# Business and Versonal.

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 appearin next issue,

Portable and Stationary Engines; Boilers of all kinds; 45 Cortlandt St., N. Y. Erie City Iron Works, Erie, Pa.

The Thompson Indicator for Steam Engineers and Manufacturers; a perfected instrument. For Sale by the Buckeye Engine Co., 87 Liberty St., N. Y.

Alcott's Turbine received the Centennial Medal

Assays of Ores, Analyses of Minerals, Waters, Com mercial Articles, etc. Technical formulæ and proce Laboratory. 33 Park Row, N. Y. Fuller & Stillman.

Gas Consumer's Handy Book: by Wm. Richards 20 cts.; mail free. E. & F. N. Spon, 446 Broome St., N. Y.

Address Star Tool Co., Providence, R. I., for Screw Cutting Engine Lathes of 13, 15, 18, and 21 in. swing

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

Manufacturers of Novelties should send circulars and price lists to J. M. Thompson, Sewing Machine Depot Christchurch, Canterbury, New Zealand.

2 Woodruff Engines, 20 x 48, complete: in A 1 order. except flywheel; flywheel shaft and crank 3 years old; \$1,500 each. Also I Berryman Feed Water Heater, 42 x 96, almost new; price \$650. E., 167 Church St., N. Y.

Loom Pattern Chain. Patent for sale. For information tion address Chas. Strobel, Bridesburg, Phila., Pa.

Valuable Invention to users of Steam Boilers. See Stoker Co., No. 2 Chestnut St., Philadelphia, Pa.

The only genuine Geiser Self-regulating Grain Sepa-Address the Geiser Manuf. Co., Waynesboro' Franklin Co., Pa.

Wanted.—A Back Geared, Screw Cutting, Foot Power Lathe. W. J. G., P. O. Box 2925, N. Y.

How can I obtain a Machine formsking Inlaid Woodas the backs of brushes? J. R. Brockway, Elmira, N. Y.

Presses, Dies, and Tools for working Sheet Metals, etc. Fruitand other Can Tools. Bliss & Williams, Brooklyn, N. Y., and Paris Exposition, 1878.

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

Best Turbine Water Wheel, Alcott's, Mt. Holly, N. J Patent, Premium, Angular, and Ring Lathe Dogs. Hold Parallels and Tapers. H.W.Oliver, Brooklyn, N.Y.

Mechanical Draughtsman and Designer, one who is a practical mechanic and competent to take charge, desires a situation. Five references from present employers. Address B., Box 365, Hartford, Conn.

For Heavy Punches, Shears, Boiler Shop Rolls, Radial Drills, etc., send to Hilles & Jones, Wilmington, Del.

Telephone. Researches in Electric Telephony; by Prof. A. G. Bell. Profusely illustrated. 60 cents. Mail free. E. & F. N. Spon, 446 Broome St., N. Y.

Manufacturers' special interest to address Bentel Margedant & Co., Hamilton, Ohio, for the best and latest improved Wood Cutting Machinery.

Machine Cut Brass Gear Wheels for Models, etc. (New List.) D. Gilbert & Son., 212 Chester St., Phila., Pa.

Boilers & Engines cheap. Lovegrove & Co., Phila., Pa. Lansdell & Leng's Lever and Cam Gate Valves. Cheapest and best. Leng & Ogden, 212 Pearl St., N. Y.

Skinner Portable Engine, Improved, 2 1-2 to 10H. P. Skinner & Wood, Erie, Pa.

Improved Wood-working Machinery made by Walker Bros., 73 and 75 Laurel St., Philadelphia, Pa.

For the best Bone Mill and Mineral Crushing Ma chines-five sizes, great variety of work-address Baugh & Sons, Philadelphia, Pa.

The great Wheelock Engine, which furnishes the power to the machinery of the American Exhibit at the Paris Exposition this year, is lubricated by Patent Lubricene and Cups. Our exhibit will equal that which we made in Philadelphia in 1876. R. J. Chard, 134 M. Lane,

Friction Clutches for heavy work. Can be run at high speeds,and start gradual. Safety Elevators and Hoisting Machinerya specialty. D. Frisbie & Co., New Haven, Ct.

For Mill Gearing, Shafting, Pulleys, and Hangers, address T. B. Wood & Co., Manufs., Chambersburg, Pa.

24 inch Second-hand Planer, and 12 inch Jointer, or Buzz Planer, both in first-class order, for sale by Bentel, Margedant & Co., Hamilton, Ohio.

Wrenches,-The Lipsey "Reliable" is strongest and Six inch sample by mail 60 cents. Roper Engine Manufacturing Co., 91 Washington St., N. Y.

Cornice Brakes. J.M. Robinson & Co., Cincinnati, O

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

John T. Noye & Son, Buffalo, N. Y., are Manufacturers of Burr Mill Stones and Flour Mill Machinery of all kinds, and dealers in Dufour & Co.'s Bolting Cloth. difficulty? A. Probably the trouble is with your bat-Send for large illustrated catalogue

Power & Foot Presses, Ferracute Co., Bridgeton, N. J. 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.

Steel Castings from one 1b. to five thousand lbs. Invaluable for strength and durability. Circulars free. Pittsburgh Steel Casting Co., Pittsburgh, Pa.

Hydraulic Presses and Jacks, new and second hand. Lathes and Machinery for Polishing and Buffing metals. E. Lyon & Co., 470 Grand St., N. Y.

Sperm Oil, Pure. Wm. F. Nye, New Bedford, Mass. Machine Diamonds, J. Dickinson, 64 Nassau St., N. Y,

For Power & Economy, Alcott's Turbine, Mt. Holly, N.J. | rection. 3. What power would be necessary to cause it confined. 2. Place in the bottom of a clean, dry bottle

NEW BOOKS AND PUBLICATIONS.

SCIENCE LECTURES AT SOUTH KENSINGTON. Vol. I. Macmillan & Co., Publishers: New York city. Price \$1.75.

This is a collection of excellent short monographs on scientific subjects which have already separately appeared in pamphlet form. It includes "Photography by Captain Abney, "Fluorescence and the Absorption of Light," by Professor Stokes, Professor Kennedy on the "Kinematics of Machinery," Mr. Bramwell on the "Steam Engine," Professor Foster on "Electrical Measurements," Mr. Sorby on "Microscopes," etc., all being concise and well written essays on the several

A PHILOLOGICAL AND HISTORICAL CHART. By A. E. de Rupert. A. E. Barnes & Co. New York. Price \$5.00.

This illustrates in a simple and comprehensive way the division of languages as classified by modern philologists. It shows the origin, development, progress or decline of the literatures of the world, gives a list of prominent authors and their best works, and many important historical facts. The chart is apparently the result of much careful study, and should prove valuable to educational institutions.

House Drainage and Water Service. By James C. Bayles. Published by David C. Williams, 83 Reade St., New York city.

The author in his preface states that this work is the outgrowth of the discussion of practical questions per-taining to plumbing and sewage in the Metal Worker, of which he is the editor. Its scope will be seen from the following subjects treated: "Hygiene in its practical relation to Health," "Sewer Gas," "Waste and Soil Pipes," "Traps, Seals, and Vents," "Water Service in City Houses," "Drainage of Country Houses," "Chemistry and Hydraulics of Plumbing," etc. The book is excellently well written, is replete with valuable information selected with good judgment, and will prove, we do not doubt, a standard guide to the trade to which it is more particularly addressed, as well as a useful work of reference for all interested in the very vital questions involved in the science of sanitary engineering.

Parts 26 to 30 of the New Encyclopedia of Chemistry lately issued, carry the work forward from "Leather to "Manure." The articles are remarkably voluminous, far more so than is usually possible in extended publications of this description, and they are well up to late advances in the science. The Encyclopedia will pluric acid, a piece of clean copper about the size of ard weight and fineness required by law for its particube completed in 40 parts, price 50 cents each. Published by J. B. Lippincott & Co., 715 and 717 Market of the zinc, a few pieces copper wire, and some sulphuric lar denomination. Its value is regulated like that of any other product, chiefly on conditions of demand and street. Philadelphia street, Philadelphia.

Almanaque de la Gaceta Industrial for 1878. This almanac, issued by the above named journal, an excellent scientific periodical published in Madrid, Spain, contains in full the law relative to public works in that country, tables of Spanish exports, and a list of Spanish patents for the past year, besides the usual calendar



(1) E. B. L. asks: What is the best material to fasten lithographs on paper to the ends of barrels, so as to stand outdoor exposure, the lithographs being varnished over after being put on? A. Try a strong solution of shellac in a saturated aqueous solution of borax; concentrate by evaporation.

(2) R. T. asks: 1. Can any part of the work on woodcuts done by machine? A. Yes; plain and circular ruling and shading, and also the removal of wood from the widest blank spaces, technically called "routing." 2. What are the wages of a good mechanical engraver in New York? A. From \$3 to \$5 per day, on salary; sometimes more by the piece. 3. Is there an American work on wood engraving? A. "Practical Instruction in the Art of Wood Engraving," by W. A. Emerson; and Watson's "Manual of Instructions in the Art of Wood Engraving."

What is a dollar in English money? A. The gold dollar is equal to £0.2056, or 4.11s. or 49d.

(3) Y. M. C. A. asks: Is there anything which may be taken to dispel stage fright? A. It is said that a few whiffs of ethermay act as a relief.

(4) J. J. D. asks: What will cement leather and metal together? A. Melt together equal parts of asphaltum and gutta percha; apply hot under a

(5) E. W. W. asks: 1. To make an electromagnet capable of holding 1,000 lbs., what should be the gauge and length of wire? A. About 50 lbs. of No. 12 copper wire, cotton insulation. 2. What diameter and length The Cameron Steam Pump mounted in Phosphor of arms of horseshoe core? A. 21/2 inches in diameter Bronze is an indestructible machine. See ad. back page. and 15 inches long. 3. How many coils deep should the Painters' Rapid Graining Process. J.J.Callow, Clev'd, O. helix be? A. About 16. 4. What power Grove battery to work it up to its full strength? A. 12 or 15 cups.

> (6) B. E. writes: I have an electrical apparatus which at one moment has a strong current, and the next moment the action will almost cease. I use an induction coil with a Grove battery. What is the tery. Clean the zinc and connections thoroughly, then charge the porous cup with strong nitric acid, and use in the jar a solution of 1 part of sulphuric acid in 12 parts of water. The zinc should be thoroughly amalga-

(7) H. McK. writes: I received some gold from the bank lately, and have found several pieces partially covered with a dark and hard soum. How can Iget the scum off without injury to the coins? A. Boil If you make the iron sufficiently hot and let it run them in a little strong lye, wash, and dip in warm dilute nitric acid for a few minutes; wash again.

(8) J. L. C. asks: 1. Would a bar magnet

weight that could be imagined would cause a deviation. this enough sulphuric acid to cover it, and stopper the the magnet? A. To a certain extent.

(9) H. R. asks for a recipe for making gelatine for moulding plaster ornaments. A. Soak glue with 10 parts of cold water over night; then add 1 part of glycerin, heat to 190° with stirring, and run it into the well oiled pattern.

How is composition amber made? A. Dissolve shellac in an alkaline lye, then pass chlorine through the solution until all the lac is precipitated. After washing this must be melted and kept over the fire until it runs clear, taking care that it does not burn; it should then be run into moulds of the size of the pieces required.

(10) A. H. writes: We have a well the water of which is clear and uncolored, but at different times during the season tastes and smells very bad, especially when being heated. If nothing is done to it, it becomes good agam after a time. Can you give any probable reason for its bad smell and taste? Will a filter of sharp sand and wood charcoal pounded fine purify it enough for drinking purposes? A. The watermay be contaminated by inflow from the surrounding soil or from decaying organic matter of vegetable or animal origin at the source of the spring. In either case, if the impurities are sufficient to discharge the pink color imparted to a sample of rain water by a trace of dissolved potassium permanganate, the water is unfit for drinking purposes. Fine grained wood charcoal, well burned, and reduced to a coarse powder, will deodorize a quantity of water containing 90 times its volume of ammonia, but the disinfection of some waters by it is not complete. It should be renewed at least once a

(11) O. M. asks: How is modeling wax made? A. Melt the wax with a little water in a capapacious earthen or porcelain-lined iron vessel over a salt water bath; agitate and add cautiously about 2 per cent strong solution of potassium bichromate, acidified with one tenth its volume of sulphuric acid; cover, keep at a moderate temperature for several hours, and skim with a hot ladle into hot water; draw off the restdue of waxat the bottom, disturbing the foreign matter as little as possible, strain it through a fine uncolored cloth, add it to the portion skimmed, and draw off

How can I construct a small galvanic battery? A. zinc, wel. rubbed with a little mercury and dilute sul- ment stamp simply shows that the piece is of the standeach plate, and suspend them facing each other, but not supply. touching, in the acid solution contained in the battery jar. Electrical currents will then pass through any metallic circuit joining the connecting wires of the plates. See back numbers of the Scientific American for other forms of battery.

be cut and polished? A. Use a strip or ribbon of soft pound of sulphur should be used. It is well to rememiron supplied with water and sharp sand as a saw. Polish with moist emery grading towards the finest, and finish with tripoli.

(13) C. J. B. B. asks: How can old lard be clarified? A. Melt and agitate the material for 20 minutes with a quantity of granular charcoal free from dust. Strain off while hot into a small quantity of hot removed from carpets? A. Place that portion of the water; agitate briskly for a few minutes with the addition of about 2 per cent of a strong solution of alum, and let stand in a warm place to settle. Draw off the fatty matters into clean hot water, agitate, settle, cool, and press

(14) S. T. W. asks how a bleaching preparation may be made. A. Dissolve 2 lbs. of sal soda in a gallon of hot water, and add 1 lb. of good lime; stir the mixture for a few minutes, allow to stand for helf ceived from the following correspondents, and an hour, and then carefully pour off and bottle the clear liquid. Half a pint of this may be added to each

from rusting? A. Apply a little pure tallow occasion-

What is the most convenient way of cleaning wood rasps that are clogged with wood and pitch? A. Use a No. 1 is clay slate or indurated clay containing iron file card, or a very thin and narrow piece of sheet cop-

(16) G. W. G. asks: Is there such a thing as sulphate of carbon, and if so, what is it like? A. No. You probably refer to bisulphide of carbon (carbonic bisulphide); this is a volatile limpid liquid, having a strong unpleasant odor. It refracts light powerfully, and is one of the best solvents for oil, caoutchouc, sulphur, etc.

cheap marking fluid for bar iron, steel, etc.? A. Com- weathered calcspar containing chalcopyrite and ferromon barytes (barium sulphate) ground with linseed oil pyrite. to a paste and thinned with turpentine has given satisfaction. 2. Also one for use on boxes, kegs, etc.? A. Ground charcoal, 20 parts; ground manganese (black oxide), 1 part: rub into a paste with a small quantity of linseed oil, and thin with a solution of 1 part asphaltum dissolved in 10 parts of benzine.

(18) S. S. asks: What acid will eat into wood? A. Woody fiber is strongly acted upon by moderately concentrated nitric, sulphuric, and chromic acids, or mixtures of these.

(19) G. M. M. writes: I wish to make a new jaw for a broken cast iron bench vise, but have failed to make the steel weld to the cast iron, after several trials with borax, etc. How should it be done? A. through the mould long enough, the weld will be per-

(20) C. S. R. asks: How can I obtain a 9 inches long and 1 inch thick and wide act as a com-small quantity of ozone, without expensive apparatus? pass needle? A. Yes. 2. Would it still act as such if A. 1. Suspend a stick of wet phosphorus in a bottle surrounded on all sides by iron? A. The attraction of containing moist air or oxygen; after half an hour the the surrounding iron would destroy its accuracy of di- odor of ozone can readily be detected in the atmosphere

to deviate from north and south? A. The smallest | a small quantity of potassium permanganate; pour over 4. Would the power necessary beincreased by enlarging bottle. At the expiration of a few minutes ozone may be detected in the air within the bottle. Organic or readily inflammable matter coming into contact with the permanganate mixture will be quickly inflamed if the acid used be concentrated. For ozonizing air it is better to dilute the acid somewhat.

> (21) C. L. asks: Is there any process by which iron rust may be removed from marble? A. It cannot be readily removed without somewhat defacing the polished surface of the stone. Attrition with moistened pumice powder will generally efface the stain, and the polish may be restored by rubbing first with rouge and finally with putty powder (tin oxide) under a piece of moistened woolen cloth disposed over a smooth block of wood.

> (22) W. & D. ask: What should be the dimensions of a lighter to carry 2,000 bushels of green sand marl-about 100 lbs. to a bushel? A. You can readily make the calculation, estimating each cubic foot of displacement to require a weight of 62.5 lbs.

> (23) C. H. B., F. C., L. G. W., and others who request information on the subject of electric engines, should consult the "Student's Text Book of Electricity," by Noad; on p. 279 they will find an account of some experiments, and also references to other good works on the subject; all of the latest steps in this direction appear in our columns. See SUPPLEMENTS 33, 38, 41, 43, 77, and 78.

(24) J. B. asks: Can you give me the recipe for making the soap used for "permanent" bubbles, rings, etc., in illustrating the interference of light? I have tried several recipes, but with poor success. 1. Take oliveoil soap (genuine white castile), cut it into thin shavings, and dry thoroughly. Dissolve these shavings in alcohol until the alcohol is saturated. The solution should show a specific gravity of 0.88. 2. Mix glycerin with water until it shows a density of 17:10 Baumé. To 6.102 cubic inches of solution 2, add 1.52 eubic inch of solution 1, and boil until the alcohol is all expelled-until the temperature rises above 212° Fah. Cool and turn into a graduated flask, and add water to make the volume 6 102 cubic inches. Filter, if necessary, to remove oleate of lime.

(25) J. R. S. asks: To what extent is the value of a piece of silver or gold enhanced by the gov-Provide a small glass or earthen jar, a plate or strip of ernment stamp being placed thereon? A. The govern-

(26) L. T. writes: My attic is infested with bats. How can I destroy or drive them away? A. If you can securely stop all the cracks and outlets of the attic, a small quantity of sulphur burned in the rooms, or other forms of battery.

on an earthenware dish, will doubtless accomplish all (12) H. S. asks: How can petrified wood that is desired. If the room is large at least half a ber that sulphurous oxide, the product of the combustion of the sulphur, forms with the moisture in the air a powerful bleaching agent; nothing of value should therefore be left in the sulphured atmosphere. Becarefulnot to breathe the irritating gas.

> (27) W. C. Y. asks: How can petroleum be carpet that is spotted with the oil in front of a hot fire. The oil will thus evaporate.

> (28) D. F. H. writes: We have a steam boiler of 5 horse power which is used 3 or 4 times a week. Will it do any harm to allow water to stand in it, if it is blown out once a week? A. No.

MINERALS, ETC.—Specimens have been reexamined, with the results stated:

J. R.—The two larger pieces are orthoclase; the smallone is argillyte.—I. L. M.—No. 1 is hornblende schist. (15) J. S. C. asks: What will prevent steel No. 2 is ferruginous limestone. No. 3 is shale and tools, particularly hand saws, which are in constant use, limestone. No. 4. The earth contains a little copper as well as iron sulphide. No. 5 is dolomite and chlorite.-A. M .- It is a variety of chrysocolla-silicate of copper -sometimes used in jewelry and inlaid work .-- J. E. H. sulphide. No. 2 is an impure limestone-also containing pyrites.—W. U. S.—The stove blacking contains a large per cent of iron oxide and sulphate, and sulphur or sulphides, besides organic carbon.-A. S.-No. 1 is bornite with impure chrysocolla-a valuable ore of copper. No. 2 contains limonite, bornite, cuprite, chalcopyrite, chrysocolla, and malachite; possibly auriferous. No. 3 is impure aluminum silicate. No. 4is chalcopyrite and limonite. No. 5 is bornite, malachite, and chrysocolla. No. 9 is quartz with seams of ferropyrite (17) W. B. B. asks: 1. How can I make a and chalcopyrite (iron copper sulphide). No. 10 is a

# COMMUNICATIONS RECEIVED.

The Editor of the Scientific American acknowledges with much pleasure the receipt of original papers and contributions on the following subjects: Malaria and Light. By G. P.

Protection against Potato Bug, etc. By G. H. W. Planetary Layer Formation. By G. R. C.

The Scientific Turkey. By F. H. J. Preventing Flour Mill Explosions. By J. C. C.

What is Life? By A. W. Lasting Bricks. By D. Dividing the Circle into Odd Parts. By A. B,

Describing Polygons of Unequal Number of Sides.

Preventing Collisions at Sea. By C. A. G. Perturbing Compensations in Planetary Arrangement.

Sewage Management. By C. S. The Star Feed. By T. J. B. The Torpedo Balloon. By. F. P. Creation and Life. By J. H. Dredging Machinery. By F. A. G. Cinders in the Eye. By H. E. R. and J. L.

# Scientific American.

#### HINTS TO CORRESPONDENTS.

Werenew 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 fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Inquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address

#### OFFICIAL.

## INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending April 2, 1878,

AND EACH BEARING THAT BATE.

[Those marked (r) are reissued patents.]

including both the specifications and drawings, 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.

		Lamp extinguisher, K. G. Tunk 202,076,	
Accordion key, F. Zogbaum.	201,974	Lamp, night, H. Behn, Sr	
Air, purifying and compressing, R. Wilsdon		Latch, W. E. Sparks.	
Alarms, circuit closer for, J. F. Callaway		Lathe, cutting and boring attachment, M. Rice	
Atomizer, H. Weinhagen		Lock, L. Yale, Jr. (r)	
Atomizer, L. Wilkinson		Lock, P. Shellenback	201,955
Auger, H. L. Shaler		Lock, C. Fichter	
Auger and reamer, A. E. Brockett	201,908	Locomotive exhaust mechanism, H. G. Ashton	
Auger, well, D. N. Root		Mill, grinding, B. L. Smith	
Axle box, car, I. H. Randall		Mill, grinding stones, R. Byrne	
Axle boxes, die for making, G. A. Morse		Millstone driver, D. T. Staples	
Bale tie, W. H. Howard	201,881	Moulding, machine for filling, H. S. Swayne	
Ball trap, J. L. Schroder		Motion, regulating reciprocating, A. M. Rouse	
Bark, cutter for reducing, W. E. Nickerson		Motion, device for transmitting, B. F. Cloud	
Barrel filling device, T. W. Moran	201,887	Motor, C. Huebner	
Basket, Meinikheim & Chase (r)		Motor, spring, Everett & Dubroy	
Bath, portable shower, C. R. Furey	202,015	Odometer, S. T. Whittier	
Battery, galvanic, C. A. Hussey Batting machine, J. L. Norton		Oil from fish, extracting, H. Loring	
Bed bottom, L. Hull	201,940 909 039	Oil, treating linseed, H. A. Clark	
Bed bottom, H. W. Rubel		Oven, bakers', J. Kohnle	201,883
Bee hive, J. Wash	201,964	Padlock, permutation, G. W. Grove	
Bees from honey boxes, removing, J. Wash		Painting broom handles, Bradt & Van Slyck	
Beer, fermenting, G. Bartholomae		Paper making, Downing & Chamberlain	
Bell, door, J. W. Snider		Pencil sharpener, A. P. St. John	
Billiard chalk holder, W. Zaehringer		Pessary, R. Lockwood	
Bleaching apparatus, L. W. Wright		Piano string, H. W. Gray	202,020
Boiler cleaner, A. W. Bishop	201,986	Pillow, spring, T. W. Cardozo	
Boiler, fire tube, Boehmler & Olbrich	201,988	Potato bug catcher, W. D. Ensign	
Boot and shoe lasting machine, G. W. Copeland	201,914	Potato digger, D. B. Muchmore	
Boot and shoe, rubber, S. E. Whittemore		Pottery ware, C. Breitschwerth	
Boot and shoe machine, C. J. Addy		Printer's distributing galley, H. G. Wilson	
Bottle stopper, C. Sedgwick		Pump, W. Burlingham	
Bottle stopper, F. J. Seybold		Pump and check valve, A. W. Johnson	
Bottle stopper fastener, F. J. Seybold	201,954	Railway switch, R. Gray	
Bottle stoppingmachine, A. R. Weiss		Railway switch, J. C. Rautz	
Brake, car, J. V. Ericson		Rein holder, G. H. Hess	
Brake, vehicle, C. R. Rice	201,893	Rolling sucker red blanks, J. H. Alker	
Brush, dust, E. C. Patterson		Rudder, J. L. Knight	
Buckle, suspender; G. W. McGill		Saccharification, J. W. Gaff	202,016
Can, sealed, A. J. Nolty		Sad iron heater, J. Conrad	
Candle holder, match safe, etc., S. Fuld	201,919	Saddle tree, B. F. Melton	
Canister, W. Gardner		Sash fastner, C. W. Penfield	
Car coupling, J. Hogan		Saw mill carriage, W. Lamb (r)	
Car coupling, E. H. Janney (r)  Car door, grain, D. F. Van Liew	8,153	Scales, bale weighing, G. R. Williams	
Carding machine, P. L. Klein (r)	8,156	Scales, sack, Schweitzer & Kinsey	202,057
Carpet lining, R. J. Macdonald		Scales, weighing, C. Berst	
Carriage top, I. Cogswell, Jr. (r)	8,151	Scythe fastening, C. T. Beebe	
Carriage top, C. Dudley		Seam pressing mechanism, C. W. Collyer	
Carriagetop, O. B. North		See-saw, J. B. Tyler Sewertrap, C. A. Winship	
Cartridge capping implement, G. L. Bailey		Sewing machine, P. Waterston	
Caster, T. L. Rivers (r)		Sewing machine, boot and shoe, L. R. Blake	201,987
Caster, J. J. Adgate		Shafts, splicing carriage. S. H. Raymond	
Chair and carriage, child's, C. A. Perley		Sheet metal, straightening, E. A. Harvey	
Chair, convertible, J. H. Martin		Shock binder, Fulmer & Wiegman Shoe, marsh, R. K. Jordan	
Chair, reclining, A. Collignon		Shot, canister, A. M. Sawyer	
Churn, L. Whitney Clothes drier, E. O. Darling		Sprin , door, H. C. Jones	202,033
Clothes pounder, S. Knight.		Spring, spiral, G. E. Gray	
Cock for water pipes, stop, P. Connolly	201,996	Steamer, feed, W. K. Hill	
Coffee roaster, W. T. Gilliland		Table, surgical operating, T. McIlroy Tapfor casks, I. Conradt	
Coffin, Daniels & Reed		Teeth, metallic filling for, N. B. Slayton	
Coffin shield, A. H. Mooers		Telegraphic fire alarm, A. C. & A. H. Palmer	
Cooler, beer, R. Portner	202.049	Thill coupling, L. E. Thayer	201,962
Cord, C. Feickert	202,011	Tobacco cutter, Dick & Musselman	
Corn popper, Stockwell & Minninghoff		Toy ark, G. H. Ireland	
Corset, M. Adler		Toy whooled vehicle 1 K. Bartan	
Corset, H. T. Marsh Corset, J. Ottenheimer		Trashgatherer, B. F., W. P. & J. Rarick	
Cultivator, T. P. S. Weems		Tree, artificial, J. G. Wolf	
Cultivator and corn planter, J. Hamelback		Type writing machine, B. Halstead	202,024
Curtain roller and bracket, J. S. Henry	202,028	Undergarment, A. A. Danzig	
Cut off valve, water tank, etc., S. G. Anderson		Valve, balanced slide, H. M. Hamblin	
Dental bracket, W. D. Ewart		Vapor burner, C. G. Spengler Velocipede, S. R. Scharf	
Dentist's tools, R. B. Donaldson		Ventilator for corn cribs, W. L. Wright	
Draught equalizer, J. N. Travis		Wagons, spring seat for, J. F. King	
Drill bit, oil, J. Grubs		Washboard, L. Darling	
Drill, rock, H. C. Sergeant	202,060	Washing machine, Spain & Reynolds	
Electric machine, E. Weston		Watch, chronograph, C. H. Meylan.	
Elevator, hydraulic, C. W. Baldwin		Watch going barrel, F. Fitt Water closet cock, J. D. Sisson.	
Emery tools, flux composition for, A. Caesar Emery wheel clamp, A. J. Robinson		Water utilizing power of, J. C. Estey	
Engine, air and steam, H. E. Depp			
Feather renovator, E. H. Cowles		Water wheel, C. F. Smith	
	201,874 201,871	Weather strip, J. W. H. Doubler	202,007
Feather renovator, R. Hoover	201,874 201,871 202,030	Weather strip, J. W. H. Doubler	202,007 201,873
Feathers, bleaching, Viol & Duflot	201,874 201,871 202,030 202,078	Weather strip, J. W. H. Doubler	202,007 201,873 8,155
Feathers, bleaching, Viol & Duflot Fence, portable, H. M. Dake (r)	201,874 201,871 202,030 202,078 8,152	Weather strip, J. W. H. Doubler Wheel, C. Deaderick Wood boring machine, J. D. Shoots (r) Work box, P. B. Pickens	202,007 201,873 8,155 202,048
Feathers, bleaching, Viol & Duflot	201,874 201,871 202,030 202,078 8,152 202,040	Weather strip, J. W. H. Doubler	202,007 201,873 8,155 202,048
Feathers, bleaching, Viol & Duflot Fence, portable, H. M. Dake (r)	201,874 201,871 202,030 202,078 8,152 202,040 201,951	Weather strip, J. W. H. Doubler Wheel, C. Deaderick Wood boring machine, J. D. Shoots (r) Work box, P. B. Pickens	202,007 201,873 8,155 202,048 201,902
Feathers, bleaching, Viol & Duflot	201,874 201,871 202,030 202,078 8,152 202,040 201,951 202,058 201,983	Weather strip, J. W. H. Doubler Wheel, C. Deaderick Wood boring machine, J. D. Shoots (r) Work box, P. B. Pickens Wringer, S. Arnold  English Patents Issued to America April 9 to April 22, inclusive.	202,007 201,873 8,155 202,048 201,902
Feathers, bleaching, Viol & Duflot. Fence, portable, H. M. Dake (r). Fence post, R. W. McPherrin. Fence post, W. H. Roundy. Fence tightener, wire, E. C. Sears. Fence, water bed, J. F. Belue. Fence wire, barbed, T. G. Orwig	201,874 201,871 202,030 202,078 8,152 202,040 201,951 202,058 201,983	Weather strip, J. W. H. Doubler	202,007 201,873 8,155 202,048 201,902

Filter, water, J. M. Curtice. Firearm, breech loading, J. M. Whittemore. ... 201,970 Faucet.—W. D. Seal et al., Washington, D. C. Fire escape, H. Stacey ... 201,896 Firearm, magazine.—R. White et al., Lowell, Mass 

 Fire extinguisher, etc., Ellithorpe & Haas
 202,008

 Fire extinguisher F. Leclere
 202,085

 Fire extinguishing apparatus, J. W Stanton
 202,085

 Fire place, O. F. & O. C. Mehurin
 201,886

 Food, compressed, E. Grivel
 202,078

 Fruit picker, J. C. Wilker
 202,082

 Fruit picker, J. C. Miller
 202,071

 Game apparatus, E. C. Strange
 202,071

 Gas and electric conductor, E. F. Phillips
 202,047

 Gas lighter, Faloon & Iseminger
 201,918

 Gas lighting, C. D. P. Gibson
 202,018

 Gas manufacture
 4 C. Band
 202,058

 Gas lighting, C, D. P. Gibson.
 202,018

 Gas manufacture, A. C. Rand.
 202,050

 Gate, K. E. Rudd (r).
 8,149

 Grain binder, C. Colahan.
 201,938

 Grain separator, S. E. Adams.
 201,975

 Grate fender, T. F. Wilson.
 202,084

 Harness, double, A. B. Coleman.
 201,869

 Harness, double, A. B. Coleman.
 201,989

 Harrow, D. C. Reed.
 201,946

 Harrow, wheel, E. Bayliss (r).
 8,147

 Harvester, C. W. Levalley.
 202,036

 Hat and cap, Davis & Simmonson.
 202,036

 Heater, water, Matthews and Holt.
 201,835

 Hoops, making barrel, C. W. Thompson.
 202,073

 Horseshoes, weight for, J. Myers ... ..... 201,937 Journal bearing, T. H. King 202,034
Knlfe for opening cans, D. Martin 201,931 Knob and shank, door, P. Brady. ..... 201,906 Label holder, S. L. Lewis...... 201,928 

 Lamp, C. M. Cass
 201,867

 Lamp, alcohoi, J. W. Cooper
 201,913

 Lamp burner, E. E. Townsend
 202,074

 Lamp extinguisher, K. G. Tunk...... 202,076, 202,077 amp, night, H. Behn, Sr..... 201,864 atch, W. E. Sparks...... 201,958 

 Lock, L. Yale, Jr. (r)
 8,158

 Lock, P. Shellenback
 201,955

 Lock, C. Fichter
 201,877

 Locomotive exhaust mechanism, H. G. Ashton
 201,862

 Mill, grinding, B. L. Smith
 202,063

 Mill, grinding stones, R. Byrne
 201,990

 Millstandard recent T. P. Parton
 201

April 9 to April 22, inclusive.
Band saw mill.—W. H. Doane, Cincinnati, O. Blinds, adjusting.—E. B. Lake, —, N. J. Clock movement.—T. F. Breese, New Haven, Conn. 

...... 202,000 Electric apparatus.-H. C. Spalding, Bloomfield, N. J. Furniture manufacture. - W. Gardner et al., N. Y. city Gas, electric lighter.—J. W. Bartlett, N. Y. city. Gas regulator.—G. W. Thompson, Brooklyn, N. Y. Horseshoe nail machine.—J. E. Wheeler, Lynn, Mass. Match.—W. W. Batchelder, N. Y. city. Moulds for castings.-W. Aiken et al., Louisville, Ky Pig iron, refining.—T. S. Blair, Pittsburg, Pa.
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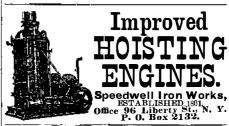
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