juices, for imparting or assisting to produce a final heat, for finishing concentrated sirups, substantially as and for the purpose herein specified.

I also claim the arrangement of a series of three or more evaporating pans, one over another, or otherwise, in a suitable and equivalent manner, so as to let the steam arising from the evaporation in one for heating the other, in succession, the steam being applied either alone or in combination with other heat, applied in any way for the purposes herein specified.

I also claim the sheet-metal perforated partition, H, between the pans, F and G, arranged and operating substantially as and for the purpose herein specified.

I also claim the combined arrangement of the two chimney flues, C D, situated respectively at the ends of the evaporator, and of the dampers connected therewith, substantially as herein described.

I also claim the use of the L-shaped damper, l, connecting the furnace chamber, A, and the heating chamber or chambers under the upper pan or pans, substantially as and for the purpose herein specified.

50,727.—Pepper Box.—A. H. Newton, Worcester, Mass.

I claim the use of a valve beneath the top or cover of spice boxes and bottles, to exclude air from their contents when, in a state of rest, substantially as above described.

[This invention consists in applying a valve in the cover or top of a spice box, in such a way as that the valve will be open when the box is turned, for the purpose of sprinkling its contents through the perforations in its cover, and be closed when the box is brought back again, thereby preventing such contents from losing their strength by exposure to the air.]

50,728.—Apparatus for Clasping Hoop Skirts.—C. L. Olmstead, Brooklyn, N. Y.

I claim the combination of the feeding plate of the hoop-clasping machine and needle, substantially as set forth.

Also, The combination of the feeding plate of the hoop-clasping machine and gate, substantially as set forth.

50,729.—Rotary Harrow.—J. D. Parrot, Morristown, N. J.

I claim the wheel, B, attached permanently to the harrow, and provided with a spindle, C, which passes through an oblong slot, d, in the draught pole, D, in connection with the wheel, E, at the rear end of the draught pole, bearing against the fixed wheel, B, substantially as and for the purpose herein set forth.

50,730.—Cartridge Box.—John Pease, Boston, Mass.

I claim the cartridge box, A, provided with the pocket, D, and flap, B, and with the lower compartments, B E, and the securing flaps, E E, the arrangement and adaptation being substantially as described and represented.

[In this implement the cartridge-box case has attached to it not only a box for containing ammunition, but also other boxes for carrying percussion caps, oil, bullet patches, swabs and other conveniences desirable for the soldier or sportsman.]

50,731.—Stock for Holding Screw-cutting Dies.—Wm. Pimlott, Syracuse, N. Y.

I claim the eccentric guide or bearing, A, substantially as described and for the purposes set forth.

50,732.—Cake Cutter and Rolling Pin.—I. N. Pyle, Decatur, Ill.

I claim the combination of a cake cutter with a rolling pin, substantially as described.

[This invention consists in the combination with an ordinary or any other suitable rolling pin, of a cake cutter, the latter being a case carrying any desired number of cutters of various shapes and styles, into which the roller is to be inserted when the cakes are to be cut out.]

50,733.—Blind Fastening.—L. V. Quimby, Boston, Mass., and Wm. G. Marston, West Fairlee, Vt.:

I claim the combination of the catches, n, and blocks, g, and lever, a, wheel, k, shaft, b, and pulley, c, all substantially as herein shown and described, and for the purpose specified.

50,734.—Flour Sifter.—Uriah Rice, Cincinnati, Ohio:

I claim the combination of the sieve, B, receiving tank, A, receiving clamps, a, bracing bar, d, shaft, e, and brush, g, all constructed as above described and for the purpose set forth.

50,735.—Vapor Inhaler.—Dwight Russell, Milford, Mass.:

I claim the improved inhaler, as made of one entire piece of glass, in manner substantially as specified.

50,736.—Milk Stand.—Zenas Sanders, West Windsor, Vt.:

I claim the combination of the notched board, E, and its inclined pins, with its cross bars, and the post, A, provided with holes or recesses for reception of such pins, in manner as specified.

I also claim the combination of the supporter, G, with the milk stand, made substantially as described, such supporter being for sustaining a curtain, H, about the pans, as set forth.

50,737.—Stove-cover Lifter.—Chas. E. Seavey, Boston, Mass.:

I claim the fixation of a cover lifter, a shovel or tool to its handle, in the combination and arrangement of the piece, d, and the shoulder, b, with the shank handle and ferrule of the lifter, substantially as specified.

50,738.—Bed Bottom.—G. N. Seidler, Hartford, Conn.:

I claim the oscillating ratchet plate, B, in combination with the fixed catch plate, E, cord, C, and folding bed bottom, substantially as and for the purpose described.

50,739.—Hot-air Furnace.—J. H. Shedd and Benjamin Worcester, Waltham, Mass.:

We claim, first, the use of heated gaseous products of combustion as a circulating medium, to convey the heat of the fire through channels, whereby the heat can be given off to the surrounding air, these products then returning to the fire and passing partly through it, and partly near and around it, for reheating and further combustion, substantially as and for the purpose set forth.

Second, the application of water vapor or steam to the gaseous products of combustion, to increase their efficacy and beneficial effect as a medium of heat to radiating surfaces for the heating of air, substantially as and for the purposes set forth.

Third, the device for connecting the direct valve of a smoke pipe with the fire door, by rod or chain, in such a manner that when the door is opened the smoke pipe valve will also be open, and when the door is closed the valve will be closed.

50,740.—Corn Sheller.—H. F. and G. F. Shaw, West Roxbury, Mass.:

I claim the employment of a bell-shaped rotating sheller, in combination with a guide bar or bars, arranged diagonally, both in a horizontal and in a vertical plane with the axis of the lever, substantially as and for the purpose described, viz. for giving the ears of corn a very rapid rotation around its own axis at the larger end of the lever, before the main part of the shelling takes place at the smaller end thereof.

50,741.—Hod.—James Short, Roxbury, Mass.:

I claim, first, the rubber tubing, B, or an equivalent thereof, in combination with a hod, substantially as and for the purpose herein specified.

Second, the folding handle, C, in combination with a hod, substantially as and for the purpose herein specified.

[This invention consists in applying to the under side of a hod, where the same rests upon the shoulder, a flexible bag, for enabling the workmen to carry the hod with much more ease than heretofore; it also consists in the combination with said hod of a folding handle.]

50,742.—Oil Can.—Samuel Short and E. S. Scripture, Brooklyn, N. Y.:

In combination with the flexible bottom, A, we claim the loop-shaped thumb-piece, B, and spring, C, when the same shall be combined in the manner and for the purpose specified.

50,743.—Method of Treating Peat.—J. H. Smith, New York City:

I claim treating peat with superheated steam, substantially as and for the purpose described.

[The object of this invention is to separate from peat all sulphur, or salts containing sulphur and other impurities, and to render peat fit for the manufacture of illuminating gas.]

50,744.—Coal Scuttle.—Thomas Smith, Cincinnati, Ohio:

I claim the construction of a coal scuttle bottom, in the manner and for the purpose set forth.

50,745.—Box for Shafting.—John Sparrow, Portland, Me.:

I claim, first, the application of a sleeve bearing, a, to the shaft, A, substantially as and for the purpose described.

Second, the combination of the perforated box, C, with the shaft, D, and sleeve bearing, a, of the shaft, A, constructed and operating substantially as and for the purpose set forth.

50,746.—Slide Valve.—Henry Spengler, Philadelphia, Pa.:

I claim the within-described valve when so arranged as to permit the steam to pass to the cylinder around its upper and lower edges, by which arrangement a full area of opening is made by slightly more than one-half the motion usually given to such valves, substantially as described.

Second, the combination of the posts in the valve, A, with the posts, F, and supplementary post, K, substantially as and for the purpose set forth.

Third, I claim arranging the within-described valves between two parallel seats, bearing a, of the shaft, A, constructed and operating substantially as shown and described.

50,747.—Chuck.—Matias Staub, Philadelphia, Pa.:

I claim the combination of the perforated plate, A, the perforated back clamp, F, and pins, H, substantially as described and represented.

50,748.—Pipe Tongs.—Daniel C. Stillson and John C. Chapman, Charlestown, Mass.:

I claim the gripe, D, pivoted eccentrically in the sliding block, C, in combination with the springs, I, or their equivalent, arranged and operating substantially as set forth.

50,749.—Plow.—Chester W. Sykes, Suffield Conn.:

I claim, first, in combination with the other parts of a plow, a mold-board hung on the top of the share in such a manner that it may be moved from side to side and fastened, substantially in the manner and for the purpose described.

Second, the peculiar form of the mold board, C, substantially as herein set forth.

50,750.—Slide Valve for Steam Engines.—George Thackray, Mystic Bridge, Conn.:

I claim the adjustable cam, H, applied in combination with the valves, E, E', solid stem, d, and hollow stem, d', with loop, e, substantially as and for the purposes set forth.

50,751.—Traveler's Night Lock.—Alfred V. Thomas, Frederick, Md.:

I claim a portable or pocket door fastening, composed of triangular plates, which are pivoted together, so as to operate substantially as described.

50,752.—Fumigator.—Samuel Vanstone, Providence, R. I.:

I claim the combination of the retort, A, or its equivalent, with the blower, and suitable devices for operating the same, constructed substantially as and for the purposes described.

50,753.—Apparatus for Bending and Punching Truck Irons.—Peter L. Welmer, Lebanon, Pa.:

I claim, first, providing the frame, with perforated guide and holding down blocks, C, C', substantially as described.

Second, the construction of the central bed, a, of the frame, A, with side guides, e, e, and a key post, A', in combination with the movable block, D, and key, d, substantially as described.

Third, constructing the movable guide block, D, with lugs, f, f, and adapting it to receive handles, g, g, substantially as described.

Fourth, the combination of the punch with the machine, substantially as described, for the purpose set forth.

50,754.—Apparatus for Punching.—Peter L. Welmer, Lebanon, Pa.:

First, I claim the combination of adjustable die blocks, b, b, with adjustable perforated guide blocks, h, h, and a movable frame, D, substantially as described.

Second, the vertically adjustable end supporters, C, C, and guide frame, D, in combination with the die blocks, b, b, substantially as described.

Third, the combination of the side guides, e, e, abutment, d, and guide and pressure blocks, h, h, with the lower supporting die blocks, b, substantially as described.

50,755.—Apparatus for Bending and Punching the Frames of Draw-heads for Railway Cars.—Peter L. Welmer, Lebanon, Pa.:

First, I claim the improved apparatus or machine substantially as herein described, for the purpose set forth.

Second, the perforated lever, G, in combination with the punching bed, B, and the recess, c, substantially as described.

Third, the bending bed, F, in combination with the key post, D, and key, E, substantially as described.

Fourth, the combination of punching bed, C, and transversely slotted and vertically perforated lever, H, substantially as described.

50,756.—Bending and Punching Draw-head Plates.—Peter L. Welmer, Lebanon, Pa.:

First, I claim the construction of the anvil block, A, with a projection, B, in combination with the former, C, and holding down bar, D, substantially as described.

Second, the curved-faced mortised shelf, G, applied to the anvil block, substantially as described.

Third, the combination of the anvil block, A, and the movable bolt, N, applied to the anvil block, A, substantially as described.

50,757.—Machine for Bending and Punching Hooks.—Peter L. Welmer, Lebanon, Pa.:

First, I claim the construction of the pattern, C, shoulder, c, and key posts, B, B, with the supporting bed, A, for the shank of the hook blank, and forming the hook, b, thereon, substantially as described.

Second, the construction of the punching bed, D, with a pattern, D', and die block, g, substantially as described.

Third, the perforated lever, G, in combination with the die block, g, and punching bed, D, and the hook pattern, D', substantially as described.

Fourth, the combination of the shaping and punching contrivances for finishing car hooks, substantially as described.

Fifth, the combination of a tapering punch, J, with the perforated lever, G, and a punching bed, having an open space beneath it, substantially as described.

50,758.—Apparatus for Bending Chain Links.—Peter L. Welmer, Lebanon, Pa.:

First, I claim the combination of a link former, b, with a turning mandrel, D, substantially as described.

Second, the link former, b, and key-holding head, c, applied to a turning mandrel, D, which can be removed from its bearings at pleasure, substantially as described.

Third, the recess, g, in the former, b, in combination with the holding keys, d, d', and head, c, substantially as described.

Fourth, providing the standard, A, of the link-forming contrivance with an anvil, C, substantially in the manner and for the purposes described.

50,759.—Rotary Steam Engine.—George Westinghouse, Jr., Schenectady, N. Y.:

First, I claim in rotary engines the combination of the fixed hollow shaft, C, and fixed center piece, B, with the rotating disk, A, A', and independent pistons, E, F, substantially as described.

Second, the combination of the pistons, E, F, in the manner substantially as above described, with leading guides, f, connected by plates, c, the convexity of whose outer edge fits the outer curve of the cylindrical space, substantially as and for the purposes above described.

Third, I also claim the combination of the sliding bolts, i and j, with the traveling pistons, substantially as above described.

Fourth, I also claim the combination of the valve, D, with the disk or cylinder, A, to which it is attached, constructed and operated substantially as described.

[This invention consists in a novel construction of a rotary engine, the cylinder of which is annular, and is contained in a disk, which is made to revolve about a hollow stationary shaft, through the opposite ends of which the steam is admitted and exhausted. The engine is made in the form of a disk whose weight and thickness will or may be made sufficient to make it serve for a balance wheel.]

50,760.—Breech-loading Fire-arm.—Henry F. Wheeler, Boston, Mass.:

I claim the construction of breech-loading fire-arms, by which the cartridge shell is expelled by a combined rotative and longitudinal movement of the barrel upon the base pin, substantially as set forth.

50,761.—Fastening Wheels and Pulleys to Shafts.—Zenas Wheeler, San Francisco, Cal.:

I claim the mode herein described of fastening wheels, pulleys, drums, etc., to their shafts, the same consisting in the combination of one or more feathers, c, c, and wedge, h, arranged and operating together as specified.

[This invention consists in using in connection with the wheel or pulley and its shaft, for the purpose of fastening the same to it, one or more feathers, so called, and tapering cross ties or keys, the keys being driven into the wheel in such a manner as to bring the feathers to a close bearing against the shaft. This mode of fastening enables pulleys to be placed much closer together upon a common shaft than by the mode heretofore practiced.]

50,762.—Wagon Brake.—Jesse F. Wilson, Lewisville, Ind.:

I claim the toggle, H, connected with the rod, G, at the under side of the brake, and with a rod, a, attached to the shoe bar, C, and cranks, c, c, of the shaft, K, in combination with the bar, M, pivoted in the draft pole and connected with the toggle, and all arranged to operate in the manner substantially as and for the purpose set forth.

I also claim the lever, O, connected by a rod, N, with the bar, M, in combination with the toggle, H, as and for the purpose specified. I further claim the cross head, P, connected with the rod, N, in combination with the arm, e, of the bar, M, and toggle, H, substantially as and for the purpose set forth.

50,763.—Whiffletree.—Gallus Woeber, Daventry, Iowa:

I claim the socket, C, attached to the cross bar of the thills and provided with the bar, d, and slot, e, to form a guide, in connection with the plate, E, attached to the whiffletree, B, fitted in the socket, C, and provided with an arm, D, to fit in the slot, e, of C, all being arranged and used in connection with the bolt, F, substantially as and for the purpose set forth.

[This invention relates to a new and improved manner of attaching the whiffletree to the cross bar of the thills, whereby the bolt on which the whiffletree works is relieved of the strain to which it has been hitherto been subjected, and the play or turning movement of the whiffletree on the bolt limited, so as to avoid the use of straps, hitherto employed to prevent whiffletrees, when attached to a doubletree, from coming in contact with the wheels, and also to prevent them, whether used single or double, from coming in contact with the legs of a horse in case of one of the traces becoming casually detached.]

50,764.—Loom for Lappet Weaving.—William Aspinall (assignor to himself and James Ledger), Manayunk, Pa.:

First, I claim, in combination with the universal joint, the pattern wheel fast, B, and the main driving shaft, as above described.

Second, I claim the combination of the studs, e, e, and slotted

brackets, d, d, for the purpose of adjusting the needles vertically, as above described.

Third, I claim, in combination with the needles, the tension frame and cords, constructed as and for the purpose described above.

50,765.—Cooking Stove.—F. M. Baker (assignor to Charles Jordan), South Reading, Mass.:

I claim the above-described arrangement and combination of the auxiliary oven, G, and its smoke pipe, H, and damper, D', with the main oven, A, of a cooking stove, and its discharge flues, C and F, and dampers, D, D', or with the same and the sunken flue space, I, for heating the water vessel, K, the whole being substantially as specified.

50,766.—Boot or Harness Clamp.—Andrew J. Curtis, Winterport, Me., assignor to Benjamin F. Waldron, Boston, Mass., and Charles T. Seavey, Frankfort, Me.:

I claim the above-described improved vise or stitching clamp as constructed with a clamping lever, E, and its shoulder or shoulders, i, and handle or ring, f, or the equivalent of the latter, arranged and combined with the curved jaw leg, C, and its fellow leg, D, in manner and so as to operate therewith, substantially as described. I also claim the combination of the spring, g, with the handle, f, the lever, E, and the jaw legs, C, D, made and applied in manner and so as to operate together substantially as described.

50,767.—Construction of Iron Ships.—Thomas B. Daff, Mark Lane Chambers, London, Eng., assignor to D. D. Williamson, Jr., Edinburgh, Scotland:

I claim the mode of constructing iron ships or vessels with grooves in the plating, and filling said grooves with teak or other suitable material, in which a sheathing of zinc or other material is attached, substantially as herein set forth.

[This invention consists in constructing iron ships or vessels with grooves or gaps in the plating, and filling said grooves with teak or other suitable material, so that a sheathing of zinc or other suitable material can be secured to the iron plates in an easy and convenient manner, and that by these means the iron plates can be protected against the injurious influences of the sea water, and against the impurities liable to adhere to such plates when the same are in the sea water for a short time.]

50,768.—Machine for Tenoning Spokes.—L. A. Dole (assignor to himself and Albert R. Silver), Salem, Ohio:

First, I claim constructing the outer or boring shaft, C', with a circular rack, e, and arranging the toothed feed lever, G, to gear with said rack, substantially in the manner and for the purpose herein described.

Second, the arrangement of the arm, E, on the vertically adjustable standard, B, said standard serving to adjust and support the cutter boring shaft, C, and said arm being adapted for sustaining the holding and centering devices for the spoke in front of the cutter, w, or borer, substantially as herein described.

Third, the construction of the adjustable centering plate, g, with a notch in its upper end to receive the spokes, in combination with the pressure lever, J, said parts being arranged in front of a rotary tenon cutter, substantially as described.

Fourth, the rod, i, having a shoulder, j, formed on it, the binding plate, l, and nut, k, in combination with the rack, a, and pinion, h, in the manner and for the purpose herein described.

Fifth, the construction of the frame of a spoke-tenoning machine with a slotted standard, B, a slotted tubular bearing, C, and an arm, E, substantially as described.

50,769.—Cupola Furnace.—Annes A. Lincoln (assignor to Annes A. Lincoln, Jr.), Norton, Mass.:

I claim as my improvement, for the purposes specified, the arrangement of the steam jet and air blast apparatus, so as to cause the commingling currents of vapor and air to enter the furnace at a point, B, above the grate or fuel bed, with air passing through it, in a cupola furnace, as made with the tweezers and steam jets, combined together and arranged with respect to its hearth or fuel base, substantially as specified.

50,770.—Artificial Leg.—R. G. Lockwood (assignor to himself and O. B. Jones), Battle Creek, Mich.:

First, I claim securing the ends of the straps, E, E', and connecting plates, m, m, of the knee section, B, by means of a frame, G, substantially as described.

Second, attaching the strap, F, to a lever, b, which acts upon the foot, D, through the medium of a pin, c, substantially as described.

Third, connecting the strap, F, at its lower end to a rocking applied within the hollow section of the leg, substantially as described.

Fourth, the combination of the hollow sections, A, C, knee section, B, and straps, E, E', constructed substantially as described.

50,771.—Railroad Journal Box.—A. B. Nimbs (assignor to himself and John C. Clifford), Buffalo, N. Y.:

First, I claim a journal box for railroad car truck axes, made convex or spherical on its upper side, in combination with a corresponding concave seat formed in the housing, for the purpose and substantially as set forth.

Second, a journal box, made convex or spherical on its upper side, and a removable seat piece, F, with a concave seat formed thereon, in combination with a housing for railroad car trucks, substantially as described.

Third, projecting a rib, G, from a concave seat formed in the housing, D, or in a removable seat piece, F, in combination with a journal box made concave on its upper side, for the purposes and substantially as described.

50,772.—Press for Baling Cotton.—William Norman, Van Buren, Ark., assignor to himself and James B. Stone, Philadelphia, Pa.:

First, I claim the connecting rod, G, link, I, pressing block, F, cross head, H, and shaft, H, in combination with the cord or chain, K, for raising and relieving iron pressure block, E, when arranged and constructed substantially in the manner set forth.

Second, I claim the cross bars, b, with their notches and catches, in combination with the liberating lever, d, d', for fastening and freeing the gates, E', substantially as set forth.

50,773.—Preventing Incrustation of Steam Boilers.—George T. Parry (assignor to Robert B. Baker), Philadelphia, Pa.:

I claim, first, suspending within a steam boiler one or more permanent magnets, for the purpose of inducing an electrical current, to operate as described.

Second, the hollow box, A, with its insulated lining, together with the manner of packing and insulating the rod, C, which passes through the said box.

50,774.—Preventing Incrustation of Steam Boilers.—A. F. Porter (assignor to himself and G. O. Evans), Philadelphia, Pa.:

I claim the above-described apparatus for preventing incrustation in steam boilers, the same consisting of a conductor around at one end, with a series of points, or their equivalents, and connected at the other extremity with the shell of the boiler, the whole being constructed within the boiler at some intermediate point by an insulated attachment, all substantially as herein set forth.

50,775.—Blind Fastener.—Daniel B. Randall, Augusta, Me., assignor to himself and Samuel W. Russell, East Poland, Me.:

I claim the arrangement of the projections, a, c, c, d, e, and the recesses, b, b, with the levers, C, C, and their case, D, the same being as described.

I also claim the combination and arrangement of the hinge or device, G, or its mechanical equivalent, with the blind and the two catch levers, C, C, applied thereto, as explained.

50,776.—Railroad Chair.—John A. Roebling, Trenton, N. J., and John McMurtry, Lexington, Ky., assignors to John McMurtry, Lexington, Ky.:

We claim a solid cast-iron block fitted at one side of the rails, and having an upper chilled surface level with or a trifle above the level of the rails, in combination with a wrought-iron plate at the opposite side of the rails, and all connected by transverse bolts, as set forth, for the purpose of insuring a continuous bearing at the joint of great massiveness and durability. We further claim the solid and cast-iron block and wrought-iron plate, placed one at each side of the rails, in combination with a

flange or flanges on either side of the base of the cast-iron block or wrought-iron plate, on both of them, and transverse bolts, substantially as and for the purpose specified.

50,777.—Mode of Operating Boring Tools for Artesian Wells.—Johnston Ross, East Liberty, Pa., assignor to A. H. Gross and C. W. Batchelor, Alleghany Co., Pa.:

I claim, First, The revolving platform, r, with its reel, i, placed centrally over the bore of the well, and caused to revolve on its axis while the boring tool is being worked, in the same direction as the boring tool and rope in the well, for the purpose of holding the slack or surplus rope outside of the well and preventing it from becoming twisted, substantially as herein before described. Second, Also the use of the check block, with its wedge, for the purpose of securing the working rope while it is being detached from the walking beam of the engine, substantially as herein before described.

50,778.—Elevator.—Wesley Sawyer, Lowell, Mass., assignor to himself and Francis A. Sawyer, Boston, Mass.:

I claim, in the improved elevator herein before explained, the combination and arrangement of the belt-shifting mechanism, viz, the two levers, h k, and their connecting rod, i, with the bucket, K, its elevating chains, G G, their toothed wheels, C D E F, and gears, b c, driving belt, l, and pulley, g, and fast and loose pulleys, d f, the whole being to operate substantially as specified. I also claim the combination and arrangement of the guide rollers, H H, with the bucket, K, its elevating chains, G G, and their operative toothed wheels, C D E F, and shaft, A, the whole being substantially as explained.

50,779.—Machine for Facilitating Household and Culinary Operations.—Henry S. Sheppardson (assignor to H. S. Sheppardson & Co.), Shelburne Falls, Mass.:

I claim the general arrangement of the base, columns and gearing, so that the base will serve to hold any vessel under the gearing, and the gearing be susceptible of driving the different devices herein named, while the devices themselves are interchangeable to accomplish the several purposes herein named, substantially as described.

50,780.—Blacking.—Abraham Tomlinson (assignor to himself and Charles C. Clements), Cincinnati, Ohio. Antedated Aug. 3, 1865:

I claim the blacking composed and compounded as described.

50,781.—Machine for Finishing Lap-welded Tubes.—Peter L. Weimer (assignor to Aurora Iron Company), Lebanon, Pa.:

I claim, First, Removing the fins from lap-welded tubing as it leaves the pressing rollers, by means of rotary cutters or files, substantially as described.

Second, Providing for giving a vertical movement to the fin cutters at the same time that they receive a rotary motion, substantially as described.

50,782.—Cutting Staves.—John I. Ralya, Alleghany, Pa.:

I claim constructing the knives for stave dressers with a shoulder projecting at an oblique angle from the outer face of each blade of the knife, substantially as herein before described, for the purpose of breaking off the shavings or slivers as to prevent the riving of the stave.

REISSUES.

2,098.—Grain Separator.—Ezekiel Montgomery, Henry Montgomery, and M. E. Montgomery, Silver Creek, N. Y., assignees of Henry Montgomery and Simeon Howes. Patented Feb. 22, 1859:

We claim subjecting the light grain after it has been separated from the heavy grain and carried over into the utilizing chambers to a counter current of air, for the purpose of further cleaning the light grain, and delivering it from the machine in a fit condition for feed, substantially as set forth.

2,099.—Harvesting Machine.—John Reilly, White Pigeon, Mich. Patented Nov. 20, 1855:

First, I claim a grain guard or cut-off, which remains out of the way of the falling grain until a gravel or proper size has accumulated; is then interposed between the platform and reel to receive and support the falling grain, and remains there until the gavel already accumulated has been removed, when it is withdrawn, the movements of the cut-off being parallel to the path of the machine, for the purposes set forth. Second, The combination in a harvesting machine of a cutting apparatus and platform with a grain guard or cut-off, the combination being and operating substantially as described. Third, The combination, substantially in the manner described, in a harvesting machine of a cutting apparatus, a platform and a reel with a grain guard or cut-off, arranged behind and moving in the same vertical plane as the reel, for the purpose of separating the grain swept back by the reel into gavels suitable for binding. Fourth, The combination in a harvesting machine of a cutting apparatus projecting from one side of the main or gearing frame and a hinged or swinging platform with a grain guard or cut-off vibrating over the platform. Fifth, The combination in a harvesting machine of a reel, a cutting apparatus, a hinged or swinging platform and a cut-off.

DESIGNS.

2,210.—Coffin Handle.—Alonzo B. Bailey, Middle Hadam, Conn.

2,211.—Inkstand.—John Moore, Warren, Mass.

2,212.—Fork or Spoon Handle.—John Polhamus, New York City.

2,213.—Badge of the Union League.—S. G. Vredenburg, Mount Vernon, N. Y.

2,214.—Floor Oil-cloth Pattern.—James Paterson, Elizabeth, N. J., assignor to Deborah, Albert E., and Nathaniel B. Powers, Lausburgh, N. Y.

the office, a marked degree of promptness, skill, and fidelity to the interests of your employers. Yours very truly,

CHAS. MASON

[See Judge Holt's letter on another page.]

Hon. Wm. D. Bishop, late Member of Congress from Connecticut succeeded Mr. Holt as Commissioner of Patents. Upon resigning the office he wrote to us as follows:

Messrs. MUNN & Co.:—It gives me much pleasure to say that, during the time of my holding the office of Commissioner of Patents, a very large proportion of the business of inventors before the Patent Office was transacted through your agency; and that I have ever found you faithful and devoted to the interests of your clients, as well as eminently qualified to perform the duties of Patent Attorneys with skill and accuracy. Very respectfully, your obedient servant, Wm. D. Bishop.

THE EXAMINATION OF INVENTIONS.

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.

PRELIMINARY EXAMINATIONS AT THE PATENT OFFICE.

The service which Messrs. MUNN & Co. 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 they may acquire of a similar invention from the records in their Home Office. But for a fee of \$5 accompanied with a model, or drawing and description, they have a special search made at the United States Patent Office, and a report setting forth the prospects of obtaining a patent, etc., made up and mailed to the inventor, with a pamphlet, giving instructions for further proceedings. These preliminary examinations are made through the Branch Office of Messrs. MUNN & Co. corner of a and Seventh streets, Washington, by experienced and competent persons. Many thousands of such examinations have been made through this office, and it is a very wise course for every inventor to pursue. Address MUNN & Co., No. 37 Park Row, New York.

The Patent Laws, enacted by Congress on the 2d of March, 1861, are now in full force and prove to be of great benefit to all parties who are concerned in new inventions.

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 (except in cases of designs) on the above terms. Foreigners cannot secure their inventions by filing a caveat; to citizens only is this privilege accorded.

CAVEATS.

Persons desiring to file a caveat can have the papers prepared in the shortest time by sending a sketch and description of the invention, the Government fee for a caveat is \$10. A pamphlet of advice regarding applications for patents and caveats is furnished gratis, on application by mail. Address MUNN & Co., No. 37 Park Row, New York.

INVITATION TO INVENTORS.

Inventors who come to New York should not fail to pay a visit to the extensive offices of MUNN & Co. They will find a large collection of models (several hundred) of various inventions, which will afford them much interest. The whole establishment is one of great interest to inventors, and is undoubtedly the most spacious and best arranged in the world.

UNCLAIMED MODELS.

Parties sending models to this office on which they decide not to apply for Letters Patent and which they wish preserved, will please to order them returned as early as possible. We cannot engage to retain models more than one year after their receipt, owing to their vast accumulation, and our lack of storage room. Parties, therefore, who wish to preserve their models should order them returned within one year after sending them to us, to insure their obtaining them. In case an application has been made for a patent the model is in deposit at the Patent office, and cannot be withdrawn. It would require many columns to detail all the ways in which the inventor or Patentee may be served at our offices. We cordially invite all who have anything to do with patent property or inventions to call at our extensive offices, No. 37 Park Row, New York, where any questions regarding the rights of Patentees, will be cheerfully answered.

REJECTED APPLICATIONS.

Messrs. MUNN & Co. are prepared to undertake the investigation and prosecution of rejected cases, on reasonable terms. The close proximity of their Washington Agency to the Patent Office affords them rare opportunities for the examination and comparison of references, models, drawings, documents, &c. Their success in the prosecution of rejected cases has been very great. The principal portion of their charge is generally left dependent upon the final result.

All persons having rejected cases which they desire to have prosecuted, are invited to correspond with MUNN & Co., on the subject, giving a brief history of the case, inclosing the official letters, etc.

MUNN & Co. wish it to be distinctly understood that they do not speculate or traffic in patents, under any circumstances; but that they devote their whole time and energies to the interests of their clients.

Patents are now granted for SEVENTEEN years, and the Government fee required on filing an application for a patent is \$15. Other changes in the fees are also made as follows:—

On filing each Caveat.....	\$10
On filing each application for a Patent, except for a design.....	\$1
On issuing each original Patent.....	\$20
On appeal to Commissioner of Patents.....	\$20
On application for Re-issue.....	\$30
On application for Extension of Patent.....	\$50
On granting the Extension.....	\$50
On filing a Declaration.....	\$10
On filing application for Design (three and a half years).....	\$10
On filing application for Design (seven years).....	\$15
On filing application for Design (fourteen years).....	\$30

EXTENSION OF PATENTS.

Many valuable patents are annually expiring which might readily be extended, and if extended, might prove the source of wealth to their fortunate possessors. Messrs. MUNN & Co. are persuaded that very many patents are suffered to expire without any effort of extension, owing to want of proper information on the part of the patentees, their relatives or assigns, as to the law and the mode of procedure in order to obtain a renewed grant. Some of the most valuable grants now existing are *extended patents*. Patentees, or, if deceased, their heirs, may apply for the extension of patents, but should give sixty days' notice of their intention.

Patents may be extended and preliminary advice obtained, by consulting, or writing to, MUNN & Co., No. 37 Park Row, New York.

Pamphlets of information concerning the proper course to be pursued in obtaining patents in foreign countries through MUNN & Co.'s Agency, the requirements of different Government Patent Offices, etc., may be had, gratis, upon application at the principal office, No. 37 Park Row, New York, or any of the branch offices.

SEARCHES OF THE RECORDS.

Having access to all the official records at Washington, pertaining to the sale and transfer of patents, MESSRS. MUNN & Co., are at all times ready to make examinations as to titles, ownership, or assignment of patents. Fees moderate.

ASSIGNMENTS OF PATENTS.

The assignment of patents, and agreements between patentees and manufacturers carefully prepared and placed upon the records at the Patent Office. Address MUNN & Co., at the Scientific American Patent Agency, No. 37 Park Row, New York.

HOW TO MAKE AN APPLICATION FOR A PATENT.

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 a draft or Postal Order on New York, payable to the order of Messrs. 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.

Communications and remittances by mail, and models by express (prepaid) should be addressed to MUNN & Co., No. 37 Park Row, New York.



R. B., of N. Y.—The maximum of light in the spectrum is in the middle of the yellow; the maximum of heat is in the dark below the red.

T. A. B., of Ill.—In 1835 and 1837 Messrs. Plobert, Didion and Morin made a series of experiments at Metz, to determine the resistance of air to bodies moving through it, and they came to the conclusion that the resistance of flat surfaces is in direct proportion to the area. They give the following formula:— $R=0.102 A + 0.0158 A V^2$

in which R is the resistance; A the area in square yards, and V the velocity in yards per second. Whether the same law would hold in the case of a fixed sail opposed to moving air has not, we believe, been yet ascertained.

J. B. B., of Pa.—A properly made governor is self-acting, and requires no attention from any one, whether half or all the machinery is on.

G. C., of Mass.—If in water two miles deep you attempt to drag a ring along the bottom by a line extending from a ship at the surface, your line must be several miles in length, and in practice it would lie for a long distance upon the bottom. The idea of drawing a ring along the Atlantic cable in this way is preposterous, and the more complicated the apparatus the more manifestly impracticable would be the scheme.

J. S. M. & Co., of Pa.—We are not acquainted with any work that will instruct boys in the art of painting, striping and finishing wood work.

J. McD., of Vt.—On page 40, Vol. VIII., you will find the subject of curing tobacco treated on. You can procure presses from any of the agricultural warehouses.

McD. & Co., of N. S.—The composition of steel bells, as they are called, is kept a secret by the manufacturers. It is supposed by some to be cast iron, with a little franklinite. The bells of Naylor & Co., we believe, are simply cast steel.

G. W. L., of Pa.—You will find many rules in back numbers of the current volume on the horse-power of belting.

A. J. H.—Copper tubes, surrounded by fire, are as liable to be burnt out as iron; moreover, common practice has fixed upon 1½ and 1¾-inch tubes in tubular boilers, though they are made of any diameter.

L. S. P., of Pa.—We do not know who manufactures machinery for sugar-coating almonds.

C. B. C., of N. Y.—Buy "Templeton's Pocket Companion."

O. G. B., of Me.—It is owing to the angle of the connecting rod that the cross-head is not at mid stroke when the crank is vertical.

G. D. C., of Conn.—We do not know where you can find such steel as you want, but would advise you to address Naylor & Co., of this city.

E. H., of Pa.—You do not forfeit your right to take out a patent by delaying the application, providing such delay does not amount to an abandonment of the invention to the public. Inventors ought not to delay their application unnecessarily, as by such neglect they often become involved in expensive interference cases.

C. C., of Mass.—A patent cannot be for the function or abstract effect of a machine, but only for the machine itself. You can obtain a patent for a process irrespective of any particular form of machinery used in the process.

T. T., of Ill.—As you are an owner in the patent we do not think you are required to take out a license in order to sell it. You are not an agent, but a principal, in the business.

L. P., of Pa.—You cannot apply to a court to have your Letters Patent corrected. This can only be done by the Commissioner of Patents, who is authorized by law to reissue a defective patent.



PATENTS

GRANTED

FOR SEVENTEEN YEARS.

MUNN & COMPANY,

In connection with the publication of the SCIENTIFIC AMERICAN, have acted as Solicitors and Attorneys for procuring "Letters Patent" for new inventions in the United States and in all foreign countries during the past seventeen years. Statistics show that nearly ONE-HALF of all the applications made for patents in the United States are solicited through this office; while nearly THREE-FOURTHS of all the patents taken in foreign countries are procured through the same source. It is almost needless to add that, after eighteen years' experience in preparing specifications and drawings for the United States Patent Office the proprietors of the SCIENTIFIC AMERICAN are perfectly conversant with the preparation of applications in the best manner, and the transaction of all business before the Patent Office; but they take pleasure in presenting the annexed testimonials from ex-Commissioners of Patents.

Messrs. MUNN & Co.:—I take pleasure in stating that, while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE CAME THROUGH YOUR HANDS. I have no doubt that the public confidence thus indicated has been well deserved, as I have always observed, in all your intercourse with