

ENGINEERING INVENTIONS.

A motor has been patented by Mr. George W. Wimpee, of Summerville, Ga. Combined with the reciprocating piston rod of a steam or gas engine and the main crank and connecting rod of the motor are lazy tongs or compound levers arranged to increase the throw of the connecting rod, and thus permit of a longer crank and increased leverage.

An anti-dead-center crank has been patented by Mr. Thomas C. Thomas, of Salt Lake City, Utah Ter. The invention consists of a crank arm connected by a crank pin with an arm carrying an adjustable plate held at right angles to the crank arm, and carrying a second crank pin, for transmitting power with little loss and avoiding any dead centers.

A gas motor engine has been patented by Mr. Hugh Williams, of Stockport, Chester County, England. It has charging and power cylinders of different diameters, with pistons operating as a single piston, mixed gas and air being compressed into a reservoir by the charging cylinder, and flowing thence into the power cylinder, where it is further compressed by the power piston before explosion, duplicate engines being employed coupled to one shaft.

AGRICULTURAL INVENTIONS.

A corn shocker has been patented by Mr. Edward F. Evans, of Wamego, Kansas. This invention covers novel features of construction intended to simplify the device, so that it may be readily carried from shock to shock and conveniently placed for use by one person, and the shock readily compressed and tied, without danger of tilting or overturning it.

A spring attachment for agricultural implements has been patented by Mr. Charles R. Hartman, of Vincennes, Ind. It is for use where one or more plows, shovels, or gangs are to be lifted from the ground by the action of the spring while turning the implement at the end of the row, or to assist the operator in guiding the machine, the invention covering a novel construction and combination of parts therefor.

MISCELLANEOUS INVENTIONS.

A draught lever has been patented by Mr. Frederick R. Webster, of Nashua, N. H. This invention provides a novel construction of a simple apparatus, whereby a railway rail and heavy timbers may be expeditiously and conveniently moved without injury thereto, and with slight exertion on the part of the operator.

A chopping knife and slicer has been patented by Mr. Harvey W. Bridgman, of Lyons, Kansas. The handle has a transverse opening and a slicing blade across one end of the opening, there being secured to the handle a shank having three arms, each one of which carries a curved blade with converging taper ends.

A cuff holder has been patented by Mr. Benjamin F. Walker, of Warren, Pa. It is applicable to both men's and women's apparel, and has a spring clamp with terminally dentated pivoted jaws, a spring keeping the jaws closed on the cuff, while there is a safety pin for attaching the cuff holder to the sleeve of the coat or dress.

A watch case pendant has been patented by Mr. Frederick W. Schimmel, of Murray, Idaho Ter. This invention covers a novel construction and arrangement of parts in a watch pendant and push pin, designed to exclude dust and moisture, and also providing means for holding the pendant bow securely in the pendant.

A vacuum apparatus has been patented by Mr. Otto Bielmann, of Jersey City, N. J. It is for crystallizing sugar, and consists of a vacuum pan of polygonal form, having a shell tapering toward the ends, and mounted to rotate on fixed heads held on a shaft or spindle, through which steam is supplied to a coil in the middle of the pan.

A combined step ladder and chair has been patented by Mr. Phillip Braun, of Los Angeles, Cal. This invention covers a novel construction and combination of parts designed to provide a convenient and ornamental piece of furniture, simple, light, and durable, which may be readily converted from a chair into a step ladder and vice versa.

An electric insulator peg has been patented by Mr. William E. Joslin, of South Scituate, R. I. It is made of wood, with threaded head and tapering neck, the shank forming a smooth non-shouldered continuation of the neck, making a peg which is strong without being unduly stiff, and affords no room for water to lie around the shank.

A grain dumping device has been patented by Messrs. James P. and John R. Sevier, of Opel, Mo. It is a combined grain carrier and elevator, designed to enable one unaided to conveniently transport a load of grain, elevate it, and discharge it into a storage or other bin without the necessity of handling the grain, as with a scoop.

A sash holder has been patented by Messrs. George K. Snyder and Commodore P. Fisher, of Clay Centre, Kan. It consists of a rod with reversely screw-threaded ends engaging a plate and a bracket screwed to the window frame, with other novel features, making a simple device for securing the sash at any desired point, and securely locking it when closed.

A screw propeller has been patented by Mr. Alfred Conrad, of Patchogue, N. Y. The propeller is made with an elongated tapering hub, fitted by its axial bore on a screw shaft, and having a single continuous perpendicular helical integral flange, which gradually increases in diameter from the smaller to the larger end of the hub.

A draught equalizer has been patented by Mr. William M. Cazier, of Waveland, Kansas. It is designed to equally distribute the strain when three animals are attached to a vehicle or plow in connection with which the equalizer is employed, its construction being such that draught animals will be held very close to the plow, implement, or vehicle.

A chemical stove has been patented by Mr. William M. Conway, of Baltimore, Md. It is designed for affording heat by slaking quicklime with water, having one or more pans for the lime arranged within a cylinder, in connection with a charger and a water tank, whereby a high temperature can be readily maintained with but little care and labor.

An improvement in suspenders forms the subject of a patent issued to Mr. Victor Dubreuil, of New York City. This invention covers a novel construction and arrangement of the several parts, making a suspender designed to fit the body of the wearer, without inconvenience, the article having but few parts and being simply made.

A conical wheel has been patented by Mr. Aaron Twyman, of Pullman, Ill. It has its circumference radically conical, and provided at its center with a journal bearing, the surface of which is concentric and parallel with the outer peripheral surface of the wheel, whereby to present a bearing surface at right angles to the resultant of the pressure upon the wheel.

A paper bag holder has been patented by Mr. James Cochran, of Custer City, Dakota Ter. It consists of a number of U-shaped sections or slides fitted together and varying in height and width, the bags being held horizontally in the several sections and projecting beyond each end so that the user is enabled to remove the bags from either end of the holder.

A micrometer scale has been patented by Mr. Edmund Jones, of Cold Spring Harbor, N. Y. It has a straight edge with a longitudinal scale and a lateral extension with a transverse scale, a gauge being mounted to work on this extension on a transverse guide, with other novel features, to facilitate measuring or plotting distances.

A hair tonic has been patented by Mr. William T. Wallace, of Troy, Texas. It is made of tincture of cantharides, oil of cocoa, castor oil, ammonia solution, alcohol, bay rum, borax, flowers of sulphur, oil of bergamot, and other ingredients, and is designed to prevent hair from falling out and promote its growth where the follicles are not dead.

An album has been patented by Mr. Felix Reifschneider, of Brooklyn, N. Y. It is a book in which the leaves form photographic mounts, and are readily attachable and detachable, being designed for the use of photographic amateurs, the photographs being pasted in and afterward varnished, without damaging in any way their means of attachment.

A vehicle brake has been patented by Mr. Andrew W. Lane, of Susanville, Cal. It is constructed with novel-shaped side clips, each having an overhanging flange or lip, one clip being adapted to be permanently bolted to a brake bar, and the other being adjustable, whereby blocks of almost any thickness may be conveniently clamped to place to act as shoes.

A nut lock has been patented by Mr. Wiley S. Keyes, of Verona, Miss. It is especially designed for use in connection with railroad rails and fish bars, the improvement consisting in a polygonal bolt screw-threaded upon one end to receive the nut and to receive a key which fits in a recess in the nut longitudinally of the bolt to bear upon one of its flattened surfaces.

A plaque or panel has been patented by Mr. Edward De Planque, of Hoboken, N. J. It is formed of two sheets of canvas or duck united by a mixture of glue, whitening, and pulverized wood, with a sheet of paper fastened to one of the sheets of canvas or duck, and the sheet of paper having a coating of whitening and glue, on which the painting or drawing is produced.

A velocipede has been patented by Mr. George Kibbe, of Amsterdam, N. Y. This invention covers a novel form of pedal levers and driving mechanism, with a peculiar construction and arrangement of the steering head and cross bar, to render the propulsion of velocipedes easier, and provide for a convenient variation of the effective driving force in accordance with the resistance to be overcome.

A buckle has been patented by Mr. Luther C. Voorhees, of New York City. It is made of plate or sheet metal, and has a lower hook and closing spring or tongue integral with the frame or body of the buckle, which has parallel slots one above the other, and a row of teeth along the marginal portion of one of the slots for the passage of the web or strap to which the buckle is to be applied.

An automatic vehicle brake has been patented by Messrs. Linford E. Van Antwerp and Morgan L. Norton, of Susquehanna, Pa. It has stirrups carrying brake shoes pivotally connected with a sliding brake beam, a suitably supported and arranged spring bearing against the stirrups, with other novel features, to slacken the speed or stop a forwardly running vehicle, while allowing it to back freely.

A fish hook has been patented by Mr. George Smith, of Brooklyn, N. Y. It is made of spring wire bent upon itself to form a double shank, the two ends bent out to form the hooks, a sleeve being held to slide upon the double shank in such a way that a fish drawing upon the hooks will cause the shank to slide through the sleeve, when the shank with the hooks at its ends will expand in the mouth of the fish.

A rotating trolling device for ships' logs has been patented by Mr. Oscar Kustel, of San Francisco, Cal. It consists of a plate twisted and having its longitudinal margins bent in reverse directions, forming curved flanges, with a wire secured on opposite sides of the plate along the longitudinal edges

by the flanges, the rotator having at its forward end a rounded eye or loop through which the drag line is fastened.

A process of treating native soda has been patented by Mr. Laurence F. J. Wrinkle, of Virginia City, Nevada. It is a novel method of treating natural soda from alkaline lakes, whereby the bicarbonate is saved, and the crystal soda obtained free from sand, and to a larger extent from salt and sulphate, the process being less expensive than that heretofore followed.

A tanning process has been patented by Mr. Charles H. Perrin, of Jefferson City, Mo. It consists in first deplating the hides or skins, then steeping them in an infusion of black sage brush in water first heated to a high temperature and afterward allowed to stand and partially cool, stirring them subsequently at intervals, such process being also applicable for treating hides or skins before the hair or wool is removed.

A vehicle axle has been patented by Mr. La Fayette T. Wever, of Sopchoppy, Fla. It is enlarged and exteriorly threaded at its ends, with a longitudinal aperture having a thread of coarser pitch, a threaded spindle adapted to enter the aperture, with a plain collar in front of the thread, and an interiorly threaded flanged sleeve sliding upon the spindle and locking the spindle and axle, making the axle strong at its union with the spindle, the latter being readily removable in case of breakage.

SCIENTIFIC AMERICAN
BUILDING EDITION.

AUGUST NUMBER.—(No. 34.)

TABLE OF CONTENTS.

1. Elegant plate in colors of a dwelling at Glen Ridge, N. J., with floor plans, sheet of details, etc. Cost, eight thousand five hundred dollars.
2. Plate in colors of a fire engine house of moderate cost. Details and floor plans.
3. Perspective view and floor plans of a residence at Black Rock, Conn. Cost, six thousand dollars.
4. Sketch of an uptown block of attractive residences, New York City.
5. Floor plans and perspective elevation of two Queen Anne cottages, lately completed at Bath Beach, Long Island. Cost, four thousand dollars each.
6. Design and floor plans for a two thousand dollar house lately built at Bridgeport, Conn.
7. Perspective and floor plans of an attractive residence lately built at Bridgeport, Conn. Cost, two thousand eight hundred dollars.
8. A six hundred dollar cottage built lately at Bridgeport, Conn. Perspective and floor plans.
9. Plans and perspective view of a seaside cottage lately erected at Bath Beach, Long Island. Cost, three thousand five hundred dollars.
10. Engraving and floor plans of a neat little double house lately erected at Bridgeport, Conn., costing one thousand eight hundred dollars.
11. A country residence in France. Perspective and plans.
12. Engraving of the palatial stables of Mr. D. Edgar Crouse, Syracuse, N. Y.
13. Plans and perspective for a carriage house, barn, etc. Cost, two thousand two hundred dollars.
14. Elevation and floor plans for a double house costing complete four thousand two hundred dollars.
15. New Congregational Church at Beckenham, Kent, England.
16. Page of designs of New England residences.

Miscellaneous contents: Vegetable glue.—Fourth of July fires.—The slag water closet.—Rust in water pipes.—Laying out the joints of an elliptical vault, illustrated.—The tulip and other trees.—Architectural school houses.—Hanging baskets.—To estimate the power of a stream.—Manufacturing progress in the South.—How to grow quinces.—Mixed wheats.—New ceiling for the Assembly chamber of the New York State Capitol.—Transplanting large pines.—Galveston artesian wells.—Poisonous wall paper and carpets.—The testing of Portland cement.—The humming bird.—Manila hemp in plaster.—A perfect hen house.—Examination questions for plumbers.—Road improvements.—The "Patten" metallic shingles and siding plates, illustrated.—The pool of Bethesda.—Carl Pfeiffer.—Creosote wood preserving stains.—House heating by hot water circulation, illustrated.—Ohio's largest poplar.—Mortar.—Irrigating wheels.—Liquid fish glue.

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NEW BOOKS AND PUBLICATIONS.

THE ANIMAL LIFE OF OUR SEA SHORE. By Angelo Heilprin. Philadelphia: J. B. Lippincott Co. 130 pp. 50 cents.

This is a little hand book intended to meet the requirements of the popular mind, and calculated to be exceedingly interesting to those who have not made a specialty of the subjects treated of, but still find an attraction therein as different objects casually present themselves, especially during the summer vacation. The book has especial reference to the New Jersey coast and the shores of Long Island, and treats more especially of the shell fish, jelly fishes, star fishes and sea cucumbers, worms, moss polyps, sponges, etc.

"THE INTERNATIONAL ANNUAL" OF ANTHONY'S PHOTOGRAPHIC BULLETIN. Vol. I. 1888. By A. H. Elliott, Ph.D., F.C.S., New York, and W. Jerome Harrison, F.G.S., London. E. & H. T. Anthony & Co., New York; H. Greenwood & Co., London. Pp. 643. Price \$1.

This handy book is a novelty in its way, since it is intended to be an annual record of photography in both the Eastern and Western worlds, as elucidated by the

best writers and scientific experimentalists. In it we have the opinions and writings of English, American, German, and Austrian photographers side by side, which is of itself a new but very agreeable departure. Many of the articles are of practical value to both the amateur and professional photographer. It contains seven photogravure illustrations made by five different processes, some of which are fully explained.

There is also much valuable information on emulsions, special developers, and photo-engraving processes, besides illustrations of new and novel apparatus.

We commend the book as a reliable guide to any disposed to take up photography.

THE PHOTOGRAPHER'S BOOK OF PRACTICAL FORMULÆ. Compiled by W. D. Holmes, Ph.B., and E. P. Griswold. Published in New York. 1888. Pp. 237. Price 50 cents.

In this book are published nearly all of the reliable formulas of the present time, relating more especially to the most approved developers, the wet plate process, intensifiers, carbon process, toning baths, albumen and bromide printing processes, and many other useful things desirable for a photographer to have for convenient reference. The authors state that it is not specially original, but is merely a compilation of well known formulas. It is well printed and contains much useful information. It should be found in the laboratory of every practical photographer. Any of the above books may be purchased through this office.

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 Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(1) F. K. P. asks: If a large quantity of basswood shavings, kiln dried, mixed with green basswood sawdust, partially green, are stored in a large room at a depth of 8 feet, would the process of heating cause them to take fire? A. We should apprehend much danger from liability to spontaneous combustion.

(2) Theta.—Engines for utilizing the spent heat of exhaustion in vaporizing the highly volatile liquids, bisulphide of carbon, ether, and ammonia, have been built and largesums have been spent in endeavors to make them a success, but so far every form of combination has been a practical failure. The volatile liquids of the above class are exceedingly dangerous from tendencies to create fire or to suffocate persons exposed to their pungent odors. The use of gasoline in a vapor engine is now being introduced for running small laundries. This also requires great care, as leaky joints may cause serious trouble by igniting from the boiler fire.

(3) A. B. C. asks if a thoroughbred horse does not have one more rib than an ordinary horse. A. Certain horses have 19 ribs; while others have only 18, but we do not think that there is any rule by which you can claim that the horse having the greater number of ribs is any better than the other.

(4) J. A. H. asks: Is there any means of preventing rain water stored in wooden cisterns from becoming foul? A. Use charcoal of about the size of beans, with the dust sifted out, with which cover the surface of the water in the cisterns. This is the only antiseptic that we can suggest that does not interfere with the use of the water for all purposes. The cistern may be much improved, at the next cleaning, by washing the wooden surfaces, sides, bottom, and top, perfectly clean, and brushing a thin coat of pure Portland cement all over the surfaces. Mix quickly with water to a creamy consistency, and spread with a whitewash brush. Let it set for a few hours and go over it again. In one day the cement will be set and the cistern ready for use.

(5) D. C. S. asks: 1. Is there any wash that I can use to wash lime stains out of oak? A. No. 2. Is there any kind of wash that I can apply to oak or cherry to prevent lime and plaster from staining them? Coat them with paraffin, and the lime will not go through.

(6) Gloss asks how to manufacture a good liquid polish or gloss for shoes. A. We presume you desire a gloss for shoes. Take of gum shellac 1/2 lb., alcohol 3 quarts, dissolve, and add camphor 1 1/2 oz. and lamp black 2 oz. For details as to combination and other information, with numerous receipts, see John Phin's "Trade Secrets and Private Recipes," which we can send you postpaid for 60 cents.

(7) W. S. P. asks: 1. How many pounds weight will a cubic foot of air, in an air-tight vessel, sustain on the surface of water? A. About 62 1/2 lb., less the weight of the inclosing vessel. 2. How many pounds weight will a cubic foot of vacuum sustain, with same conditions? A. The same weight plus about 535 grains. 3. Is the power of a cubic foot of compressed air to sustain weight on the water greater or less than the natural air? And if so, in what proportion? A. Less in proportion to the pressure. 4. Is there any gas, or other thing known, which possesses greater buoyancy or weight-sustaining power on water than air, natural or compressed, or a vacuum? If so, what is it? A. A vacuum possesses the greatest buoyancy, surpassing that of air by the trifling amount indicated in answer No. 2; hydrogen comes next.

(8) F. A. C. writes: Will you please explain the following phenomenon: In our station barometer I have noticed that from time to time an increasing number of very minute specks of quicksilver form above the mercurial column, and attach themselves to the inside of the tube, looking like fly specks. A. Possibly the tube contains air bubbles, which, as they work their way up through the mercury and burst, carry up the minute particles you allude to. If so, your vacuum is becoming impaired.

(9) G. A. H. writes: I wish to have made several cells of Lalonde and Chaperon's oxide of copper batteries as described in Hospitalier's "Domestic Electricity for Amateurs" (C. J. Wharton), but desire further information upon the following points not given in the description: 1. Will commercial caustic potash do, or must it be the C. P. kind, such as is used by pharmacists in the preparation of liquor potassa? A. Use commercial caustic potash. 2. What is meant by oxide of copper, the black (cupric) or the red (cuprous) oxide? A. Black or cupric oxide of copper. 3. What do you understand by the expression "the transformation of the potash into the oxide of zinc," etc.? A. The potash dissolves the oxide of zinc. 4. Will this battery (Fig. 11 for instance) answer perfectly for minor cautery, and furnish a current of sufficient capacity to make it at all times reliable? A. Yes. 5. Will these elements suffer by long periods of time in open circuit, say one or two months of continuous disuse? A. No.

(10) C. S. W. asks: What will prevent a full nickel bicycle from tarnishing or rusting at the seaside? Is there any substance which will not gather the dust, and that can be easily removed? A. This is a constant trouble with nickelled parts of bicycles. We can only suggest vaseline. Address some dealer in bicycle supplies, who may be able to offer a more efficient anti-rust material.

(11) F. B. C. says he is troubled in obtaining sufficient density in his negatives. He employs a Seed plate and a ready prepared single solution developer. Exposing instantaneously or up to five seconds, he obtains no better results. A. Probably the developer contains hydro-quinone, and works slower than pyro. You do not let the plate remain in the developer long enough. Half an hour is not too long, if the plate has been instantaneously exposed, and five minutes is not too short for a fairly exposed plate. You will save time and trouble by consulting a photographer in your locality. These images are due to too short development, over-exposure, or to too little pyro, or hydro-quinone in the developer.

(12) F. H. asks: How much mercury in an half inch brass tube (half inch diameter) will be required by an application of heat, to raise a piston weighing 4 ounces, and what is the maximum of heat the mercury will stand? A. You cannot use mercury in a brass tube, as it will destroy the brass. Any amount will raise such a piston by the application of any degree of heat. You may heat it to about 600° Fah., before it will volatilize. Its expansion by heat is very slight, and, under conditions named, is too slight to be of much practical use.

(13) A. G. B. asks: Is there any substance which will prevent and stop fermentation in apple cider or other fruit juices? A. Sulphur burned in the barrel has the desired tendency. A stick may be coated with melted sulphur, lighted and held in the half filled barrel, which is shaken to cause absorption of the gas.

(14) T. H. C. desires instructions for some sort of a sizing, such as is used on campaign flags to stiffen them up and put on a gloss. A. After the coloring has been printed, the flags are stiffened with starch size, and then passed through rollers.

(15) E. C. asks: Can lime be used to advantage with barn manures? If so, how? A. No; because it tends to set free the ammonia, which then escapes into the air.

(16) R. O. asks: Will you kindly tell me how I can remove the solder from platinum, so that it may be made comparatively pure. It is at present soldered to small German silver springs. Also, how I can utilize platinum filings? A. If gold-soldered, the solder cannot be removed without elaborate refining or melting at a high enough temperature to volatilize the gold. If brass-soldered, nitric acid will dissolve much of it. Sell the filings to dealers in platinum. It will not pay you to try to work them up.

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

July 31, 1888,

AND EACH BEARING THAT DATE.

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

Agricultural implements, spring attachment for, C. R. Hartman..... 386,982
Air brake, automatic, R. Solano..... 387,018
Album, picture, C. Hood..... 386,884
Artist's mechanical sketching apparatus, J. Pulsifer..... 386,831

Auger, post hole, F. P. Stanley..... 386,901
Augers and bits, machine for cutting floor lips and spurs on, J. Swan..... 387,188
Axle box, car, W. S. Sharpneck..... 386,896
Axle car, A. M. Wright..... 387,197
Axle, vehicle, L. T. Wever..... 387,028
Ball ear, T. F. Reilly..... 387,182
Bandage, hygienic, J. Grossmann..... 387,159
Bandages, machine for making plastic, J. R. Rodman..... 387,183
Bar. See Locomotive draw bar.
Basket, fruit, W. A. Hess..... 387,073
Battery. See Secondary battery.
Battery zinc, Carr & Borden..... 387,049
Beam end protector, H. A. Goetz..... 386,976
Beam end protector, M. W. Mitchell..... 387,004
Bed bottom, spring, D. J. Powers..... 386,846
Bees, device for hiving, W. J. Daniel..... 386,968
Bell striking mechanism, L. D. Jones..... 387,079
Bench. See Work bench.
Bit. See Bridle bit.
Block. See Printing block. Sawmill head block. Snatch block.
Blower and induction apparatus, combined fan, F. Murphy..... 387,177
Blower and induction apparatus, fan, F. Murphy..... 387,178
Board. See Multiple switch board.
Bobbin winding machine, J. Koerber..... 387,080
Boiler. See Steam boiler.
Boiler, G. E. Hopkin..... 387,076
Boiler, W. B. Mack..... 386,998
Boiler cleaning compound, galvanic, F. J. Clamer, 387,145, 387,146
Boiler tube cleaner, C. E. Kendall..... 386,988
Book stapling machine, Donnell & McAuliffe..... 386,972
Boot or shoe, C. W. King..... 386,538
Boot or shoe, W. H. Stevens..... 387,119, 387,120
Boot or shoe heel, S. D. Densmore..... 386,969
Boot or shoe soles, machine for channeling and feather edging, A. Eppler, Jr..... 387,058
Boots or shoes, machine for marking the uppers of, J. E. Plummer..... 387,106
Box. See Axle box.
Box fastener, W. N. Barr..... 386,912
Braiding machine, A. S. Hood..... 387,075
Brake. See Air brake. Car brake. Vehicle brake.
Brick kiln, J. B. Grawcock..... 386,518
Bridges, connection for end posts and bottom chords of, S. A. Buchanan..... 387,139
Bridle bit, H. W. Campbell..... 387,048
Buckle, L. C. Voorhees..... 386,944
Burner. See Gas burner. Hydrocarbon burner. Lamp burner.
Burnishing machine, J. J. Fitzgibbon..... 386,920
Bustle, A. H. Jackson..... 386,827
Button attaching machine, J. F. Thayer..... 386,856
Cable gripper and pick-up, Holmes & Charles..... 386,824
Calk for hoses, removable, T. B. Mason..... 387,000
Camera. See Photographic camera.
Candle case, pocket, J. H. Johnson..... 386,829
Car brake, F. G. Taylor..... 386,940
Car brake, automatic, T. Tait..... 387,019
Car coupling, Conn & Pugh..... 386,915
Car coupling, C. E. Fox..... 387,062
Car coupling, J. T. Haugh..... 386,818
Car coupling, J. Skinner..... 386,854
Car coupling, H. W. Warner..... 387,025
Car heating apparatus, Timlin & Heidinger..... 387,124
Car starter and brake, A. Jeanel..... 386,923
Cars, heating railway, Lyon & Moore..... 387,173
Carriage, J. T. Clarkson..... 386,963
Carriage spring, H. S. Smith..... 386,837
Carriage top irons, manufacturing, F. Schreidt..... 386,851
Carriage top prop, W. R. Jacobs..... 387,077
Cartridge loader, A. Jutz..... 387,171
Case. See Candle case. File case.
Cash indicator and register, J. H. Voss..... 387,198
Casting, S. E. Thomas..... 386,941
Cement compound, hydraulic, G. L. Eagan..... 387,190
Centrifugal reel, Z. C. Eldred..... 387,057
Chain, drive, B. A. Lezg..... 387,081
Chain, drive, B. F. Orton..... 387,006
Chopping knife and slicer, H. W. Bridgman..... 387,047
Churn, S. J. Loveless..... 386,883
Churn, Rudasill & Long..... 387,165
Churn, A. Tschur..... 387,190
Cigar bunching machine, J. M. Montgomery..... 387,088
Cigar mould, H. C. Palmbeck..... 386,894
Cigar retailer, P. C. Osterberg..... 387,103
Clay crusher and drier, R. Freygang..... 387,158
Cleaner. See Boiler tube cleaner. Tube cleaner.
Clip. See Felly clip.
Clock, calendar, P. F. Nilson..... 387,005
Clutch, J. D. Westgate..... 386,948
Clutch, friction, J. D. Westgate..... 386,947
Coffee pot, A. Harry..... 386,817
Coin-operated machine, C. F. Winch..... 387,130
Conical wheel, A. Twyman..... 387,191
Corn shocker, E. F. Evans..... 387,155
Counting and recording the number of packages, apparatus for, M. Gottfried..... 386,879
Coupling. See Car coupling. Pipe coupling. Thill coupling. Trunk strap coupling. Vehicle reach coupling.
Crank, anti-dead center, T. C. Thomas..... 386,942
Crusher. See Clay crusher.
Cuff holder, B. F. Walker..... 386,945
Cup. See Egg cup.
Cutter. See Feed cutter. Mining machine cutter.
Damper for cooking stoves, etc., regulating, J. Mahedy..... 387,091
Damper regulator for furnaces, G. A. Goodenough..... 386,811
Desk appendage, writing, E. Lemberger..... 387,082
Die. See Screw cutting die.
Door hanger, R. J. Hosner..... 386,885
Door mat, metallic, S. Toffer..... 387,189
Draught equalizer, W. Cazier..... 386,862
Draw shave, W. B. Swan..... 386,855
Draw shave, J. Swan..... 386,903
Dredging machine, M. F. Brainard..... 386,866
Drill. See Expansion drill. Rock drill.
Drilling or chipping device, W. S. Sherman..... 387,115
Drum head strainer, G. Van Zandt..... 387,021
Drum, heating, E. C. Gran..... 386,978
Dyeing apparatus, G. Jagenburg..... 386,985
Dyeing apparatus, Lee & Bradshaw..... 386,835
Dyeing colors by the simultaneous oxidation of diamines and monamines, P. Monnet..... 387,087
Dyeing purposes, preparing a solution of indigo for, F. E. Schumuckert..... 386,933
Egg cup, J. Casey..... 386,804
Electric circuit regulator, R. Belfield..... 386,956
Electric converter, Shallenberger & Byllesby..... 387,013
Electric currents, automatic regulation for, R. Belfield..... 386,797
Electric indicator, W. A. Anthony..... 387,131
Electric machines, brush holder for, A. Schmid..... 387,010
Electric motor regulator, A. G. Waterhouse..... 387,194
Electric motors, regulation of, A. G. Waterhouse..... 387,195
Electrical apparatus, coin-operated, P. Everitt..... 386,919

Electrical conversion and distribution, apparatus for, W. Stanley, Jr..... 387,177
Electrical distribution, system of, M. M. M. Slatery..... 386,936
Electrical non-conductor, Lee & Waite..... 386,925
Engine. See Explosive engine. Gas engine. Gas motor engine. Hot air engine. Steam engine.
Envelope machine, rotary, S. A. Grant..... 387,065
Evaporating apparatus, vacuum, O. Biemann..... 386,958
Expansion drill or reamer, E. A. Lilly..... 387,169
Explosive engine, Julig & Ewald..... 387,167
Extractor. See Stump extractor.
Eyeglasses, J. Bowles..... 386,799
Fabric. See Non-heat-conducting fabric.
Faucet, T. Haynes..... 387,182
Faucet, C. F. Smith..... 387,014
Feed cutter, R. F. Vermillion..... 387,126
Felly clip, Higgins & Sullivan..... 386,963
Fence, O. E. H. Neichling..... 387,107
Fence, J. Sjoström..... 387,116
Fence, flood, C. Herring..... 387,072
Fence machine, wire, J. W. Roberts..... 387,108
Fence post, C. S. Long..... 387,065
Fence post base, C. S. Long..... 387,084
File case, W. F. Altfather..... 386,952
Filter, D. Wise..... 386,978
Firearm, magazine, R. Mallen..... 386,859
Fire escape, J. K. O'Neil..... 387,180
Fire extinguisher for railway cars, G. Gibbs..... 387,084
Fire extinguishing apparatus, automatic, A. F. Nagle..... 387,179
Fire kindler, T. T. Prosser..... 386,895
Fireproof material for drop curtains, Brown & Orr..... 387,137
Fish hook, G. Smith..... 387,015
Flood gate, G. E. Tegardin..... 387,200
Flossing machine, J. McDermott..... 386,839
Flour bolting machine, C. Bostel..... 386,959
Flue for electric transformers, E. Thomson..... 387,123
Frame. See Photographic printing frame.
Fuel, automatic feed regulator for liquid, W. E. Eastman..... 387,065
Fuel feeding apparatus, W. E. Eastman..... 387,066
Furnace. See Open hearth furnace.
Furnace for smelting and reducing ores, R. Bonehill..... 387,048
Galvanometer, P. Lange..... 386,992, 386,998
Gas burner, incandescent, E. Moreau..... 387,099
Gas burner, natural, G. K. Detwiler..... 386,871
Gas burner tip, W. M. Jackson..... 386,984
Gas engine, Delamare-Deboutteville & Malandrin (F.)..... 10,951
Gas governor, G. A. Gessner..... 386,809
Gas meter, A. Langlais..... 386,994
Gas motor engine, H. Williams..... 386,949
Gas motor engines, igniting apparatus for, N. A. Otto..... 386,929
Gas producers, etc., poking bar for, J. H. Thomas..... 387,021
Gas regulator or governor, G. Porter..... 387,181
Gate. See Flood gate.
Gear, friction, O. Zobel..... 387,198
Generator. See Steam generator.
Glove or corset fastener, A. Rammoser..... 387,009
Gloves, manufacture of, J. Upsdale..... 386,943
Gold and silver where mechanically coated in ores with refractory substances, cleansing, C. P. Bellows..... 387,036
Gong sounding mechanism, C. F. West..... 387,027
Grain binder, A. Tetrault..... 386,905
Grain drills, runner for, J. L. Ashurst..... 386,911
Grain dumping device, J. P. & J. R. Sevier..... 386,934
Gunpowder mills, automatic feed and delivery apparatus for, P. A. Oliver..... 386,843
Hanger. See Door hanger. Hay carrier track hanger.
Harnessmaker's tool, W. G. Bunker..... 386,801
Harrow, R. G. Patton..... 386,845
Harrow, H. C. Pratt..... 386,847
Harrow, rotary, M. D. Bronner..... 387,136
Harvester, sugar cane, H. Fatic..... 387,061
Harvesters, adjustable wind board for, H. J. Case..... 386,803
Hat stretching and blocking machine, W. Becklerle..... 386,955
Hat ventilator, C. Potter..... 386,930
Hay carrier track hanger, Burnham & Miller..... 387,142
Hay press, J. R. & A. W. Bigham..... 387,039
Hay rake horse, E. P. Lynch..... 387,172
Hay raking and loading apparatus, M. O. Royce..... 386,897
Heat and power, plant for supplying, R. R. Zell..... 386,882
Heat, apparatus for chemically producing, W. G. MacLaughlin..... 387,089
Heater. See Water heater.
Hinge, D. N. Bryant..... 386,800
Holder. See Cuff holder. Paper bag holder. Pen and pencil holder. Pen or pencil holder. Photographic plateholder. Sash holder.
Hook. See Fish hook.
Hook, A. Sanford..... 387,109
Hook, R. Sanford..... 386,850
Horse blanket, A. M. Crooker..... 387,150
Horse checking device, D. S. Munger..... 387,176
Horse checking device, Munger & Price..... 387,175
Horse detacher, P. Geyer..... 386,877
Horseshoes, machine for making, A. M. Sweder..... 386,904
Hose, clamping collar for attaching, C. Hecox..... 386,882
Hot air engine or aerothermic motor, L. Genty..... 387,063
Hydrocarbon burner, Cole & Pihlstrom..... 387,053
Indicator. See Cash indicator. Electric indicator. Station indicator.
Induction coil, coin-operated, Williams & Roovers..... 386,860
Ingot mould, McCleane & Faber, Jr..... 387,174
Insole, C. W. King..... 386,832
Insulator peg, electric, W. E. Joslin..... 386,986
Iron and steel with rustless oxide, coating, A. A. Breneman..... 387,046
Jack. See Lifting jack. Shoe jack. Wagon jack.
Joint. See Railway fish joint.
Journal bearing, J. W. Garratt..... 386,808
Kiln. See Brick kiln.
Knife. See Chopping knife.
Knitting machine, S. Henshall..... 386,819, 386,821
Knitting machine, circular, S. Henshall..... 386,820
Ladder and chair, combined step, P. Braun..... 387,045
Lamp, G. W. Woodward..... 386,891
Lamp, Argand, L. J. Atwood..... 386,953
Lamp burner, E. H. Hickok..... 386,822
Lamp, regenerative gas, J. Franklin..... 387,157
Lamp, triangular tubular, C. Bergener..... 387,088
Lamps, automatic regulator for electric, R. Belfield..... 386,796
Lamps, storm protector for electric, T. H. Brady..... 387,044
Lead pigment from galena ore, manufacturing sublimed, G. T. Lewis..... 386,836
Leak stopper for ships, etc., C. H. S. Schultz..... 387,200
Leveling instrument, A. Kezel..... 386,924
Lever, draught, F. R. Webster..... 386,946
Lifter. See Plate or dish lifter. Transom lifter.
Lifting jack, A. W. Anderson..... 386,864
Lifting jack, J. Baldwin..... 386,954
Light. See Magnesium light.