Business and Versonal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue. The publishers of this paper guarantee to advertisers a circulation of not less than 50,000 copies every weekiy issue.

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

Machinist's Tools, Steam Pumps, Centrifugal Pumps, Iron and Woodworking Machinery, Engines, Boilers, and Supplies. O. L. Packard, 87, W. Water street, Milwaukee, Wis.

Wanted-Machine Shop to make Engines, in quantities, by contract. E. E. Roberts, 107 Liberty St., N. Y. Solid and Opening Die Bolt Cutters, Screw Plates, and Taps. The Pratt & Whitney Co., Hartford, Conn.

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. H. W. Johns Manufacturing Co., 87 Maiden Lane, New York, are sole manufacturers.

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

For Sale.-Two Windmill Patents, and set of patterns for same. None better. F. C. Maxwell, Columbus, O. For Sale.—Flexible Lumber Patent for Cylinder Lag-

gings. Geo. C. Setchell, Norwich, Conn. Wanted .- Second-hand Magic Lantern Slides. Give quantity, quality, size, and price. Address Lantern, Baltimore, Md.

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 Sci-ENTIFIC AMERICAN of February 21, 1880. Address H. C. Mann, Frankford, Pa.

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 heft of blow, and that will give from one to two hundred blows a minute. Must be open on one side for large work. Address Willcox, Treadway & Co., Cleveland, O.

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

For Sale.—Four Boilers, 100 horse power each, return drop flue: A 1 condition; \$1,500 each. 1 Berryman Heater, 42 x 96; A 1 condition; \$400. D. L. Einstein, 16 White St., New York.

For Iron Gas Pipe, see adv. on inside page.

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.

Collection of Ornaments.-A book containing over 1,000 different designs, such as crests, coats of arms, vignettes, scrolls, corners, borders, etc., sent on receipt of \$2. Palm & Fechteler, 403 Broadway, New York city. Best Oak Tanned Leather Belting. Wm. F. Forepaugh, Jr., & Bros., 531 Jefferson St., Philadelphia, Pa

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

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. Address Spirit of the Times, Jasper, Fla.

Wanted .- A few sober, industrious Machinists and Moulders. 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. Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 125.

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

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

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

Sheet Metal Presses. Ferracute Co., Bridgeton, N. J. Special Wood-Working Machinery of every variety, Levi Houston, Montgomery, Pa. See ad. page 45.

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

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

ment. 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. Bradley's cushioned helve hammers. See illus. ad. p. 110. | power. Forsaith & 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 soon as competent, can be obtained at the National Institute of Steam Engineering, Bridgeport, Conn. For particulars, send for pamphlet.

Machinery. Patent Punches, Shears, etc. E. Lyon &

on another page.

Mica in sheet and scrap for sale in quantity to suit. Parties using Mica in any form please send for samples. Atlantis Land and Mining Co., Box 2762, Leadville, Col.

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 Soloman'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, Margedant & Co., Hamilton, Ohio. "Illustrated History of Progress made in Wood-working Machinery,'

Fire Brick, Tile, and Clay Retorts, all shapes. Borgne & O'Brien M'f'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 SCIEN TIFIC 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. Lambertville 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 ept at 79 Liberty St., N. Y. Wm. Sellers & Co.

Engines repaired without loss of time, L. B. Flanders Machine Works, Philadelphia, Pa.



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 thepage, or the number of the question.

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

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.

(1) P. G. asks: 1. With what substance Churn, H. Van De Water.. makers fill them with equal parts of black oxide of manganese and retort carbon. 2. How is hard rubber polished? A. It is first filed or turned into shape, then smoothed with emery paper, then with powdered pumice stone applied with a felt wheel or felt rubber. The final polish is given by fine whiting and water applied with a brush.

(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 Crushing, grinding, and amalgamating machine, Cash Sharpie 224,131 Crushing, grinding, and amalgamating machine, Cash Sharpie 224,232 Printing machine, Fotary, G. Bissinger 224,233 Printing machine, Fotary, G. Bissinger 224,234 Printing machine, Fotary, G. Bissinger 224,233 Printing machine vessel and cargo 4,000 lb.? A. From six to eight horse

(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. What size wheel shall I use, and how wide should the paddles be? A. About 7 inch cylinder and 18 inches stroke; wheel 7 feet diameter and 9 inch bucket: vertical tubular boiler 34 inches diameter and 6 feet in height.

4) A. L. K. writes: We have here in this dachinery. Patent Punches, Shears, etc. E. Lyon & five hundred feet. Two of them use the Bell telephone, and one the Edison. Now, when they are using the nanother page.

(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 another page.

(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 another page.

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(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 Eagle pater, S. A. Ulmer.

(24) 24.024 Salt, manufacturing fine, T. Higgin.

(24) 25.024 Salt, manufacturing fine, T. Higgin.

(24) 24.024 Salt, manufacturing fine, T. Higgin.

(24) 25.024 Salt, manufacturing fine, T. Higgin.

(24) 24.024 Salt, manufacturing fine, T. Higgin.

(24) 24.024 Salt, manufacturing fine, (4) A. L. K. writes: We have here in this

runany 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. This phenomenon is beautifully illustrated by Hughes' induction balance and sonometer, fully described in Sur-PLEMENT, No. 196.

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. Mispickle and is mica slate. 2 and 3 may carry a small amount of silver. -J. C. D.-It is metallic antimony, worth about 18 cents per lb. in large quantities.

COMMUNICATIONS RECEIVED.

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

[OFFICIAL.]

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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. Leveling instruments, tripod head for, L. B. for one dollar. In ordering please state the number and date of the patent desired, and remit to, Munn & Co., 37 Park Row, New York city.

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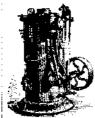
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