

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.

Woodworking Mach'y. Bentel, Margedant & Co., p. 251. Lubricator. See advt., Detroit Lubricator Co., p. 252. Poet of Poets. Whoever is entitled to this distinction, there is no doubt that the Esterbrook Falcon No. 048 is the pen of pens.

Send for List No. 7 of over 2,000 different new and second-hand machines, to Rollstone Machine Company, 95 Liberty Street, New York.

Heliographic or Blue Process Paper to take copies of Drawings, at Keuffel & Esser, 127 Fulton St., New York.

Wanted.—Machine for glazing or polishing linen collars and cuffs. C. Phillips, 82 Mark Lane, London, E. C., England.

Engines, 10 to 50 horse power, complete, with governor, \$350 to \$550. Satisfaction guaranteed. Nearly seven hundred in use. For circular address Heald & Morris (Drawer 127), Baldwinville, N. Y.

Pat's Mfg'd on royalty. A. B. McCool, Pottsville, Pa.

Steam Hammers, Improved Hydraulic Jacks and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Millstone Dressing Diamonds. Simple, effective, and durable. J. Dickinson, 64 Nassau street, New York.

Gould & Eberhard's Machinists' Tools. See adv., p. 254.

For Heavy Punches, etc., see illustrated advertisement of Hilles & Jones, on page 252.

Barrel, Key, Hoghead, Stave Mach'y. See adv. p. 254.

Magic Lanterns and Stereopticons of all kinds and prices. Views illustrating every subject for public exhibitions. Sunday schools, colleges, and home entertainments. 116 page illustrated catalogue free. McAllister Manufacturing Office, 49 Nassau St., New York.

Vertical Engines, varied capacity. See adv., p. 254.

Combined Concentric and Eccentric Universal and Independent Jaw Chucks. The Pratt & Whitney Co., Hartford, Conn.

For best low price Planer and Mather. and latest improved Sash, Door, and Blind Machinery, Send for catalogue to Rowley & Hermance, Williamsport, Pa.

The only economical and practical Gas Engine in the market is the new "Otto" Silent, built by Schleicher, Schumm & Co., Philadelphia, Pa. Send for circular.

The Sweetland Chuck. See illus. adv., p. 254.

Steam Pumps. See adv. Smith, Vaile & Co., p. 252.

The Porter-Allen High Speed Steam Engine. Southwork Foundry & Mach. Co., 430 Washington Ave., Phil. Pa. Knives for Woodworking Machinery. Bookbinders, and Paper Mills. Taylor, Stiles & Co., Riegelsville, N. J.

Small articles in sheet or cast brass made on contract. Send models for estimates to H. C. Goodrich, 66 to 72 Ogden Place, Chicago, Ill. Mention this paper.

Calcium Light Apparatus and Stereopticons at low prices. C. Beseler, 218 Centre Street, New York.

Bostwick's Giant Riving Saw Machine, adv., page 238. For Mill Mach'y & Mill Furnishing, see illus. adv. p. 236.

See New American File Co.'s Advertisement, p. 238.

Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 238.

Wanted.—Liberal inducements and facilities for locating large iron works. Address Iron, Manchester, N. H. Schools Open.—Send for Catalogue of Drawing Materials. Keuffel & Esser, New York.

25' Lathes of the best design. G. A. Ohl & Co., East Newark, N. J.

50,000 Emerson's Hand Book of Saws. New Edition. Free. Address Emerson, Smith & Co., Beaver Falls, Pa.

Cope & Maxwell M'fg Co.'s Pump adv., page 220.

The Berryman Feed Water Heater and Purifier and Feed Pump. L. B. Davis' Patent. See illus. adv., p. 220.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 222. Red Jacket Adjustable Force Pump. See adv., p. 220.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 220. 4 to 40 H. P. Steam Engines. See adv. p. 220.

Collection of Ornaments.—A book containing over 1,000 different designs, such as Crests, Coats of Arms, Vignettes, Scrolls, Corners, etc., will be mailed free on receipt of \$1. Address Palm & Fechteler, 6 West 14th Street, New York.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 205.

Combination Roll and Rubber Co., 68 Warren street, N. Y. Wringer Rolls and Moulded Goods Specialties.

Pure Water furnished Cities, Paper Mills, Laundries, Steam Boilers, etc., by the Multifold System of the Newark Filtering Co., 17 Commerce St., Newark, N. J.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock Mfg. Co., 30 to 38 Market St., Chicago, Ill.

First Class Engine Lathes, 30 inch swing, 8 foot bed, now ready. F. C. & A. E. Rowland, New Haven, Conn.

Ice Making Machines and Machines for Cooling Breweries, etc. Pictet Artificial Ice Co. (Limited), 142 Greenwich Street. P. O. Box 3033, New York city.

Jas. F. Hotchkiss, 84 John St., N. Y.: Send me your free book entitled "How to Keep Boilers Clean," containing useful information for steam users & engineers. (Forward above by postal or letter; mention this paper.)

Steel Stamps and Pattern Letters. The best made. J. F. W. Dorman, 21 German St., Baltimore. Catalogue free.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J. Presses, Dies, Tools for working Sheet Metals, etc. Fruit and other Can Tools. E. W. Bliss, Brooklyn, N. Y.

Supplement Catalogue.—Persons in pursuit of information on any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y. Wood-Working Machinery of Improved Design and Workmanship. Cordesman, Egan & Co., Cincinnati, O.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Presses & Dies (fruit cans) Ayar Mach. Wks., Salem, N. J. Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

NEW BOOKS AND PUBLICATIONS.

CHATTER BOX, JR.

This is a handsome quarto volume containing an uncommonly fine collection of pictures and verses for children, calculated to afford an endless variety of amusement for the youngsters. The typography is superior, the paper and binding strong. It is one of the best of juvenile books that has come under our notice. R. Worthington, publisher, 770 Broadway, New-York.

THE BOOK-KEEPER'S COMPANION. J. G. Beidleman, Philadelphia. Price 75 cents.

This little work, by Thomas A. Lyle, accountant, is intended for the guidance of students and inexperienced persons in opening a set of books and keeping accounts accurately.

LIGHT: A COURSE OF EXPERIMENTAL OPTICS, CHIEFLY WITH THE LANTERN. By Lewis Wright. London: Macmillan & Co.

The author has been very happy in his choice of experiments intended to develop the physical realities which underlie the phenomena of light and color, and has been quite as fortunate in having his efforts supported by his publishers. In addition to some two hundred engraved diagrams of experiments and apparatus are eight plain and colored plates finely illustrating polariscope objects, the spectrum and its teachings, interferences of polarized light, and the various actions of crystals upon direct and polarized light. These illustrations go a long way to replace the experiments for the general student, while they furnish many helpful suggestions to the teacher of experimental optics.

SCOTT-BROWNE'S TEXT BOOK OF PHONOGRAPHY. By Mr. and Mrs. D. L. Scott-Browne. New York: D. L. Scott-Browne.

The authors of this text book are widely known as successful teachers of phonography. Their experience and good judgment are manifest on every page, especially in the relative simplicity and writableness of the forms they use and the classification of these for easy learning.

A DICTIONARY OF ECONOMIC PLANTS. By John Smith. London: Macmillan & Co. \$3.50.

An enlargement and improved arrangement of the descriptive matter of the author's "Domestic Botany," published ten years ago. In this work the popular names of useful and ornamental plants are arranged alphabetically, followed by their systematic names and a compact statement of their history, products, characteristics, and uses. Mr. Smith's forty years of service as curator of the Royal Botanic Gardens, at Kew, have afforded him rare advantages for becoming practically acquainted with the plants which he describes. We have found the original work very handy and seldom disappointing as a book of reference, and can commend this improvement of it to all who have occasion to seek for general information respecting economic plants.

INDIANA: DEPARTMENT OF GEOLOGY AND NATURAL HISTORY. By John Callett, State Geologist, 1881. Indianapolis.

The newly established department for continuing the geological survey of Indiana is manifestly in good hands. This report is the first considerable attempt to illustrate the paleontology of the State, by the State. The new work covers the counties of Shelby, Fountain, Delaware, and Bartholomew. The report of our New York State Geologist, Professor James Hall, on the fossils of the Niagara group found at Waldron, Ind., is reproduced with thirty-two plates; seven plates give illustrations of some of the characteristic fossils of other formations, and there are twelve plates of fossil corals drawn and engraved by J. W. Van Cleave. The economic geology of Indiana is represented by about seventy quarries, mostly of limestone; some valuable beds of kaolin and coarser clays; and 216 coal mines. The development of the latter has only begun, yet Indiana ranks sixth in the list of coal producing States. The coal field covers nearly 7,000 square miles; a superior black coal prevails over an area of 600 square miles.

HAND BOOK OF THE ST. NICHOLAS AGASSIZ ASSOCIATION. By Harlan H. Ballard. Pittsfield, Mass.: The Author. 50 cents.

Two years ago the author suggested in St. Nicholas an extension of a society of young people which had been organized at Lennox, Mass., for the study of natural history, in imitation of the children's scientific societies of Switzerland. The suggestion took so well among the readers of St. Nicholas that something like three hundred chapters of the Agassiz Association have been started, their geographical range extending from England and Ireland to Texas, California, and Vancouver's Island. This little hand book tells how these societies are organized, and gives a good many practical hints with regard to the preservation of specimens, the purchase of young naturalists' supplies, etc. The spirit of the movement is excellent, and we should be glad to see a chapter established in every school district.

UNITED STATES COMMISSION OF FISH AND FISHERIES. Part VII. Reports of the Commission for 1879. Washington.

In addition to a review of the special work of the commission in 1879 are several valuable reports and communications, of which the more important are Professor Farlow's "Marine Algæ of New England," and Professor Verrell's report on the Cephalopods of the Northeastern coast of North America.

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.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) H. K. R. asks (1) what bruised Aleppo nutgalls are, and are they known by any other name. I find one of the ingredients in a receipt for ink in SUPPLEMENT, No. 157, and do not know the meaning of the expression. A. The galls referred to are blue or Aleppo nutgalls. They are excrescences due to insects found on certain varieties of quercus. When crushed (bruised) and digested with hot water they yield an extract containing a large per cent of tannin. 2. Can you refer me to some good work on electrotyping? A. See "Electrometallurgy," SUPPLEMENT, No. 310.

(2) J. C. H. asks how paper is prepared so that a brass pointer leaves a black mark on it. A. Dissolve a quarter of an ounce of pure sodium sulphide and half an ounce of sodium hyposulphite in a quart of rain water, filter the solution, and with it uniformly moisten the surface of the paper, then dry the latter under pressure between clean blotting paper.

(3) J. F. N. asks how gold and silver are refined at the U. S. Assay Office in New York, what kind of acid is used, and how is the silver precipitated? A. The bullion, after granulation, is boiled up with sulphuric acid, which dissolves the silver and leaves the gold behind. The silver is precipitated from this solution by strips of copper, which take its place in combination with the acid and produce blue vitriol, while the silver displaced is well washed and then melted into bars in the furnaces.

(4) I. S. asks: Will you please inform me how much salt and ice it will take to make a temperature of 22° Fah. A. Use ice and salt in the proportion of 12 of the former to 1 1/2 of the latter. The ice should be crushed and well mixed with the salt.

(5) E. T. P. writes: In a late issue of the SCIENTIFIC AMERICAN you gave a receipt for restoring rubber that had become hard and brittle, by means of the vapor arising from kerosene. I tried the experiment with a glass fruit jar, the rubber suspended just above the oil. For thirty days, could discover no change in the rubber, and then substituted benzine, where the rubber has now hung for one week, but as yet there is very little change. Can you tell me why the experiment is not successful? A. Heat the oil over a sand bath away from fire.

(6) J. J. R. writes: 1. In Notes and Queries of your issue of August 19, No. 9, R. D. asks about what is used for dark bronze; what kind of copper must be used, is it the metallic copper or the perchloride, same as the iron salt? A. It should read perchloride of iron and perchloride of copper. 2. After drying must this bronze be brushed or polished in some way to give it a glossy surface, and must it also be lacquered to keep so? A. It can be burnished with the burnishing tool or the rag buff. It stands exposure to the air very well, but retains the finish better if coated with a very thin clear lacquer of shellac in alcohol.

(7) C. W. asks: With what paint or material can I coat a water tank lined with sheet lead, so as to prevent the action of the water on the lead? A. Use pure asphaltum varnish. Give the surface two coats of this and let both dry thoroughly before water is allowed contact with them. After the first contact the coating will not materially affect the taste of the water.

(8) Miss M. C. asks (1) how coal oil is found. What does the earth look like? A. Consult "Coal and Coal Oil," and "Petrolia." Address for these and other books on the subject the booksellers who advertise in this paper. 2. If it should be near a well what would be the effect on the water? A. The water under such circumstances would be contaminated by the oil.

(9) A. D. C. asks for a recipe for mahogany stain to use on beech wood. A. A mixture of one part of glue, six of water, and sufficient brown oxide of iron to give the desired tint of color to a trial stick of wood, are mixed together by heat and stirring; more glue may be added if the coat is not sufficiently adhesive or rubs off; this is then, while hot, brushed over the article to be stained and well rubbed into the grain with a cloth. Two coats may be added if the wood is very porous or rough. The article, after drying, is then varnished over with a shellac varnish and polished when dry with a small quantity of linseed oil.

(10) W. B. N. asks: What are the ingredients of the soda dispensed from the soda fountains for drinking? A. The liquid is a solution, under pressure, in water of carbonic acid (gas). The gas is generated under considerable pressure in a closed vessel by the

action of diluted sulphuric acid upon marble dust or ground marble. It is passed over into the cold water which absorbs it. The names soda or soda water are misnomers, as the liquid contains no soda. It was so miscalled from an imagined resemblance between it and the older effervescent beverages prepared from bicarbonates of soda or potassa and vegetable acids or acid salts.

(11) A. O. writes: I bought last year several barrels of apple vinegar which is now old and strong enough for use, but we find it is made partly at least of rotten apples, which give it a peculiar unpleasant taste. Can you advise some remedy? A. We know of no practical way of effectually removing the taste. You might try the following, which will in any event improve the taste and appearance of the liquid: Scald out a clean cask, add to and stir up with the vinegar one pound of fine granular bone black and a quarter of a pound of bisulphite of lime, then the whites of three eggs. Let it stand twenty-four hours, and carefully rack off the clear vinegar from the sediment into the clean cask. This should be kept in as cool a place as possible.

(12) J. S. P. asks: 1. Please give a receipt for making soft solder such as the tops of canned goods are sealed up with. All that I can get is too hard, as it takes too much heat to open the cans. A. Melt together lead, 1 1/4 pounds; tin, 2 pounds, bismuth, 2 ounces. The lead should be melted first, the tin added next, and finally the bismuth stirred in well just before pouring. 2. Please give receipt for making ink for marking cotton bales, one not easily washed off by exposure or blurred by handling—a blue black. A. Dissolve about 6 ounces of asphaltum (genuine) in 1 1/2 pint of oil of turpentine; you can color with a sufficient quantity of lampblack or mineral black.

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

J. M.—It is muscovite and iron sulphide—pyrite.—J. W.—The specimen is quartz. It is of no value unless of exceptional quality and procurable in large quantity.

COMMUNICATIONS RECEIVED.

Relation of Proportions of Pyramid to its Circle. By W. F. Q. On Parhelia. By L. S.

[OFFICIAL.]

INDEX OF INVENTIONS

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

September 26, 1882.

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 25 cents. In ordering please state the number and date of the patent desired and remit to Munn & Co., 261 Broadway, corner of Warren Street, 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.

Table listing various inventions and their patent numbers, including items like Addressing machine, Animal catcher, Annunciator, Axle tap wrench, Axle, vehicle, L. P. Warner, Ball, Banjo, Bar, Barrel making machine, Basket making machine, Bearing, anti-friction, E. Salomon, Bed bottom, adjustable spring, M. N. Lovell, Beehive, J. Phillips, Beer, etc., apparatus for cooling, Mayer & Jungensfeld, Bell, call, J. Y. Fairman, Bell, door, J. J. Johnston, Beverage, aerated tonic, C. H. Frings, Binder, automatic, W. Bayley, Binder, automatic, G. F. Green, Binder, self, Whiteley & Thomas, Bit, See Bridge bit, Block, See Printing block, Blower, fireplace, B. G. Covington, Boiler, See Wash boiler, Boiler furnace, M. S. Foote, Bookbinding, H. H. Hoffmann, Book-holder and arm rest combined, J. J. Armstrong, Jr., Bookmakers' table shears, gauge for, E. P. Donnell, Boot or shoe sole fastening, S. W. Robinson, Bottle packing box, E. L. Mueller, Bottle stopper, G. & H. E. G. Luyties, Box, See Bottle packing box, Egg box, Bracelet, A. Engelmann, Brake, See Car brake, Brick elevator, J. C. Bobzien, Brick machine, G. Davis, Bridges, guard gate for swing, J. Savanson, Bridle bit, E. R. & C. E. Cahoon, Broiler, A. H. Eke, Broom socket, A. S. Flint, Burial case corner, G. W. Comee, Burner, See Garbage burner, Buttons from plastic material, manufacture of, P. L. Sylvester, Cable traction, O. H. Jadwin, Can filling apparatus, R. C. Anderson, Cant-dog, W. Peabody, Car brake, Widdifield & Button, Car brake, electric, P. V. Conover, Car coupling, K. S. Blanchard, Car coupling, D. Carrough, Car coupling, J. E. H. Chapman, Car coupling, D. W. Deal, Car coupling, D. W. Glidden, Car coupling, H. E. Hawk

Car coupling, F. M. Hazleton.....	265,065	Grain conveyer, H. Coker.....	265,020	Propeller, reciprocating, R. Smith.....	264,903	Wire coiling machine, J. A. Coultaus.....	265,026
Car coupling, J. W. Oulton.....	265,133	Grain drill gauge, P. Devening.....	265,093	Propelling boats, apparatus for, Tod, Jr., & Bucker.....	265,185	Wire, composition for treating iron, P. Tolman et al.....	264,971
Car coupling, J. E. Smith.....	265,162	Grate bar and furnace, W. H. De Valin.....	265,032	Pruning implement, F. O. Slanker.....	265,161	Work supporting frame, C. G. Johnsen.....	265,093
Car spring, S. A. Bemis.....	264,921	Grate fender, Stedman & Barker.....	265,174	Pug mill, A. Hall.....	264,875	Wrench, See Axle tap wrench.	
Car, street, S. Howe.....	264,948	Grate, fire, J. Van.....	265,189	Pully blocks, anti-friction bearing for, H. O. Winsor.....	264,989	Wrench, H. Tregellas.....	265,188
Car, street railway, S. Bissell.....	264,849	Grating, illuminating, J. Jacobs.....	265,090	Pump, A. A. Hinds.....	265,080	Writing, device for holding the fingers in, C. I. Wallis.....	265,193
Cars by steam, warming railway, W. H. Ward.....	264,913	Grinding machine, grain, C. F. Shumaker.....	265,160	Pump, J. Walcher.....	265,080		
Cars, device for changing gauge of railway, D. Anderson.....	264,991	Grinding mill, roller, S. L. Bean.....	265,192	Pump, rotary, F. M. Roots.....	264,962		
Carbon points, device for forming sockets for, A. Swan.....	264,970	Grinding mill frame, S. P. Walling.....	265,002	Punching and shearing machine, A. Campbell.....	265,016		
Carpeting, P. W. Locke.....	264,889	Gun, machine, S. Federson.....	264,897	Rack. See Pool ball rack.			
Carriage gear, G. E. Bartholomew.....	265,001	Hammer, atmospheric, J. C. Butterfield.....	264,859	Railway rail, A. C. Vaughan.....	264,976		
Carrier. See Egg carrier.		Handle. See Satchel, etc., handle.		Reaping or mowing machine knife, V. Lapham.....	265,105		
Cart, dog, E. Bowman.....	265,014	Harness, J. D. Blaker.....	264,850	Recorder. See Telegraph recorder.			
Cart, road, J. T. Barnes.....	264,989	Harness, G. Robinson.....	265,148	Refrigerator, L. F. De Voe.....	264,865		
Casting steel ingots, mould bottom for, E. A. Barnes.....	264,847	Harness thill loop, W. K. Rairigh.....	265,142	Refrigerator, C. G. Wiesner.....	265,202		
Cellulose, plastic compound from soluble, E. Weston.....	264,987	Harpichord, L. S. Burridge.....	264,856	Register. See Fare register.			
Chair. See Operachair. Rocking chair.		Harrow, J. Frey.....	264,872	Regulator. See Electric generator regulator.			
Check rower reel and drill, L. E. Watermann.....	265,197	Harrow tooth, H. S. Howard.....	265,084	Rocker for chairs, adjustable, E. W. Andrews.....	264,917		
Chuck, drill, C. Gage (r).....	10,205	Harvester, sheaf dumper for self-binding, J. Pearce.....	264,896	Rocking chair, spring, G. Hunzinger.....	264,880		
Chuck, drill, G. S. Rominger.....	265,151	Head dress puff, E. L. Demorest.....	264,935	Roller mill, feed mechanism, N. W. Holt.....	265,081		
Churn, H. Hays.....	265,064	Hedge trimmer, W. F. Throckmorton.....	265,182	Roof for hay or straw stacks, portable, J. H. Bean.....	265,003		
Churn motor, A. Johnson.....	265,094	Hél, J. G. Ross.....	264,963	Rotary steam engine, G. Hopkins.....	265,082		
Cigar press, G. Trostel.....	264,973	Heel plate and ice creeper, combined, C. Story.....	264,968	Rubber, treating vulcanized India, J. C. Titzel.....	265,184		
Climbing device, A. Ward.....	265,195	Hinge, awning blind, F. B. Brown.....	264,852	Sash fastener, S. R. Hawley.....	264,945		
Cloth cutting machine, W. J. Mikels.....	264,964	Holder. See Bookholder. Napkin holder. Neck-tie holder. Pillow sham holder.		Satchel, etc., handle, L. Messer.....	265,125		
Clothespin, J. Speery.....	265,171	Hook. See Trace hook.		Saw filing machine, gin, J. P. Butler.....	265,216		
Clover huller, D. Lippy.....	265,111	Hoop, P. England.....	265,224	Saw hanging device, E. P. Donnell.....	265,037		
Clutch, friction, E. F. Spaulding.....	265,170	Horse detacher, J. H. Barrett.....	265,000	Scaffold support, R. Deeves.....	264,934		
Coal scuttle and ash sifter, combined, C. Irwin.....	265,230	Horse, device for stopping runaway, Goudet & Durozad.....	265,059	Screw conveyor, W. W. Hewitt.....	265,078		
Cock, J. H. Solis.....	265,168	Hose coupling, C. Chadwick.....	265,218	Seed drill, J. Hamilton.....	264,876		
Cock, M. J. Walsh.....	265,194	Huller. See Clover huller.		Seeding machine, H. G. Swope.....	264,908		
Collar and hames, combined, T. Broderick.....	264,922	Hydraulic press accumulator, J. W. Hyatt.....	265,229	Sewing and cutting table, F. Kennerly.....	264,896		
Comb. See Curry comb.		Indicator. See Speed indicator.		Sewing machine, T. J. Le Count.....	264,887		
Compound engine, H. D. Dunbar.....	264,937	Iron and wood gate, combined, J. J. Johnston.....	264,882	Sewing machine, buttonhole, J. F. Snediker.....	265,167		
Cork, bottle, C. H. Bennett.....	265,007	Ironing machine, Sternberger & Tees.....	264,966	Sewing machine hemmer, M. L. Baird.....	264,845		
Cork extractor, A. Slagle.....	264,902	Jack. See Lifting Jack. Wagon jack.		Sewing machine quilting attachment, F. M. German.....	264,943		
Couch, R. C. Millings.....	265,127	Jack, boy's, H. Lynch.....	265,119	Sewing machine treadle movement, P. F. Jonte.....	265,099		
Coupling. See Car coupling. Hose coupling. Pipe coupling. Thill coupling.		Joint. See Pipe joint.		Shaft and driver therefor, reciprocating, J. Barker.....	264,997		
Coupling and lynch pin, I. H. Trabue.....	264,910	Journal bearing, G. P. Fenner.....	265,047	Shoe and leather polisher, Eddlemon & Walker.....	265,041		
Crate. A. J. Horsey.....	265,083	Kitchen cabinet, G. W. Bacon.....	264,996	Shoe nail, J. E. Maynard.....	264,953		
Crib, child's, N. H. Van Winkle.....	265,190	Knife. See Reaping or mowing machine knife.		Shot drying machine, lead, J. Farrell.....	265,046		
Crushing and shelling machine, C. & W. Finaz.....	264,869	Ladder, step, E. L. Staples.....	265,173	Shovel. See Snow shovel.			
Crutch, F. D. Randall.....	265,144	Lamp carbon, incandescent, E. Weston.....	264,985	Shutter bower, S. Frost.....	264,873		
Culinary tool, compound, J. C. Smith.....	265,164	Lamp, electric arc, J. R. Finney.....	265,049	Shutter fastener, F. B. Brown.....	264,853		
Cultivator, W. Blake.....	265,009	Lamp, electric arc, Finney & Campbell.....	265,080	Sifter, cylinder, J. A. Donovan.....	265,038		
Cultivator, J. J. Motley.....	264,957	Lamp, electric arc, E. Weston.....	264,973	Slate frame, H. C. Goodrich (r).....	10,207		
Curry comb, M. Sweet.....	264,907	Lamp for bicycles, or other vehicles having spider wheels, hub, T. S. Miller.....	264,955	Sled, R. A. Haldeman.....	265,062		
Cuspidor, J. A. Mathieu.....	265,122	Lamp socket, incandescent electric, A. F. Barnes.....	264,919	Sleigh, bob, E. C. Schroeder.....	265,155		
Cutter head, J. Stamm.....	264,906	Lamps, carbon conductor for electric, E. Weston.....	264,986	Smelting furnace, C. H. Murray.....	265,128		
Derrick net for stacking, G. Wilkinson.....	264,915	Lamps of equal resistance, apparatus for making incandescent, H. S. Maxim.....	264,951	Smoke consumer, locomotive, Spear & Wight, Jr.....	264,905		
Disintegrating fibrous material, machine for, F. Liff.....	265,117	Lamp shunting attachment for electric arc, E. Weston.....	264,984	Snow shovel, H. C. Cole.....	265,021		
Ditching and file laying machine, A. S. Hughes.....	265,085	Lantern, Mink & Alling.....	264,966	Sole fastenings, machine for driving, L. Goddu.....	265,227		
Draught equalizer, D. Carr.....	265,018	Lattice pillars, device for forming, R. B. Lee.....	265,106	Sower, broadcast, S. S. Speicher (r).....	10,209		
Drawer pull, E. J. Blackham.....	265,008	Leather skiving machine, E. Gott.....	264,874	Spark arrester, French & Mellon.....	265,055		
Dredging apparatus for bars, R. D. Hume.....	264,950	Lens and manufacture thereof, T. A. Willson.....	265,206	Speed indicator, W. G. Richards.....	264,900		
Dredging machinery, A. C. Both.....	264,851	Letter and figure, J. Gunning.....	265,061	Spout, sap, G. J. Record.....	265,346		
Drier. See Fruit drier. Tobacco drier.		Lifting jack, G. R. Elliott.....	265,042	Spring. See Car spring. Mattress spring.			
Egg box, J. L. Stevens.....	265,176	Lifting jack, H. H. Finn.....	265,048	Squaring or plane dressing the end of bars or rods, mechanism for, J. W. Heyer.....	264,877		
Egg carrier, J. L. Stevens.....	265,175	Liniment, horse and cattle, P. Corcoran.....	265,219	Stand. See Switch stand. Toilet stand.			
Electric conductor, J. V. Nichols.....	265,130	Liquor mixer and strainer, combined, T. Miller.....	265,126	Steam engine, A. T. Powell.....	265,138		
Electric light carbons, manufacture of, E. Weston.....	264,988	Lock. See Nut lock.		Steam trap, J. Park.....	264,895		
Electric generator regulator, E. Weston.....	264,980	Lock, seal, and label holder, T. A. Platt.....	265,136	Steel, applying alloys to, P. De Villiers.....	265,221		
Electric machine, dynamo, G. W. Beardslee.....	265,004	Loom, Crompton & Wyman.....	264,864	Stereoscope and graphoscope, combined, W. H. Lewis.....	265,110		
Electric machines, automatic cut-off for dynamo, E. Weston.....	264,979	Lubricator, A. W. Swift.....	265,180	Stopper. See Bottle stopper.			
Electric motor, J. Batley.....	264,848	Lumber cribs, device for loading and landing floating, S. T. McKnight.....	264,892	Storage batteries, method of and apparatus for "forming," H. S. Maxim.....	264,952		
Electric wires, device for laying and holding underground, H. C. Register.....	265,147	Mattress spring, J. A. Widemann.....	265,201	Stove, M. C. Armour.....	264,994		
Electric wires, underground conduit for, C. H. O'Bryon.....	265,131	Measure, grain, B. Chamberlain.....	265,019	Stove, C. A. Williamson.....	265,204		
Electrical transmission of power, system for the, E. Weston.....	264,981	Mechanical movement, J. A. Hafner (r).....	10,206	Stove grate, H. L. Anderson.....	264,992		
Electro magnetic motor, E. Weston.....	264,982	Medical compound for burns, scalds, etc., L. E. Bush.....	264,857	Stove grate, E. Bussey.....	264,858		
Elevator. See Pneumatic elevator. Portable elevator.		Metals by electrolysis, apparatus for separating, H. R. Cassel.....	264,927	Stove, oil, A. S. Dinsmore.....	264,866		
Elevator bucket, P. Ehlers.....	264,930	Metals, process of and apparatus for separating, H. R. Cassel.....	264,928	Stove, parlor cooking, H. V. Fisher.....	264,940		
Elevator gate, automatic, G. V. Delue.....	265,220	Middlings purifier, J. D. Hurst.....	265,087	Stove, vapor, W. Heston.....	264,946		
Embossing machine, G. W. Garnar.....	265,057	Mill. See Pug mill. Roller mill. Windmill.		Straw stacker, M. T. Reeves (r).....	10,208		
Engine. See Compound engine. Rotary steam engine. Steam engine. Wind engine.		Mortar or concrete, machine for mixing, H. W. Caldwell.....	264,861	Sulky, F. Doherty.....	265,035		
Engines, diagram instrument for, J. B. Webb.....	265,198	Motor. See Electric motor. Electro magnetic motor.		Suspension device, H. R. Heyl.....	264,947		
Evaporating train and furnace for cane juice, etc., open, F. Cook.....	265,024	Motor, E. J. Tomlinson.....	265,186	Switch stand and lock, D. O'Connor.....	265,132		
Exercising ball for athletes or gymnasts, H. B. Cook.....	264,931	Musical instrument, mechanical, G. W. Ingalls.....	265,089	Syringe, S. G. Smith.....	264,904		
Extractor. See Cork extractor.		Nail. See Shoe nail.		Table. See Folding table. Sewing and cutting table.			
Fabrics machine for folding and cutting, N. H. Bruce.....	265,015	Nail feeding mechanism, Smith & Doig.....	265,166	Table, H. W. Ward.....	264,912		
Fare register and recorder, N. A. Ransom.....	265,145	Napkin holder, J. Hugill.....	264,879	Tan bark for transportation, preparation of, J. Sherman, Jr. (r).....	10,211		
Faucet, G. T. Freeman.....	265,053	Necktie holder, G. L. Lewis.....	265,108	Tapping water and gas fittings, machine for, E. F. Spaulding.....	265,169		
Fence, T. Huston.....	265,088	Necktie, reversible, G. L. Lewis.....	265,109	Teaching music, apparatus for, H. F. Courter.....	264,932		
Fence and gate post, A. O. Barnes.....	264,998	Nut lock, J. B. Deeds.....	264,933	Telegraph, printing, Plush & Phelps.....	264,961		
Fence post, iron, J. J. Johnston.....	265,083	Opera chair, B. H. Koehling.....	265,103	Telegraph recorder, chemical, F. Anderson.....	265,210		
Fence wire, barbed, J. T. Cook.....	265,025	Organ flute, N. H. Marshman.....	264,801	Telegraph transmitter, automatic, F. Anderson.....	265,212		
Fence wire stretched, I. C. Burgett.....	264,923	Overalls, M. Greenbaum.....	264,944	Telegraphic perforator, F. Anderson.....	265,211, 265,213		
Fencing, barbed, G. Elsey.....	265,223	Overcoat, H. Emanuel.....	265,043	Telephone exchange system, signaling mechanism for, G. W. Coy.....	265,028		
Fender. See Gate fender.		Package for oysters, etc, C. L. Pond.....	265,137	Telephone system, switch board, J. Jenson.....	265,092		
Fenster, L. B. Beaumont.....	265,006	Padlock, permutation, S. H. Leikvol.....	265,07	Thill coupling, O. Tower.....	265,187		
Fiber, etc., machine for breaking and scutching vegetable, O. Pagan.....	264,900	Paint, I. T. Tichenor.....	265,183	Tinman's furnace, D. M. Shoemaker.....	265,157		
Fibers, machine for obtaining, G. Sanford.....	265,154	Paint, self luminous, W. H. Balmain.....	264,918	Tobacco drier, J. H. Fizer.....	265,051		
Fibrous plants, apparatus for reducing, G. Sanford.....	265,153	Paper cutting machine, C. E. Torrance.....	264,972	Toilet stand, R. D. Young.....	265,208		
Fifth wheel, F. M. Priestly.....	265,140	Pauls used in lifting jacks, etc., operating, F. M. DeWeese.....	265,084	Toy, C. C. Wurst.....	10,210		
Filter, J. N. Stevens.....	265,177	Pen, stylographic fountain, F. C. Brown.....	264,854	Toy pistol, Haviland & Gunn (r).....	10,210		
Filter press, A. C. Landry.....	265,104	Pen, stylographic fountain, J. Ullrich.....	264,974	Trace hook, W. K. Raleigh.....	265,143		
Filtering apparatus, A. Fiske.....	264,870	Perforators, automatic feeder for, F. Anderson.....	265,209	Trap. See Steam trap.			
Firearm sight, G. W. Prior.....	264,899	Pianoforte, W. H. Squire.....	265,172	Trimmer. See Hedge trimmer.			
Fireplace, J. G. Smith.....	265,163	Pile, J. W. Putnam.....	265,141	Truck, R. D. Hume.....	264,949		
Fireplace attachment, J. P. Winter.....	265,190	Pillow sham holder, G. B. French.....	265,054	Tube cutter or expander, A. C. Hunsberger.....	265,086		
Folding table, C. D. Blakeslee.....	265,010	Pin. See Clothespin. Coupling and lynch pin.		Tuyere, W. H. H. Sheets.....	265,156		
Frame. See Grinding mill frame. Slate frame. Work supporting frame.		Pipe coupling, W. H. Ward.....	264,914	Valve, balanced globe, M. D. L. Swank et al.....	265,173		
Fruit drier, J. J. Johnston.....	265,096	Pipe joint, manifold, W. W. Doolittle.....	264,936	Valve, steam actuated, W. F. Garrison.....	265,226		
Fruit washer, C. E. Marshall.....	265,120	Pipes, expansion coupling for steam, L. Shook.....	264,965	Vase flower, J. J. Johnston.....	265,098		
Furnace. See Boiler furnace. Smelting furnace. Tinman's furnace.		Planing machine, Orton & Berry.....	264,959	Vase, garden, J. J. Johnston.....	265,097		
Furnace grate, F. Shriver.....	265,158	Planter and fertilizer distributor, combined cotton, J. R. Owen.....	265,134	Vehicle, H. C. Sears.....	264,901		
Furnace grate, boiler, Downer & Mohr.....	265,039	Planter, check rower, and drill, corn, S. Smith.....	265,165	Vehicle wheel, C. Drauly.....	265,040		
Furnace lining and fire brick compound, J. Henderson.....	265,069 to 265,075	Planter, hand corn, Preston & Stapleton.....	265,139	Vehicle wheel, M. McDowell.....	265,124		
Furnace lining compound, I. Henderson.....	265,076	Planter, potato, S. H. Fish.....	265,226	Velocipede, F. G. Burley.....	264,855		
Furnace linings and fire brick, manufacture of factory, J. Henderson.....	265,077	Plow, K. Kellogg.....	264,885	Velocipede, Gable & Pelton.....	265,056		
Furnace linings, manufacture of refractory, J. Henderson.....	265,066	Plow, ditching, G. O. & A. Kirkpatrick.....	265,102	Ventilator. See Window ventilator.			
Furnaces, etc., lining, J. Henderson.....	265,067	Plow, harrow, seeder, and roller, combined sulky, D. C. Beatty.....	265,005	Vise, carpenter's, A. Fahles.....	264,868		
Garbage burner, domestic, A. N. Bell.....	264,920	Plow, sulky, N. S. Barger.....	264,846	Wagon jack, D. C. Swett.....	265,179		
Gas consumption and manufacturing to a standard, registering, H. H. Edgerton.....	265,222	Pneumatic cylinder for machinery, J. C. Butterfield.....	264,860	Wagon, spring board, W. H. Vines.....	264,911		
Gate. See Elevator gate. Iron and wood gate.		Pneumatic elevator for railways, C. A. Needham.....	265,129	Wash boiler, S. Cox.....	265,027		
Gate weight, J. J. Johnston.....	264,881	Pocket, safety, H. B. Gross.....	265,228	Washer. See Fruit washer.			
Grain binder, C. P. Shufelt.....	265,159	Pool ball rack, W. M. Bates.....					

Dressing case, G. R. Spear..... 265,548
 Drill or plow point, adjustable, C. E. Stonesifer..... 265,288
 Egg tester, C. F. Hecker..... 265,413
 Ejector for raising liquids, L. A. Conord..... 265,246
 Electric lighting apparatus, governor valve for, G. A. Tabourin..... 265,290
 Electric machine regulator, dynamo, J. W. Langley..... 265,519
 Electroplating machines, attachment to dynamo, S. M. Puffer..... 265,340
 Elevator. See Package elevator.
 Elevator gate, automatic, J. F. S. Smith..... 265,342
 Elevator safety attachment, W. E. Sawyer..... 265,448
 Elevator shaft doors, operating, F. H. Abeel..... 265,231
 Embroidery hoops, device for holding, S. E. Lincoln..... 265,521
 End gate, M. J. Rivard..... 265,440
 Engine. See Rotary engine. Traction engine.
 Engine, B. C. Vanduzen..... 265,473
 Excavating machine, F. Jonas..... 265,325
 Extension table, J. C. Vetter..... 265,349
 Eye-glasses, J. Schaffer..... 265,449
 Faucet, J. G. Stapf..... 265,457
 Feather renovator, A. Speirs..... 265,453
 Feed water heater, J. L. Krauser..... 265,425
 Feed water regulator, S. C. Salisbury..... 265,542
 Fence, I. L. Landis..... 265,518
 Fence gate, C. Marsh..... 265,526
 Fifth wheel, H. D. Palmer..... 265,429
 File box, G. W. Tinscher..... 265,467
 Filter, water, L. B. Sanborn..... 265,283
 Fire escape balcony, J. B. Wickersham..... 265,551
 Fire escape ladder, T. Howe..... 265,293
 Fire escape ladder, T. Miller..... 265,531
 Fish safe, D. Schmidt..... 265,544
 Flour bolt, T. H. Neander..... 265,428
 Frame. See Tunnel frame.
 Fruit drying apparatus, S. Culver..... 265,394
 Fuel burning pulverulent, E. Tourangin..... 265,347
 Furnace. See Reverberatory furnace.
 Gauge tube, L. M. Fleet..... 265,312
 Garden tool, J. J. Swain..... 265,400
 Gas burner, J. W. Plunkett..... 265,438
 Gas engines in torpedo boats, operating, E. W. Kellogg..... 265,423
 Gas motor, liquid carbonic acid, A. Gateau..... 265,493
 Gate. See Elevator gate. End gate. Fence gate. Swinging and lifting gate.
 Gate, W. W. Newcomb..... 265,274
 Grider, arched, P. H. Jackson..... 265,321
 Glass mould and manufacture of glass boxes, T. B. Atterbury..... 265,299
 Glass mould and manufacture of glass clock cases, T. B. Atterbury..... 265,300
 Glassware, ornamental, C. N. Brady..... 265,237
 Grain binder, W. Aldrich..... 265,232
 Grain binder, V. Henry..... 265,317
 Grain binner and corn husker, combined, C. H. Lynde..... 265,269
 Grain screen, Esmond & Ford..... 265,398
 Grain ventilator, E. J. Barr..... 265,370
 Gridiron, G. W. Cottingham..... 265,391
 Grinding mill, D. C. Stover..... 265,289
 Halter for horses, H. G. Farr..... 265,252
 Head covering, W. H. Rogers..... 265,541
 Heater. See Car heater. Feed water heater.
 Hoisting machine, T. J. Chaffin..... 265,384
 Holder. See Bag holder. File holder. Rein holder. Sawmill log holder.
 Hook. See Belt hook.
 Hoopie, D. T. Warren..... 265,351
 Horse detacher, W. W. Hamilton..... 265,316
 Horseshoe, W. G. Howell..... 265,418
 Iron. See Sad iron.
 Joint coupling, O. E. Winger..... 265,550
 Jug, Robinson & Whitmore..... 265,540
 Kiln. See Brick kiln. Lime kiln.
 Kitchen cabinet, T. Billington..... 265,373
 Knife grinding machine, O. Bryant..... 265,482
 Knitting loom, welt thread, J. J. Adgate..... 265,296
 Knitting machine lock, A. Angst..... 265,359
 Label, post office box, B. Irwin..... 265,420
 Ladder and adjustable bench, combined step, M. H. Tyler..... 265,471
 Lamp and holder for the same, electric, T. A. Edison..... 265,311
 Lamp, electric, J. H. Guest..... 265,315
 Lamp, electric, S. Waters..... 265,475
 Lamp, electric incandescent, J. H. Guest..... 265,410
 Lamp support, electric, W. Wheeler..... 265,292
 Land roller, C. M. Riddle..... 265,539
 Lantern for street lamps, G. Bray..... 265,377
 Lard and butter cutter, D. T. Bryan..... 265,380
 Latch, locking, G. Voll..... 265,474
 Leather scouring and hide working machine, A. Whiting..... 265,293
 Lime kiln, J. Zellweger..... 265,478
 Lock. See Knitting machine lock. Nut lock.
 Lock plates, machine for bending, Donahue & Cone..... 265,396
 Lock strike, J. Hoover..... 265,417
 Locomotive, E. Coleman..... 265,388
 Loom, J. D. Cottrell..... 265,486
 Loom shuttle, A. J. Laundry..... 265,380
 Loom temple, A. Isherwood..... 265,264
 Low water detector, electrical, E. H. Ashcroft..... 265,364
 Magnet, electro, T. Cochran..... 265,485
 Marble, composition for treating sulphates of lime for the manufacture of artificial, R. Josia..... 265,501 to 265,515
 Mechanical movement, W. C. Hartmann..... 265,411
 Milk can, G. W. Evans..... 265,399
 Milk cooler, J. H. Rudy..... 265,282
 Mill. See Cider mill. Grinding mill. Windmill.
 Millstones, bosom staff for, W. Lehmann..... 265,267
 Motion, machine for transmitting rotary, W. H. & C. A. Holcombe..... 265,260
 Motor. See Churn motor. Water motor.
 Mower, D. C. Markham..... 265,525
 Mowers or reapers, connecting rod for, O. P. Drury..... 265,300
 Musical instruments, water key for brass, J. Head..... 265,498
 Nitro-cellulose, manufacture of, H. Parkes..... 265,337
 Nut lock, S. E. Shute..... 265,285
 Oil by means of a solvent, apparatus for extracting, M. Lancaster..... 265,517
 Oven, bake, E. Geneste..... 265,405
 Overcoat, P. J. Oberst..... 265,538
 Overshoe, E. B. Preston..... 265,389
 Oysters and similar shell-fish, preserving, Scott, Jr., & Freeman..... 265,355
 Package elevator, endless, G. W. Brown..... 265,288
 Package fastener, P. A. O'Malley..... 265,276
 Packing, metallic rod, T. Tripp..... 265,469
 Paddle wheel, feathering, E. Thiele..... 265,346
 Pads, floor-mould for forming elastic cord and buttons, F. G. Powers..... 265,434
 Paint, J. B. Cornell et al..... 265,389
 Paint burner, J. A. Felt..... 265,253
 Pants attachment, H. J. Lyon..... 265,524
 Paper, production of relief stipple, C. Ross..... 265,444

Peas, machine for, cleaning and grading, W. H. Felthousen..... 265,491
 Peg cutter, W. R. Stringfield..... 265,458
 Pencil class, J. M. Whitson..... 265,476
 Pianos, device for moving, R. L. Thompson..... 265,465
 Pipe. See Water, gas, sewer, and drain pipe.
 Piping, bars, or shafting, machine for cooling and straightening metallic, H. Kellogg..... 265,265
 Planter, broadcast seed, A. J. Tibbits..... 265,466
 Planter, hand corn and bean, A. Hoag..... 265,414
 Planting machine, corn, J. H. Jones..... 265,326
 Plow, R. F. Cochran..... 265,484
 Plow, shovel, W. O. Johnson..... 265,324
 Plow side hill, R. I. Knapp..... 265,328
 Plow, steam, R. Stone..... 265,345
 Powder. See Baking powder.
 Press. See Baling press. Cotton press.
 Printing machine, Anthony & Harvey..... 265,233
 Printing machine, Anthony & Taylor..... 265,298
 Printing machine sheet delivery apparatus, W. Scott..... 265,546
 Pulleys, manufacture of, J. Reese..... 265,441
 Pump, W. D. Hooker..... 265,261
 Pumps, apparatus for operating, Martin & Harthorn..... 265,527
 Rack. See Shade rack.
 Radiator, steam, Pierce & Bond..... 265,269
 Railway, J. M. Reid..... 265,538
 Railway rail-coupling, G. W. Baker..... 265,479
 Railway rail tie bar, E. D. Samain..... 265,543
 Railway switch, S. Goodhue..... 265,257
 Reamer, expanding, V. Moeslein..... 265,272
 Refrigerating apparatus, J. Eurlight..... 265,250
 Refrigerator, Goetichus & Shults..... 265,494
 Refrigerator box, J. H. Hogwood..... 265,415
 Regulator. See Electric machine regulator. Feed water regulator.
 Rein holder, S. W. Day..... 265,307
 Return ball, C. Cureton..... 265,487
 Reverberatory furnace, E. Tourangin..... 265,348
 Ring. See Scarf ring.
 Rock crusher, A. G. & J. M. Dyer..... 265,494
 Roller. See Land roller.
 Rotary engine, I. Loidja..... 265,332
 Rubber goods, manufacture of, T. Hawley..... 265,497
 Sad iron, Rawson & Hatch..... 265,281
 Sad iron, reversible, H. C. Fox..... 265,401
 Sawmill log holder, C. E. Ring..... 265,439
 Scale, J. O. Boggs..... 265,375
 Scarf ring, F. A. Sundberg..... 265,459
 Scraper, road, J. B. Wood..... 265,265
 Screen. See Grain screen.
 Screw machine, metal, F. Curtis..... 265,395
 Sewing buttons to fabrics, machine for, J. H. Morley..... 265,532
 Sewing machine, book, Tapley & Kilbon..... 265,463
 Sewing machine crank shaft support, G. A. Mayo..... 265,334
 Sewing machine, glove, J. Simon..... 265,451
 Sewing machine shuttle, G. A. & V. G. Mayo..... 265,335
 Sewing machine thread-cutting attachment, J. H. Foote..... 265,313
 Shade rack, F. H. Tompkins..... 265,391
 Shaft bearing, R. W. Peck..... 265,388
 Shaft couplings, die for forming carriage, W. Pearce..... 265,431
 Shovel. See Snow shovel.
 Shutter worker, L. O. Dion..... 265,308
 Siphon, automatic, R. Reiman..... 265,448
 Skate, roller, E. H. Barney..... 265,371
 Sleigh, bob, W. D. Brooks..... 265,308
 Snow shovel, H. C. Cole..... 265,387
 Soap, manufacturing, O. Liebreich..... 265,520
 Soda, manufacture of bicarbonate of, B. T. Bab-bitt..... 265,367
 Sowing fertilizers, machine for, E. D. Mead..... 265,529
 Spark arrester, L. C. Sparks..... 265,343
 Spirits, process of and apparatus for improving, F. Stitzel..... 265,344
 Spoon, medicine, T. Cosby..... 265,390
 Spring. See Carriage spring.
 Square and bevel instrument, C. D. Walters..... 265,350
 Square, carpenter's, W. H. Callihan..... 265,383
 Square, centering, W. H. Sleeper..... 265,287
 Stamp, registering, H. Codd..... 265,245
 Stand. See Wash stand.
 Steam boiler cleaners, electrical alarm for, E. H. Ashcroft..... 265,365
 Steam trap, exhaust, J. E. Chafer..... 265,242
 Still, alcohol, C. J. T. Buroey..... 265,304
 Stool for children, walking, G. Peterson..... 265,435
 Stool, revolving, J. G. Pulling..... 265,435
 Stopper. See Bottle stopper.
 Stove, E. W. Anthony..... 265,361
 Stove burner, gas, W. W. Goodwin..... 265,408
 Stove, heating, E. W. Anthony..... 265,362
 Stove or range, gas cooking, W. W. Goodwin..... 265,407
 Strap shield, A. L. Hill..... 265,259
 Straw stacker, automatic, S. Bottomley..... 265,376
 Street sweeping machine, C. Z. O'Neill..... 265,537
 Structure, skeleton, E. C. Bates..... 265,301
 Sugar in sticks and lumps, manufacture of refined, M. Weinrich..... 265,352
 Swinging and lifting gate, E. L. Hammond..... 265,258
 Switch. See Railway switch.
 Table. See Extension table.
 Table, H. A. Barnhart..... 265,369
 Tablet, writing, C. M. Cott..... 265,247
 Telegraph, automatic, F. Anderson..... 265,297
 Telegraph, printing, A. Wirsching..... 265,353
 Telegraphy, dynamo, G. D'Infeville..... 265,483
 Telephone calls, combined key board, automatic, switch, and magneto generator for, J. P. Stabler..... 265,456
 Telephone calls, signal transmitter for, J. P. Stabler..... 265,455
 Telephone local call instrument, J. P. Stabler..... 265,454
 Telephone, mechanical, Hathway & Johnston..... 265,412
 Thill coupling, Richards & Frey..... 265,437
 Thread case, E. L. Fitch..... 265,400
 Tile for wells and cisterns, G. W. Overall..... 265,277
 Tinner's tool, J. M. Urie..... 265,549
 Tobacco plug machine, J. C. Guerrant..... 265,409
 Top, spinning, W. C. Wood..... 265,355
 Toy, mechanical, R. H. Ricker..... 265,341
 Toy vehicle, G. S. Crosby..... 265,392
 Traction engine, G. H. Helvey..... 265,499
 Transom adjuster, J. T. Olinger..... 265,275
 Trap. See Steam trap. Waste pipe trap.
 Trucks, apparatus for changing car, G. W. Atkinson..... 265,366
 Truss, Bartlett & Butman..... 265,235
 Tube. See Gauge tube.
 Tunnel frame for the construction of cable-ways, J. Lane..... 265,329
 Valve, balanced, J. Grzybowski..... 265,314
 Valve, ball, A. G. Alexander..... 265,357
 Vehicle, H. Vallance..... 265,472
 Vehicle spring, C. W. Saladee..... 265,447
 Ventilator. See Grain ventilator.
 Ventilator, P. H. Jackson..... 265,322
 Wagon brake, J. E. Lunzer..... 265,268
 Wagon dump, platform, A. K. Ersland..... 265,251

Wagon, running gear, H. C. Wheeler..... 265,291
 Wagon wheel, J. & R. Bean..... 265,430
 Washboard, M. W. Kase..... 265,422
 Washstand, N. O. Bond..... 265,481
 Waste pipe trap, N. Barry, Jr..... 265,372
 Water closet bowls, implement for cleaning, L. O. Howell, Jr..... 265,319, 265,320
 Water elevator cup, E. L. Browning..... 265,378
 Water, gas, sewer, or drain pipe, J. P. Culver..... 265,306
 Water meter connection, J. Jonson..... 265,327
 Water motor, pump, etc., L. L. Buck..... 265,331
 Water wheel, H. S. Holder..... 265,416
 Wheel. See Car wheel. Fifth wheel. Paddle wheel. Wagon wheel. Waterwheel. Wheelbarrow wheel. L. Williams..... 265,477
 Windmill, E. M. Schrock..... 265,545
 Wrench, T. W. Boyle..... 265,236
 Wrench, P. Rotermund..... 265,445

DESIGNS.
 Carpet, O. Heinigke..... 13,326
 Knitted goods, T. P. Dresser..... 13,327
 Scarf, made up, H. Heath..... 13,325
 Stove, heating, E. W. Anthony..... 13,324
 Type, printing, J. W. Phinney..... 13,328
 Vehicle, H. C. Sears..... 13,329

TRADE MARKS.
 Cotton duck, W. E. Hooper & Sons..... 9,705
 Edge tools, Collins Company..... 9,704
 Pills, B. J. Kendall & Co..... 9,706
 Preservatives of organic substances, Antitropic Company..... 9,702, 9,703
 Saws and strip knives, band, Perin, Panhard & Co..... 9,707

English Patents Issued to Americans.
 From September 12 to September 19, 1882, inclusive.
 Car wheel, E. B. Orne, Philadelphia, Pa.
 Crayon holder, J. Reekendorfer, New York city.
 Electric lamp, S. F. Van Choate, New York city.
 Electrical signalling apparatus, J. W. Mackenzie, New York city.
 Electricity, storage batteries for, A. K. Eaton, Brooklyn, N. Y.
 Electricity, storage batteries for, A. K. Eaton, Brooklyn, N. Y.
 Iron and steel manufacture of, W. W. Chipman, New York city.
 Liquids, apparatus for drawing effervescent, L. Bergen, New York city.
 Paint, A. E. Brackett, Branford, Conn.
 Sugar refineries, utilizing the heat of, S. M. Lillie, Philadelphia, Pa.
 Water closet, R. H. Lecky et al, Pittsburg, Pa.

Advertisements.
 Inside Page, each insertion - - - 75 cents a line.
 Back Page, each insertion - - - \$1.00 a line.
 (About eight words to a line.)
 Engravings may head advertisements at the same rate per line, by measurement, as the letter press. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Lowest Price PLANNER AND Cheapest for the Money. With Buzz Attachment or without. Also Manufers of the Double-Acting WATER RAMS. C. Hedgkins & Son, MARLBORO, N. H.

PROFESSORS AYRTON AND PERRY'S Electric Railway.—With illustrations showing all the details connected with its working, and with portraits and brief biographies of Professors Ayrton and Perry, its inventors. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 333. Price 10 cents. To be had at this office and from all newsdealers.

BUFFALO FORGE CO. POWER & HAND BLOWERS. BUFFALO, N. Y.

MINERAL WOOL. This fireproof and indestructible material successfully prevents loss of heat by radiation, keeps frost from water pipes, deadens sound, checks spread of fire in walls, partitions, floors of dwellings. 25 cts. per cubic foot. U. S. MINERAL WOOL CO., 16 Cortland St., N. Y.

SUPERIORITY PROVED THE SIMPLEST & BEST SEWING MACHINE IS THE LIGHT - RUNNING NEW HOME Perfect in every particular. 200,000 sold yearly. NEW HOME SEWING MACHINE CO., 30 Union Square, N. Y. Chicago, Ill., Orange, Mass., or Atlanta, Ga.

The Sugar Refineries at Demerara Use VAN DIZEN'S PATENT STEAM JET PUMP. All Brass, no valves, no moving parts. The best and cheapest Steam Pump made for raising Water, Jugs, Straps, etc. (hot or cold) to heights not exceeding 100 feet vertically. Is also used as force pump for fire purposes with hose and nozzle. Warranted satisfactory, reliable, and superior to all others. Ten sizes - \$7, \$8.50, \$10.50, etc., and capacities to 20,000 gallons per hour. Send for "Catalogue No. 40." VAN DIZEN & TIFT, Cincinnati, O.

TIGHT & SLACK BARREL MACHINERY AND A SPECIALTY BY JOHN GREENWOOD & CO. ROCHESTER, N. Y.

ASPHALT PAVEMENTS.—DESCRIPTION by Lieut. Green, U.S.A. of the mode of construction of the asphalt pavement in the city of Washington. Materials used. How, and in what proportion mixed. How laid down. Cost, etc. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 334. Price 10 cents. To be had at this office and from all newsdealers.

GET THE BEST AND CHEAPEST.
 TRADE MARK.

Silver Finish.
 J. A. FAY & CO.,
 (Cincinnati, Ohio, U. S. A.)
 Exclusive Agents and Importers for the United States, of the
 CELEBRATED
PERIN BAND SAW BLADES,
 Warranted superior to all others in quality, finish, uniformity of temper, and general durability. One Perin Band cuts three ordinary saws.
 Gold, Silver, and Nickel Plater works situation. 23 years' experience. Address S. H. COWLES, Oakville, Conn.

MALLEABLE AND FINE GRAY IRON ALSO STEEL CASTINGS FROM SPECIAL FINISHING JAPANING AND PATTERNS
 THOMAS DEVLIN & CO.
 LEHIGH AVE. & AMERICAN ST. PHILA.

EMPIRE FORGES
 Improved without Belts, Bellows, Crank Pins, Dead Centers, or Back Motion. Send for circular.
 EMPIRE PORTABLE FORGE CO., COHOES, N. Y.

THE SEIBERT CYLINDER OIL CUP CO.,
 Sole Manufacturers of Oil Cups for Locomotives, Marine and Stationary Engine Cylinders, under the Seibert and Gates Patents, with Sight Feed.

 TAKE NOTICE. The "Sight Feed" is owned exclusively by this company. See Judge Lowell's decision in the United States Circuit Court, District of Massachusetts, Feb. 23, '82. All parties hereby notified to desist the use, manufacture, or sale of same, as we shall vigorously pursue and prosecute all infringers.
THE SEIBERT CYLINDER OIL CUP CO.,
 53 Oliver Street, Boston, Mass.

HYDRAULIC ELEVATOR FOR CANALS.
 Description and illustrations of a new canal lift constructed for the French Government on the Neufossé Canal at Fontenette, near St. Omer. With six figures, showing elevation, plan, and sections. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 334. Price 10 cents. To be had at this office and from all newsdealers.

TOOLS
 TAP & DIES, VISES, FILES, DRILLS, MACHINES, CUTTERS, LATHES, STEEL, SHEARS, STAMPS
 TOOLS for Machinists, Carpenters, Amateurs, Jewellers, Model Makers, Blacksmiths, etc. Send for Catalogue, and state what kind of Tools you require.
 TAILMAN & McFADDEN,
 607 Market St., Philadelphia, Pa.

VOLNEY W. MASON & CO.,
 FRICTION PULLEYS, CLUTCHES, and ELEVATORS, PROVIDENCE, R. I.

PECK'S PAT. DROP PRESS.
 NEW HAVEN, CONN.
 BEECHER & PECK.

SPEAKING TELEPHONES.
 THE AMERICAN BELL TELEPHONE COMPANY,
 W. H. FORBES, W. R. DRIVER, THEO. N. VAIL, President, Treasurer, Gen. Manager.
 Alexander Graham Bell's patent of March 7, 1876, owned by this company, covers every form of apparatus, including Microphones or Carbon Telephones, in which the voice of the speaker causes electric undulations corresponding to the words spoken, and which articulations produce similar articulate sounds at the receiver. The Commissioner of Patents and the U. S. Circuit Court have decided this to be the true meaning of his claim; the validity of the patent has been sustained in the Circuit on final hearing in a contested case, and many injunctions and final decrees have been obtained on them. This company also owns and controls all the other telephonic inventions of Bell, Edison, Berliner, Gray, Blake, Phelps, Watson, and others. (Descriptive catalogues forwarded on application.)
 Telephones for Private Line, Club, and Social systems can be procured directly or through the authorized agents of the company.
 All telephones obtained except from this company, or its authorized licensees, are infringing, and the makers, sellers, and users will be proceeded against. Information furnished upon application.
 Address all communications to the
AMERICAN BELL TELEPHONE COMPANY,
 95 Milk Street, Boston, Mass.

DISINFECTANT CIRCULARS APPLIED TO ALL SPRAY FEED WATER PURIFIER FOR STEAM BOILERS U.S. & FOREIGN PATENTS

PATENTS.
 MESSRS. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN, continue to examine Improvements, and to act as Solicitors of Patents for Inventors.
 In this line of business they have had thirty-five years' experience, and now have unequalled facilities for the preparation of Patent Drawings, Specifications, and the prosecution of Applications for Patents in the United States, Canada and Foreign Countries. Messrs. Munn & Co. also attend to the preparation of Caveats, Copyrights for Books, Labels, Reissues, Assignments, and Reports on Infringements of Patents. All business entrusted to them is done with special care and promptness, on very reasonable terms.
 A pamphlet sent free of charge, on application, containing full information about Patents and how to procure them; directions concerning Labels, Copyrights, Designs, Patents, Appeals, Reissues, Infringements, Assignments, Rejected Cases, Hints on the Sale of Patents, etc.
 We also send, free of charge, a Synopsis of Foreign Patent Laws, showing the cost and method of securing patents in all the principal countries of the world.
MUNN & CO., Solicitors of Patents,
 261 Broadway, New York.
 BRANCH OFFICE - Corner of F and 7th Streets, Washington, D. C.