

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line.

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

Machinist's Tools, Steam Pumps, Centrifugal Pumps, Iron and Woodworking Machinery, Engines, Boilers, and Supplies.

Wanted—Machine Shop to make Engines, in quantities, by contract. E. E. Roberts, 107 Liberty St., N. Y.

The genuine Asbestos Roofing is the only reliable substitute for tin; it costs only about one half as much, is fully as durable, is fireproof, and can be easily applied by any one.

For Sale.—Two Windmill Patents, and set of patterns for same. None better. F. C. Maxwell, Columbus, O.

Wanted.—Second-hand Magic Lantern Slides, Give quantity, quality, size, and price. Address Lantern, Baltimore, Md.

For Sale.—Flexible Lumber Patent for Cylinder Lagging. Geo. C. Setchell, Norwich, Conn.

Wanted.—Particulars and Proposition for Ice Machine. Box 170, Charleston, Kanawha, Co., W. Va.

For Sale Cheap.—The entire patent for best Egg Beater ever put on the market. See illustration in SCIENTIFIC AMERICAN of February 21, 1880.

Wanted.—Circulars, with prices, from Manufacturers of Small Drop Hammers, that will strike one or more blows and then stop, and always up, with adjustment for lift of blow, and that will give from one to two hundred blows a minute.

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

Vertical and Steam Yacht Engines. T. B. Pemberton, 276 Water St., New York.

Wanted.—A competent Die Sinker. Steady employment. Address E. P., Box 773, New York.

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

Wanted.—An Oil Mill of the most improved pattern, for the manufacture of cotton seed oil from the seed of the Sea Island cotton. State price and terms.

Wanted.—A few sober, industrious Machinists and Molders. Address H. B. Smith Machine Co., Smithville, Burl. Co., N. J.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 126.

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

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

Solid Emery Vulcanite Wheels—The Solid Original Emery Wheel—other kinds imitations and inferior. Caution.—Our name is stamped in full on all our best Standard Belting, Packing, and Hose.

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

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

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

Forsait & Co., Manchester, N. H., & 213 Centre St., N. Y. Bolt Forging Machines, Power Hammers, Comb'd Hand Fire Eng. & Hose Carriages, New & 2d hand Machinery. Send stamp for illus. cat. State just what you want.

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

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

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

Steam Engine for sale very low. See advertisement on another page.

Portable Forges, \$12. Roberts, 107 Liberty St., N. Y.

Mica in sheet and scrap for sale in quantity to suit. Parties using Mica in any form please send for samples.

For Mill Mach'y & Mill Furnishing, see illus. adv. p. 141. Telephones repaired, parts of same for sale. Send stamp for circulars. P. O. Box 205, Jersey City, N. J.

Eclipse Portable Engine. See illustrated adv., p. 94. Machine Knives for Wood-working Machinery, Book Binders, and Paper Mills. Large knife work a specialty. Also manufacturers of Solomon's Parallel Vise. Taylor, Stiles & Co., Riegelsville N. J.

Silent Injector, Blower, and Exhauster. See adv. p. 141. The Paragon School Desk and Garretson's Extension Table Slide manufactured by Buffalo Hardware Co.

Planing and Matching Machines, Band and Scroll Saws, Universal Wood-workers, Universal Hand Jointers, Shaping, Sand-papering Machines, etc., manuf'd by Bentel, Margard & Co., Hamilton, Ohio. "Illustrated History of Progress made in Wood-working Machinery," sent free.

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

Diamond Engineer, J. Dickinson, 64 Nassau St., N. Y. The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

For Superior Steam Heat Appar., see adv., page 142. Cut Gears for Models, etc. Models, working machinery, experimental work, manufacturing, etc., to order. D. Gilbert & Son, 212 Chester St., Phila., Pa.

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

The E. Horton & Son Co., Windsor Locks, Conn., manufacture the Sweetland Improved Horton Chuck.

The best Truss ever used. Send for descriptive circular to N. Y. Elastic Truss Co., 683 Broadway, New York. Power Hammers. P. S. Justice, Philadelphia, Pa. p. 77.

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

For Reliable Emery Wheels and Machines, address The Lehigh Valley Emery Wheel Co., Weissport, Pa.

Millstone Dressing Machine. See adv., page 142. Comb'd Punch & Shears; Universal Lathe Chucks. Lambert Iron Works, Lambertville, N. J. See ad. p. 108.

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

Electro-Bronzing on Iron. Philadelphia Smelting Company, Philadelphia, Pa. New Economizer Portable Engine. See illus. adv. p. 108.

Wm. Sellers & Co., Phila., have introduced a new injector, worked by a single motion of a lever. Ore Breaker, Crusher, and Pulverizer. Smaller sizes run by horse power. See p. 141. Totten & Co., Pittsburg.

For Shafts, Pulleys, or Hangers, call and see stock kept at 79 Liberty St., N. Y. Wm. Sellers & Co. Engines repaired without loss of time. L. B. Flanders Machine Works, Philadelphia, Pa.

Notes & Queries

HINTS TO CORRESPONDENTS.

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

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

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

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

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

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

(1) P. G. asks: 1. With what substance are the porous cups of a Leclanche battery filled? A. With granular black oxide of manganese. Some makers fill them with equal parts of black oxide of manganese and retort carbon.

(2) L. C. C. asks: How many horse power do you think would be required to propel a yacht at a speed of ten miles per hour, length 25 feet, breadth 6 feet, built after the "Sharpie" model, total weight of vessel and cargo 4,000 lb.?

(3) M. F. R. writes: I think of building a small boat, and would like you to tell me what size single engine and boiler I should get. Length of boat 32 feet, 7 feet beam. It is not to be a flat bottom, and I want to put on a stern wheel, as our river will not admit of a screw.

(4) A. L. K. writes: We have here in this city three telephone lines running parallel for four or five hundred feet. Two of them use the Bell telephone, and one the Edison. Now, when they are using the Edison we can hear every word said by listening at either of the other lines, and they are not within two feet or more of each other; that is, the lines do not

run any nearer than that. Can you give the reason? A. The effect noted by you is due to electrical induction. An intermittent or vibratory electric current passing over a line will induce a current in a parallel line, even if the two wires be several feet apart.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated: H. J. F.—1. Quartz, decomposed hornblende and feldspar. 2. Coccolite in quartz. 3. Mispickite and mica slate. 2 and 3 may carry a small amount of silver.

COMMUNICATIONS RECEIVED.

NEW COPYING PROCESS. By E. P. T. On Sun Spots. By E. E. B. Another New Copying Process. By E. P. T.

INDEX OF INVENTIONS

FOR WHICH Letters Patent of the United States were Granted in the Week Ending February 3, 1880, AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.] A complete copy of any patent in the annexed list, including both the specifications and drawings, or any patent issued since 1867, will be furnished from this office for one dollar.

Addressing machine, W. E. Woodruff, Jr. 224,064 Air compressor, W. R. Eckart. 224,061 Animal trap, H. Shulenburg. 224,235 Arrow rest for bows, N. R. Streeter. 224,114 Audiphone, T. W. Graydon. 224,177 Axle box, car, W. G. Mitchell. 224,209 Axle lubricator, car, S. J. & G. J. Shimer. 224,047 Axle, vehicle, J. Coniff. 224,077 Bag tie, M. Y. Hall. 224,180 Ball trap, T. M. Smith. 224,049 Barrel lifter, W. Brown. 224,137 Bed bottom frames, etc., corner fastening for connecting, W. F. Moody. 224,028 Beer, manufacture of, G. C. Holderer. 224,186 Berth, oscillating ship's, T. O. L. Schrader. 224,232 Binder, temporary, J. T. Foster. 224,164 Bird cage, F. W. Flato. 224,163 Blind, inside, J. M. Abbott. 223,973 Blotter, J. A. Austin. 224,124 Boot tree, G. W. Badger. 224,067 Bottle stopper, J. J. Allison. 224,122 Bow, J. B. Robinson. 224,043 Brake pipe coupling and valve, C. G. Welch. 224,256 Bucket, soil, S. W. Jones. 224,018 Buckle, suspender, G. R. Kelsey. 224,189 Building, fireproof, J. Gilbert. 224,173 Burglar alarm, J. Israel. 224,017 Burglar alarm, electric, W. L. Voelker. 224,060 Butter, etc., cover and cooler for, W. E. Barrows. 224,126 Button and stud, N. F. Mathewson. 224,098 Button, detachable, J. P. Carpenter. 224,144 Button, separable, J. P. Carpenter. 224,143 Buttons, etc., from fibrous material and powdered hoof, manufacturing, W. F. Niles. 224,036 Cake machine, D. M. Holmes (r). 9,062 Car coupling, Bayliff & Harrod (r). 9,063 Car coupling, F. A. Lewis. 224,094 Car coupling, G. H. Wilson. 224,302 Car heater, M. Limpert. 224,194 Car ventilator, C. W. Thomas. 224,248 Carbonates and bicarbonates, manufacture of, A. Stearns. 224,240 Carpet pads, machinery for making, H. M. Small. 224,053 Carpet sweeper, E. K. Breckenridge. 224,069 Caster, furniture, J. Toler. 224,249 Casting metals, apparatus for, Taylor & Wales. 224,245 Catarrh, compound for nasal, G. L. Gorslene. 224,084 Chandelier, F. Rhind. 224,226 Chimney top and ventilator, G. W. & L. Demond. 224,154 Chock, raft-topsail sheet, W. Metzler. 224,027 Chuck, scroll, D. E. Whiton. 224,119 Churn, H. Smelson. 224,112 Churn, H. Van De Water. 224,059 Cigar packing press, F. C. Miller. 224,208 Clamp for carrying school books, H. Tollner. 224,250 Clay into tiles, etc., machine for pressing and moulding, I. Hogeland. 224,015 Clock, electro-magnetic, D. F. Sweet. 224,243 Clothes hook, J. W. Drew. 224,003 Clothes wringer, Lawrence & Kerr. 224,019 Coach or harness pad, Cahoon & Teas. 223,991 Coffee roaster, J. H. Chamberlin. 223,993 Compass, solar, F. Moore. 224,102 Cooking device, R. B. Wakefield. 224,252 Corset, M. Cohn. 224,076 Cotton opener feed indicator, J. Hill. 224,185 Cotton picker, J. B. Parker. 224,221 Crushing, grinding, and amalgamating machine, L. Haight. 224,087 Cultivator, Blodgett & Smits. 223,982 Cultivator, C. D. Carter. 224,074 Cultivator, S. G. Pomeroy. 224,039 Cultivator, E. & E. C. Slosson. 224,111 Cultivator, sulky, H. R. Burdge. 224,139 Cymbal, drum, T. W. McKeever. 224,204 Dental plugger, G. B. Snow. 224,050 Desk and work box, comb'd writing, A. Wernicke. 224,257 Desk, school, J. Glendinning. 224,174 Door check, N. Kidney. 224,092 Door hanger, T. H. Bottomley. 223,985 Dovetailing machine, G. W. Parker. 224,106 Draught or tug link, spring, J. F. Miller. 224,210 Drawer front, B. A. Armstrong. 224,066 Dredging machine, Maguire & Alexander. 224,197 Egg beater, S. A. Ulmer. 224,117 Emery cloth, F. Copeland. 224,078 Extension table, W. Fay. 224,007 Faucet attachment and bush, J. A. Vallentine. 224,057 Faucet, measuring, W. M. Sack. 224,108 Feeding trough, J. W. McNeal. 224,206

Table of inventions with patent numbers, including items like 'File for packages of letters, F. W. Sanguinet...', 'Fire extinguisher, H. Bohle...', 'Fireplace, J. H. Beard...', etc.