

ENGINEERING INVENTIONS.

An air motor has been patented by Mr. Alois M. Koniakowsky, of Ellingen, Tex. It consists of an engine, single-acting air pump, receiver, double-acting exhaust pipe, with levers, valves, connections, etc., forming a motor to be operated by compressed air.

A mechanical stoker has been patented by Mr. James Hodgkinson, of Manchester, Eng. It has an ordinary hopper opening into a crusher box, with improved rotating helical crusher and adjustable flexible spring plate for crushing, measuring, and delivering fuel to the distributor, whence it is automatically scattered over the fire.

A car coupling has been patented by James Barry, of Willmar, Minn. Shafts are journaled, in combination with the drawhead, on the end of the car, levers being pivoted to the sides of the car, and rods connecting the levers with cranks on the ends of the shafts, a rod connecting the crank of each shaft with the lever at the same side of the car at which the crank is located with other novel features.

A lubricator has been patented by Mr. Peter Barclay, of Boston, Mass. This invention covers improvements in a lubricator for engines, etc., formerly patented by the same inventor, and instead of an intercepting perforated plate a perforated coil is used, giving increased condensing surface; for downward-drop lubricators, also a diaphragm is so arranged near the bottom of the glass tube that the oil cannot be thrown back on the glass by the pulsations of steam in the engine.

AGRICULTURAL INVENTIONS.

A hay gatherer has been patented by Mr. James H. Poage, of Monroe, Mo. It has teeth connected by cross bars and provided with a reversible tongue, the latter so connected with the rake that it may be readily reversed, so the gatherer can be drawn back from collected hay without its being necessary to back or detach the team.

A plow has been patented by Mr. Chas. Atkinson, of Chicago, Ill. It is an improvement on a former patented invention of the same inventor, and relates to the construction of the wheels, axle, and guiding mechanism, the revolving cutter mountings, the contrivances of the subsoil attachment, and in some guide and cutter attachments to the plow.

A seed planter has been patented by Mr. Augustus E. Choate, of Cochran, Ga. Spring bars, with coverer arms and plates, are attached to the frame of the planter, with other novel features, making an attachment calculated to ridge the earth over the seed sufficiently to obviate the first plowing usually required for that purpose after the use of the ordinary board coverers.

MISCELLANEOUS INVENTIONS.

A design for a pedestal or stand has been patented by Mr. Richard M. Hunt, of New York city. The design is that adopted and now being used for the Bartholdi statue, but is also appropriate for use in smaller dimensions for other monuments or for various ornamental uses.

A gridiron has been patented by Mr. Charles M. Cooke, of Brooklyn, N. Y. It is for an attachment to a range or cooking stove, and has novel features affording particular convenience, while the escaping odors are prevented from escaping into the room, but are returned to the fire for consumption.

A printing machine has been patented by Mr. Philip Jackson, of Plainfield, N. J. This invention relates to two-revolution printing presses, and covers a special construction and arrangement of parts to cover the raising of the impression cylinder during the return of the type bed.

An adjustable finger ring has been patented by Mr. Frank N. Foster, of Duluth, Minn. Combined with a gem frame or center piece is a bow or circular band, the ends of which are pressed into the ends of the frame, while there are cams pivoted in the ends of the gem frame for locking the ends of the bow therein.

A lathe chuck has been patented by Mr. Edward Pement, of Esmond, Dakota Ter. This invention covers a special construction, arrangement, and combination of parts for a face plate and chuck attachment, which is intended to enable the operator to bring any point on the face of his work to the center very easily and rapidly.

A parabolic railway and car have been patented by Mr. Moritz Geber, of Berlin, Germany. Combined with parabolic rails is a hinged platform with a hook and a hoisting or lifting device for raising the free end of the platform, for improving the mechanism for starting the cars and promoting the efficiency of gravity railways.

An adjustable double bedstead has been patented by Mr. Albert T. Schlichting, of New York city. Combined with a bedstead is a vertically adjustable frame above it, with devices for raising and lowering the upper section or frame and locking it in place, so as to form one or two bed supports, one above the other.

A drive chain has been patented by Mr. William Stephens, of New Richmond, Wis. By this invention drive chain links are so made as to be adapted to be separated from each other, the construction being such that the links may be locked to and unlocked from each other only when brought to a certain unusual position.

A watch case has been patented by Mr. William Carpenter, of Salida, Col. Combined with a watch case is a movement-holding band or ring and a link hinged to the case and to the said band or ring, making an improved watch case with dust proof joints, the object being to facilitate placing and adjusting the works in the case.

A method of drying grain has been patented by Mr. David M. Bunnell, of Brooklyn, N. Y. The invention consists in applying a blast of heated air to the interior of a mass of moving grain and driving off the moisture arising therefrom by a blast of air admit-

ted above the grain, thus facilitating the drying and cooling of malt, grain, and other substances.

A baling press has been patented by Mr. Charles Smith, of Marquette, Mich. In combination with the press sills and follower are tubular shafts with ratchet wheels, gear wheels with spring pawls engaging with the ratchet wheels, means for operating these, and so the follower can be readily drawn down to press the material into a bale, the invention being designed to simplify the construction and promote the efficiency of such presses.

A wheel or pulley has been patented by Mr. George P. Clark, of Windsor Locks, Conn. It is made with side plates and penetrating points to enter the material composing the body or wearing surface of the wheel, which is supposed to be of paper, leather, rubber, or similar material, or having tires or outer wearing surfaces made of such material, the sheets of which are so compressed as to become a solid and nearly homogeneous mass, the outer edge, or wearing surface, being turned or worked down as required.

An adding machine has been patented by Mr. William J. Macnider, of Greensborough, Ga. Combined with a series of counting wheels is a toothed wheel adapted to engage therewith, and mounted on a shaft with one end journaled in a swinging standard, the latter connected by a suitable lever with a push pin, by means of which the toothed wheel can be swung toward and from the counting wheels, with other novel features, for rapidly and accurately adding columns of figures.

A calculator has been patented by Mr. Jules V. Charpentier, of New Orleans, La. This invention consists in a series of tabulated cards, a rotary slotted screen, and a box therefor, so made and combined as to form a device by which can be shown at a glance the date of maturity of any note or draft, etc. The same inventor has likewise obtained a patent for an apparatus for facilitating the multiplication of numbers, by which a table of figures is formed in sections, separately placed upon rollers within a box, the figures being so arranged upon the table that when a row of numbers to be multiplied is registered or brought to the front of the box by moving the rollers, the result of the multiplication of this row of registered figures by each of the numerals from 2 to 9 appears simultaneously on the table at the front of the rollers.

A holdback for vehicle shafts has been patented by Mr. Daniel T. Chambers, of Mechanicsburg, O. It consists in a triangular shaped piece of material, with a hole through it, so applied to the shaft as to form a simple and secure attachment of the breeching of the shafts, avoiding the chafing of the strap and shaft, and being cheaply made and easily applied. The same inventor has likewise patented an improved holdback for harnesses, combining with the carriage shaft a ferrule with a flange, a shaft tug attached to a girth and to a saddle strap of the harness, a tang secured to the tug, and a holdback strap connecting the tang with the breeching of the harness, the device being self-attaching and detaching, and such as will avoid rattling and unnecessary wear on conspicuous parts of the gear.

NEW BOOKS AND PUBLICATIONS.

A HISTORY OF THE PEOPLE OF THE UNITED STATES, FROM THE REVOLUTION TO THE CIVIL WAR. By John Bach McMaster. Vol. II. New York: D. Appleton & Co., 1885.

Three years have now passed since the appearance of the first volume of Professor McMaster's history, and the lively interest which it excited has secured in advance a warm welcome for this second installment of the work. The present volume covers the period from 1790 to 1803, and contains in its seven chapters a wonderful store of curious information in regard to life and society as it existed under the early administrations. It is eminently a history of the people, and in reviewing the events of these important years, it is always their sympathies and prejudices which are brought forward and are kept in view. The historical outline presented is indeed only a background against which to picture the social life and sentiment of the new republic. Covering, as it does, the experimental years of the Constitution, the field susceptible of such popular treatment is particularly engaging. The now almost forgotten customs of our ancestors, their inexperienced criticisms upon the measures of the general government, and their outspoken distrust of the reputed monarchical tendencies of the first cabinet form the material for very entertaining chapters. At so formative a period in the national development, when there was open contest between Congress and the States, when the group of undoubted aristocrats gathered around Hamilton were in direct opposition to the extreme republicanism of the circle which acknowledged Jefferson as its chief, the dominance of English or French influence was an element of great moment to the future of the nation. This phase in the national growth has been admirably handled by Professor McMaster. He has also taken considerable pains to inform us in regard to the origin of a number of our more popular ballads and of such expressions and phrases as have a recognized value in our vocabulary. The famous cry of the French revolution, "Ca ira," which originated with Franklin, is traced through its history. The account of town and country life as they were at the beginning of the century, and of the growth of those social usages which we have come almost to regard as instinctive, are also very readable and instructive. In conclusion, we can only say that Professor McMaster has rendered an important service to the descendants of those people whom he has so gracefully chronicled, and the mental history which he has traced will be a contribution of permanent value to the national literature. The general character of the author's work is always excellent, and the reader cannot fail to be impressed with the evidences of a most praiseworthy thoroughness and care which are everywhere manifest. The volume closes with the negotiations which led to the Louisiana purchase, and leaves three more installments yet to come before the work is completed.

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Wanted.—An interest in Brick Machines, dry compress method preferred. Address D. E. Ryan, 408 Broome Street, New York.

The "Improved Green Engine" Automatic Cut-off. Providence Steam Engine Co., R. I., Sole Builders.

Manufacture of Soaps, Candles, Lubricants, and Glycerine. Illustrated. Price, \$4.00. E. & F. N. Spon, New York.

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Peerless Leather Belting. Best in the world for swift running and electric machines. Army & Son, Phila.

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Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 108 Reade Streets, New York.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN patent agency, 361 Broadway, New York.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Send for catalogue.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. Complete outfit for plating, etc. Hanson, Van Winkle & Co. Newark, N. J., and 92 and 94 Liberty St., New York.

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Knots, Ties, and Splices. By J. T. Burgess. A Handbook for Seafarers and all who use Cordage. 12mo., cloth, illustrated. London, 1884. Sent, postage prepaid, on receipt of 75 cts., by Munn & Co., New York.

Send for catalogue of Scientific Books for sale by Munn & Co., 361 Broadway, N. Y. Free on application.

Wood Working Machinery. Full line. Williamsport Machine Co., "Limited," 110 W. 3d St., Williamsport, Pa.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 308.

Universal and Independent 2 Jaw Chucks for brass work, etc., both box and round body. A. F. Cushman, Hartford, Conn.

Cyclone Steam Flue Cleaners are the best. Crescent Mfg. Co., Cleveland, O.

The Improved Hydraulic Jacks, Pumps, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Friction Clutch Pulleys. D. Frisbie & Co., Phila.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 61.

Wanted.—Patented articles or hardware specialties to manufacture on contract or to manufacture and place on the market. First-class facilities. Correspondence solicited. Address Hull Vapor Stove Co., Cleveland, Ohio.

Catechism of the Locomotive, 625 pages, 250 engravings. Most accurate, complete, and easily understood book on the Locomotive. Price \$2.50. Send for catalogue of railroad books. The Railroad Gazette, 73 Broadway, N. Y.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 62.

"To Mechanics."—When needing Twist Drills, ask for "Standard," or send for catalogue to Standard Tool Co., Cleveland, O. See page x1, Export Edition.

The best Steam Pumps for Boiler Feeding. Valley Machine Works, Easthampton, Mass.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication. References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all, either by letter or in this department, each must take his turn. Special information requests on matters of personal rather than general interest, and requests for Prompt Answers by Letter, should be accompanied with remittance of \$1 to \$5, according to the subject, as we cannot be expected to perform such service without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Minerals sent for examination should be distinctly marked or labeled.

(1) J. W. S. sends a small piece of a bitter root for identification. A. There are so many of our native plants that have bitter roots that it would be impossible to identify them by a piece of the root alone—especially by so small a fragment as our correspondent sends. Let us have the leaves and flowers of the plant, or the fruit, if not in flower, and we will name it for you.

(2) A. C. B. asks how to destroy chicory when it has taken possession of a lawn. A. In the first place, it is very important that the young plant be not allowed to mature breathing organs—leaves. Cut the plant off just beneath the surface as soon as it appears; do not wait till it is large enough to pull up. Sometimes it may appear again in a weakened state after it has been treated as above; but it will probably not make its appearance a third time.

(3) A. F. L. desires a sure and certain death to bedbugs. A. We know of nothing better than the following: Mix together 2 ounces camphor, 4 ounces spirits of turpentine, 1 ounce corrosive sublimate, and one pint of alcohol.

(4) C. McD. asks: Is there an oil extracted from coal tar such as made in gas works? If so, what process do they use? A. Crude petroleum is frequently called coal tar oil. The heating of coal tar itself gives rise to benzol, toluol, and members of the aromatic group. From the two mentioned previously aniline oil is derived, which is the starting point in the manufacture of many of the aniline colors.

(5) F. W. D. asks for a good chasing pitch or composition, for backing up metal, so that it can be chased in high relief and with sharp outlines, to be used on sheet brass about 25 gauge. A. Use a mixture of one part beeswax with two parts rosin, with sufficient sweet oil to soften the composition to fancy.

(6) P. A. F.—The darkening in color is due to the decomposition of the whitelead. There are various theories as to its cause, none of which are satisfactory; but the fact is well known that houses painted with whitelead near the seashore very rapidly darken in color. The only remedy that we can suggest is the substitution of zinc white for lead white. The use of dark colors is also recommended.

(7) E. L. desires a receipt for a brilliant black varnish for cooking and gasoline stoves. A. Try the following:

Asphaltum 2 lbs.
Boiled linseed oil 1 pint.
Oil of turpentine 2 quarts.

Fuse the asphaltum in an iron pot, boil the linseed oil, and add while hot, stir well, and remove from the fire. When partially cooled, add the oil of turpentine. Some makers add driers.

(8) F. N. E. writes: Do you know of any preparation that could be economically used to harden the surface of a seasoned pine floor, the floor to be used for roller skating? A. Wood that is steeped in or covered by a paint brush with a solution of copperas, marking 2 to 2½° Baume, becomes both harder and more indestructible. We believe, however, that ash or maple are the varieties of wood generally preferred for skating rinks.

(9) C. T. B. wants formula for developer for developing plates which have had instantaneous exposures. A. See Beach's Potash Developer, in August 2 number of SCIENTIFIC AMERICAN. No toning is necessary for dry plates. It is used in toning silver prints.

(10) A. L. writes: Can you give me instructions to kiln dry sweet potatoes? A. They can be dried in an oven at moderate heat, but the best plan is to use an ordinary fruit evaporator; much better results can then be obtained.

(11) W. T. K. asks: What are the chemicals, the quantity of same, and process required, for solar printing, so that, for finished prints, which are taken from tracings, the paper shall be white, and the lines a dark blue or black? A. The paper is first prepared by dipping it in a bath composed of:

Distilled water 10 ounces.
Iron perchloride 1 "
Oxalic acid 4 drachms.

When dry the paper, if protected from light, can be kept as long as may be necessary. To copy a drawing, the model on oiled or transparent paper is applied on some paper thus prepared, and the whole exposed to light in an ordinary photographic printing press. The paper, on being withdrawn from the press, is placed in a bath containing from 15 to 18 per cent of ferrocyanide of potassium. It is then washed in an abundance of water, passed in a bath containing 8 to 10 per cent of muriatic acid, washed again, and dried. The explanation of the operation is as follows: The perchloride of iron, under the influence of light, is reduced by the oxalic acid to the protochloride, which is soluble in a solution of ferrocyanide of potassium, while the same potassium salt transforms the perchloride into the in-

soluble cyanide, well known under the name of Prussian blue. As the black lines of the engraving to be reproduced protect the paper from the action of the sun the perchloride remains unchanged in such places, and the drawing appears in the copy in sharp lines of a dark blue color on a white ground. You will find the process more elaborately detailed in Spont's Workshop Receipts, Second Series, which we can send you for \$2.

(13) J. E. J. asks: Can a person's eye be taken out and replaced without destroying the sight? Will not the optic nerve be destroyed? A. Under certain circumstances the eye may be bulged out of position by tumors or cancers, and by dexterous manipulation, such excrescences have been removed, although they were beyond the eye. The eye cannot be removed, and the optic nerve is so exceedingly sensitive that it is only handled under the most important circumstances.

(13) J. S. W. asks (1) how to treat cases of sunstroke. A. The treatment of sunstroke is given in SCIENTIFIC AMERICAN SUPPLEMENT, No. 29. 2. How to treat cases of poisoning by such plants as the poison ivy, poison sumac, or poke? A. Bathe the poisoned parts thoroughly with hot water, without soap. When dry, paint the place 2 to 4 times a day liberally with a feather dipped in strong tincture of lobelia. Avoid bringing the tincture in contact with any fresh wound or excoriation. An application in a similar manner of the fluid extract of Gelsemium sempervirens is said to be equally efficient.

(14) G. E.—Please inform me through your paper, are there any mathematical journals published in this country, where can I get them, what are the rates of subscription? A. There are many scientific and mechanical papers, with much mathematics, but we know of no exclusively mathematical papers.

(15) R. H. K.—Superfluous hair can probably be removed by electricity, though its practical success is not yet generally conceded. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 176 or 353, on this subject. We know of no way that is unobjectionable.—Paraffine is melted and forms a waterproof and air coating over the top of the fruit jar, but is not incorporated with the fruit.—Rub leather which has become dry and hard with castor oil, cod oil, or neat's foot oil, or better still, with a mixture of tallow and oil warmed.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted July 14, 1885, AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Acid, production of chlorophthalic, R. Gnehm... 322,368
Acoustic diaphragm, Jones & Reynolds... 322,295
Adding machine, W. J. Macnider... 322,190
Air brake, automatic, Howe, Jr., & Gartner... 321,971
Air or steam brake, automatic, E. J. Cosgrove... 322,042
Alarm. See Low water alarm.
Alphabet block, D. C. Taylor... 322,210
Animal stock, C. Parker... 321,999
Antiphone, J. M. Plessner... 322,003
Arch, trimmer, W. S. Eames... 322,047
Argand burner, F. Rhind... 322,321
Arithmetical chart, T. Hooley... 322,376
Asphaltum, etc., apparatus for heating, J. J. Schillinger... 322,325
Auger, earth, R. L. Fosburgh... 322,365
Auger heads, device for making dies for forming, F. W. Hastings... 321,967
Awning, W. Downey... 322,266
Axle lubricator, car, N. M. George... 322,278
Axle lubricator, car, Holmes & George... 322,282
Bag. See Feed bag.
Balls, machine for roll finishing seamless, Bisbee & Bacon... 322,543
Banjos, peg supporting device for, Fairbanks & Cole... 322,054
Bar. See Draw bar.
Bed bottoms, covering for spring, A. S. Clark... 322,162
Bed, cabinet, S. E. Goode... 322,177
Bed, cot, O. C. Fisk... 322,055
Bed, sofa, C. F. Glasgow... 322,176
Bicycle, G. T. Warwick... 322,221
Bicycle stand, H. B. Hart... 322,057
Bilge water ejector, G. Haydn... 322,374
Bin. See Grain bin.
Blast furnace bell and apparatus for working the same, J. M. Hartman... 321,966
Blind slot fastener, W. J. Brassington... 322,247
Block. See Alphabet block.
Boiler. See Steam boiler.
Boiler, R. Munroe... 322,120
Boiler furnace, steam, R. Lavery... 322,298
Boiler plate, A. H. Emery... 322,051
Bolt. See Door bolt.
Bolting reel, R. L. Downton... 322,358
Boot or shoe heels, mould for forming, E. J. Le Gay... 322,301
Boot or shoe, rubber, G. Watkinson... 322,224
Bottle top, C. T. Grosjean... 322,370
Box. See Fare box.
Box packing attachment, Wixon & Menard... 322,051
Bracelet, H. Liebel... 322,007
Bracket. See Gas and lamp bracket.
Brake. See Air brake. Air or steam brake. Car brake. Wagon brake.
Brake block holder, D. Hedrick... 322,099
Bridge gate, draw, Johnston & Taylor... 321,975
Bridle, safety, O. Schrader... 322,012
Buckle, harness, J. M. Basinger... 322,087
Buggy top, E. L. Booth... 321,945
Burner. See Argand burner.
Bush, metallic bung, W. Calhoun... 322,255
Butter pail, reshipping, D. H. & A. C. Eaton... 322,267
Button, J. S. Dillon... 321,953
Button, F. A. Nickerson... 322,311
Button, F. J. Niedermeyer... 322,064
Button, cuff, E. M. Stewart... 322,208
Button fastener, F. H. Richards... 322,008
Button fasteners, packing case for, F. H. Richards... 322,009
Button fastening, Powell & Nolan... 322,124
Button or stud, Benedict & Scott... 322,152
Buttoner, collar, R. Fox... 322,273
Buttoner, shoe or glove, G. Havell... 322,264

Cable conduit, H. D. Welsh... 322,225
Cable conduit for underground cables, D. Kornbau... 322,384
Calculator, J. V. Charpentier... 322,161
Can. See Ice cream can. Self-opening can.
Car brake, J. W. Rice... 322,127
Car brake, S. T. Williams... 322,337
Car brake, automatic, R. B. Vanderburg... 322,082
Car closet, railway, Evans & Bogart... 321,958
Car coupling, G. M. Adams... 321,985
Car coupling, E. W. Allee... 322,339
Car coupling, C. L. Mack... 321,987
Car, stock, J. H. Wickes... 322,336
Car wheel, P. Gendron... 322,267
Cars, snow cutting and track sweeping attachment for railway, J. Ring... 322,323
Carburetor, gas, W. G. Little... 322,116
Carcasses, horse for suspending, J. Hursh... 322,181
Carding engines, apparatus for truing the flexible bends of, J. M. Hetherington... 322,258
Carpet fastener, B. F. Eshelman... 322,085
Carriage bow spring attachment, E. L. Booth... 321,946
Carriage fender, L. H. Wooden... 322,404
Carriage jack, J. Hunt... 322,180
Carriage, spring propelled, A. Schwicker et al... 322,071
Carrier. See Parcel carrier. Trace carrier.
Cartridge loading machine, O. Konigslow... 321,982
Cash register and indicator, C. H. Maltby... 321,988
Caster, S. M. Michelson... 322,308
Centrifugal machine, E. Rothe... 322,069
Chart, dress, S. T. Lewis... 321,986
Chloroform and purified acetates, manufacture of, G. Michaelis... 322,194
Chromic acid, manufacture of, W. A. Rowell... 322,011
Churn, N. E. Coffin... 322,349
Churn, J. W. Heldreth... 322,058
Cigar bunching tool, N. Doetsch... 322,356
Cigar boxes, tip cutting attachment for, I. C. Istel... 322,105
Cigars and cigarettes, machine for cutting wrappers or binders for, J. R. Williams... 322,030
Cigarette machine, A. Ewing... 322,362
Clamp. See Eaves trough clamp. Floor clamp.
Clasp, C. F. & W. J. Walters... 322,026
Clay disintegrator, C. & A. Potts... 322,393
Cleaner. See Window cleaner.
Clock, electric alarm, C. Korffhage... 322,110
Clutch, friction, A. B. Bean... 321,941
Collar, horse, S. J. M. Cox... 322,260
Columns, manufacture of metallic, A. H. Emery... 322,050
Concrete mixing machine, E. L. Ransome... 322,006
Cooler. See Fluid cooler. Milk cooler. Milk and water cooler.
Copper by electricity, apparatus for refining, M. G. Farmer... 322,170
Corn sifter, S. D. Warfield... 322,220
Corset, S. Bryant... 322,251
Cot, chair, etc., convertible, P. Davey... 322,354
Coupling. See Car coupling. Hose coupling.
Cover, pot, I. A. Lyon... 322,189
Curtain fixture, spring roller, E. R. Carey... 322,347
Cut-off valve gear, E. C. Dicey... 322,264
Cutting garments, guide for use in, C. A. Tierney... 322,402
Damper, H. H. B. Vincent... 322,403
Damper for stove and other pipes, M. S. Burrough... 322,346
Damper operating mechanism for heating apparatus, J. A. Lakin... 322,186
Dental instrument, R. B. Donaldson... 322,265
Desk, C. A. Priest... 322,125
Dish blanks, knife for cutting, S. H. Smith... 322,017
Door bolt, J. F. Taylor... 322,211
Door check and buffer, combined, C. G. Griffin... 321,964
Door check, hydraulic, Wadack & Grafy... 322,218
Door, combined screen and storm, C. Anderson... 321,936
Door spring, A. Carrier... 321,949
Doors, device for hanging, F. B. Boalt... 322,037
Draught, check, and other money orders, W. T. Doremus... 322,166
Draught equalizer, M. S. O'Neil... 322,197
Draw bar, W. Raper... 322,200
Drawer, money, W. H. Harrison... 322,373
Drawing and spinning machines, machine for preparing the covering for top rolls for, C. Coupland... 321,952
Drawing knife gauge, P. F. Chandler... 322,040
Dredge, A. C. Whittier... 322,231
Drier. See Grain drier.
Drier, J. S. Lester... 322,302
Drying apparatus, A. Coleman... 322,041
Eaves trough clamp, G. D. Waters... 322,222
Egg beater, T. W. Brown... 322,250
Electric apparatus protector, T. N. Vail... 322,214
Electric arc light, C. Lever... 322,115
Electric distribution, system of, E. Thomson... 322,138
Electric light, C. F. Beck... 322,035
Electric machine, dynamo, C. F. Ruset... 322,310
Electric machine, dynamo, E. R. Whitney... 322,240
Electric machines, device for preventing sparking in dynamo, R. H. Mather... 321,990
Electric machines, support for the armatures of dynamo, R. H. Mather... 321,991
Electrical conducting system, J. Kruesl... 322,385
Electro-magnetic motor, reciprocating, E. Knabe, Jr... 322,296
Embroidery, J. Krusi... 322,386
Enamelled goods, making, J. Hines... 322,230
End gate, fastening, D. W. McKinnon... 322,192
Engine. See Rotary engine. Rotary steam engine. Steam engine. Wind engine.
Excavator, Reed & Burris... 322,319
Extractor. See Spike extractor.
Eye links, manufacture of, A. H. Emery... 322,048
Fare box, W. Zaehring... 322,236
Faucet, E. U. Seville... 322,129
Faucet, beer, F. W. Polle... 322,318
Faucet, self-closing, H. B. Leach... 322,114
Feed bag, F. Burkhard... 322,253
Feed roll, J. A. Roberts... 322,324
Feeder, steam boiler, Kleine & Achter... 321,981
Fence, barbed wire, M. Kelly... 322,108
Fence, portable, W. Kemery... 321,978
Fence post, W. H. Gates... 322,172
Fence post, D. Schweickhard... 322,072
Fence posts, wire fastening device for, I. Droedje, Jr... 322,359
Fences, machine for making wire, L. W. & J. A. Filibrown... 322,036
Fender. See Carriage fender.
Filer, paper, W. F. Crafts... 321,950
Filing way-bill, etc., device for W. H. Fox... 322,274
Filter, J. W. Hyatt... 322,103
Filtering apparatus, W. Anderson... 322,148
Filtering apparatus, J. W. Hyatt... 322,102
Filtering media, producing, F. Breyer... 321,947
Fire escape, I. S. Smeltzer... 322,306
Fire pot, W. C. Higgins... 322,289
Fireproofing compound, J. T. Greenwood, Jr... 322,280
Fishing line float, H. C. Behrens... 322,085
Flies, etc., implement for catching, I. J. Edge... 322,268
Floor clamp, J. M. Groce... 322,369
Flower, artificial, R. Georgi... 322,367

Fluid cooler, N. S. Valentine... 322,081
Folding machine sheet conveyer, R. T. Brown... 322,344
Form for displaying dress goods, etc., A. A. Murphy... 322,196
Footwear made of combined textile and felt material, manufacturing, A. A. Hawley... 322,285
Fowls, perch for, J. G. Staunton... 322,076
Frame. See Sewing machine quilting frame.
Freezing machine, absorption, R. Habermann... 321,965
Fuel converter and gas engine, combined, L. H. Nash... 322,062
Furnace. See Hot air furnace.
Furnace, C. H. Van Benschoten... 322,215
Furnace grate, F. E. Culver... 321,951
Gauge. See Drawing knife gauge.
Gaining machine table, D. Adams... 322,237
Garment hanging stand, J. Black... 322,036
Gas and lamp bracket, jointed, H. P. Drew... 322,167
Gas burner, O. M. Smith... 322,339
Gas burner, regenerative, Bower & Thorp... 322,433
Gas governor, S. J. Wakeley... 322,083
Gas lighting apparatus, electric, H. N. Williams... 322,233
Gas machine, A. W. Frail... 321,959
Gas producer and gas engine, combined, L. H. Nash... 322,063
Gas regulator, Phillips & Ricketts... 322,002
Gate. See Bridge gate.
Gate, W. H. Cox... 322,352
Gate, J. F. Peck... 322,000
Gate, W. A. Peoples... 322,316
Gates and signals, automatically-operating, J. F. Sharp... 322,327
Girders, manufacturing, A. H. Emery... 322,049
Gloves, etc., fastening for, H. Bauer... 321,940
Grain bin, J. Mason... 322,305
Grain binder, S. C. Shepard... 322,015
Grain drier, G. Cottrell... 322,092
Grain, drying, D. M. Bunnell... 322,252
Grain, drying, H. I. Chase et al... 322,257
Grain drill attachment, W. C. Lathrop... 322,187
Grain hulling mill, D. Uhlhorn, Jr... 322,080
Grapple, G. H. Spencer... 322,019
Grating, window, Showalter & Mauger... 322,328
Grinding mill, A. W. Straub... 322,400
Halter, J. Enoch... 321,957
Harrow, E. B. Bernhamer... 322,241
Harrow tooth, spring, T. G. Cook... 322,351
Harrow, wheel, G. J. Cline... 322,258
Harvester, J. A. Peck... 322,001
Harvester, Whiteley & Bayley... 322,229
Harvester bundle carrier, W. N. Whiteley... 322,228
Hat and bonnet fastener, J. L. Ubellar... 322,213
Hat brims, apparatus for curling and setting silk, felt, and other, Polak & Lowe... 322,004
Hat ironing machine, Davis & Cook... 322,263
Heading machine, E. Jordan... 322,060
Hedge trimmer, W. McLaughlin... 322,193
Heel attaching machine, F. F. Raymond, 2d... 322,126
Hinge, F. W. Beckwith... 322,239
Holdback, D. T. Chambers... 322,158
Holdback for vehicle shafts, D. T. Chambers... 322,159
Holder. See Ribbon and braid holder. Sash holder. Strap holder. Tobacco stick holder. Work holder.
Hook. See Whiffletree hook.
Hoop fastening, cask, C. W. Barnes... 321,938
Horse rake and tedder, combined, E. F. Stoddard... 322,136
Horseshoe, detachable, G. G. Schroeder... 322,338
Hose coupling, C. Hempe... 322,286
Hose, street bridge for fire, Hermann & Doolittle... 322,287
Hot air furnace, M. H. Jacobs... 322,107
Ice cave or apparatus for freezing souffles and moulding ice puddings, etc., A. W. Marshall... 322,117
Ice cream can, Dixon & Wallace... 321,954
Indicating plate, W. A. Connelly... 322,259
Injector, J. S. Bancroft... 322,342
Interlocking switch and signal apparatus, J. T. Hambay... 322,383
Jack. See Lifting jack.
Jewelry pin, H. Fletcher... 322,364
Joint. See Rail joint. Railway rail joint.
Journal box, W. W. Worswick... 322,032
Knitting machine, W. Esty... 322,361
Ladder, R. Furlong... 322,171
Lamp burner, W. Bertram... 322,035
Lamp burner, N. Jenkins... 322,183
Lamp burners, trimming and extinguishing attachment for, F. H. Marker... 321,989
Lamp for illuminating, heating, and ventilating rooms, B. F. Enoch... 322,168
Lamp, incandescent electric, Van Gestel & Beck... 322,024
Lamp shade, W. H. Belknap... 321,942
Lantern, M. McRoberts... 321,963
Lathe center, G. Rich... 322,322
Lathe for turning crosshead pins, N. Thomas... 322,212
Lead, apparatus for the manufacture of white, W. V. Wilson... 322,235
Lead traps, machine for making, F. N. Du Bois... 321,965
Life-saving apparatus, O. Arnold... 322,149
Lifting jack, E. Peasley... 322,315
Light. See Electric light. Electric arc light.
Lock. See Time lock.
Locomotive sand feeder, H. R. Campfield... 322,156
Loom picker, W. R. Trash... 322,140
Low water alarm, J. A. Straight... 322,021
Lubricator. See Axle lubricator.
Lubricator, C. B. Hodges... 322,291
Lubricator, J. C. Mulberry... 321,936
Lubricator, L. Pfingst... 322,123
Match splints, machine for straightening, W. H. Wyman... 322,145
Mattress, S. Fulton... 322,346
Mattress, baby, L. Koss... 321,983
Measure, shoemaker's, A. S. Adler... 322,238
Meat and vegetable slicer, A. Iske... 322,293
Metal pipes or tubes, construction of wrought, A. H. Emery... 322,053
Milk and water cooler, E. Williams... 322,144
Milk cooler, G. B. Dawson... 322,044
Mill. See Grain hulling mill. Grinding mill. Ore pulverizing and amalgamating mill. Pumping mill. Rolling mill. Windmill.
Mill feed regulator, H. R. Desler... 322,164
Moulding machine for making moulds in sand, A. Rice... 322,203
Moulding machine sand, A. Rice... 322,202
Mosquitoes, canopies, suspension device for, I. E. Palmer... 322,036
Motor. See Electro-magnetic motor.
Multiplication of numbers, apparatus for facilitating the, J. V. Charpentier... 322,170
Music, sheet, W. Shaw... 322,013
Musical instruments, barrel for mechanical, H. B. Morris... 322,330
Muzzle for cattle, P. Prioleau, Jr... 322,199
Neckwear, E. D. Smith... 322,207
Nut cracker, Benham & Watrous... 322,240
Nut, L. Brandt... 322,155
Nut tapping machine, W. R. & T. Eynon... 322,363
Ore pulverizing and amalgamating mill, J. W. Bailey... 321,937
Organ octave coupler, W. Murphy... 322,121

Oven, baker's, S. L. Hall... 322,382
Pantaloons strap and waistband, combined, H. Goodman... 321,962
Paper for checks, etc., manufacturing safety, G. Schriber... 322,130
Parcel carrier, L. A. Smith... 322,329
Pelts, machine for plucking, J. W. Sutton... 322,137
Pendulum regulator, J. Ganss... 322,097
Photograph exhibitor, E. Kirschner... 322,111
Piano action, upright, S. Krumbach... 322,069
Piano frame, J. Bourry... 322,154
Pin. See Jewelry pin. Safety pin.
Pinchers, lasting, H. P. Aldrich... 322,538
Planter and fertilizer distributor, seed, E. W. & J. W. McLendon... 322,306
Planter check roller, corn, L. D. Benner... 321,943
Plastic compound for walls, etc., H. W. Merritt... 322,307
Plow, sulky, A. A. Betty... 322,243
Plow, sulky, J. R. Ervin... 322,094
Plow, sulky, R. A. Thompson... 322,331
Pneumatic dispatch and speaking tube system, R. J. P. Goodwin... 322,178
Post. See Fence post.
Poultry house runway, J. G. Staunton... 322,075
Printing apparatus, chromatic, H. R. Allen... 322,147
Printing machine, J. Brooks... 322,090
Printing machine, R. Miehle... 322,309
Printing machine, cylinder, W. Scott... 322,132
Printing plates, producing photo-mechanical, L. DeRoux... 322,046
Printing press feeder, electrical, J. A. Wetmore... 322,325
Protector. See Electric apparatus protector.
Pump, L. G. Engel... 322,269
Pump, beer-forcing, F. E. Snyder... 322,073
Pump regulator, steam, D. R. Stiles... 322,077
Pumping mill, hand water, J. H. Hunter... 321,972
Rake. See Horse rake.
Rake, Thayer & Smith... 322,022
Rake and hoe, combined, J. W. Calef... 322,254
Rail joint, J. S. Warren... 322,027
Railway chair, tie, and break joint, P. Davey... 322,261
Railway rail joint, Lefler & Swivel... 322,300
Railway switch, J. T. Richardson... 322,067
Railway switch, automatic, B. F. Purviance... 322,395
Railway water tank, A. Roberts... 322,068
Reflector, lamp, J. H. White... 322,142
Refrigerator, J. A. Davis... 322,043
Refrigerator wagon, I. M. Hoffman... 321,970
Register. See Cash register.
Regulator. See Gas regulator. Pendulum regulator. Pump regulator.
Retorts, machinery for charging, T. F. Rowland... 322,128
Ribbon and braid holder, C. M. Stone... 322,209
Ripping device, J. P. Lavigne... 322,299
Rolling mill, wire rod, Grey & Bowater... 322,281
Roofing, felt, Blair & Roche... 322,153
Rotary engine, F. H. Crass... 322,353
Rotary engine, C. R. Harvin... 322,179
Rotary steam engine, H. Moon... 322,389
Rubber tires, hoops, and bands to wheels, etc., manufacture of and application of India, Moseley & Blundstone... 322,391
Safety pin, E. Williams... 322,143
Salt hopper, J. M. Duncan... 322,360
Salter, stock, S. C. Johnson... 322,378
Sash balance, Michael & Geib... 321,994
Sash holder, W. D. Isett... 322,182
Saw fitting device, crosscut, W. H. Dessureau... 322,155
Sawing machine, circular, J. H. Jones... 321,976
Sawing machine, circular, A. Rodgers... 322,336
Sawing machine, circular, P. B. H. Smith... 322,134
Scale, platform, H. R. Allen... 322,146
Scale, weighing, F. I. Hitchcock... 322,100
Screw threaded links, bars, or bolts, construction of, A. H. Emery... 322,052
Seats, support for adjustable and revolving, L. Postawka... 322,005
Self-opening can, J. C. Britton... 321,948
Sewer gas cut-off for basins, F. G. Johnson... 321,974
Sewer gas valve, F. G. Johnson... 321,973
Sewing machine, A. Boeher... 322,245
Sewing machine cabinet, A. F. Gerald... 322,279
Sewing machine quilting frame, H. T. Davis... 322,362
Sewing machine right and left corder, W. R. Sommers... 322,074
Sewing machine shuttle, J. Keith... 322,381
Sewing machine trimming attachment, F. B. Dillingham... 322,355
Sewing machine trimming attachment, G. Schoen... 322,326
Shafts, apparatus for fitting and finishing crank, H. See... 322,205
Shafts, manufacture of crank, H. See... 322,204
Shell, J. Garrick... 322,275
Shelving, F. O. Reisener... 322,201
Shirt, Roggen & Eisenstein... 322,307
Shirt cabinet, J. L. Libby... 322,303
Shoes, manufacture of turned, T. O'Boiger... 321,998
Sifter, flour, Tripp & Woepel... 322,141
Sign, J. C. Brewster... 322,248
Sign, electric incandescent, I. W. Heysinger... 322,375
Sink, slop, S. G. McFarland... 322,119
Skate, roller, T. M. & T. M. Conner... 322,350
Skate, roller, M. H. Fletcher... 322,271
Skate, roller, Grosvenor & Gray... 322,371
Skate, roller, J. T. Henderson... 321,968
Skate, roller, D. E. Kempster... 321,979
Skate, roller, A. L. Kitzelman... 322,383
Skate, roller, A. L. & D. M. Kitzelman... 321,980
Skates, stop attachment for roller, J. P. Geran... 322,173
Slat fastening, S. P. Keith... 322,382
Sleigh, J. M. Barnes... 322,065
Slicer, D. J. Gilchrist... 322,175
Soldering machine, E. Norton... 322,065
Sonometer, E. S. Ritchie... 322,010
Spike extractor, J. Sloop... 322,133
Spokeshave and chamfer cutter, J. Mander... 322,304
Spring. See Door spring.
Stack cover, F. Dean... 322,045
Stacking machine, B. Jackson... 322,106
Stand. See Garment hanging stand.
Staples machine for making, J. F. Hanscom... 322,372
Steam boiler, C. Wheeler, Jr... 322,226
Steam engine, H. H. Westinghouse... 322,334
Stirrup, H. Laughlin... 321,984
Stones, setting real and artificial, J. F. Mahla... 322,191
Stove and boiler, I. P. Vance... 322,216
Stove, gasoline, S. Lightburne, Jr... 322,387
Stoves, etc., hinge for, H. Pretschold... 322,394
Strap. See Pantaloons strap.
Strap holder, R. L. Beaumont... 322,151
Straw stacker, Brokaw & Butler... 322,249
Structure, self-supporting, D. Bates... 321,939
Sugar, manufacture of, K. Trobach... 322,079
Surgical instrument, J. S. Poynor... 322,198
Switch. See Railway switch.
Table. See Gaining machine table.
Table waiter, J. H. Kamerer... 321,977
Tablet, writing, W. W. Patterson... 322,313
Talon's pressing machine, A. Varney... 322,217
Targets, trap for throwing, C. F. Stock... 322,020
Telegraph, duplex, L. A. McCarthy... 321,992
Telegraph keys, automatic circuit closer for, H. P. Thompson... 322,023