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 publishers of this paper guarantee to advertisers a circulation of not less than 50,000 copies every weekly issue*

Wanted—A good second-hand lathe to swing eight feet Address Stephen W Baldwin, 96 Liberty St., New York. giving general dimensions, weight, price, and other particulars

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

Surveying Instruments. G. S. Woolman, 116 Fulton St., N Y

The New Domestic Bible, with its 2,000 illustrations, is said to be a marvel of beauty and usefulness. A beautiful present for a friend or relative. Subscribers desiring a copy of the Holy Bible should consult the advertiser's special offer in this issue.

See Staples & Co 's advertisement of Non-Congealable Lubricating Oils on inside page.

Nellis' Cast Tool Steel, Castings from which our specialty is Plow Shares. Also all kinds agricultural steels and ornamental fencings. Nellis, Shriver & Co., Pittsburg, Pa.

Metallic Articles Colored in Single or Rainbow Colors. New Process. High cost metals imitated in cheaper metals. Gardiner M'f'g Co., Newburyport, Mass.

Hearing Restored.—Great invention by one who was deaf for 20 years. Send stamp for particulars. Jno. Garmore, 60 E. Sixth St., Cincinnati, O.

The Paragon School Desk and Garretson's Extension Table Slide manufactured by Buffalo Hardware Co.

For Superior Steam Heat. Appar., see adv., page 334.

Frank Miller's Leather Preservative and Waterproof Oil Blacking has no equal for softening, preserving, and rendering impervious to water, all kinds of leather.

Frank Miller's Original and Genuine Prepared Harness Oil Blacking contains no coal or mineral oils.

Shafting, etc.; specialty. P. Pryibil, 467 W. 40th, N. Y.

Perfection at last! Who will buy a Rotary Shuttle Sewing Machine? J. J. Green, Boonton, N. J.

Large Stock New and Second-hand Engines, Boilers, and Wood-working Machinery. Specify what is required. Belcher & Bagnall. 40 Cortlandt St., New York.

Power Hammers. P. S. Justice, Philadelphia, Pa.

Steel Castings, solid; act same as bar steel; Plow Shares; Crank Shafts; Dies; Hammer Heads; Pinions; Wheels; Cross Heads. All articles difficult to forge. Agricultural Wrought Steels. Read, McKee & Co., limited, Pittsburg, Pa.

For best Fixtures to run Sewing Machines by Power, address Jos. A. Sawyer & Son, Worcester, Mass.

Thomas D. Stetson, 23 Murray St., New York, serves as Expert in Patent Suits.

The Baker Blower ventilates silver mines 2,000 feet deep. Wilbraham Bros., 2318 Frankford Ave., Phila., Pa.

Wheelbarrows.—The "A. B. C. bolted" will outlast five ordinary barrows. $24 per doz. A. B. Cohu, 197 Water St., N. Y

Park Benjamin's Expert Office, Box 1009, N. Y. Recipes and information on all industrial processes.

To stop leaks in boiler tubes, use Quinn's Patent Ferrules. Address S. M. Co., So. Newmarket, N. H.

To Capitalists, Steam Fitters, Founders, etc.—Patent right for sale of new Steam Heat Radiator. Address, for particulars, J. N. Farnham, Waltham, Mass.

Steam Traps; best and cheapest in use. No blowing through to start. T. Sault, New Haven, Conn.

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.

The Secret Key to Health.—The Science of Life, or Self-Preservation, 300 pages. Price, only $1. Contains fifty valuable prescriptions, either one of which is worth more than ten times the price of the book. Illustrated sample sent on receipt of 6 cents for postage. Address Dr. W. H. Parker, 4 Bulfinch St., Boston, Mass.

Brass or Iron Gears; list free. G. B. Grant, Boston.

The Friction Clutch that is doing work in many places satisfactorily, that has never been done by any other, can be seen at Institute Fair, New York. D. Frisbie & Co., New Haven, Conn.

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.

Wood-Working Mach'y. P. Pryibil, 467 W. 40th, N. Y.

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

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

Steam Excavators. J. Souther & Co., 12 P.O. Sq. Boston.

Bradley's cushioned helve hammers. See illus. ad. p. 302.

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

Telephones repaired, parts of same for sale. Send stamp for circulars. P. O. Box 205, Jersey City, N. J.

Noise-Quieting Nozzles for Locomotives and Steamboats. 50 different varieties, adapted to every class of engine. T. Shaw, 915 Ridge Avenue, 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.

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

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

Silent Injector, Blower, and Exhauster. See adv. p 334.

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," sent free

Diamond Drills, J. Dickinson, 64 Nassau St., N. Y.

Eclipse Portable Engine. See illustrated adv., p. 318

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

All makes and sizes of Steam Hammers bored out. L. B. Flanders Machine Works, Philadelphia, Pa.

Cut Gears for Models, etc. (list free). Models, working machinery, experimental work, tools, etc., to order. D Gilbert & Son, 212 Chester St., Philadelphia, Pa.

Valve Refitting Machine. See adv., page 269.

Blake's Belt Studs. The strongest, cheapest, and best fastening for all belts. Greene, Tweed & Co., New York.

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

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

Special Wood-Working Machinery of every variety. Levi Houston, Montgomery, Pa. See ad. page 269.

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

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

Pays well on small investments; Magic Lanterns and Stereopticons of all kinds and prices; views illustrating every subject for *public exhibition and parlor entertainments.* Send stamp for 80 page Illustrated Catalogue. Centennial medal. McAllister, 49 Nassau St., New York.

Rubber Belting, Packing, Hose, and all kinds of manufacturers' supplies. Greene, Tweed & Co., 18 Park Pl., N.Y.

Patent Steam Boiler Damper Regulator; most reliable and sensitive made. National Iron Works, New Brunswick, N. J.

Deoxidized Bronze. Patent for machine and engine journals. Philadelphia Smelting Co., Phila., Pa.

Sheet Metal Presses, Ferracute Co., Bridgeton, N. J.

Wheels and Pinions, heavy and light, remarkably strong and durable. Especially suited for sugar mills and similar work. Circulars on application. Pittsburg Steel Casting Company, Pittsburg, Pa.

The New Economizer, the only Agricultural Engine with return flue boiler in use. See adv. of Porter Mfg. Co., page 270.

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

For Pulley Blocks, write Block Works, Lockport, N. Y.

NEW BOOKS AND PUBLICATIONS.

A PRACTICAL TREATISE ON NATURAL AND ARTIFICIAL CONCRETE. By Henry Reid. New York: E. & F. N. Spon. 8vo, cl., pp. 384.

A third and enlarged edition of Mr. Reid's well-known work. The author traces historically the uses of concrete in architecture, discusses the nature of concrete, matrices, aggregates, stone breakers, and other machinery for reducing the aggregates, the treatment of aggregates, the silicating process, the established processes of concrete manufacture, English concrete industries, constructive concrete applications, important engineering concrete works, German Portland cement, the character of building materials, bastard mortar, a great variety of original experiments on concretes, etc. In the chapter on important engineering concrete works, it appears that the huge 70-ton blocks used on the Mississippi jetties are far from being the largest yet employed. In the works of the river Liffey improvement at Dublin, Ireland, concrete blocks weighing 350 tons each were successfully handled.

LECTURES ON ELECTRICITY IN ITS RELATIONS TO MEDICINE AND SURGERY. By A. D. Rockwell, A.M., M.D. New York: Wm. Wood & Co. 8vo, cl., pp. 99. Price $1.00.

Seven lectures on the theory and practice of electro-therapeutics, reprinted from the *Virginia Medical Monthly.* The ground covered embraces electro-physics, electro-physiology, electro-diagnosis, methods of application, apparatus for electro-therapeutics, the treatment of special diseases, and electro-surgery. The value of Dr. Rockwell's investigations in this department have been widely recognized by the profession, not only for their effect in extending the bounds of scientific knowledge, but in helping to reclaim from quackery an important department of medical study and practice.

COPYRIGHT AND PATENTS FOR INVENTIONS. Compiled by R. A. Macfie. Edinburgh: T. & T. Clark. Vol. I. 8vo, paper, pp. 406.

Contains an essay on the origin and progress of literary property written by Lord Dreghorn, nearly a century ago; evidence given to the late royal commission on copyright in favor of royalty republishing; and a large quantity of extracts, notes, and tables intended to further the national and international adoption of the royalty copyright system. The compiler is one of those zealous but belated individuals to whom the inevitable tendencies of civilization are a perpetual grievance. The increasing recognition of property-right in ideas, more particularly in invention, is Mr. Macfie's especial bugbear; and his persistent efforts to stay the course of modern thought and practice in this direction forcibly remind one of Mrs. Partington's attempts to sweep back the tide. His book contains much interesting though undigested matter, and is copiously indexed.

KING'S POCKET BOOK OF CINCINNATI. Edited and published by Moses King. Harvard College, Cambridge, Mass. Cloth, 35 cents; paper, 15 cents.

A particularly well made, handy, and useful account of Ohio's chief city. The information is well chosen and well put; and it is abundant.

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) D. A.—The use of phosphorus alone in any form will not serve to stimulate memory, and we cannot advise its use in the way suggested. An active life in the open air in an occupation requiring the constant employment of the mental faculties, a temperate diet, and the avoidance of excess of any kind are among the best remedies.

(2) W. H. R. asks: 1. What is meant by a battery polarizing? A. When liquids are brought into direct contact with metals, and included in a galvanic circuit, they become decomposed by the action of the current, and this effect takes place even when the action is no longer visible to the eye. The component parts of the liquids, or, in other words, the products of decomposition, collect upon and cover the metallic surfaces which border the stratum of liquid, and thus a new electric difference or electromotive force arises between the metals, which tends to oppose the original electromotive force of the battery. Metals which are thus affected in respect to their electromotive force are said to be polarized, and the process is called galvanic polarization. 2. Will common sheet zinc melted and cast into a thick plate do for use in batteries? A. Yes, but the pure article is much better. Pure zinc may be obtained from metal dealers in this city. 3. What is the cartridge paper used in making an induction coil? A. It is tough manila paper well calendered. Any smooth, strong paper will answer the same purpose. 4. Where can carbon be obtained? A. From electricians who advertise in our columns.

(3) D. J. E. writes. Please be good enough to decide a question by answering the following question: What is a miter? One party holds that the intersection of parallel lines at any angle is termed a miter. The other party claims the term miter can be only properly applied to the intersection of parallel lines at an angle of 45 degrees. A. Webster's dictionary says a miter "in architecture is an angle of 45°," and also that anything mitered is "cut or joined at an angle of 45°."

(4) J. B. B. asks for directions for polishing a horn to be used as a powder horn. A. Scrape the horn with a glass or steel scraper, then smooth with pumice stone and water applied with a piece of leather; then use rotten stone and water applied with a piece of canton flannel; finally apply whiting and water with a piece of canton flannel.

(5) A. G. asks how to silver plaster casts. A. Ordinary plaster models are covered with a thin coat of mica powder, which perfectly replaces the ordinary metallic substances. The mica plates are first cleaned and bleached by fire, boiled in hydrochloric acid, and washed and dried. The material is then finely powdered, sifted, and mingled with collodion, which serves as a vehicle for applying the compound with a paint brush. The objects thus prepared can be washed in water, and are not liable to be injured by sulphureted acids or dust. The collodion adheres perfectly to glass, porcelain, wood, metal, or papier mache.

(6) C. E asks how to enamel iron hollow ware A. The enamel of iron hollow ware is made of powdered flints ground with calcined borax, fine clay, and a little feldspar. This mixture is made into a paste with water, and brushed over the pots after they have been scoured with diluted sulphuric acid and rinsed clean with water. While still moist they are dusted over with a glaze composed of feldspar, carbonate of sodium, borax, and a little oxide of tin. Thus prepared, the pots are gradually dried, and then the glaze is fired or fused under a muffle at a bright red heat. Oxide of lead, although increasing the fusibility of the glaze, impairs its efficiency, as it will not resist the action of acids in cooking.

[OFFICIAL.]

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