Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue

The H. W. Johns Mfg. Co., 87 Maiden Lane, New York manufacturers of asbestos packing and covering for all purposes, have recently made improvements in the manufacture of rod packing for steam, water, etc., by which its efficiency and durability is materially increased. These improvements consist in the arrangement of the fiber to give the packing a greater degree of elasticity, and at the same time to prevent its disinte-gration when in use.—American Machinist.

- has just made his mark in the world, but the Esterbrook Pens are making their marks all the time. The reader is requested to mark this down.

Write J. Fitzgerald, publisher, 30 Lafayette Place, New York, for catalogue Humboldt Library of Science, Works by Tyudail, Huxley, Spencer, etc., 15 cents each. The Best.-The Deuber Watch Case.

Boiler Scale Parties having fine specimens for sale or loan, address Jas. F. Hotchkiss, 84 John Street, N. Y.

Fire Brick. Tile, and Clay Retorts, all shapes. Borgne & O'Brien, M'f'rs, 23d St., above Race, Phila. Pa. Drop Forgings of Iron or Steel. See adv., page 204.

Curtis Pressure Regulator and Steam Trap. See p.206. Steam Hammers, Improved Hydraulic Jacks. and Tube Expanders. R. Dudgeon. 24 Columbia St., New York. Diamond Drills, J. Dickinson, 64 Nassau St., N. Y.

50,000 Emerson's Hand Book of Saws. New Edition. Free. Address Emerson, Smith & Co., Beaver Falls, Pa Eagle Anvils, 10 cents per pound. Fully warranted.

♥ould & Eberhardt's Machinists' Tools. See adv.,p. 206. For Heavy Punches, etc., see illustrated advertise ment of Hilles & Jones, on page 204.

Barrel, Key, Hogshead, Stave Mach'y. See adv. p.206. Hand and Power Bolt Cutters, Screw Plates, Tans in great variety. The Pratt & Whitney Co., Hartford, Ct. For best low price Planer and Matcher, and latest improved Sash, Door, and Blin's Machinery, Send for catalogue to Rowley & Hermance, Williamsport, Pa.

The Porter-Allen High Speed Steam Engine. Southwork Foundry & Mach. Co.,430 Washington Ave., Phil.Pa. The Sweetland Chuck. See illus. adv., p. 206.

Knives for Wood working Machinery, Bookbinders, and Paper Mills. Taylor, Stiles & Co., Riegelsville, N. J.

The Celebrated Wooton Desk. See adv., page 206.

The Ide Automatic Cut-off Engine, designed for driving electric lights and furnishing steady, reliable power; high speed; superior construction; economy in fuel guaranteed. A. L. Ide, Springfield, Ill.

Comfort Dinner Pails.-Most convenient in use. For sale everywhere. Reardon, Ennis & Co., Troy, N. Y. C. B. Rogers & Go., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 190.

Scientific Books. See page 188. 100 page Catalogue free. E. & F. N. Spon. 44 Murray Street, N. Y.

Permanent Exposition.-Inventors' Institute, Cooper Union, N.Y. City. Every facility for exhibition of machinery, merchandise, and inventions. The expense is small -the advantages great. Send for particulars.

Drop Forgings. Billings & Spencer Co. Seeadv., p. 173. For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling. see Frisbie's ad. p. 174. For Mill Macb'y & Mill Furnishing, see illus. adv. p.172.

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Nickel Plating.-Sole manufacturers cast nickel an odes, pure nickel salts, polishing compositions, etc. Complete outfit for plating, etc. Hanson & Van Winkle Newark, N. J., and 92 and 94 Liberty St., New York.

model. H. C. Goodrich, 66 to 72 Ogden Place, Chicago.

Guild & Garrison's Steam Pump Works, Brooklyn. N. Y. Steam Pumping Machinery of every descrip-

Lists 29, 30 & 31, describing 4,000 neward 2d-band Machines, ready for distribution. State just what machines wanted. Forsaith & Co., Manchester, N. H., & N. Y. city. "Abbe" Boit Forging Machines and "Palmer" Power Hammers a specialty. Forsaith & Co., Manchester.N.H.

Magic lanterns, stereopticons, cond. lenses, etc., on hand and made to order, C. Beseler, 218 Centre St., N. Y.

Railway and Machine Shop Equipment. Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 103 Reads Streets, New York. Improved Skinner Portable Engines. Erie, Pa.

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

Alcott's Turbine, Mt.Holly, N For Power & Economy James F. Hotchkiss, 84 John St., New York.

or. \$250 to \$550. Satisfaction guaranteed. More than seven hundred in use. For circular address Heald & Morris (Drawer 127), Baldwinsville, N. Y.

Wanted .- Patented articles or machinery to make and introduce. Gaynor & Fitzgerald, New Haven. Conn.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock Mfg. Co., 80 to 88 Market St., Chicago, Ill. Water purified for all purposes, from household supplies to those of largest cities, by the improved filters manufactured by the Newark Filtering Co., 177 CommerceSt.. Newark, N. J.

Ice Making Machines and Machines for Cooling Breweries, etc. Pictet Artificial Ice (o. (Limited), 142 | Time, 7 to 20 minutes, according to thickness of cast-Greenwich Street. P. O. Box 3083, New York city.

Split Polleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works. Drinker St., !'hiladelphia. I'a.

Supplement Catalogue.—Persons in pursuit of infor- 2. Whattemperature would rubber or gutta-percha stand mation on any special engineering mechanical, or scientific subject, can have catalogue of contents of the Sci-ENTIFIC 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

NEW BOOKS AND PUBLICATIONS.

DES INGENIEURS TASCHENBUCH (The Engineer's Handbook). Edited by the "Hütte," in Berlin. Twelfth enlarged revised edition. 1,053 pp. Berlin: Ernst & Korn. 1883.

We have before us the twelfth edition of the "Engieer's Handbook," edited by the well-known Verein Hütte at Berlin. The work contains condensed information in mathematics, mechanics, machine building, motors, railroad engineering, technology, metallurgy, construction of buildings, physical, chemical, mathematical, and other tables, German building laws, and much other valuable information for civil and railroad engineers, builders, machinists, technologists, etc. The work is complete in every respect, is prepared with the greatest care, is very reliable, and is a model handbook. The additions of the new twelfth edition consist of new and valuable formulæfor mechanics, heat, the strength of materials, the statics of building constructions, parts of machines, motors, ship building, railroad engineering, technology, metallurgy, the German patent laws, and a number of new tables. The additions are too numerous to be mentioned singly. The work is provided with numerous illustrations.

REPORT OF AN EXAMINATION OF THE UP-PLAIN OF THE COLUMBIA, IN 1881. By Lieut. Thos. W. Symons, U.S.A. Washington: Government Print.

Lieutenant Symons' survey was undertaken to determine the navigability of the Upper Columbia and its adaptability to steamboat transportation. His report embodies a large amount of information with respect to the history, geography, and geology of this vast and lit-tle known region; its agricultural and commercial possibilities, and the engineering works needed to make the river and its tributaries navigable.



HINTS TO CORRESPONDENTS.

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

Names and addresses of correspondents will not be giv**en 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 Supple-MENT 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) A. F. R. writes: I am working in a machine shop, and I find trouble in tempering their tools. They had a well bored last winter, and the water contains some kind of mineral; it is not good to drink. Please inform me in your paper whether the water might contain something to make the tools crack, and how can I prevent it. A. You may find whether the fault is in the water by tempering in good water brought from some other place. Steel that cracks should be hardened at a very low heat, a full red. Ascertain how low a heat you can harden with. You may have used a low grade steel and fallen into the habit of hardening with high heat. Try low heat and good water, and also low heat and the water from your well.

(2) The T., B. & W. Mfg. Co. write: We There one concern in this country that gets better color than anybody else, and we have tried very hard successful than anybody else any to get the desired color, but have failed. Now, we would like to ask you if you could give us a receipt by "How to Keep Boilers Clean." Book sent free by which we could obtain an orange color on the brass ames F. Hotchkiss, 84 John St., New York. valve bodies? A. The orange color cannot be made Engines, 10 to 50 horse power, complete, with govern- upon yellow brass goods by dipping or any other process. You may make them of a fair yellow color managing the time for taking from the moulds and dipping quickly in water and out, so that the remaining heat will dry them. The brilliant orange color can only be obtained in a tin alloy, and by timing the removal from the sand and dipping quickly in water. The following is one of the compositions that turn out a rich

Lake copper 1 pound. Tin..... 1 ounce. Zine ... ½ '.. Lead ... ½ "

ings. (3) F. H. C. asks: 1. To what extent can

hydrogen be heated without danger of its taking fire or

without softening or melting? Please give the tempera ture for each. A. Both rubber and gutta-percha would soften at the temperature of boiling water. Vessels of either of these substances would be impracticable to use with hydrogen, except at ordinary temperature.

(4) S. M. writes: I wish to get some informationabout a zinc water paint. I have a receipt in which oxide of zinc, potato starch, aqueous solution of chloride of zinc, with tartrate of potash is used, but I the have no formula for mixing it. A. Make a solution of starch, and also one of zinc chloride with potassium tartrate; combine these two and add sufficient zinc oxide to make the mass of such consistency that it may be handled with the brush.

> (5) F. E. asks: 1. In the induction coil described in No. 160 of the Scientific American Sur-PLEMENT, will paraffined paper in the condenser answer as well as the varnished? A. Yes. 2. Howlong a spark will the coil give by using a bichromate of potash cell of two plates. size 9 x 4 inches? A. About 1% inches. How many such cells are required to obtain the full effect of the coil? A. Two. 4. How much more electromotive force is produced in using two carbon plates instead of one in each cell? A. There is a slight in-

(6) E. A. L. asks: Does air heat in proportion to its compression? Suppose 10 cubic feet of air at 70° Fahr. be compressed to 5 cubic feet, will the heat be raised to 140°? Must compression be sudden? A. Air at 70° compressed to one-half its volume will have a theoretical temperature of 170°.. The compression must be sudden, and then an allowance must be PER COLUMBIA RIVER AND THE GREAT made for a slight absorption of heat by the surrounding material. In practice you may get, by a continuous action in a pump, a temperature of 140°.

[OFFICIAL.]

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March 20, 1883,

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 Broad way, 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.

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Pulley, G. S. Long Pump, A. J. Hopkins. Pump flxture, chain, M. D. Temple Pump frame, J. Preston Pump piston. S. W. George. Pump, ship's, Russell & Curtis. Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes. Pyroxyline, manufacture of, Hyatt & Pool.	274,409 274,141 274,308 274,145 274,154 274,322 274,355	Cur Vise, be Walls, i min Washir Washir Water o Water o
Pulley, G. S. Long Pump, A. J. Hopkins. Pump fixture, chain, M. D. Temple Pump frame, J. Preston Pump piston, S. W. George. Pump, ship's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes. Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream. Railway safety switch, C. T. Johns.	274,409 274,141 274,308 274,145 274,154 274,322 274,385 274,377 274,200	Cur Vise, be Walls, i min Washin Washin Water o Water o Weathe Well dr
Pulley, G. S. Long Pump, A. J. Hopkins. Pump fixture, chain, M. D. Temple Pump frame, J. Preston. Pump piston. S. W. George. Pump, ship's, Russell & Curtis. Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes. Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream. Railway safety switch, C. T. Johns. Railway tie and chair, combined, Gibbs & Snook. Reel. See Centrifugal reel.	274,409 274,141 274,308 274,145 274,154 274,322 274,335 274,377 274,200 274,309	Cur Vise, be Walls, i min Washir Washin Water o Weathe Well di Wheat Wheel.
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump frame, J. Preston Pump piston. S. W. George. Pump, ship's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool Railway chair, J. H. Ream Railway safety switch, C. T. Johns Railway sie and chair, combined, Gibbs & Snook Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,141 274,308 274,145 274,154 274,322 274,335 274,377 274,200 274,309 274,276 274,320	Cur Vise, be Walls, i min Washir Washir Washir Water of Weathe Well di Wheat Wheel. Whip s
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump fixture, chain, M. D. Temple Pump piston. S. W. George Pump, ship's, Russell. & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool Railway chair, J. H. Ream Railway safety switch, C. T. Johns Railway tie and chair, combined, Gibbs & Snook Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,141 274,308 274,145 274,154 274,452 274,385 274,377 274,200 274,309 274,276 274,320 274,424	Cur Vise, be Walls. I min Washin Washin Washin Water o Weathe Well di Wheat Wheel. Whip s Wind m
Pulley, G. S. Long Pump, A. J. Hopkins	274,409 274,141 274,324 274,385 274,154 274,322 274,385 274,276 274,200 274,276 274,220 274,424	Cur Vise, be Walls. I min Washin Washin Washin Water o Weathe Well di Wheat Wheel. Whips Wind m
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump fixture, chain, M. D. Temple Pump piston. S. W. George Pump, ship's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool Railway chair, J. H. Ream Railway safety switch, C. T. Johns Railway safety switch, C. T. Johns Railway tie and chair, combined, Gibbs & Snook Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,141 274,145 274,145 274,154 274,154 274,325 274,325 274,377 274,200 274,200 274,276 274,220 274,424	Cur Vise, be Walls, i min Washir Washir Washir Water of Weathe Well di Wheat Wheel. Whip s Wind m Windom Windom Windom
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple. Pump fixture, chain, M. D. Temple. Pump pixton. S. W. George. Pump, sbip's, Russell & Curtis. Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes. Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream. Railway safety switch, C. T. Johns. Railway tie and chair, combined, Gibbs & Snook. Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,4145 274,308 274,145 274,154 274,352 274,355 274,377 274,200 274,276 274,320 274,424 274,143 274,143 274,265 274,388	Cur Vise, be Walls, i min Washir Washir Washir Water of Weathe Well di Wheat Wheel. Whip s Wind m Windom Windom Windom
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump frame, J. Preston Pump piston, S. W. George. Pump, ship's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool Railway chair, J. H. Ream Railway safety switch, C. T. Johns Railway tie and chair, combined, Gibbs & Snook Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,411 274,808 274,145 274,154 274,154 274,154 274,355 274,377 274,200 274,266 274,266 274,266 274,266 274,288 274,288	Cur Vise, be Walls, i min Washin Washin Washin Washin Washin Washin Washin Water o Weathe Well di Wheat Wheel. Whip s Wind m Window Window Wire st Wrench
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump fixture, chain, M. D. Temple Pump pixton. S. W. George Pump, ship's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool Railway chair, J. H. Ream Railway safety switch, C. T. Johns Railway tie and chair, combined, Gibbs & Snook Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,411 274,808 274,145 274,154 274,154 274,152 274,820 274,809 274,276 274,200 274,420 274,424 274,143 274,265 274,265 274,288 274,178 274,288 274,178 274,288	Cur Vise, be Walls. I min Washir Washin Washin Washin Washin Washin Washin Washin Washin Water o Weathe Weathe Well di Wheat Whips Wind Winda Winda Winda Windo Windo Windo Carpet, Carpet, Carpet, Carpet, Carpet, Carpet,
Pulley, G. S. Long Pump, A. J. Hopkins Pump fature, chain, M. D. Temple. Pump frame, J. Preston Pump piston. S. W. George. Pump, ship's, Russel' & Curtis. Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes. Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream. Railway safety switch, C. T. Johns Railway ie and chair, combined, Gibbs & Snook. Reel. See Centrifugal reel. Refrigerator, J. M. Clock Registering apparatus cashier's, B. W. Webb. Regulator. See Electriccurrent regulator. Feed regulator. Ring. See Finger ring. Riveting machine, J. Rohan. Roof, N. Butterfield Roofers, metal bending machine for tin, R. C. Snowden Roofing cement. Wallkill, Crane & Sanderson. Roundabout, H. J. F. Schulze. Sad iron holder, J. W. Wheelock	274,409 274,411 274,808 274,145 274,154 274,154 274,525 274,377 274,309 274,276 274,200 274,424 274,143 274,265 274,265 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276	Cur Vise, be Walls. I min Washir Washir Washir Washir Washir Washir Washir Washir Washir Weath Well di Wheat Wheel. Whip s Wind m Windom Windom Windom Windom Windom Carpet, C
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump frame, J. Preston Pump piston, S. W. George. Pump, ship's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool Railway tale and chair, combined, Gibbs & Snook Railway tel and chair, combined, Gibbs & Snook Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,409 274,145 274,145 274,145 274,145 274,805 274,877 274,200 274,276 274,220 274,242 274,143 274,143 274,143 274,265 274,178 274,288 274,178 274,288 274,187 274,288 274,187 274,288 274,187 274,288 274,187 274,288 274,187 274,288 274,187 274,288 274,187 274,288 274,187 274,288 274,187 274,288 274,187 274,288 274,187 274,288 274,187 274,288	Cur Vise, by Walls. Ymin Washir Washir Washir Washir Washir Washir Washir Well di Wheat Wheel. Whip s Wind m Windom
Pulley, G. S. Long Pump, A. J. Hopkins. Pump fixture, chain, M. D. Temple. Pump frame, J. Preston. Pump piston. S. W. George. Pump, ship's, Russell & Curtis. Pump, ship's, Russell & Curtis. Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes. Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream. Railway tie and chair, combined, Gibbs & Snook. Rael. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,414 274,145 274,145 274,154 274,154 274,154 274,355 274,877 274,800 274,265 274,265 274,265 274,265 274,260 274,260 274,260 274,260 274,260 274,274 274,274 274,274 274,274 274,274 274,274 274,274	Cur Vise, be Walls. I min Washir Washir Washin Washin Washin Washin Washin Washin Washin Weath Wheel. Whip s Wind n Windm Windm Windm Windm Windm Window Weathe Carpet, Carpet
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump frame, J. Preston Pump piston. S. W. George. Pump, ship's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool Railway chair, J. H. Ream Railway safety switch, C. T. Johns Railway safety switch, C. T. Johns Railway tie and chair, combined, Gibbs & Snook Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,414 274,145 274,145 274,154 274,154 274,154 274,377 274,309 274,309 274,276 274,200 274,242 274,178 274,260 274,260 274,274 274,204 274,274	Cur Vise, be Walls. I min Washir Washir Washin Washin Washin Washin Washin Washin Washin Washin Washin Washin Washin Washin San Washin Washin San Washin S
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump frame, J. Preston Pump piston. S. W. George Pump, ship's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool Railway chair, J. H. Ream Railway safety switch, C. T. Johns Railway safety switch, C. T. Johns Railway tie and chair, combined, Gibbs & Snook Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,414 274,145 274,145 274,154 274,154 274,154 274,377 274,309 274,309 274,276 274,200 274,242 274,178 274,260 274,260 274,274 274,204 274,274	Cur Vise, be Walls. I min Washir Washir Washir Washin Washir Washir Weather Weather Weather Wheel. Whips Wind m Windm Windm Window Wire st Wrench Carpet, Carp
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump fixture, chain, M. D. Temple Pump piston. S. W. George Pump, ship's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream Railway tie and chair, combined, Gibbs & Snook Railway tie and chair, combined, Gibbs & Snook Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,145 274,145 274,145 274,145 274,145 274,355 274,377 274,200 274,309 274,276 274,220 274,424 274,228 274,178 274,228 274,178 274,228 274,178 274,228 274,178 274,228 274,178 274,228 274,178 274,228 274,178 274,228 274,178 274,228 274,178 274,228 274,178 274,228 274,178 274,228 274,178 274,228 274,178 274,227 274,129 274,281 274,158	Cur Vise, be Walls. I min Washir Washir Washin Washin Washin Washin Washin Wheat Wheel. Whip s Wind m Windon Windo
Pulley, G. S. Long Pump, A. J. Hopkins. Pump fixture, chain, M. D. Temple. Pump frame, J. Preston. Pump piston. S. W. George. Pump, ship's, Russel' & Curtis. Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes. Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream. Railway safety switch, C. T. Johns. Railway tie and chair, combined, Gibbs & Snook. Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,409 274,145 274,145 274,145 274,145 274,154 274,355 274,377 274,200 274,309 274,424 274,143 274,143 274,143 274,265 274,380 274,171 274,280 274,171 274,280 274,272 274,290 274,317 274,281 274,171 274,272 274,171	Cur Vise, be Walls. I min Washir Washir Washir Washir Washir Washir Washir Washir Wheel. Whip s Wind n Windom Wind
Pulley, G. S. Long Pump, A. J. Hopkins. Pump fixture, chain, M. D. Temple. Pump frame, J. Preston. Pump piston. S. W. George. Pump, ship's, Russel' & Curtis. Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes. Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream. Railway safety switch, C. T. Johns. Railway tie and chair, combined, Gibbs & Snook. Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,491 274,491 274,145 274,145 274,145 274,154 274,355 274,377 274,200 274,276 274,220 274,424 274,424 274,143 274,265 274,178 274,265 274,178 274,265 274,178 274,274 274,27	Cur Vise, be Walls. I min Washir Washir Washin Washir Washin Water of Water of Weathe Well di wheat Wheel. Whip s Windin Window Wire st Wrench Carpet, Stair ar Type, for Alcohologian Axes, J Boots. Co. Butter, Button Canned Canned
Pulley, G. S. Long Pump, A. J. Hopkins. Pump fixture, chain, M. D. Temple. Pump frame, J. Preston. Pump piston. S. W. George. Pump, ship's, Russell & Curtis. Pump, ship's, Russell & Curtis. Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes. Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream. Railway safety switch, C. T. Johns. Railway tie and chair, combined, Gibbs & Snook. Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,411 274,808 274,145 274,145 274,145 274,145 274,145 274,355 274,877 274,200 274,200 274,242 274,143 274,246 274,143 274,266 274,266 274,266 274,260 274,274 274,272 274,280 274,274 274,271 274,280 274,274 274,275 274,281 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,275 274,27	Cur Vise, be Walls. I min Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Wheel. Whip s Wind m Windom Windom Windom Windom Wire st Wrenel Bottle, Carpet, Carpet, Carpet, Carpet, Carpet, Carpet, Carpet, Tringe, Stair ar Type, for Alcoho pan Axes, J Boots. Co Butter, Button Canned Linimee Lithogo
Pulley, G. S. Long Pump, A. J. Hopkins. Pump fixture, chain, M. D. Temple. Pump frame, J. Preston. Pump piston. S. W. George. Pump, ship's, Russel' & Curtis. Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes. Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream. Railway safety switch, C. T. Johns. Railway tie and chair, combined, Gibbs & Snook. Reel. See Centrifugal reel. Refrigerator, J. M. Clock. Registering apparatus. cashier's, B. W. Webb. Regulator. See. Electriccurrent regulator. Feed regulator. Ring. See Finger ring. Riveting machine, J. Rohan. Roof, N. Butterfield Roofers, metal bending machine for tin, R. C. Snowden. Roofing cement. Wallkill, Crane & Sanderson. Roundabout, H. J. F. Schulze. Sad iron holder, J. W. Wheelock Saddle, gig, J. Bevard. Safe lock guard, P. Laubenberger Saw buck, H. Floyd. Saw handle, J. Class. Sawmill carriage, C. Schooch Sawmill, circular, W. J. F. Liddell. Sawing machine, J. Vanston. Screw cutting head, I. Culver. Screw machine, metal, H. H. Taylor Seat. See Bicycle seat. Carriage seat Seat back. detachable and adjustable, L. Postawka Secondary battery, J. Pitkin. Sectional boat D. W. Case. Seeder, F. Köht. Separator. See Thrashing machine grain separator. Sewer and water trap, E. Lawson. Sewer gas and destroying germs, apparatus for eradicating, F. H. Hubbard.	274,409 274,145 274,145 274,145 274,154 274,154 274,154 274,377 274,309 274,309 274,276 274,200 274,242 274,143 274,265 274,260 274,274 274,260 274,274 274,274 274,157 274,274 274,157 274,274	Cur Vise, be Walls. ' min Washir Washir Washir Washir Washir Washir Washir Well di Wheat Wheel. Whip s Wind m Windom Wind
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump pixture, chain, M. D. Temple Pump pixton. S. W. George Pump, sbip's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream Railway tie and chair, combined, Gibbs & Snook. Rael. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,409 274,145 274,145 274,145 274,145 274,369 274,276 274,309 274,276 274,200 274,276 274,202 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,276 274,277 274,129 274,276 274,276 274,277 274,129 274,276 274,277 274,129 274,277 274,129 274,278 274,277 274,178 274,278 274,277 274,278 274,278 274,278 274,278 274,278 274,278 274,278 274,278 274,278 274,278	Cur Vise, be Walls. I min Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Weathe Well di Wheat Wheel. Whip s Window Washir Wash
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump piston. S. W. George Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream Railway safety switch, C. T. Johns. Railway ie and chair, combined, Gibbs & Snook. Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,409 274,145 274,145 274,145 274,154 274,154 274,355 274,877 274,309 274,376 274,266 274,276 274,266 274,276 274,274 274,178 274,260 274,274 274,178 274,274 274,178 274,274 274,178 274,274 274,178 274,274 274,178 274,274 274,178 274,274 274,179 274,199 274,191 274,281 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,274 274,275 274,275 274,274 274,275 274,275 274,276 274,276 274,277 274,375 274,277 274,375 274,277 274,375 274,277 274,375 274,271 274,383	Cur Vise, be Walls. ' min Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Wheel. Whip s Wind n Windom Windom Windom Windom Windom Wire st Wrenel Bottle, Carpet, Car
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump pixture, chain, M. D. Temple Pump pixton. S. W. George Pump, ship's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream Railway safety switch, C. T. Johns Railway safety switch, C. T. Johns Railway teand chair, combined, Gibbs & Snook Reel. See Centrifugal reel. Refrigerator, J. M. Clock	274,404 274,145 274,145 274,145 274,145 274,145 274,145 274,145 274,145 274,377 274,200 274,309 274,276 274,320 274,424 274,424 274,143 274,265 274,178 274,288 274,178 274,289 274,281	Cur Vise, be Walls. I min Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Wheel. Whip s Wind m Windom Axes, J Boots. Co Butter, Batir ar Type, for Button Canned Linime Lithogo possings Fin Medicial shir Perfum fact
Pulley, G. S. Long Pump, A. J. Hopkins Pump fixture, chain, M. D. Temple Pump pixture, chain, M. D. Temple Pump pixton. S. W. George Pump, sbip's, Russell & Curtis Pump, steam, E. Thayer Punch grinding machine, W. L. Hayes Pyroxyline, manufacture of, Hyatt & Pool. Railway chair, J. H. Ream Railway tie and chair, combined, Gibbs & Snook. Rael. See Centrifugal reel. Refrigerator, J. M. Clock	274,409 274,409 274,145 274,145 274,145 274,145 274,145 274,369 274,276 274,200 274,276 274,200 274,276 274,288 274,178 274,288 274,178 274,281 274,271 274,183 274,271 274,183 274,271 274,183 274,271 274,183 274,271 274,183 274,271 274,183 274,271 274,183 274,271 274,183 274,271 274,183 274,271 274,183 274,271 274,183 274,271 274,183 274,271 274,183 274,271 274,373 274,171 274,381 274,286 274,171 274,173 274,286 274,411	Cur Vise, be Walls. I min Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Washir Wheel. Whip s Wind m Windom Paret Larpet, for a large from Medicin will be with the work window will be with the work window will be wil

• .	Spring. See Door spring.	
а. В		974 194
7 :		~1 1 ,101
7	Station indicator, B. McCrary	274,855
3	Steamboiler, P. Fitzgibbons	274,301
0 3	Steam engine, compound, M. C. Bullock	
7	Steam engine cylinders, device for supplying steam to, E. T. Davies	274.286
5	Steam in street mains and branches, method of	
4	and apparatus for obtaining a high pressure	
	motor from low pressure of, W. S. Colwell	274,175
7	Steering mechanism, vessel, J. L. Cathcart Stench trap, H. Pietsch	274,172
4	Stone, artificial, D. G. Weems	274 237
0	Stove and other sheet metal pipes, J. Vincent. Jr.	274,421
4	Stove, folding pocket cook, T. W. Houchin	274,330
	Stove, lamp, C. S. West	
4	Stove or furnace, W. Masters	
7	for, M. M. Robbins	
	Strap. See Thill strap.	
2 i	Straw stacker, I. C. Lindley	274,205
ار	Straw stacking machine, C. E. Merrifield	
ĺ	Street sweeping machine, G. E. Woodbury Sulky. T. Boettcher	274,164
١	Switch. See Railway safety switch.	212,101
5 .	Table. See Adjustable table.	
3 .	Tag, shipping, T. E. Lewis	274,34 8
3	Tank. See Acid tank. Tanning leather, machine for, B. D. Hyam	074 996
;	Teeth. device for regulating, J. J. R. Patrick	
	Telegraph and semaphone signal, W. W.	~12,001
ŀ	McLellan	
,	Telegraph apparatus. G. D'Infreville	274,112
'n	Telegraph, printing, S. D. Field	
į	Telegraph, printing, H. Van Hoevenbergh Telegraphy, dynamo, H. Van Hoevenbergh	
3	Telephone, receiving. J. A. Maloney	274,352
)	Telephone transmitter, electric, J. A. Maloney,	274,353
;	Telephonic transmitter, C. Ader	
3	Thill coupling, A. C. Wetherbee	274,428
)	Thim strap, narness, A. Lobden	
;	Thrashing machine, J. C. Schneider.	274,395
3	Thrashing machine grain separator, W. A. Robin-	
!	son	274,886
3	Tie. See Railway tie. Tire setter, H. D. Bokop	974 160
;	Tire tightener. J. B. Cypert	
3 ¦	Tongue, wagon. H. Koch	
•	Tool handle. Z. Tremblay	274,414
, :	Tool holder. W. T. Lander	274,344
	Tool holder, Thayer & F. A. Smith, Jr.,	274,252
3	Toy horse. F. W. Carpenter Toy, mechanical, W. X. Stevens	274.148
1	Trap. See Sewer trap. Sewer and water trap.	•
!	Stench trap.	
,	Tricycle, J. K. Starley Trimmer. See Lawnedge trimmer.	274,231
,	Trough. See Eaves trough.	
1	Truck, barrel, L. M. Bedell	274,258
	Truck, car, Whiting & Smith	
	Truck, tipping, H. Grafton	274,314
:	Turnstile, registering, Wolff & Wieser	274,461
)	Valve, H. Oldendorph	
;	Valve, check, J. P. Pfau	
	Valve, hydraulic, E. Thayer	
	Valve, safety. A. C. Meady	274.247
۱	Valve. tube, W. Kennish	274,447
1	Valve tube, W. Kennish	on
	wright	
1	Vehicle, side spring, C. W. Saladee	274,183
1	Vehicle, two-wheeled, Page & Raynor	274,217
1	Vehicle, two-wheeled, G. E. Spare	274,401
	Velocipede, C. T. Holloway	274,196
,	Vermin, strip for repelling and destroying, S. Curtiss	274.284
•	Vise, bench, G. H. Wood	274,243
i	Walls. roofs, etc., covering for, McCarthy & Cum-	
ı	ming	
ı	Washing machine, J. O. Hardwick	274,130
	Washing machine, F. Pollmiller	274.396
	Water closet cistern, C. H. Moore	274,214
	Waster closet pull cup, J. Demarest	
	Weather strip, C. F. Whipple	274.190
	Wheat drill, A. L. Reese	274,380
	Wheel. See Car wheel. Paddle wheel.	
	Whip socket, P. Jasnowski	274,199
	Wind motor, A. Dumont	274,289
	Windmill, L. M. Hoskins	274.329
	Window cleaner, M. Hurley	274.334
:	Wrench I A Dodge	
İ	Wrench, J. A. Dodge	214,113
	DESIGNS.	
I		10 70.0
	Bottle, T. Davis	13.735
i	Carpet, J. L. Folsom13,737 to	13,792
	Carpet, W. J. Gadsby	

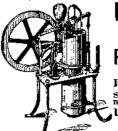
Bottle, T. Davis	13,736
Carpet, F. Allen	13,735
Carpet, J. L. Folsom13,737 to	13,792
Carpet, W. J. Gadsby	13,793
Carpet, H. Hunt	13,796
Carpet, W. L. Jacobs	13,301
Carpet, W. Kerr	13,804
Fringe. F. L. Prindle	13,805
Stair and room corner guard, D. C. Hyde	13,797
Type, font of, G. F. Giesecke	13,795
	

TRADE MARKS.

Screw machine, metal, H. H. Taylor 274,153		П
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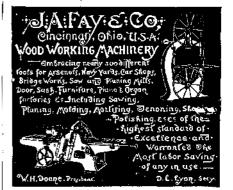


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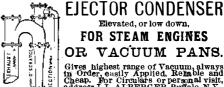




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