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.

☞ *The publishers of this paper guarantee to advertisers a circulation of not less than 50,000 copies every weekly issue.*

Lubricene, Gear Grease, Cylinder and Machinery Oils. R. J. Chard, 6 Burling Slip, New York.

We will purchase or manufacture on royalty, Stationers' Articles of real merit. A. C. Farley & Co., Phila., Pa.

Analytical Balance wanted; second-hand. W. G., Kirks Mills, Pa.

Wanted—To Manufacture Small Patented Iron Articles. Address Iron Works, New Castle, Ind.

Superintendent wanted, skilled in the use of fine wood working machinery. Large wages to the right man. Address Phœnix, Herald Office, New York.

The best Truss ever used. Send for descriptive circular to N. Y. Elastic Truss Co., 683 Broadway, New York.

For Sale.—4½ inch refr. Telescope, Prism, '4 eyepieces and tripod. Price, $160. H. M. Holbrook, Jersey City, N.J.

The E. Horton & Son Co., Windsor Locks, Conn., manufacture the Horton Car Wheel Chucks.

Geared Power Press, cost $450, for $200. York & S. Clev. O.

Wilson's Business Directory, second edition, and Wilson's Co-partnership Directory for 1880-81, now ready. All orders addressed to the Trow City Directory Company, No. 11 University Place, New York, promptly attended to, on receipt of price, $3 each.

LAKE VIEW HOUSE, LIVONIA, N. Y., Feb. 9, 1880.
H. W. Johns M'f'g Co., 87 Maiden Lane, New York.
DEAR SIR: We have used your paint on our buildings, and find one coat goes as far and covers as well as two coats of lead and oil. Yours truly,
E R. BOLLES.

Machinery Salesman Wanted.—One who thoroughly understands and can sell Iron and Wood Working Tools. Address T. S. & A. J. Kirkwood, Chicago, Ill.

Air Compressors, Blowing Engines, Steam Pumping Machinery, Hydraulic Presses. Philadelphia Hydraulic Works, Philadelphia, Pa.

Blake's Belt Studs are the best and cheapest fastening for leather and rubber belts. Greene, Tweed & Co., 118 Chambers St., New York.

Wanted—A Machinist. One who has wrought at Carriage Hardware Manufacturing, and is fully able to construct the dies and tools necessary for such goods. Address, with references, George Gillies, Gananoque, Ontario, Canada.

For the Development of New Ideas, try Anderson Bros., Peekskill, N. Y. Experience large.

Apply to J. H. Blaisdell for all kinds of Wood and Iron Working Machinery. 107 Liberty St., New York. Send for illustrated catalogue.

Sweetland & Co., 126 Union St., New Haven, Conn., manufacture the Sweetland Combination Chuck.

Power, Foot, & Hand Presses for Metal Workers. Moderate prices. Peerless Punch & Shear Co. 52 Dey St., N.Y.

The Brown Automatic Cut-off Engine; unexcelled for workmanship, economy, and durability. Write for information. C. H. Brown & Co., Fitchburg, Mass.

Corrugated Traction Tire for Portable Engines, etc. Sole manufacturers, H. Lloyd, Son & Co., Pittsburg, Pa.

For the best Stave, Barrel, Keg, and Hogshead Machinery, address H. A. Crossley, Cleveland, Ohio.

Collection of Ornaments.—A book containing over 1,000 different designs, such as crests, coats of arms, vignettes, scrolls, corners, borders, etc., sent on receipt of $2. Palm & Fechteler, 403 Broadway, New York city.

Best Oak Tanned Leather Belting. Wm. F. Forepaugh, Jr., & Bros. 531 Jefferson St., Philadelphia, Pa.

National Steel Tube Cleaner for boiler tubes. Adjustable, durable. Chalmers-Spence Co., 40 John St., N. Y.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Stave, Barrel, Keg, and Hogshead Machinery a specialty, by E. & B. Holmes, Buffalo, N. Y.

Steel Figures, $1; Letters, $3 a set. York & S., Clev., O.

Solid Emery Vulcanite Wheels—The Solid Original Emery Wheel—other kinds imitations and inferior. Caution.—Our name is stamped in full on all our best Standard Belting, Packing, and Hose. Buy that only. The best is the cheapest. New York Belting and Packing Company, 37 and 38 Park Row, N. Y.

Sheet Metal Presses, Ferracute Co., Bridgeton, N. J.

Walrus Leather and Walrus Wheels for Polishing all kinds of Metals. Greene, Tweed & Co., New York.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, importers Vienna lime, crocus, etc. Condit, Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Wright's Patent Steam Engine, with automatic cut-off. The best engine made. For prices, address William Wright, Manufacturer, Newburgh, N. Y.

Presses, Dies, and Tools for working Sheet Metal, etc. Fruit & other can tools. Bliss & Williams, B'klyn, N. Y.

Bradley's cushioned helve hammers. See illus. ad. p. 334.

Electrical Indicators for giving signal notice of extremes of pressure or temperature. Costs only $20. Attached to any instrument. T. Shaw, 915 Ridge Ave. Phila.

Instruction in Steam and Mechanical Engineering. A thorough practical education, and a desirable situation as soon as competent, can be obtained at the National Institute of Steam Engineering, Bridgeport, Conn. For particulars, send for pamphlet.

Hydraulic Jacks, Presses and Pumps. Polishing and Buffing Machinery. Patent Punches, Shears, etc. E. Lyon & Co., 470 Grand St., New York.

Rollstone Mac. Co.'s Wood Working Mach'y ad. p. 300.

Recipes and Information on all Industrial Processes. Park Benjamin's Expert Office, 49 and 50 Astor House, New York.

Blake "Lion and Eagle" Imp'd Crusher. See p. 301.

Special Wood-Working Machinery of every variety. Levi Houston, Montgomery, Pa. See ad. page 301.

For Mill Mach'y & Mill Furnishing, see illus. adv. p. 317.

Peck's Patent Drop Press. See adv., page 301.

Forsaith & Co., Manchester, N. H., & 207 Centre St., N. Y. Bolt Forging Machines, Power Hammers, Comb'd Hand Fire Eng. & Hose Carriages, New & 2d hand Machinery. Send stamp for illus. cat. State just what you want.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 316.

For Separators, Farm & Vertical Engines, see adv. p. 316.

For Patent Shapers and Planers, see ills. adv. p. 316.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 317.

Machine Knives for Wood-working Machinery, Book Binders, and Paper Mills. Large knife work a specialty. Also manufacturers of Soloman's Parallel Vise. Taylor, Stiles & Co., Riegelsville, N. J.

Silent Injector, Blower, and Exhauster. See adv. p. 333.

For Shafts, Pulleys, or Hangers, call and see stock kept at 79 Liberty St., N. Y. Wm. Sellers & Co.

Fire Brick, Tile, and Clay Retorts, all shapes. Borgner & O'Brien, M'f'rs, 23d St., above Race, Phila., Pa.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 15,000 Crank Shafts, and 10,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

Brass & Copper in sheets, wire & blanks. See ad. p. 333.

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

For Superior Steam Heat. Appar., see adv., page 332.

The "Fitchburg" Automatic Cut-off Horizontal Engines. The "Haskins" Engines and Boilers. Send for pamphlet. Fitchburg Steam Engine Co., Fitchb'g, Mass.

Millstone Dressing Machine. See adv., page 334.

Steam Engines, Boilers, Portable Railroads, Sugar Mills. Atlantic Steam Engine Works, Brooklyn, N. Y.

Cut Gears for Models, etc. Models, working machinery, experimental work, manufacturing, etc., to order. D. Gilbert & Son, 212 Chester St., Phila., Pa.

For Alcott's Improved Turbine, see adv. p. 234.

Holly System of Water Supply and Fire Protection for Cities and Villages. See advertisement in SCIENTIFIC AMERICAN of last week.

Inventors' Institute, Cooper Union. A permanent exhibition of inventions. Prospectus on application. 733 Broadway, N. Y.

Machine Diamonds, J. Dickinson, 64 Nassau St., N. Y.

Improved Work Holder for Lathes, Gear Cutting, Attachments for Lathes, Tyson Vase Engine, Small Steam Motor. No boiler, no danger. Send for new catalogue, 1880. Jackson & Tyler, Baltimore.

Comb'd Punch & Shears; Universal Lathe Chucks. Lambertville Iron Works, Lambertville, N. J. See ad. p. 301.

Nellis' Cast Tool Steel, Castings from which our specialty is Plow Shares. Also all kinds agricultural steels and ornamental fencings. Nellis, Shriver & Co., Pittsburg, Pa.

Improved Steel Castings; stiff and durable; as soft and easily worked as wrought iron; tensile strength not less than 65,000 lbs. to sq. in. Circulars free. Pittsburg Steel Casting Company, Pittsburg, Pa.

New Economizer Portable Engine. See illus. adv. p. 333.

Wm. Sellers & Co., Phila., have introduced a new injector, worked by a single motion of a lever.

Lathes, Planers, and Drills, with modern improvements. The Pratt & Whitney Co., Hartford, Conn.

NEW BOOKS AND PUBLICATIONS.

THE MAGAZINE OF ART. Cassell, Petter, Galpin & Co., London and New York. Price 25 cents a number.

A monthly publication containing well executed wood engravings of famous London buildings, bridges, fountains, and street scenes. Every number has illustrations from celebrated paintings, also of remarkable ancient and modern vases. The magazine is well printed and in convenient form for binding.

Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from $1 to $5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office. Price 10 cents each.

(1) Z. C. S. asks for a rule for finding the sectional area of a boiler shell. A. By a table of areas, deduct the area of the diameter of the inside of shell from the area of the diameter of the outside of shell, the remainder is the sectional area of shell. Or multiply the thickness of the plate by the average of the circumference of the outside and inside diameters of shell, the product is the sectional area.

(2) A. P. asks: 1. What is the least pressure required to blow off with, the submersion and diameter of blow off pipe being given? A. Disregarding friction, etc., the pressure should be at least one pound for each two feet head of water above mouth of blow-off pipe. 2. What size must a feed pump be, diameter of cylinder being given? A. The size of feed pump is determined by the quantity of water evaporated and not by the size of cylinder. 3. What size of safety valve does a boiler require (grate surface and steam pressure to be carried being given)? A. The rule of the United States steamboat inspectors is one square inch area of valve to each two square feet of grate surface. 3. What lift must a valve of given diameter have? A. One-fourth the diameter of valve. 5. What is the ratio of expansion of wrought iron? A. For each degree of heat (Fahrenheit) 0.00814 of one inch for each 100 feet length.

(3) H. L. S. asks if it is necessary to have an airpump in connection with an engine that exhausts into a keel condenser, said condenser being under the bottom of the boat and consequently always cold and not liable to get hot, pressure of steam 60 to 100 lb., revolutions 75 to 100. The idea of condensing in this manner is to save the fresh water so as to be used in place of salt. A. It is necessary to have an air pump if you wish the benefit of a vacuum, otherwise you can take the water from the condensing pipes with the feed pump.

(4) E. C. N. writes: I have made a dynamo electric machine about five times the size the one that was in the No. 161 SUPPLEMENT with a double coil in the armature, and use only one pair of brushes for my commutator. My machine works well and generates a great deal of electricity. I connect the circuit on the machine with No. 6 copper wire, and take my electricity from the binding posts of the brushes. When running the machine 800 revolutions per minute the machine will fuse 3 copper wires No. 30, 12 inches long, showing that I have great resistance in my machine. I will say right here that I have for field magnets soft cast iron 22 inches wide, 13 inches high, 2 inches thick, wound with 8 layers of double wire No. 14. The armature has one coil, is wound with 3 wires of No. 18, 7 layers; the other with 5 wires No. 18, 7 layers. My commutator is made different from any that I have seen or heard from. My first coil is put on the inside ring, and the wire soldered and the slot cut for neutral points; the other ring is on the same commutator with one-eighth of an inch apart and the slot cut 90 degrees from the others, slot one thirty-second inch. I have but very little sparks at the commutator. I have made a lamp somewhat after the form of Brush lamp, and use Brush carbons, and have a very large light with very small arc, not more than one-sixty-fourth of an inch, but the carbon arc incandescence one-half of inch. I have in my lamp on the coil or hollow magnet six layers of No. 14 wire. After running about one hour the coil gets so hot that I cannot handle it, and I have to shut down the machine. What is the trouble? The machine does not get very hot. A. Use coarser wire in your lamp helix. You have succeeded very well with your machine.

(5) T. B. asks: 1. Can I use electro-magnets for the dynamo-electric machine described in SUPPLEMENT No. 161, Fig. 6? A. Yes. 2. And if not, how can I make magnets permanent, and from what kind of iron are they made? A. Permanent magnets are made from steel, hardened and tempered. You will find directions for making permanent magnets in an article on telephones in SUPPLEMENT 142. 3. Can the part surrounding the armature be made of wrought iron pipe, as shown in Fig. 6? A. Yes.

(6) C. S. W. asks: Are there any coal or peat beds in the torrid zone? Where? What is the reason that there are more in the temperate zone than elsewhere? A. No peat. Very little coal of carboniferous period. Tertiary coal, "brown coal," abundant in South American tropics. A cool moist atmosphere is required to develop peat.

(7) T. C. asks: If a wire be attached to a safe or stove in an office of a hardware store and conveyed to the moist earth beneath, will it be a good protection against lightning? A. No; use a good lightning rod with large ground connections placed in moist earth.

(8) S. S. B. asks: 1. Is it practicable to use three-eighths inch gas pipe for a water grate in an upright boiler having one end connected to pump and the other to the crown sheet? Boiler is 16 inches diameter, 2 feet high, with 19 1¼ flues, 1 foot long. A. You could use them, but they would soon burn out. 2. Is such a boiler large enough to drive a 2 inch by 4 inch engine with 60 lb. steam, and 250 to 300 revolutions per minute? A. It may answer with an exhaust jet, but is rather small without it.

(9) J. E. E. asks (1) how to construct a galvanometer for testing electrical resistances. A. A simple galvanometer may be made by suspending a magnetized cambric needle over a flattened helix of fine wire. For details of construction of delicate instruments of this kind see Prescott's Electricity, or Frick's Physical Technics. 2. Can you give me better detail of the reversing gear of Mr. Maxim's steam launch, SUPPLEMENT No 158? It does not give a clear explanation as to the setting of the eccentric. How far should it be moved to give proper "lead" both ways? Has the loose piece on shaft that works in the drum more than one spiral groove? A. The eccentric will be set in the usual manner, and by throwing it across to the opposite side, it is in position for reverse motion without lead. You must lay out a diagram to get the proper lead and throw for your valve. We do not understand there is any spiral groove, though this would probably be better, as you could then get the proper lead in both directions. 3. What horse power would a 2½x2½ stroke engine give, 300 revolutions per minute, with 70 lb of steam? A. About three-fourths lb. horse power. 4. What size boat can I run with it at the rate of eight miles per hour? Also what size screw and pitch? A. Probably 12 feet long and 3½ to 4 feet beam; screw 14 inches diameter and 2 feet 4 inches pitch. 5. Ports are 30-100 inch area; are they large enough? A. Ports should equal five-tenths inch. 6. What size pump shall I use? A. Half inch diameter of plunger, if it has the stroke of the engine.

(10) W. F. O. asks: Suppose a string fastened at one end will just support a weight of 25 lb. at the other. Unfasten it, and two persons pull upon it in opposite directions. How much can each pull without breaking the string? A. 25 lb. This amount applied to each end brings a total strain of only 25 lb. on the string. Try this experiment with spring scales instead of a string.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

I. P. B.—The incrustation consists chiefly of oxide of iron, lime carbonate, and organic matter. The water is probably unfit to drink. There is no practical way of purifying it. -E. B. S.—It is itacolumite, or flexible sandstone, often found in diamondiferous regions. It has been used for making grinding wheels.—W. H. G.—The slate carries a trace of copper, but probably no silver. A fire assay of a larger sample would be requisite to settle this point.—W. B.—It is a glass colored by oxide of cobalt—cobaltglass.

COMMUNICATIONS RECEIVED.

On Solar and Planetary Force and Attraction. By D. H.

On Stoves. By L. H. B.

On Electrolysis and Demagnetization. By E. A. T.

Instrument for Investigating Pressure. By H. W. F.

Poetry. By T. S.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

April 27, 1880,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for one dollar. In ordering please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

Acid, apparatus for the manufacture of nitric, P. Marcelin 227,027
Advertising device, E. W. Taylor 227,073
Air, apparatus for purifying and cooling, J. Edwards 226,908
Air compressor and water-lifter, L. B. Lawrence *et al.* 226,918
Auger, hollow, O. M. Brailey 226,968
Balance, differential, G. S. Palmer 227,050
Bale tie, E. Haiman 226,851
Baling press, W. P. Groom 226,998
Barrels, rack for tiering, F. Stitzel (r) 9,175
Basket, J. W. Hogg 226,854
Beehive, Adair & Colbert 226,821
Belting, manufacture of flexible, Frue & McDermott 226,843
Billiard chalk holder, F. Vane 226,944
Billiard table cushion, Bensinger & Goodrich 226,827
Boat, automatically dumping, N. Barney 226,960
Bolt holder, A. M. Colt 226,836
Book, blank, F. H. Richardson 226,930
Boot and shoe sole and heel plate, W. P. Whittier, Jr 226,894
Boot and shoe uppers, machine for crimping, C. B. Long 226,866
Boots and shoes, machinery for crimping leather for, H. C. Pease 226,876
Bottle necks, machine for finishing, T. W. Synnott 226,889
Bottle, nursing, J. Thompson 227,075
Bottle stopper, M. W. Patten 226,926
Bottling machines, attachment for, M. W. Patten 226,927
Box fastener, W. Weis 227,082
Bridge, A. Snyder 227,068
Bridle nose piece, R. Arnold 226,954
Brooms and the case employed therein, packing, J. N. Tym 226,891
Buckle, G. W. Hart 226,914
Button, separable, W. P. Dolloff 226,988
Can, I Porter 227,052
Can, W. R. Van Vliet 226,945
Canister, E. Norton 227,046
Car brake and starter, C. W. Richardson *et al.* 226,881
Car coupling, Arter & Blocher 226,955
Car coupling, E. T. Barlow 226,824
Car heater, S. F. Kellogg 226,862
Car, stock, C. A. Smith 226,936
Car, stock, J. Wood 226,897
Car, street, J. Andrew 226,822
Carbureter, gas. J. M. Palmer 226,875
Card, direction, R. P. Beatty 226,825
Carpet stretching apparatus, J. M. Jay 226,917
Carpet sweeper, H. A. Gore 226,847
Carriage jack, M. C. Burr 226,971
Cartridge, G. P. Salisbury 226,932
Check blank, metallic, J. Murdock, Jr 226,871
Check, monetary, J. O. Carpenter 226,974
Christmas trees, candle holder for, J. F. Young 227,088
Churn, A. Groves 226,911
Churn, I. Nieukirk 227,045
Cigar bunching machine, M. Greensfelder 226,849
Cinder guard or deflector for railway carriage windows, A. Mitchell 226,869
Clasp knife, A. Friebertshauser 226,910
Coal washing machinery, S. Stutz 226,940
Coffee and tea pot, J. Binkley 226,899
Coin counting device, automatic, W. C. Morison 227,038
Collar pad, horse, W. K. Snyder 226,887
Copy holder, E. Neder 227,043
Corset and shoulder brace, comb'd, J. C. Schnoter 226,885
Cotton gin, C. F. Scattergood 227,063
Cotton press, A. A. Janney 227,013
Counter, alarm, Miller & Reichert (r) 9,177
Crucible furnace, J. Bergmann 226,828
Cultivator, B. C. Bradley 226,833
Curtain fixture, B. Handforth 227,001
Deaf to hear, device for aiding the, Clarke & Foster 226,902
Dental speculum and shield, combined, A. W. Edwards 226,989
Desk, school, Fitts & Griffin 226,842
Distilling alcohol, process and apparatus for, G. W. Kidd 227,018
Distillation of whisky, separator for the, M. V. Monarch 227,025
Door hanger, A. N. Monteer (r) 9,174
Double tree, J. J. H. Parrott 227,047

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Drying apparatus, A. J. Kuhn ... 227,020
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Elevator safety device, H. C. Goodrich ... 226,846
Enameling jewelry, etc., F. Kursh ... 227,021
Enameling or preparing mouldings for gilding, machine for, W. Glasgow ... 226,845
Envelope, K. Tompkins ... 227,077
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Explosive compound, A. Monnier (r) ... 9,173
Fare register, E. Chesterman ... 226,975
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Felly sawing machine, S. T. Kennan ... 226,863
File, newspaper, J. W. Hubbard ... 226,858
Firearm, breech-loading, W. H. Van Gieson ... 226,893
Fire extinguishing apparatus, Logan & Greenleaf ... 226,919
Fireplace attachment, F. S. Elsberry ... 226,992
Fire safe for smoke houses, W. E. Johnson ... 226,861
Fishing reel, G. Hancock ... 227,060
Flanging machine, Russell & McDonald ... 227,061
Flier for speeders, H. S. Josselyn ... 227,015
Flour and middlings from the products of crushed or ground wheat, removing, D. Sewell ... 227,064
Flower and pot, artificial, R. H. Moses ... 226,922
Furnace for annealing wire, etc., Hewitt & Withington ... 226,853
Galvanic battery, F. Tommasi ... 227,076
Garden rakes, machine for making, G. Banister ... 226,898
Gas engine, E. Buss ... 226,972
Gate hanger, F. Cook ... 226,980
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Glass annealing and tempering furnace, F. Siemens ... 226,934
Gold, etc., from ores, extracting, J. F. Boynton ... 226,965
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Grain drill attachment, S. F. Nosker ... 227,047
Grain drill feed cup, D. Berlew ... 226,963
Graves, device for filling, J. Holmes ... 226,856
Grinding and polishing wheel, J. W. Cole ... 226,978
Halter to prevent horses from cribbing, A. Madden ... 227,026
Handcuff, H. Ahrend ... 226,949
Handcuff, D. Altman ... 226,950
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Harrow, wheel, G. G. Crowley ... 226,839
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Hat, felt, R. S. Nickerson ... 227,044
Hay and grain elevator, E. M. Deane ... 226,985
Hay fork, horse, Myers & Mountain ... 227,041
Hay stack cover, Bovee & Palmer ... 226,900
Hog ringing tool, J. Heesen ... 226,915
Horse foot protector, C. W. Grece ... 226,848
Horse power, M. Morton ... 227,037
Horse rake and hay spreader, combined, G. N. Palmer (r) ... 9,180, 9,181
Horseshoe, G. L. Potvin ... 226,879
Horseshoe blanks, machine for bending and forging, Holub & Locke ... 227,008
Horseshoe blanks, machine for creasing, punching, and swaging, Holub & Locke ... 227,009
Hub, carriage, S. T. F. Sterick ... 226,888
Hub, vehicle, A. B. McDonald ... 227,031
Hub, vehicle wheel, L. S. Edleblute ... 226,990
Ice cream freezer, D. J. Rogers ... 227,058
Ingot moulds, preparation for coating, A. L. Simondi ... 226,933
Journal bearing, R. W. Drew ... 226,907
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Ladder, step, D. C. Smart ... 226,935
Ladder, step, J. N. Valley ... 226,943
Lamp, C. Stockmann ... 227,071
Lamp, electric, W. G. Levison ... 227,025
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Laths, machine for making metallic, C. H. Carter ... 226,901
Letter box, alarm, G. P. Herndon ... 227,005
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Malt kiln, W. Toepfer ... 226,890
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Motor for sewing machines and other purposes, Bowers & Harrison ... 226,967
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Musical instruments, key board attachment for, J. F. White ... 227,083
Nitro-glycerine, manufacturing, F. Mann ... 226,867
Nozzle, noise-quieting, F. C. Curie ... 226,905
Nut lock, J. H. Wygant ... 226,947
Nuts, die for shaping, J. H. Sternbergh ... 226,938
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Organ action, pneumatic, O. H. Needham ... 227,042
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Pannier, M. A. Bryson (r) ... 9,178
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Paper box, H. S. Munson ... 226,872
Pen, stylographic fountain, E. B. Nimmo ... 226,924, 226,925
Pencil sharpening guide, J. K. Hoyt ... 227,012
Picture hanger, Raughtigan & Oldfield ... 227,055
Pistol, revolving, E. & L. Nagant ... 226,923
Planter check rower, corn, J. W. Hudson ... 226,859
Plow irons, device for welding, W. B. Hickman ... 227,006
Plow, rotary, St. John & Underwood ... 227,070
Plow, steam, T. H. McCray ... 226,921
Pocket knife, J. D. Frary ... 226,994
Pole, vehicle, W. Boughton ... 226,830
Printer's locking-up device, H. A. Hempel ... 227,004
Printing machine sheet delivery apparatus, Hoe & Tucker ... 226,916
Propeller, canal boat, T. Rose ... 226,931
Propeller, vibrating, S. Barnes ... 226,957
Pumping engine, steam, Cope & Maxwell ... 226,837
Pumping oil wells, apparatus for, E. D. Yates ... 226,948
Purse or satchel fastener, N. C. Larsen ... 227,022
Railway rails and rolling the pieces into merchantable bars, machine for splitting old, Holub & Locke ... 227,010
Railway rails, roll for forming billets from steel, F. B. Davis ... 226,982
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Rein holder for harness, check, J. W. Cooper ... 226,979
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Roofing and paving material, C. M. Warren ... 227,080
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Rubber, substitute for hard, G. A. Fudickar ... 226,844
Ruling machine pen lifter, J., W. A., & G. F. McAdams ... 227,030
Sad iron furnace, M. J. Mosher ... 227,036
Sad iron heater, H. L. Wells ... 227,081
Saw tooth swage, J. Clark ... 226,947
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Steam boiler, upright, P. Quinn ... 226,880
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Steam conducting pipe, J. Brosius ... 226,834
Steam engine pitman connection, F. C. Rowland ... 227,059
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Sulky, A. Bedford ... 226,826
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Sulky, trotting, Wineman & Bohannon ... 227,086
Suspender pulleys, metallic housing for, T. O. Potter ... 226,928
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Telegraph, duplex, H. Van Hoevenbergh ... 227,079
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Telephone and electro-magnet, combined, A. E. Dolbear ... 226,906
Telephones lines, call signal for, F. R. Richmond ... 227,056
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Thrashing machine, C. G. Case ... 226,973
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Top, J. R Barry ... 226,958
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Tramway rail, T. S. Lambert ... 226,864
Trees, process and apparatus for changing the bearing year of fruit, G. H. Taft ... 227,074
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Truck, stove, E. F. Johnson ... 227,016
Turn table, C. A. Greenleaf ... 226,996
Turning balusters, machine for, P. M. Haas ... 226,912
Valve and chest, glass, R. P. Smith ... 227,067
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Vehicle seat, J. H. Babbitt ... 226,956
Vehicle spring, L. Pulliam ... 226,929
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Vise, C. Fisher ... 226,841
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Wardrobe for trunks, portable, I. Hogeland ... 226,855
Washstands, etc., seal joint trap for, J. Bennor ... 226,961
Washing machine, Frelloehr & Mahler ... 225,909
Washing machine, T. Sorg, Jr ... 226,937
Washing machine, E. A. Clark ... 226,976
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Water motor, W. Lay ... 227,023
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Weather strip, S. A. Piper ... 227,051
Wheel guard, S. Brisac ... 226,970
Whiffletree, F. R. Wilson ... 226,896
Wire barbing machines, tension apparatus for, I. R. Whiteman ... 226,946
Wire, manufacture of draw plates for drawing, C. D. Rogers ... 226,883
Wool washing machine, Proctor & Knowles ... 227,053
Work table, lady's, O. R. Stein ... 227,069

DESIGNS.

Funeral ornaments, W. M. Smith ... 11,754
Handkerchief, J. Grimshaw ... 11,751
Jewel case and clock, H. J. Davies ... 11,746
Knife handles, pocket, J. D. Frary ... 11,749, 11,750
Mementos for perpetuating the memory of deceased friends and relatives, E. W. Donovan ... 11,756
Monuments of Egyptian obelisk, R. Busteed ... 11,755
Saw blades, A. H. Loebs ... 11,752
Stocking fabric, ornamental, J. E. Hanifen ... 11,753
Stoves, W. C. Davis ... 11,747, 11,748

TRADE MARKS.

Cigars, cigarettes, and smoking and chewing tobacco, Jaeger Brothers ... 7,882
Embroideries, cotton, J. A. Obersteller ... 7,886
Fever and ague, remedy for, D. Wiehl & Co ... 7,883
Leather goods, certain fancy, E. Posen & Co ... 7,885
Leather, kid, Combe & Oriol ... 7,888
Medicinal compounds, certain, W. H. Randle ... 7,889
Medicine for rheumatism, neuralgia, and similar diseases, Carver & Stacy ... 7,887
Salves, F. Wilharm ... 7,884

English Patents Issued to Americans.

From April 27 to April 30, 1880, inclusive.

Electric signal apparatus for railroads, O. Gassett, Boston, Mass.
Hoe, B. L. Turner, Olena, Ohio.
Horseshoes, manufacture of, J. D. Billings, N. Y. city.
Ice making machinery, C. C. Palmer, Oakland, Cal.
Knife and fork polishing machine, J. Cheek, N. Y. city.
Lubricating apparatus, F. Crocker, Olean, N. Y.
Registering apparatus for cars, etc., N. A. Ransom, Chicago, Ill.
Rivets, bolts, etc., machine for rolling, J. H. Whitney, New York city.
Screw bolts and nuts, substitute for, N. Thompson Brooklyn, N. Y.
Ship's Berths, T. O. L. Schrader, New York city.
Steam boilers, means for preventing explosion of, D. T. Lawson, Wellsville, Ohio.
Steel, treatment of, J. Haldeman, New York city.
Telephones, S. Russell, Brooklyn, N. Y.
Vehicle axles and running gear of, P. Herdic, Williamsport, Pa.
Wheels for railroad vehicles, A. F. Cooper, Cambridge, Mass.