

ing of air-exhausting mechanism, is improved by this invention. Liquid air is received into a chamber which is provided at one end with a collapsible bulb and at the other with an outlet-valve, other valves being provided for controlling the escape of air.

SHINGLE-CUTTER.—M. KNAPP, Enid, Oklahoma. In this patent the object of the inventor is to produce a device which will efficiently serve the purpose for which it is designed, be rapid in its operation, and easily applied. Mr. Knapp's invention relates to shingle-cutters, and is intended especially for the purpose of trimming or cutting the course of shingles on the comb of a roof.

DOUGH-KNEADING MACHINE.—G. M. EULER, St. Louis, Mo. In the present invention the improvement has reference to dough-kneading machines and analogous devices in which it is desirable to knead or work a plastic substance such as dough and in which it is desirable to shift the same from one pan to another with a minimum expenditure of labor.

FRICITION-CLUTCH.—A. P. BROWN, New York, N. Y. In this patent the invention relates to improvements in friction-clutches for shaftings or pulleys, an object being to provide a simple and novel means for holding the friction parts together with a uniform pressure, thus reducing the wearing away of the parts to a minimum.

MANUFACTURE OF PASTED TUBES FOR CIGARETTES.—A. BENOIT, J. GUENIFFET, and J. NICHAULT, 7 Rue Déparcieux, Paris, France. It frequently happens by a former arrangement that paste expelled by pressure becomes deposited on an inner support to such extent that the passage of the paper tube is prevented. The present invention avoids this, because the pressure required for the pasting operation is produced by two means located outside of paper tube with interposition of a supply-surface within the latter. Obstruction of these means is therefore not feared, but occurring, can be removed at once. The device has the effect of flattening the tube between the two pressing parts; but the tube's cylindrical form is restored immediately after pasting by a device located beyond the pressing parts.

WELL ATTACHMENT.—H. W. CLARK, Mattoon, Ill. Mr. Clark's principal objects are to provide means for increasing efficiency of the associated pumping mechanism and for the cleaning of the well-casing. Considerable increase in efficiency results from the production of the vacuum within the casing and it will also avoid the waste of power in pumping air, as is liable to occur when the well is open at the top. The ready and effective means of keeping the casing free also adds to the pump efficiency.

Prime Movers and Their Accessories.

STEAM-BOILER.—J. F. HECKMAN, Hermann, Mo. The invention relates to steam-boilers; and the principal object of Mr. Heckman is the provision of a steam-boiler of a construction by which the collection and removal of all sediment or scale deposits therein are facilitated and the effectiveness and working capacity of the structure materially increased or enhanced.

VALVE-MECHANISM.—H. L. GERKEN, New York, N. Y. In this case the invention relates particularly to improvements in valves and distributing mechanism for radiators, the object being to provide a valve of simple construction and positive in its operation that will permit a supply of steam, hot water, or refrigerating liquid to one or more divisions of a radiator or to one or more radiators at will.

Railways and Their Accessories.

DERAILMENT-GUARD.—E. MUELLER, Alsen, N. Y. The present improvement relates to a safety attachment for the trucks of railway-cars, the same being adapted to slide upon the rails and afford support for the trucks and also automatically apply the air-brake when the wheels of the truck are derailed.

Pertaining to Vehicles.

VEHICLE.—P. A. LINDROSE, Hattiesburg, Miss. The invention relates particularly to improvements in trucks to be used as a part of an eight-wheel wagon for carrying heavy loads, such as timber and the like, an object being to provide a truck that will be very strong and of comparatively simple construction. By ball-and-socket connections the front and rear axles are permitted vertical movement to a certain extent one relating to the other in passing over rough ground. The formation of an eight-wheel wagon is secured by the provision of a loop-plate by which two trucks may be hooked. In backing, means are provided when necessary to lock a bolster to prevent the latter turning.

VEHICLE-WHEEL.—B. GASTAL, Pelotas, Brazil. The object of this invention is to provide a wheel which is simple and durable in construction, more especially designed for use on railroad-cars, street-cars, wagons, and other vehicles, and arranged to reduce noise and the vibration incident to the wheel traveling on the rail or road to a minimum.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

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Inquiry No. 6197.—For manufacturers of leather pockets for pool tables.

Perforated Metals, Harrington & King Perforating Co., Chicago.

Inquiry No. 6198.—For manufacturers of musical bells.

Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

Inquiry No. 6199.—For makers of "Milwaukee Calyx-eyed Needles."

If it is a paper tube we can supply it. Textile Tube Company, Fall River, Mass.

Inquiry No. 6200.—For addresses of manufacturers of gage rods and hydraulic thermometer combined.

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Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

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Leyden Chemical Works. Sole manufacturers of all luminous preparations. 666 East 182d Street, New York.

Inquiry No. 6203.—For corks one-half the usual length and 1/4 inch diameter.

In buying or selling patents money may be saved and time gained by writing Chas. A. Scott, 719 Mutual Life Building, Buffalo, New York.

Inquiry No. 6204.—Wanted, names of makers of umbrella findings for manufacturing umbrellas.

Patented inventions of brass, bronze, composition or aluminum construction placed on market. Write to American Brass Foundry Co., Hyde Park, Mass.

Inquiry No. 6205.—For parties to make mountings of aluminum for 3/4-inch lens.

We manufacture anything in metal. Patented articles, metal stamping, dies, screw mach. work, etc. Metal Novelty Works, 43 Canal Street, Chicago.

Inquiry No. 6206.—For makers of electrically operated rheostats which will prevent the variation of more than 2 degrees within a closed vessel subject to an outside variation of 20 degrees.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Machine Company, Foot of East 138th Street, New York.

Inquiry No. 6207.—For a machine for vending peanuts.

A. Bensinger Co., 245 Broadway, New York, manufacture the "Rapid Duplicator" for making many copies of writings, that is marvelous as a money-labor saver.

Inquiry No. 6208.—For makers of air pumps, or air parts for experimental work.

Scientific Wonder.—Toplit perpetual lamp wick. No trimming, no gas, no explosion. Samples 15 cts., two for 25 cts. Murphy, 110 Newark Ave., Bloomfield, N. J.

Inquiry No. 6209.—For manufacturers of different kinds of lighting systems for buildings, such as gasoline, acetylene, etc.

FOR SALE.—One No. 9 Blake & Johnson double-gear rolling mill, diameter and face of rolls 10 x 15 inches. In A 1 condition, never used. Bausch & Lomb Optical Co., Rochester, N. Y.

Inquiry No. 6210.—For manufacturers of carriage or axle nut for axles that are worn and have become long.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery and tools. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 6211.—For makers of steel office furniture, such as desks, filing cases, etc.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

Inquiry No. 6212.—For makers of electric cars for carrying about 20 passengers across country between stations (about ten miles).

FOR SALE.—Patent for self-heating soldering iron, at a bargain. Patent No. 774,064. Heating medium is gasoline. Address Mr. Pearl Gilbert, c. o. Navy Department, Washington, D. C.

Inquiry No. 6213.—For manufacturers of machinery for making wooden tubs and buckets for fruit, candy, etc.

WANTED.—Gasoline engine to build on royalty arrangement, or would buy. Chicago machinery manufacturing house. Engine must be practical, powerful, and adaptable mainly to small runabout automobiles. Address Machinery, Box 773, New York.

Inquiry No. 6214.—For manufacturers of wire-weaving machinery.

Inquiry No. 6215.—For makers of a small watch charm monkey wrench and novelties of this character.

Inquiry No. 6216.—For dealers in stoves with hot water back, to supply hot water in large quantities.

Inquiry No. 6217.—For makers of electrical tools.

Inquiry No. 6218.—For a lamp that burns kerosene oil and uses a mantle, similar to the Welsbach mantle.

Inquiry No. 6219.—For machines for knitting stockings and underwear.

Inquiry No. 6220.—For machines for making small nails.

Inquiry No. 6221.—For machines for making cigarettes.

Inquiry No. 6222.—For machines for making or rolling tin foil.



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. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. 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.

(9479) H. W. L. asks: 1. Will dipping a razor into boiling water affect the temper in the least? I find that it gives a much smoother shave by so doing, and attribute it to the possible melting of microscopic saw edge. Nearly every barber, however, will tell you that it will soon ruin a razor by taking out the temper. A. We have supposed that the improvement in the edge of a razor, which is brought about by dipping it into hot water just before shaving, is caused by the heat expanding the edge and thus closing up the fine serrations of the edge, and rendering the edge smoother than before. This does not bring the steel up anywhere near the temperature required to draw the temper. We cannot believe that it has any effect upon the hardness of the blade. We have done it on razors for years, and never thought they grew soft. When a razor becomes soft, it seems more reasonable to suppose that the edge was at first harder than the blade farther back, and by honing and grinding the hard edge is worn off, bringing the wear down to the softer part of the blade. 2. How can I make the white paste that the several ink manufacturers put up, both in tubes and jars? A. For a durable white paste, dissolve white glue in water of twenty times its weight. Stir, and while hot add four times the quantity of starch paste, boil and stir. When cooling, add a few drops of carbolic acid. We can look up the patents on so-called "library pastes," and send you three or four copies for \$1.

(9480) H. L. C. asks: I wish to know of some simple method of sensitizing paper or cloth for blue-print work. My idea is to make blue prints on letterheads, handkerchiefs, etc., and I wish to get the formula for sensitizing same. A. To prepare blue-print paper, take potassium ferricyanide, red prussiate of potash, 1 ounce, and dissolve in 5 ounces of water. Make a second solution by dissolving 1 ounce of citrate of iron and ammonia in 5 ounces of water. Keep the two solutions in well-stoppered bottles. They will keep indefinitely. For use take equal parts of the two solutions, and mix in a dimly-lighted place; pin the sheet of paper to be coated upon a board and apply this mixture, by lamplight, to the paper, with a soft brush, a swab of cotton, or a small sponge, as rapidly and evenly as possible, in strokes first lengthwise and then crosswise, then pin up to dry in the dark. The work must be done in the dim light, since the liquid is sensitive to the light as soon as the two solutions are mixed. Be very careful in the use of these liquids, as all cyanides are poisonous. See SUPPLEMENT Nos. 584, 679, and 1385, price 10 cents each, mailed.

(9481) H. O. N. asks: 1. Have a small hand dynamo which is rated at 10 volts, 1 ampere. Could this be used to recharge a small dry battery, and how long would it take to recharge one battery? A. Your hand dynamo will charge five dry cells in series. We cannot tell how long it will require to recharge the cells; a long time with one ampere of current. You cannot charge one cell alone with the dynamo, the voltage is too great. Allow two volts per dry cell, or five cells in series for ten volts. 2. On page 468, Vol. 2, "Experimental Science," Prof. Trowbridge speaks of attaching Leyden jars to the poles of his storage batteries. What effect would a Leyden jar have on the voltage and amperage of a voltaic cell? A. The battery which Prof. Trowbridge describes has 10,000 cells in series or 20,000 volts in direct charge. This is sufficient to charge a condenser or Leyden jar, so that a heavy shock would be had from it. A Leyden jar would not be appreciably charged by a single cell of battery. 3. What is the usual height from crest to hollow of a wave on the Atlantic during an ordinary storm, and what is the highest that has ever been recorded? A common phrase in descriptions of a storm at sea, "when waves run mountain high." Is this exaggeration, or is this the appearance of the waves when on board a ship? A. Storm waves on the ocean are from 30 feet to 40 feet in height, and seldom exceed 50 feet. These numbers are on the authority of Prof. Davis's "Physical Geography," which we can supply you for \$1.50 by mail. Such a wave would look "mountain" high if you looked up at it from its trough, expecting it to break over you.

NEW BOOKS, ETC.

MAXWELL'S THEORY AND WIRELESS TELEGRAPHY. New York: McGraw Publishing Company. 12mo.; pp. 247; 145 illustrations. Price, \$2.

This excellent work contains, in a single volume, two distinct parts entitled, respectively, "Maxwell's Theory and Hertzian Oscillations," by H. Poincaré, translated by F. K. Vreeland, and "The Principles of Wireless Telegraphy," by Vreeland.

The part of the book entitled "Maxwell's Theory and Hertzian Oscillations" comprises a popular version of Maxwell's great treatise divested of its abstruse mathematics, together with a graphic account of the confirmation of Maxwell's theory by the subsequent experiments of Hertz and his followers.

This portion of the book certainly fills a long-felt want. To the person of average training Maxwell's writings have little or no meaning, because of their mathematical nature. In this book Maxwell's theory is presented in the light of mechanical analogues or models, accompanied by simple explanations. The experiments of Hertz are also portrayed so as to be readily understood.

The second portion of the book is devoted to the principles of wireless telegraphy, and to some extent follows the style of similar publications. Two noticeable improvements, however, are made, to wit, the elimination of much threadbare literature of a historical nature, and the omission of the usual misleading accounts of the alleged commercial success of the various "wireless systems," used principally for the sale of stock to the public.

GETTING A LIVING. The Problem of Wealth and Poverty—of Profits, Wages, and Trades Unionism. By George L. Bolen. New York: The Macmillan Company, 1903. 8vo.; pp. 769. Price, \$2.

Immediately the question thrusts itself upon us, From what standpoint does the author write—from that of labor or of capital? Of employer or of employee? And until that question is satisfactorily answered, we shall all be inclined to regard the discussion with suspicion. Mr. Bolen defines his position in a convincing preface. He has been, at different times of his life, employer and employee, both in small industries and in large; has been a striker, and has been struck against. His experiences cover North and South, country districts, great cities, and large mines. To do him justice, the volume gives both sides of the case with commendable impartiality, and presents, aside from any personal opinions of the writer, a mass of facts that are matters of record. No man will be the worse for reading the book, and no man can read it without profit and enlightenment. Mr. Bolen seems to have no pet scheme or pet theory to advance, but simply states and discusses facts as they appear to him, with a view to opening men's eyes to actual conditions, and leading them to see that measure of right which is usually to be found on both sides of most vexed questions.

WHAT HANDWRITING INDICATES. An Analytical Graphology. By John Rexford. New York and London: G. P. Putnam's Sons, 1904. 12mo.; pp. 142; illustrated. Price, \$1.25.

Nothing strikingly new or original is claimed for this work, but the author has presented his material in such a way that it is readily accessible to the student, whereas in most works dealing with graphology one has to memorize all the signs and their significations before accomplishing much in the way of actual analysis. The specimens of handwriting offered as illustrative of different styles and traits are numerous, and include facsimiles of writing from the pens of authors, statesmen, criminals, lunatics, and men half asleep.

MECHANICAL DRAWING SIMPLY EXPLAINED. By F. E. Powell. London: Percival Marshall & Co., 1904. 12mo.; pp. 78. Price, 25 cents.

This pamphlet is a reprint of articles published in the Model Engineer, and in it the author attempts to show the student, apprentice, and amateur engineer briefly how to set about such drawing-office work as his case requires, besides enabling him to understand mechanical drawings and assisting him to prepare practical drawings or sketches of his own. The chapter on "Drawing for Reproduction" gives some useful hints to the tyro. The book is illustrated by nearly fifty cuts, giving samples of drawing, methods, and instruments.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

November 8, 1904

AND EACH BEARING THAT DATE

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

Abbrading material and mounting therefor, R. Gardner 774,513
Advertising, etc., apparatus for, H. J. Chart 774,647

Air ship, T. C. Benbow 774,643
Anchor, earth, G. H. Miller 774,637
Animal trap, S. S. Elder 774,164
Animal trap, J. R. Emery 774,165
Animal trap, J. M. Wilkinson 774,628
Apparel, wearing, A. Tishler 774,344
Apparel, wearing, J. Rathschuler 774,452
Armor shield, E. Behr 774,303
Auger, adjustable earth, G. Stevenson 774,368
Automobile, F. B. Brock 774,556
Axle, vehicle, M. E. Thomas 774,289
Barber's cabinet, Ewert & Tuckfield 774,314
Barbers' chairs, paper serving box for, W. Reuter 774,453
Basin for sink outlets catch, H. Robischon 774,201
Basket handle, R. C. Totzke 774,542
Bathing apparatus, Dudley & Bebout 774,657
Bearing, ball, E. G. Hoffmann 774,427
Bearing, roller, H. A. Lockwood 774,678
Bed bottom, spring, F. Karr 774,670
Bed, folding, J. H. Bennett 774,148
Bed, folding, A. W. Pyle 774,275
Bed spring, E. Jewell 774,180
Bedstead guard, C. H. Wright 774,462
Beet topper and puller, E. O. Cady 774,649
Belt clip, catenoidal, A. E. Luzzi 774,191
Belt holder, L. B. Garman 774,576
Belt shipper, E. Kottusch 774,358
Berry box, E. M. Averill 774,300
Bicycle handle bar, H. D. Griswold 774,421
Billiard cue bridge, K. Van Setres 774,621
Binder, J. O. Deckert 774,509
Binder, temporary, T. A. Glendinning 774,516
Binder, temporary, J. R. Barrett 774,550
Binding post, H. J. Guttman 774,469
Biscuit cups, manufacture of, A. Jucka 774,586
Blast charger, J. Lord 774,599
Block. See Building block.
Bloom shears, C. L. Taylor 774,287
Bokkin, shuttle, A. G. Lamb 774,188
Bokkin, M. L. Hotchkiss 774,585
Boiler tube cleaner, J. A. Sagerdahl 774,699
Boilers by exhaust steam, system of heating, J. Nadrowski 774,334
Bolt cutter, C. K. Lassiter 774,676
Book holder, L. Block 774,152
Books, machine for applying fly leaves, etc., to signatures of, W. I. Lewis 774,726
Boom, Fairbanks & Sauer 774,240
Bottle, etc., carrier, C. W. Desobry 774,569
Bottle, non-refillable, M. Tittel 774,617
Box, J. Bobos 774,470
Brake beam clamp, E. C. Totten 774,211
Brake mechanism, automatic, A. E. Norris 774,448
Bread making apparatus, E. D. Lynds 774,680
Brush, S. R. Boon 774,553
Brush, J. McDermott 774,689
Building block, S. O. Hawkinson 774,174
Building construction, J. Willis 774,545
Building or paving block, W. H. Reiff 774,276
Bundling apparatus, Wiseburn & Buhle 774,226
Burglar alarm, H. T. Johnson 774,608
Burglar alarm system, H. D. Stroud 774,342
Burner, G. G. Smith 774,456
Burnishing device, W. J. & J. R. Mitchell 774,444
Butter cutter, A. S. Hummer 774,389
Button, lapel, A. S. Engle 774,382
Cake beater, M. A. Ritter 774,697
Cake dresser, rotary, R. F. Stevenson 774,541
Calculator, H. M. Seitzinger 774,281
Calendar, R. Illing 774,325
Camera, photographic, W. H. Cooley 774,565
Cameras, lens support for ground glasses on, H. T. Donnan 774,656
Can capping machine, C. B. McDonald 774,195
Can cooling apparatus, Hopkins & Fellows 774,177
Canopy frame coupling, I. E. Palmer 774,393
Capsule decapping, filling, and recapping machine, A. K. Carter 774,378
Car automatic stop, cable, A. M. Green 774,244
Car bolts, R. V. Sage 774,608
Car coupling, C. Dietz 774,236
Car coupling, R. Reardon 774,533
Car door mechanism, Lindstrom & Ditchfield 774,588
Car, dumping, S. F. Swanson 774,614
Car end stake, C. A. Lindstrom 774,589
Car fender, retractible, A. D. Pidgeon 774,396
Car grain door, Mauppin & Keller 774,526
Car, mule or pusher, E. Esselius 774,166
Car, railway, M. A. Garrett 774,354
Car, railway, C. H. Howard 774,474
Car replacer, W. P. Brittain 774,153
Car underframing, Williamson & Pries 774,222
Car vestibule trap door, A. W. Zimmerman 774,564
Cars, system of upper framing for railway, G. W. Scott 774,205
Carburetor, H. Marshall 774,486
Carburetor air and gas mixer, I. E. Butler 774,307
Carbureting apparatus, air, H. Marshall 774,485
Carpet stretcher, J. J. Moore 774,596
Carpet wire and cutter, A. Price 774,605
Carrier. See Bottle carrier.
Carton cabinet, F. M. Thorpe 774,291
Cartridge, flash powder, I. G. McColl 774,333
Caster, Z. J. Quinn 774,366
Caster wheel, W. A. Henderson 774,424
Casting and hardening of metal for armor plates, etc., direct, W. E. Everette 774,167
Cellulose acetate, W. H. Walker 774,713
Cement, P. Sutor 774,236
Chain jack, J. M. Butcher 774,231
Chain link, split, W. J. Laughlin 774,189
Checks, system of protecting bank, S. M. & M. L. Trapp 774,345
Chimney base protector, G. W. Lewis 774,258
Chloral, continuously producing and rectifying, J. A. Besson 774,151
Christmas tree holder and display stand, J. A. Rompel 774,497
Chuck, milling, J. & W. R. Thomas 774,616
Cigar case, G. G. Macdonald 774,681
Cigar cutter, M. Stratton, Jr. 774,208
Cigar lighter, electric, Waters & Thompson 774,624
Cigar moistening and opening device, H. M. Dalton 774,648
Circuit closing device, H. T. Johnson 774,436
Clay working machinery, R. Buhler 774,559
Clothes drier, T. P. Cavanaugh 774,379
Coaster, N. Campbell 774,348
Coating, composition, A. H. Stillwagon 774,500
Cock, ball, A. F. Morency 774,194
Cock, gage, A. J. Fink, Jr. 774,510
Coffee, cleaning, Hastings & Harrington 774,725
Coin receptacle, J. W. Stephens 774,707
Coke quenching and bleaching apparatus, E. A. Moore 774,330
Colander, fruit, L. P. Castle 774,350
Collar fastening device, E. Sibbald 774,339
Collar turning apparatus, J. M. Beiermeister 774,147
Combining machine attachment, A. A. Sack 774,399
Combs, traverse mechanism for warper, A. E. Rhoades 774,696
Compasses, drawing, D. W. Macdonald 774,327
Composite post, I. L. Landis 774,438
Composite post, J. J. Luck 774,441
Composition of matter, L. Champowich 774,156
Conduit threading machine, E. U. Mack 774,525
Confectionery machine, W. S. Sampson 774,204
Conveyor, N. H. Larry 774,256
Conveyor, D. E. Hughes 774,476
Conveyor, G. Carlson 774,566
Cord tip, J. R. Barrett 774,716
Cork substitutes, making, F. H. Brooks 774,645
Corn husking machine, G. Peters 774,395
Corn or bunion shield, I. A. George 774,317
Corset, E. Savoy 774,537
Counter fixture, A. W. Frey 774,170
Counter, profit sharing sales, H. Hepler 774,322
Counter, sales, J. A. Flesch 774,511
Coupon system, interchange of trade, L. N. Singley 774,538
Crate, collapsible, E. A. Keck 774,183
Crate, folding, E. M. Averill 774,301
Cross arm brace, F. B. Cook 774,159
Cultivator, M. G. Graham 774,319
Curling tongs support, L. M. Kate 774,671
Current motor or water wheel, J. S. Mathews. See Spring cushion. 774,592
Cut out, drop circuit, F. J. Russell 774,293
Damper regulator, E. K. Hutchison 774,179
Damper regulator, automatic, J. P. Wood 774,631
Derrek, J. H. Fox 774,660

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Trolley guard for electric railways, J. Kress 774,524
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Truck, J. Moore 774,445
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Truck, car, R. P. Lamont 774,437
Truck, car, Pfleger & Howard 774,492
Truck for handling metal, E. W. Lindquist 774,587
Truck, wrought metal railway car, E. Kaylor 774,672
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Tubing, making, lapweld, P. Patterson 774,337
Tunnel construction, shield, W. I. Aims 774,546
Tunnels, constructing, E. W. Moir 774,594
Turbine nozzle, sectional, C. G. Curtis 774,567
Turbine, steam, C. E. Winterros 774,715
Type casting and setting machine leading attachment, Drummond & Lieberknecht 774,239
Typewriting machine, Merritt & Barron 774,262
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Typewriting machine line spacing mechanism, F. H. Armstrong 774,637
Typewriting machine paper feeding mechanism, F. H. Armstrong 774,640
Typewriting machine platen shifting mechanism, F. H. Armstrong 774,639
Typewriting machine ribbon feeding mechanism, F. H. Armstrong 774,636
Universal union or coupling, F. McCarthy 774,362
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Vehicle wheel and axle, M. Conrad 774,415
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Vise, E. Clark 774,563
Vise, R. G. Fleischmann 774,574
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Wagon brake, O. C. Ostrum 774,364
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Washing machine, R. Neugeboren 774,363
Washing machine motor, G. E. Averill 774,145
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Water meter, E. J. Hoff 774,665
Water pipe, etc., P. E. Fisher 774,384
Water purifier, D. N. Baxter 774,372
Water tube boiler, M. T. Goss 774,419
Water tube boiler, J. M. Coleman 774,564
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Wheel, F. J. Fagot	774,315
Windmill, A. Fomander	774,168
Window cleaner, A. J. Beaver	774,227
Window cleaner and polisher, C. L. Page	774,601
Window, show case, F. J. Osius	774,268
Window spring, C. E. Avery	774,463
Window, teller's, E. Liberty	774,190
Wires, die for tying intersecting, W. H. Shiersen	774,609
Work holder, A. Le Blanc	774,480
Wrench, N. F. Turner	774,214
Wrench, C. Conrad	774,310
Yoke attachment, neck, Miller & Mangham	774,360

DESIGNS.

Automobile body, Thomas & Keen	37,216
Brushes, back for, A. E. Hathaway	37,209
Candlestick, A. H. Heisey	37,213
Fabric, textile, J. W. Kemp	37,217
Flagon, alcohol, S. Sternau, et al.	37,218
Match box or similar article, S. A. Keller	37,212
Mirrors, back for, A. E. Hathaway	37,208
Nail files, paper knives, or similar articles, handle for, A. E. Hathaway	37,207
Powder receptacle, toilet, S. M. Colgate	37,210
Radiator section, A. J. Pieszak	37,215
Screw driver, W. S. Ward	37,214
Spoons, forks, or similar articles, handle for, H. L. Wallace	37,206

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Salves and ointments, M. Stuer	43,658
Sewing machines and attachments, Davis Sewing Machine Co.	43,660
Shaving cream, A. Lloy & Co.	43,672
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Soap, Reiss & Brady	43,653
Soap, perfumed, L. T. Piver & Cie.	43,668
Soporifics, Kalle & Co.	43,656
Starch and starch products, certain named, California Wheat Starch Factory	43,652
Stogies, Clarksburg Stogie Co.	43,677
Toilet preparations, certain named, L. T. Piver & Cie	43,669

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"Bourbon Hog Cholera Remedy," for remedy for diseases of hogs, Bourbon Remedy Co.	11,563
"Castaldi's Neapolitan Tomato Sauce," for tomato sauce, E. Castaldi	11,570
"Clever Powders," for remedy for headache and neuralgia, L. G. B. Erb	11,562
"Crusader," for wheat flour, D. Stett.	11,569
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