

Business and Personal

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"507 Mechanical Movements."—The most complete Illustrated Book of Mechanical Movements ever published. Embraces all departments of mechanics, and is invaluable for reference and study. Price \$1. By mail, \$1.12. Address Theo. Tusch, 37 Park Row, New York.

At the New York Institute Fair, Oct. 1870, the judges say: "The Union Wheel marks an important advance in the facilities for working metals," and award "First Premium."

Nickersly Grindstones, by J. E. Mitchell, Philadelphia, Pa.

New Castle Grindstones, by J. E. Mitchell, Philadelphia, Pa.

Ohio Grindstones (all kinds), by J. E. Mitchell, Philadelphia.

A Practical Mechanic desires a situation as Draftsman, or Pattern Maker. Understands designing new machinery, iron bridges, etc. J. C. Marshall, Springfield, Mass.

Manufacturers of machinery for making barrels will please send price list to J. M. Reynolds, Montevallo, Ala.

I want a Gage Lathe that will turn 6x6 fence posts, 4x4 desk legs, 3x3 and 4x4 table legs, 3x3 and 4x4 balusters, newell posts, stair balusters, bed posts, and pickets 1½. Address, with price, S. F. Hoole, Reno, Nevada.

News for every machinist's apprentice, machinist, gunsmith, and blacksmith in the United States. Address, with stamp, Mechanical Association, Box 418, Marshall, Mich.

Makers of all kinds of gents' shirt collar buttons, or studs, address Wm. A. Hicks, 129 Jefferson st., Baltimore, Md.

Wanted.—Descriptive Price List of Portable Flouring Mills, by William Vantilburg, Springville, Montana.

For Sale—First Series Scientific American. A. F. Park, Troy, N. Y.

E. Howard & Co., 15 Maiden Lane, New York, and 114 Tremont st., Boston, make the best Stem-winding Watch in the country. Ask for it at all the dealers.

A Civil Engineer desires a situation on a railroad, or in a Surveyor's office. References given. P. de Font, Sing Sing.

Crampton's Imperial Laundry Soap, washes in hard or salt water, removes paint, tar, and grease spots, and, containing a large percentage of vegetable oil, is as agreeable as Castile soap for washing hands. "Grocers keep it." Office 84 Front st., New York.

Peck's Patent Drop Press. Milo Peck & Co., New Haven, Ct.

Diamond Carbon, of all sizes and shapes, furnished for drilling rock, sawing and turning stone, conglomerates, or other hard substances, also Glazier's Diamonds, by John Dickinson, 64 Nassau st., New York.

Taft's Portable Hot Air, Vapor, and Shower Bathing Apparatus. Light, cheap, and convenient. Address Portable Bath Co., Sag Harbor, L. I., N. Y. (Send for Circular.)

The best place to get Working Models and parts is at T. B. Jeffery's, 106 South Water st., Chicago.

Substantial building, with steam power, and some capital ready, for some manufacturing enterprise. Address W. C. Williams, Chillicothe, Ohio.

Scale.—Allen's Patent will remove scale from steam boilers, and not injure the iron. Send for Circulars. Josiah J. Allen, Philadelphia.

Building Felt (no tar) for inside and out. C. J. Fay, Camden, N. J.

Baxter's Portable Steam Engine. For descriptive Pamphlet address Russell & Speer, 10 Park Place, New York.

Patent Elliptic-gear PUNCHES and Shears.—The greatest economy of power, space, and labor. Can be seen in operation at our factory, in Trenton, N. J. Address American Saw Co., 1 Ferry st., New York.

Hand Screw PUNCHES and Lever PUNCHES. American Saw Co., New York.

Steel Stamp Alphabets, Figures, and Names. E. H. Payn, Burlington, Vt.

Self-testing Steam Gage—Will tell you if it is tampered with, or out of order. The only reliable gage. Send for circular. E. H. Ashcroft, Boston, Mass.

Glynn's Anti-Incrustator for Steam Boilers—The only reliable preventive. No foaming, and does not attack metals of boilers. Price 25 cents per lb. C. D. Fredricks, 587 Broadway, New York.

The Merriman Bolt Cutter—the best made. Send for circulars. Brown and Barnes, Fair Haven, Conn.

Manufacturers and Patentees.—Agencies for the Pacific Coast wanted by Nathan Joseph & Co., 619 Washington st., San Francisco, who are already acting for several firms in the United States and Europe, to whom they can give references.

To Cure a Cough, Cold, or Sore Throat, use Brown's Bronchial Troches.

Machinery for two 500-ton propellers, 60-Horse Locomotive Boiler, nearly new, for sale by Wm. D. Andrews & Bro., 414 Water st., N. Y.

Keuffel & Esser 116 Fulton st., N. Y., the best place to get 1st-class Drawing Materials, Swiss instruments, and Rubber Triangles and Curves.

Cold Rolled—Shafting, piston rods, pump rods, Collins pat. double compression couplings, manufactured by Jones & Laughlins, Pittsburgh, Pa. For mining, wrecking, pumping, drainage, and irrigating machinery, see advertisement of Andrews' Patents in another column.

House Planning.—Geo. J. Colby, Waterbury, Vt., offers in formation of value to all in planning a House. Send him your address.

A very Valuable Patent for sale, the merits of which will be appreciated at sight. Apply to or address Jewell & Ehlen, 93 Liberty st., N. Y.

For Solid Wrought-iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

Improved Foot Lathes. Many a reader of this paper has one of them. Catalogue free. N. H. Baldwin, Laconia, N. H.

Belting that is Belting.—Always send for the Best Philadelphia Oak-Tanned, to C. W. Army, Manufacturer, 301 Cherry st., Phila.

For Fruit-Can Tools, Presses, Dies for all Metals, apply to Bliss & Williams, successor to May & Bliss, 118, 120, and 122 Plymouth st., Brooklyn, N. Y. Send for catalogue.

The Best Hand Shears and Punches for metal work, as well as the latest improved lathes, and other machinists' tools, from entirely new patterns, are manufactured by L. W. Pond, Worcester, Mass. Office 98 Liberty st., New York.

To Ascertain where there will be a demand for new machinery or manufacturers' supplies read Boston Commercial Bulletin's Manufacturing News of the United States. Terms \$4 00 a year.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us: besides, as sometimes happens, we may prefer to address correspondents by mail.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at 10¢ a line, under the head of "Business and Personal."

All reference to back numbers must be by volume and page.

SOLDERING SPRING WIRE.—J. E. W. asks how to solder spring wire with hard solder. In watch making I have often made brass and steel tongues, soldered them to the joint with hard solder, and left them in an elastic state. Steel wire may be tempered in the usual manner after soldering, but we usually treat it the same as brass. After soldering the temper is restored by hard rubbing with a burnisher, which condenses and hardens the wire in the same way that hammering or milling does a plate. Brass, gold, copper, or silver, should be treated with dilute oil of vitriol after soldering, to destroy the oxide and the compound of oxide with borax or other flux used. Steel or iron should never be put into vitriol.—J. T. L., of S. C.

HEATING SURFACE OF STEAM BOILERS.—W. V. B. is running an engine developing, according to his statement, 107-horse power, while his locomotive boiler, allowing 6 square feet of heating surface per horse-power, develops only 50-horse power. Two cylinder boilers, 30 inches diameter and 40 feet long have 323¼ feet of heating surface; and as a much greater proportion of fire surface is required per horse-power in a cylinder boiler than in a locomotive boiler, the two cylinder boilers would not generate steam faster, perhaps not as fast as through the locomotive boiler, and therefore could not supply steam enough to run the engine under the conditions specified.—W. M. M., of Mich. *

BOILER CAPACITY.—If the two cylindrical boilers referred to by W. V. B., be well set and covered in, say 6 inches above their centers, they will present 400 square inches of surface to the fire, and ought to give 40 to 45-horse power of steam to the engine mentioned, if the steam be properly utilized in the cylinder. We have obtained 55-horse power with a 15 x 36-inch cylinder, with plain slide valve, the steam being made in three 36-inch diam., 30 feet plain cylinder boilers fired with shavings and sawdust. The difficulty with the locomotive boiler is lack of effective heating surface. Not more than half the surface of the tubes, owing to soot and ashes, being available for transmission of heat.—J. H. C., of Pa.

WIRE OF SOLDER.—E. E. D. can make solder in the form of wire, as follows: Take a common ladle used for melting lead, and drill a small hole one half inch from the brim opposite the nose. Melt the solder so that it will run easy through the hole, and as it runs out, draw the ladle along over some smooth surface, such as a saw plate or the face of an anvil. If done properly it will run in the shape of a thin wire as long as the surface you run it on. This is the only way I think it can be done. The right of making solder wire this way was purchased from a peddler, who went round the country selling the wire to jewelers.—C. H. G., of N. Y.

CALCULATING HEATING SURFACE OF TUBES.—W. V. B. should calculate the heating surface of tubes from the inside.—G. M. M., of N. J.

L. J. K., of N. Y.—The conventional tints for the various materials represented in mechanical drafting are variously prepared. We prefer Johnson's formulae to any other. According to these formulae, stone is represented by a light dull yellow, made by mixing a little India ink with Roman ochre. For brick use a light red, made of vermilion, brightened by a little carmine. For steel or wrought iron a light shade of Prussian blue, a trifle lighter for steel than wrought iron. For cast iron use indigo, with a little carmine added, or Payne's gray. For lead and tin use the same color as for cast iron, with the addition of a small proportion of India ink and carmine. For copper, use pure carmine or crimson lake, with a little burnt sienna added. For brass or bronze use burnt ochre or a mixture of gamboge with vermilion, or simple gamboge. If the mixture of gamboge and vermilion be used, it must be kept constantly stirred, or the colors will separate. For wood use burnt umber, or raw sienna. For leather use a light tint of sepia; for gutta-percha a darker tint of the same and for vulcanized rubber, use sepia with a little indigo added.

A. H., of Ohio.—The word power is used in two senses. In the modern use of the term it means the ability to perform work as measured by foot-pounds of resistance overcome in a definite time. In this sense the term is general in its signification, and has no reference to any particular resistance to be overcome. It is in this sense, doubtless, that Mr. Craik uses the word in the article on "Fly and Balance Wheels," published on page 408 last volume, and to which you take exception. In the old saying, "What is lost in speed is gained in power," and vice versa, the word power is used in a special sense, meaning ability to overcome a particular resistance, as, for instance, a particular weight to be raised in mass. Mr. Craik makes no claim in his work to literary merit, and perhaps fails to express himself perfectly in the passage cited. We understand, however, his meaning to be what we have stated, the expression "loss in power" probably referring to consumption of power through friction, etc.

L. I. O., of Minn.—From your description we judge your ice-house leaks air at the bottom, either through the drain pipe, (is there a trap in this pipe?) or through unstoppered crevices. Such crevices would cause a downward draft of warm air through the open ventilator at the top, and cause the melting from the top and sides of the ice of which you complain. If you must use an open ventilator at the top to keep the articles stored in good condition, you must be careful to stop all the air holes at the bottom.

A. B. S., of Pa.—The simplest and most common way of making U-magnets, is to forge the steel bars into the proper shape, harden, and then place them with their poles together, in such a way that the poles which are to be of opposite names shall come together. They are then rubbed with a strong horseshoe, or U-magnet, placing the latter in such a way that its north pole is next to the south pole of one of the new magnets, and its south pole next to the north pole of the same new magnet.

J. D. O. C.—It is not necessary that drawings intended to illustrate a work on carpentry should be as finely executed in the manuscript as they are intended to appear in the work itself. The artist, if he knows his business, will be able to execute them properly, provided they are intelligible.

J. T. L., of S. C.—Your query in regard to weights and cords is not sufficiently explicit. Do you mean a cord attached at both ends, or only at one end?

J. G. M., of —.—There is no known solvent for the diamond. Evaporation is a widely different process from dissolving. Consult your dictionary on the meaning of these terms.

C. H. S., of —.—In the absence of our regular proof reader last week, an error occurred in the answer to your query. It should have read: The Torricellian Vacuum, formed by inverting a tube filled with mercury in a cup containing the same metal, is not perfect. Good authorities maintain that no perfect vacuum can be produced.

J. S., of R. I.—For siliceous silica, in the answer to your query published last week, read *infusorial* silica.

T. T. O., of Ill.—For rules to calculate dimensions of safety valve, lever, etc., consult Bourne's Hand Book of the Steam Engine. Any bookseller will order it for you.

A. H. L., of Mass.—There is no substance known which, placed between a magnet and its armature, will stop its attraction.

B. F. C., of R. I.—Your method of making leather handles is not new.

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]

PROVISIONAL PROTECTION FOR SIX MONTHS.

- 2,905.—PNEUMATIC TELEGRAPH.—Edward A. Calahan, Brooklyn, and G. B. Baker, New York city. November 3, 1870.
- 2,924.—BUOYANT MATTRESS DESIGNED TO SERVE EITHER AS A BED OR A LIFE PRESERVER.—Joshua Hunt, Providence, R. I. November 5, 1870.
- 2,925.—AXLES OF RAILWAY AND TRAMWAY CARRIAGES, AND IN APPARATUS TO BE EMPLOYED THEREWITH.—Henry Graham Thompson, New York city November 5, 1870.
- 2,931.—TELL-TALE MECHANISM APPLICABLE TO CLOCKS AND WATCHES.—Cyrille Duquet, Quebec, Canada. November 21, 1870.
- 2,934.—MACHINE FOR CUTTING AND PRINTING LOZENGES AND CRACKERS.—Ernest Greenfield and Philipp Strauss, New York city. November 7, 1870.
- 2,935.—METALLIC COMPOSITION FOR ROOFING LININGS, PIPES, AND OTHER PURPOSES.—David J. Millard, Clayville, N. Y. November 7, 1870.
- 2,936.—IMPROVEMENT APPLICABLE TO TREADLES USED IN SEWING AND OTHER MACHINES.—Charles Gordon Patterson, New York city. November 7, 1870.
- 2,939.—MACHINERY FOR MANUFACTURING CARPET LINING.—Joel F. Fales, Walpole, Mass. November 9, 1870.
- 2,943.—PROCESS FOR EXTRACTING THE USEFUL SUBSTANCES OF HOPS, AND FOR MANUFACTURING A PURE AND CONCENTRATED EXTRACT OF HOPS.—C. A. Seely, New York city. November 8, 1870.
- 2,950.—METHOD OF SECURING OR LOCKING SCREW BOLTS AND NUTS.—Robinson Rutter, Vallejo, Cal. November 9, 1870.
- 2,953.—SEWING MACHINES AND TABLES FOR SEWING MACHINES.—J. N. Tarbox, Hamilton, Canada. November 9, 1870.
- 2,951.—APPARATUS FOR EFFECTING AND REGULATING THE SUPPLY OF THE DEODORIZING MATERIAL IN EARTH CLOSETS.—William R. C. Clark, Chicago, Ill., and James E. Aiken, New Orleans, La. November 9, 1870.
- 2,969.—MANUFACTURE OF ALKALIZED ISINGLASS, SULPHURATED AND BISULPHURATED.—Baylis Child, New York city. Nov. 11, 1870.
- 2,973.—PENHOLDER AND PENS.—Isaac Jacobs, New York city. November 12, 1870.

APPLICATIONS FOR EXTENSION OF PATENTS.

- MACHINE FOR CUTTING PASTEBOARD FOR BOXES.—Franklin N. Clarke, New Haven, Conn., has petitioned for an extension of the above patent. Day of hearing Feb. 15, 1871.
- ENEMA SYRINGE.—Herman E. Davidson, Gloucester, Mass., has petitioned for an extension of the above patent. Day of hearing March 15, 1871.
- SEEDING MACHINE.—L. B. Myers and H. A. Myers, Elmore, Ohio, have petitioned for an extension of the above patent. Day of hearing Feb. 15, 1871.
- CASTING SKEINS FOR WAGONS.—John Benedict, Kenosha, Wis., has petitioned for an extension of the above patent. Day of hearing Feb. 8, 1871.
- ENEMA-GIVING APPARATUS.—Benjamin T. Babbitt, New York city, has petitioned for an extension of the above patent. Day of hearing March 1, 1871.
- GAS GENERATORS.—Alonzo M. Giles, Boston, Mass., has petitioned for an extension of the above patent. Day of hearing March 1, 1871.
- CHAIRS FOR INVALIDS.—James G. Holmes, Charleston, S. C., has petitioned for an extension of the above patent. Day of hearing May 31, 1871.
- MACHINE FOR CUTTING AND BENDING SHEET METAL.—Elliot Savage, West Meriden, Conn., has petitioned for an extension of the above patent. Day of hearing March 1, 1871.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

COMPOSITION FOR DESTROYING WORMS IN THE COTTON PLANT.—Thoma W. Mitchell, Richmond, Texas.—The object of this invention is accomplished by sprinkling the cotton plants, on which the worm feeds, with a solution of arsenic in water, in suitable proportions.

"MIDLINGS" PURIFIER.—Lemuel G. Binkly, Baughman, Ohio.—This invention relates to an arrangement of reels, one of which is covered with coarse cloth for separating and removing the coarse feed and shorts, the fine feed, middlings, and flour being thence conveyed to another reel covered with finer cloth. The middlings and fine feed are by this last separated from the flour, and conveyed to a chamber over the reels where a fan and hinged deflectors quickly separate them into three grades, and distributes them in hoppers or bins correspondingly.

Plow.—Arthur C. Smith, Joyner's Depot, N. C.—This invention has for its object to improve the construction of turn-plows to better adapt them for turning the first furrows in breaking up the land and forming the ridges in preparing the land for planting cotton.

SPICE BOXES.—Edward S. Kennedy, Birmingham (Buchanan Postoffice), Pa.—This invention has for its object to furnish an improved spice box, which shall be so constructed as to contain salt and pepper, or two other spices, and which shall, at the same time, be simple in construction and convenient in use.

FLOUR BOLTS.—Cyrus T. Hanna, Keokuk, Iowa.—This invention has for its object to furnish an improved flour bolt, which shall be so constructed that the bolt cloth may be secured to the inner sides of the ribs, forming a smooth surface of bolting cloth.

COTTON CULTIVATOR, SCRAPER, AND CHOPPER.—J. H. W. Young, Henderson, Texas.—This invention relates to certain improvements in a machine or cultivating cotton, the same consisting in barring-off plows placed in such position in front of the wheels, on which the machine runs, to make tracks in the earth for the wheels to follow in; also in shanks for the scrapers pivoted at their upper ends to the frame, and provided with curved slots through which pass bolts so as to enable the scraper to beset at different angles, according to the nature of the soil through which they run; and in chopping hoes made adjustable for the purpose of varying their position according to the desired width of hill or ridge.

COTTON AND HAY PRESS.—S. K. Davis, Monticello, S. C.—This invention relates to improvements in the cotton and hay press patented September 28, 1869. The invention consists in providing two uprights with beveled joints and catches, which also act as supports, so as to permit a portion of the frame above the joints to be drawn from a perpendicular to an inclined position, and replaced at pleasure; also in constructing a nut with adjustable levers, and a groove for the reception of band or cord, by which the nut at each end of the press may be screwed down or up at the same time; also in the construction of a clamp provided with a hinge in such a manner that the clamp may be easily removed from the press when the bale has been formed.

SUBSOIL PLOW.—T. G. Wilder, Camden, Mo.—This invention has for its object to improve the construction of subsoil plows, so as to make them stronger, more substantial, and easier upon the team, and enables them to be conveniently adjusted to work deeper or shallower in the ground, as may be desired, and which will cause them when adjusted to work at a uniform depth.

PROPELLING APPARATUS FOR STREET CARS.—John Roy, New Orleans, La.—This invention relates to improvements in apparatus for propelling street cars by means of a traction rope worked along the track, either above or under the ground, by means of stationary engines or other power, and consists in the application to the car, either at one or both sides, or between the sides, of traction wheels, preferably three in a row, so arranged that the rope will work under the two end wheels, to be prevented from rising above the ground either in front or rear of the car and over the center wheel, so as to impart rotary motion to them, which, being arrested by brakes, will cause the car to be drawn along by the friction of the rope on the wheels.

BALANCED SLIDE VALVES.—John Nesbitt, Concord, N. H.—This invention relates to improvements in balanced slide valves, or those which are so arranged that they cannot be raised off their seats, when the throttle valve is closed and the piston continues in motion by the air, for admitting it behind the piston and preventing the forming of a vacuum, which greatly retards the motion, especially in the case of a locomotive going on a downward incline.

THUMB SUPPORTER.—James S. Borden, Bloomfield, Ill.—The object of this invention is to provide convenient and efficient means for supporting and protecting the thumb of the hand in the operation of binding grain.

PORTABLE FARE BOX.—Alfred Bradley, New Orleans, La.—This invention has for its object to furnish an improved fare box for the conductor or collector to carry around when collecting fares, and which shall be so constructed that the fare cannot be extracted or removed by any one but the person having the key of the box.

MEDICAL COMPOUND.—N. Jenkins, New Orleans, La.—The object of this invention is to provide a simple, safe, and effectual remedy for rheumatism, gout, neuralgia, and kindred diseases.

SELF-ADJUSTING BARREL HANDLES.—Minot S. Schofield, Stamford, Conn.—This invention has for its object to furnish handles, which shall be so constructed as to adjust themselves to barrels, boxes, and other packages, to enable the said barrels, boxes, or packages to be conveniently handled.

BAG HOLDER.—A. D. Swogger, Worth, Pa.—This invention relates to a new bag holder, which is made vertically extensible, so that it can be used to fill bags of different lengths. The invention consists in making the frame of the holder extensible, and in providing pawls or catches for locking it at suitable lengths.

HORSE-COLLAR PADS.—Jas. F. Walsh, Hazel Green, Wis.—This invention relates to improvements in the construction of sweat pads for horse collars, and it consists of two broad pieces of leather, of the proper form to fit the breast and neck of the horse, with stiffening plates of iron stitched between them to keep them smooth, the inner piece being broader than the outer one, and the inner edge of it turned outward to prevent galling the neck, and held by short straps attached to the outer piece.

VINE AND WEED CUTTER.—Harry Lawrence, New York city.—This invention relates to improvements in apparatus for removing the vines of potatoes, weeds, and the like, in advance of the potato-digging machines, and it consists in a pair of forked gathering blades, a discharging trough, and a rotary cutter, mounted on a truck, or it may be on the potato-digging machine, for gathering, cutting, and discharging the vines and weeds.

POTATO DIGGER.—William Tripp, Mechanicsville, N. Y.—This invention relates to improvements in potato diggers, and consists of a peculiar construction of one-sided shovel-shaped, and plow-shaped diggers.

THREAD TAKE-UP.—Walter Bennett, Springfield, Ill.—This invention relates to improvements in thread take-up apparatus for sewing machines, and consists in improvements in the arrangement in that class of such apparatus, designed for varying the slack of the thread according to the thickness of the cloth.

NON-CONDUCTING COMPOSITION.—John Hessing, Paterson, N. J.—This invention relates to a new and improved non-heat conducting compound, suitable for covering marine, locomotive, stationary, and other steam boilers, cylinders, pipes, etc.

KNITTING MACHINE.—John Lee, Mark Lee, and William Carter, Needham, Mass.—This invention relates to improvements in knitting machines, and consists in a combination with a knitting machine, of a shifting receiver and holder and automatic operating devices therefor, for carrying yarns of different colors and changing them to be run in with the fabric, according to any required order or pattern. The invention also consists in certain improvements in the arrangements of the operating and adjusting devices of the knitting apparatus.

PRESS.—M. G. Cunningham, Corsicana, Texas. This invention relates to improvements in presses for hay, cotton, and other like substances, and consists in an improved arrangement of means for working the follower by a screw.

SHIP'S WINDLASS.—Enos Waterbury and G. N. Waterbury, Stamford, Conn.—This invention has for its object to improve the construction of a ship's windlass in such a way as to make it more convenient in use, it being so constructed as to allow the cable to be payed out freely, and which shall, at the same time, be simple in construction and easily operated and controlled.

Official List of Patents.

ISSUED BY THE U. S. PATENT OFFICE.

FOR THE WEEK ENDING DEC. 27, 1870.

Reported Officially for the Scientific American.

SCHEDULE OF PATENT FEES.

Table with 2 columns: Fee description and Amount. Includes items like 'On each Caveat', 'On each Trade-Mark', 'On filing each application for a Patent', etc.

For Copy of Claim of any Patent issued within 30 years... \$1. A sketch from the model or drawing, relating to such portion of a machine as the Claim covers, from... \$1.

The full Specification of any patent issued since Nov. 20, 1866, at which time the Patent Office commenced printing them... \$1.25. Official Copies of Drawings of any patent issued since 1836, we can supply at a reasonable cost, the price depending upon the amount of labor involved and the number of views.

MUNN & CO., Patent Solicitors, 37 Park Row, New York.

- 110,414.—APPARATUS FOR SUPPLYING AIR.—Henry W. Adams, Philadelphia, Pa.
110,415.—WOOD-SPLITTING MACHINE.—William A. Allen, Baltimore, Md.
110,416.—RAILROAD-CAR VENTILATOR.—George B. Armstrong, Chicago, Ill., and George F. McLellan, Washington, D. C.
110,417.—PLOW.—James Archer, Springfield, Wis.
110,418.—MACHINE FOR BURRING WOOL ON THE SKIN.—Edward H. Ashcroft, Lynn, Mass.
110,419.—CULTIVATOR.—Robert H. Avery, Galesburg, Ill.
110,420.—COFFEE-POT STRAINER.—George A. Barron, Pembroke, Me.
110,421.—BOTTLE FASTENING.—Benjamin Bates, Baltimore, Md.
110,422.—COUPLINGS FOR SHAFTING.—Charles Bean (assignor to Albert F. Allen), Providence, R. I.
110,423.—MEDICAL BITTERS.—Theodore Beck, Omaha, Nebraska.
110,424.—TAKE-UP MECHANISM FOR SEWING MACHINES.—Walter Bennett, Springfield, Ill.
110,425.—MIDDINGS PURIFIER.—Lemuel G. Binkley, Baughman, Ohio.
110,426.—THUMB SUPPORTER.—James Sandford Borden, Bloomfield, Ill.
110,427.—METHOD OF PRODUCING ILLUMINATING GAS.—John F. Boynton, Syracuse, N. Y.
110,428.—PORTABLE FARE BOX.—Alfred Bradley (assignor to himself and W. L. Cushing), New Orleans, La.
110,429.—CHURN DASHER.—Robert Brown, Columbus, Miss.
110,430.—SAW TEETH.—Isaiah Byrd and Turner Byrd, Jr., Calvin Township, Mich. Antedated Dec. 9, 1870.
110,431.—WIRE FOR MAKING PEGS FOR BOOTS AND SHOES.—Duncan H. Campbell, Sunderland, Scotland, and Erastus Woodward, Charlestown, Mass.
110,432.—LUBRICATING COMPOUND FOR STEAM AND OTHER PACKING.—William M. Canfield, Philadelphia, Pa.
110,433.—BOOTJACK AND DOOR BUFFER.—Walter S. Chatham (assignor to John W. Riddell), Williamsport, Pa. Antedated Dec. 15, 1870.
110,434.—UMBRELLA HOLDER.—Almon Clarke (assignor of one half his right to Charles A. Spencer), Sheboygan Falls, Wis.

- 110,435.—ASTRONOMICAL LANTERN.—James Freeman Clarke West Roxbury, Mass.
110,436.—TIDAL MOTIVE POWER.—Walter R. Close, Bangor, Me.
110,437.—DIE PLATE FOR SCREW-CUTTING DIES.—William T. Cole, New York city.
110,438.—FOLDING CHAIR.—Francis Colton, Brooklyn, N. Y.
110,439.—FASTENING FOR NECK TIES.—William J. Cowing, Washington, D. C.
110,440.—MACHINE FOR GROOVING BLOCKS FOR WOOD PAVEMENTS.—Perley D. Cummings, Portland, Me.
110,441.—SELF-CLEANING LOCOMOTIVE SMOKE STACK.—Samuel M. Cummins and Henry Israel (assignors for one third their right to Ransom C. Wright), Allegheny, Pa.
110,442.—PRESS FOR HAY, COTTON, ETC.—Matthew G. Cunningham, Corsicana, Texas.
110,443.—HAY AND COTTON PRESS.—Joseph K. Davis, Monticello, S. C.
110,444.—CARRIAGE WINDOW.—James F. Doley, Binghamton, N. Y. Antedated Dec. 15, 1870.
110,445.—GRAIN SEPARATOR.—James W. Donaldson, Fairfield, Cal.
110,446.—SNOW PLOW FOR RAILWAYS.—Tiberius Dougherty, Philadelphia, Pa.
110,447.—COMBINED BROADCAST SEEDER AND CULTIVATOR.—Joseph E. Fargo, Lake Mills, Wis. Antedated Dec. 10, 1870.
110,448.—DEVICE FOR SIGHTING AND FIRING ORDNANCE.—George K. Farrington, Alcatraz, Cal., assignor to himself Lorenzo Hubbard, and C. W. M. Smith.
110,449.—LENS OR GLASS FOR HEAD LIGHTS.—Henry C. Felthousen, Buffalo, N. Y.
110,450.—BUSHING FOR WARP BEAMS.—Richard Ferguson, Louisville, Ky.
110,451.—SAW MILL.—Charles M. Flint, Hancock, N. H.
110,452.—DRIP ATTACHMENT FOR UMBRELLAS.—Thaddeus Fowler, Tottenville, N. Y.
110,453.—WASHING MACHINE.—Abram A. Gardner, Savannah, Mo.
110,454.—INCUBATOR.—Jacob Graves, Reading, and Henry Graves, Boston, Mass.
110,455.—POWER PRESS.—Albert D. Hamlin (assignor to Mays & Bliss), Brooklyn, N. Y. Antedated Dec. 22, 1870.
110,456.—FLOUR BOLT.—Cyrus T. Hanna, Keokuk, Iowa.
110,457.—LAWN MOWER.—Hubert C. Hart, Unionville, Conn.
110,458.—CORN PLANTER.—Charles Allen Haskell, Galena, Ill.
110,459.—CANAL LOCK MECHANISM.—George Heath Annapolis, Md.
110,460.—GAGE FOR TURNING CLOCK-WORK.—Harry F. Henderson and James E. Ladd, Bristol, Conn. Antedated December 31, 1870.
110,461.—NON-CONDUCTING COMPOUND FOR COATING STEAM BOILERS, ETC.—John Hessing, Paterson, N. Y.
110,462.—MACHINE FOR CUTTING THE ENDS OF HOOPS.—L. N. Hewes, Swansea, N. H.
110,463.—COMPOUND AND PROCESS OF REMOVING INCRUSTATIONS OF LIME FROM STEAM BOILERS, METALS, ETC.—J. Austin Hewett, Nora Springs, Iowa.
110,464.—LAMP.—Charles F. A. Hinrichs, New York city.
110,465.—MANUFACTURE OF LEATHER.—F. A. Holcomb, Grand Rapids, Mich., assignor to himself and S. B. Jenks.
110,466.—PROPULSION OF CANAL BOATS.—Julius L. Hornig, Chicago, Ill.
110,467.—FIRE-BOX FOR STOVES AND RANGES.—Marcus L. Horton, Windsor, Vt.
110,468.—DEVICE FOR FILLING LOWLANDS.—George Howell, Philadelphia, Pa. Antedated December 9, 1870.
110,469.—REFINING OIL FROM COTTON-WASTE, ETC.—Edgar T. Jarrod, Tottenville, assignor, by mesne assignments, to himself, Henry S. Gerow, and Henry McLean, New York city.
110,470.—MEDICAL COMPOUND FOR RHEUMATISM.—Nathaniel Jenkins, New Orleans, La.
110,471.—SPRING BED BOTTOM.—W. B. Judson, Poughkeepsie, N. Y., assignor to I. P. Nelson, Jr.
110,472.—BASE-BURNING STOVE.—William Kaiser, Wilkesbarre, Pa. Antedated December 17, 1870.
110,473.—SPICE BOX.—E. S. Kennedy, Birmingham (Buchanan Postoffice), Pa.
110,474.—SCYTH FASTENING.—Samuel U. King, Windsor, Vt.
110,475.—SMUT MACHINE.—William H. Kite and George S. Newman, Liberty Mills, Va.
110,476.—ATTACHMENT FOR RATLINS.—John Calef Knowlton, Rockport, Mass.
110,477.—VINE AND WEED CUTTER.—Harry Lawrence, New York city.
110,478.—WASHING MACHINE.—Balaam C. Lawson, Yolo county, Cal.
110,479.—KNITTING MACHINE.—John Lee, Mark Lee, and William Carter, Needham, Mass.
110,480.—NEEDLES AND THEIR CARRYING ARMS FOR SEWING MACHINES.—George A. Lloyd, San Francisco, Cal., assignor to himself, G. W. Smiley, James McMechan, and Anthony Rosenfeld.
110,481.—COMPOUND FOR CLEANING CARPETS.—Leo Marks, Cincinnati, Ohio.
110,482.—WASHING MACHINE.—Moses S. Marshall, Somerville, assignor to John T. Folsom and J. S. Folsom, Boston, Mass.
110,483.—CONSTRUCTION OF PRISONS.—Edwin May, Indianapolis, Ind.
110,484.—WATER FAUCET.—Pierre A. Mayor, New York city.
110,485.—CAMP BEDSTEAD.—Amos D. McCoy, Alexandria, La. Antedated Dec. 16, 1870.
110,486.—AUTOMATIC DOOR BOLT.—Angus McKay, Montreal, Canada.
110,487.—CHURN DASHER.—James B. Mellor, New Hope, Mo.
110,488.—FILTER TANK AND OTHER VESSELS USED FOR REFINING SUGAR, ETC.—William Moller, Irvington, N. Y.
110,489.—TREATING BESSEMER STEEL.—James Myers, Jr., Williamsburgh, N. Y.
110,490.—BALANCED SLIDE VALVE.—John Nesbitt, Concord, N. H.
110,491.—KEY FOR LOCKS.—Webster Park, Norwich, Conn. Antedated December 15, 1870.
110,492.—GRAIN BINDER.—La Fayette Parker, Davenport, Iowa.
110,493.—Suspended.
110,494.—COUNTERSINK.—Moses Magoon Pettes, Worcester, Mass.
110,495.—CLEANING WOOL, COTTON, ETC.—Goldsbury H. Pond, Rutland, Vt.
110,496.—GAS RETORT AND HEATING FURNACE.—Goldsbury H. Pond, Rutland, Vt.
110,497.—RAILWAY CAR SPRING.—Albert Potts, Philadelphia, Pa.
110,498.—GRAIN BINDER.—F. W. Randall, Tekonsha, Mich. Antedated December 17, 1870.
110,499.—LOCK NUT.—James L. Randolph, Berkeley Springs, West Va., assignor to G. L. Denny, Christiansburg, Pa.
110,500.—NAIL FOR PICTURES, ETC.—Thomas C. Richards, New York city.
110,501.—PROPELLING APPARATUS FOR CARS.—John Roy, New Orleans, La.
110,502.—HANDLE FOR BARRELS, ETC.—Minot S. Schofield, Stamford, Conn.
110,503.—WHIP-HOLDER FOR CARRIAGES.—Erastus W. Scott, Wauregan, Conn.
110,504.—BOTTLE-FILLING APPARATUS.—Thomas Simmons and David H. Lowe, Brooklyn, N. Y. Antedated December 16, 1870.
110,505.—BRECH-LOADING FIRE-ARM.—James Smiles, Birmingham, England.
110,506.—PLOW.—A. C. Smith, Joyners Depot, N. C.
110,507.—CABINET FOR SEWING MACHINES.—J. E. Smith (assignor to himself and Julius Ludwig), Chicago, Ill.
110,508.—EYELET MACHINE.—S. N. Smith (assignor to the Union Eyelet Company), Providence, R. I.
110,509.—BUCK SAW.—A. B. Sprout, Muncy, Pa.
110,510.—KEY FOR SHAFTING.—Nathan Stedman, Aurora, Ind.
110,511.—BAG HOLDER.—A. D. Swogger, Worth, Pa.
110,512.—TURN-UP SEAT FOR CHURCHES, ETC.—J. P. Tibbits, New York city.
110,513.—CARRIAGE BOW.—I. N. Topliff, Adrian, Mich.

- 110,514.—POTATO DIGGER.—William Tripp, Mechanicsville, N. Y.
110,515.—MACHINE FOR HEADING RIVET AND SCREW BLANKS.—V. De M. Upham, Brooklyn, N. Y. Antedated December 10, 1870.
110,516.—STILL FOR PETROLEUM AND OTHER OILS.—S. Van Syckel, Titusville, Pa.
110,517.—(Suspended.)
110,518.—HORSE COLLAR PAD.—J. F. Walsh, Hazel Green, Wis.
110,519.—TOY HOOP.—Rivera Ward, Newark, N. Y.
110,520.—ADDING MACHINE.—F. F. Warner, Chicago, Ill.
110,521.—WINDLASS.—Enos Waterbury and G. N. Waterbury (assignors to G. N. Waterbury and A. M. Prior), Stamford, Conn.
110,522.—PRINTERS' INKING ROLLER.—C. S. S. Westcott, Elizabeth, N. J., assignor to himself, John Austin, Rollin German, New York city, and W. H. H. Williams, Middletown, Conn. Antedated Dec. 17, 1870.
110,523.—ROLLER-LIFTING POWER.—Elisha Whitcomb Waterville, Ohio.
110,524.—LOOM.—Robert Whitehill (assignor to the Positive Motion Loom Company), New York city.
110,525.—SUBSOIL PLOW.—T. G. Wilder, Camden, Miss.
110,526.—LAMP.—T. S. Williams (assignor to himself and P. S. Page), Boston, Mass.
110,527.—SEAT-GUARD FOR HOBBY HORSES.—W. L. Williams New York city. Antedated December 17, 1870.
110,528.—RUNNING GEAR FOR CARRIAGES.—J. B. Withey Detroit, Mich.
110,529.—MACHINE FOR MAKING BRUSHES.—O. D. Woodbury, New York city.
110,530.—BORING MACHINE.—E. J. Worcester, Worcester, Mass.
110,531.—COTTON CULTIVATOR, SCRAPER, AND CHOPPER.—J. H. W. Young, Henderson, Texas.
110,532.—WOOD-SCREW MACHINE.—J. M. Alden (assignor to the International Screw-nail Company), New York city.
110,533.—TREADLE.—A. M. Allen, New York city.
110,534.—COPE FOR CASTING CAR WHEELS.—Albert Alling, Chicago, Ill.
110,535.—THREAD GUIDE AND HOLDER FOR BOBBIN-WINDING MACHINE.—W. W. Altemus, Philadelphia, Pa.
110,536.—PAPER-BAG MACHINE.—C. F. Annan, Boston, assignor to himself and H. S. Merrill, Cambridge, Mass.
110,537.—ADJUSTABLE CAM.—C. F. Annan, Boston, assignor to himself and H. S. Merrill, Boston, Mass.
110,538.—PORTABLE STORE ROOM AND PANTRY.—T. A. Barrell, Maroa, Ill.
110,539.—COTTON-BALE TIE.—G. N. Beard, St. Louis, Mo.
110,540.—MACHINE FOR DRYING PAPER AND OTHER FABRICS.—Frederick Beck, New York city.
110,541.—HORSE YOKE.—A. B. Beaumont, Austerlitz, Mich.
110,542.—GRAIN THRASHER, SEPARATOR, AND CLEANER.—E. M. Birdsall, Penn Yan, N. Y.
110,543.—SIFTER.—S. O. Blanding, Vineland, N. J.
110,544.—WATER WHEEL.—J. W. Bookwalter, Springfield Ohio.
110,545.—COMBINED IMMERSION AND STEAM BATH.—J. W. Caldwell, Cincinnati, Ohio.
110,546.—BRIDGE.—A. McD. Campbell, Newark, N. J., assignor to himself, C. M. Bolen, and F. K. Day.
110,547.—ANNUNCIATOR.—Jacob Capron, New York city.
110,548.—CULTIVATOR.—J. H. Carlow, Kidder, Mo.
110,549.—COTTON PRESS.—Nash Cheek, Chapel Hill, N. C.
110,550.—PLOW.—Josiah Clifton, Georgetown, Texas.
110,551.—CLOTHES DRYER.—E. B. Corby, Bloomfield, N. J.
110,552.—TRUNK.—F. K. Daggett, Boston, Mass.
110,553.—PREVENTING INCRUSTATION OF STEAM BOILERS.—C. J. A. Dick, Paris, France.
110,554.—LAND ROLLER.—James W. Dilley, Macomb, Ill.
110,555.—WASHING MACHINE.—William J. Dodge, Syracuse N. Y.
110,556.—DRAWING FRAME.—George Draper, Hopedale Mass.
110,557.—FASTENING CARRIAGE WHEELS.—Wilson Elder Mill Hall, Pa.
110,558.—CARRIAGE BUTTON.—Charles H. Field, Providence, R. I.
110,559.—DISH WASHER.—Ruth Filson, Robert D. S. Filson, and John D. Cope, Xenia, Ill.
110,560.—PERMUTATION LOCK.—Charles Flesch, Rochester N. Y.
110,561.—CHILD'S CARRIAGE.—Isaac N. Forrester, Bridgeport Conn.
110,562.—TREATING HIDES AND MANUFACTURING LEATHER.—William H. Fuller, Brockport, assignor to himself and G. J. Kingsbury, Rochester, N. Y.
110,563.—CAR WHEEL.—William Goodman, Boston, Mass.
110,564.—APPARATUS FOR RAISING VESSELS.—J. E. Gowen, Boston, Mass.
110,565.—HAND CORN HUSKER AND SHELLER.—J. M. Gray, Louisville, Ky.
110,566.—COOKING RANGE.—William Hall, Quincy, Ill.
110,567.—METAL ROOF FOR BUILDINGS.—John S. Haywood, Rochester, Minn.
110,568.—HARVESTER.—George F. Hawley, Grand Rapids, Mich.
110,569.—MECHANISM FOR OPERATING SEWING MACHINES.—Elijah Leavitt Howard, Malden, assignor to G. A. Whiting, Charlestown, Mass.
110,570.—HAT.—George Johnson, Philadelphia, Pa.
110,571.—SLEIGH.—Alvarado Jones, Randolph, Wis.
110,572.—TRACE BUCKLE.—Wm. W. Kittleman, Bloomfield Iowa.
110,573.—MACHINE FOR COOLING AIR AND FOR THE MANUFACTURE OF ICE.—Julius Krafert, Hoboken, N. Y.
110,574.—FELTING MACHINE.—C. P. Ladd (assignor to himself and J. T. Sanford), New York city.
110,575.—TRUNK.—John G. Lane, St. Louis, Mo.
110,576.—CURRYCOMB.—William E. Lawrence, New York city.
110,577.—IRONING TABLE.—John Jacob Marki (assignor to himself, Wm. H. Lotz, and Carl Beer), Chicago, Ill.
110,578.—FOLDING LOUNGE.—Michael Marso, Chicago, Ill.
110,579.—AXLE SKEIN.—Lorenzo Mayhew, Saratoga Springs N. Y.
110,580.—CAR COUPLING.—Wm. H. Meadows, McMinnville Tenn.
110,581.—CARRIAGE CLIP.—F. B. Morse (assignor to himself and H. D. Smith & Co., Plantsville, Conn.
110,582.—MATERIAL FOR BEARINGS AND PACKINGS.—Eliza D. Murfey (assignor to the Manhattan Packing Manufacturing Company), New York city.
110,583.—BEARING AND PACKING MATERIAL.—Eliza Dexter Murfey (assignor to the Manhattan Packing Manufacturing Company), New York city.
110,584.—THE MANUFACTURE OF MATERIALS FOR JOURNALS, BEARINGS, AND PACKINGS.—Eliza D. Murfey (assignor to the Manhattan Packing Manufacturing Company), New York city.
110,585.—HAY AND OTHER PRESSES.—Moses V. Northrup, Hornitos, Cal.
110,586.—MACHINE FOR DRESSING FENCE PICKETS.—Wm. Nuelle and J. F. Nuelle, St. Louis, Mo.
110,587.—FINGER RING.—John S. Palmer, Providence, R. I.
110,588.—COOKING STOVE.—Miles Pratt, Watertown, Mass.
110,589.—BROILER AND TOASTER.—J. M. Read and J. M. Smith, Boston, Mass.
110,590.—SHAFT COUPLING.—Peter W. Reinshagen (assignor to himself and John H. Buckman), Cincinnati, Ohio.
110,591.—LAMP WICK.—Daniel T. Robinson, Boston, Mass.
110,592.—LAWN MOWER.—Luther Ross, Worcester, Mass.
110,593.—CORSET FASTENING.—Christian Schieck, New York city.
110,594.—TOBACCO PIPE.—William Selfe, Cincinnati, Ohio.
110,595.—SEED SOWER.—S. H. Sheplar, San Francisco, Cal., and Wm. G. Conklin, Portland, Oregon.
110,596.—CARPENTERS' GAGE.—H. P. Sisson, Rutland, Vt.
110,597.—COMBINED TRAMWAY AND PAVEMENT.—B. C. Smith, Burlington, N. J.
110,598.—CHAIR FRAME.—William Merion Smith, Columbus, Ohio.
110,599.—PORTABLE SHIELD FOR INFANTRY AND ARTILLERY.—Harde Spears, Snow Hill, Cal.