

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 first steel pens that were made were sold at an English shilling each. Esterbrook's can be bought by the gross at a rate considerably less than one cent each.

Send for illustrated catalogue of Electrical Instruments, Supplies, and Books for Electricians and Amateurs. I. N. Hopkins & Co., 267 Broadway, New York.

Books for Engineers. Catalogues free. E. & F. N. Spon, 44 Murray Street, New York.

A Draughtsman and Patternmaker desires a permanent place. Can furnish good references. Have been in charge of these departments. Address C. F. S., Mauch Chunk, Carbon County, Pa.

Carbon Plates. P. Bowe, 48 R. R. Av., Jersey City, N. J.

Automatic Planer, Knife Grinders, best Solid Emery Wheels, Machinery to run Emery Belts, etc. All warranted satisfactory. Amer. Twist Drill Co., Meredith, N. H.

See Bentel, Margendant & Co.'s adv., page 93.

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

The Berryman Feed Water Heater and Purifier and Feed Pump. I. B. Davis' Patent. See illus. adv., p. 93.

50,000 Sawyers wanted. Your full address for Emerson's Hand Book of Saws (free). Over 100 illustrations and pages of valuable information. How to straighten saws, etc. Emerson, Smith & Co., Beaver Falls, Pa.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 94.

Bostwick's Giant Riding Saw Machine, adv., page 93.

Gould & Eberhardt's Machinists' Tools. See adv., p. 92.

Centrifugal Pumps, 100 to 35,000 gals. per min. See p. 92.

Barrel, Key, Hoghead, Stave Mach'y. See adv. p. 94.

For Heavy Punches, etc., see illustrated advertisement of Hilles & Jones, on page 93.

Red Jacket Adjustable Force Pump. See adv., p. 94.

Vertical Engines, varied capacity. See adv., p. 93.

Renshaw's Ratchet for Square and Taper Shank Drills. The Pratt & Whitney Co., Hartford, Conn.

Mineral Lands Prospected, Artesian Wells Bored, by Pa Diamond Drill Co. Box 123, Pottsville, Pa. See p. 94.

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

Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 92.

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 Porter-Allen High Speed Steam Engine. Southwork Foundry & Mach. Co., 40 Washington Ave., Phil. Pa. 4 to 40 H. P. Steam Engines. See adv. p. 94.

Mr. T. D. Lockling, Can., U. S. Consul, Panama, U. S. Colombia, will sell the whole or a portion of his patent for umbrellas, illustrated in last issue.

For second-hand engines and boilers, address Young & Locke, Titusville, Pa.

Drop Forgings. Billings & Spencer Co. See adv., p. 77.

Cope & Maxwell M'fg Co.'s Pump adv., page 77.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 14.

Common Sense Dry Kiln. Adapted to drying of all material where kiln, etc., drying houses are used. See p. 405.

Wanted Immediately—A first-class Steel Letter Cutter. H. W. Gordon, Lynn, Mass.

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.

The Sweetland Chuck. See illus. adv., p. 62.

Improved Skinner Portable Engines. Erie, Pa.

Machine Knives for Wood-working Machinery, Book Binders, and Paper Mills. Also manufacturers of Solomon's Parallel Vise, Taylor, Stiles & Co., Riegelsville, N. J.

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

Electric Lights.—Thomson Houston System of the Arc type. Estimates given and contracts made. 631 Arch, Phil.

Lightning Screw Plates, Labor-saving Tools. p. 62.

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., 177 Commerce St., Newark, N. J.

"Abbe" Bolt Forging Machines and "Palmer" Power Hammers a specialty. Forsaith & Co., Manchester, N. H.

List 28, describing 3,600 new and second-hand Machines, now ready for distribution. Send stamp for same. S. C. Forsaith & Co., Manchester, N. H., and N. Y. city.

Nickel Plating.—Sole manufacturers cast nickel anodes, 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.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock Mfg. Co., 80 to 88 Market St., Chicago, Ill.

First Class Engine Lathes, 20 inch swing, 8 foot bed, now ready. F. C. & A. E. Rowland, New Haven, Conn.

Ice Making Machines and Machines for Cooling Breweries, etc. Pietet Artificial Ice Co. (Limited), 142 Greenwich Street. P. O. Box 3083, 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.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y. For Power & Economy, Alcott's Turbine, Mt. Holly, N. J.

Wood-Working Machinery of Improved Design and Workmanship. Cordeman, Egan & Co., Cincinnati, O. Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocum & Son's Shafting Works, Drinker St., Philadelphia, Pa.

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.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Presses & Dies (fruit cans) Ayar Mach. Wks., Salem, N. J.

NEW BOOKS AND PUBLICATIONS.

HOUSE DRAINAGE AND SANITARY PLUMBING. By Wm. Paul Gerhard. Providence: E. L. Freeman, State Printer.

This report, prepared for the Rhode Island State Board of Health, presents in an eminently straightforward practical way the principles of a perfect system of house drainage as developed by the best sanitary engineering, and reviews in detail the best results of recent invention in the production of sanitary plumbing apparatus and appliances. The work is illustrated by many engravings and diagrams.

A TREATISE ON RIVERS AND CANALS, RELATING TO THE CONTROL AND IMPROVEMENT OF RIVERS, AND THE DESIGN, CONSTRUCTION, AND DEVELOPMENT OF CANALS. By L. T. Vernon-Harcourt. Oxford: The Clarendon Press.

The specially valuable feature of this treatise lies in the score of plates of part II, which carry numerous figures illustrating the plans and more important characteristics of the principal works for the improvement of European and American rivers, the principal inland and ship canals of the world, and the various engineering devices employed in this class of works. Without attempting to be exhaustive this part of the treatise embodies a vast amount of information not easily accessible elsewhere. The text is a plain matter-of-fact statement of well established principles, with concise descriptions of the more recent works of importance on rivers and canals. Though intended for the instruction of young engineers, the treatise is admirably fitted for non-professional reading and reference in connection with the great commercial movements of the day. Every man of affairs interested in the works here described, as important factors of national development and commercial progress.

PROGRESS REPORT OF THE MISSISSIPPI RIVER COMMISSION FOR 1881, WITH MINORITY REPORT. Washington: Government Printing Office.

Contains reports of surveys and examinations of the Mississippi and its channel during the year 1881, with statement of the work of the same character laid out for the current year; works of improvement contemplated and the preparations made therefor; remarks on levees and outlets; discussions of the Red and Atchafalaya rivers, and of the flood of April and May, 1881; remarks on borings made and deductions therefrom; upon the mutual relations of river sections under varying conditions of discharge and curvature; remarks on Vicksburg Harbor and Bonnet Carré Crevasse; description of improvement works between Cairo and the mouth of the Missouri; legislation needed; communication from Jas. B. Eads relative to the effects of levees, etc.; also voluminous appendices relative to the works of improvement in progress, with many illustrative plates and diagrams. Is a pity the volume lacks an index to make the information it carries readily accessible.

THE GATES OF THE RIVERS. A Supplement to the World's Navigation.

In this privately circulated pamphlet Mr. W. T. Stackpole, of Fairbury, Ill., says a good many things that are true and a good many others that are not intelligible in the absence of the pamphlet to which this is supplementary. The drift of it all would appear to be that everything done hitherto by engineers for the improvement of river navigation is wrong, and that the right thing is to be done only with Mr. Stackpole's (undescribed) steam channel sweeper.



NOTES 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 50 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) J. B. E. asks: What is the best plan for renovating feathers? A. Feathers are now generally renovated by exposing them in a tight wooden or iron vessel to the action of live steam for an hour or more.

(2) G. F. P. writes: 1. How can I color white feathers black for artificial fly making; also the same red, brown, and yellow? A. For black, dissolve half an ounce logwood extract in a quart of water and boil in this for half an hour; then put into a little water with two pounds of iron sulphate. Finally rinse in running water. Repeat if necessary. For the other colors

use the appropriate soluble aniline or coal tar dyes in hot water.

(3) N. K. W. asks: 1. What is the contents of the Babcock fire extinguisher, and how is it made? A. A strong aqueous solution of bicarbonate of soda, and a leaden cup full of oil of vitriol (sulphuric acid). When this cup of acid is inverted into the soda solution sulphate of soda is formed and carbonic acid (gas) is liberated in large quantities. The reaction is represented as follows: (HNaCO3)2 + H2SO4 = Na2SO4 + 2H2O + 2CO2. When the materials are quite pure 81 ounces of the bicarbonate reacting with 48 ounces of sulphuric acid produce 44 ounces of the gas. 2. Can you tell me how I can apply electricity to cause a wheel to revolve? A. See article on dynamo machines in SUPPLEMENT, No. 161.

(4) M. A. S. asks: Will you kindly answer, in your Answers to Correspondents column, what shall I use for a cheap good hard solder for German silver; it must stand some hammering? Also, what proportion must I use for a silver solder for above? In a recent issue you had, under the head of alloys, a solder for German silver: German silver, 5 parts; tin, 4 parts. I tried it, but it is as brittle as glass, also varied the proportions with same results. A. Coin silver, 2 parts; good sheet brass, 1 part. This is equivalent to silver, 24 parts; copper, 9 parts; zinc, 3 parts. This makes a tough, malleable, and fairly white solder for German silver; but, as German silver varies much in its composition, and also its melting point, if required for an easy flowing solder, the above can be varied by adding very small portions of zinc and tin, say one-twentieth of the whole weight for each, until you get the required melting temperature. If you had used two parts zinc in place of its equivalent of tin, in your trial, you would have a better solder, but not equal to the above for malleability.

(5) L. C. asks: How many Atlantic cables are there and between what points are they laid? A. Between Heart's Content and Valentia, 3; between Torbay and Ballinskillick, 1; between Duxbury, Mass., and Brest, 1; between Cape Cod and Brest, 1; between Canso and Penzance, 2; total, 8.

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

M. M. S.—The ore is of little value in its crude state. If roasted slightly, ground, bolted, and barreled properly it might bring fifteen dollars a ton in New York. Unlabeled samples in spool cotton box are argillaceous lime carbonate selvage, with an incrustation of iron sulphide, possibly containing a little gold. An assay would be advisable.—W. M. E.—It is an impure hornblende rock, and probably contains nothing of value.—A. E. N.—Sample of "fiber" received but no letter.—H. Z.—Hematitic argillite, containing a small quantity of molybdenite.—S. F. P.—It is an antimonial silver sulphide. If the small sample in any way represents the body of ore the property will prove very valuable.—G. M. M.—The imperfect mixture is probably due to an over burden of carbon in part of the charge, a cold pot and overquick tap, otherwise the metal would be of uniform texture.—E. J. F.—Both are impure silicious earth, useful for some polishing purposes and glass and enamel making.—J. B. W.—It is galena—lead sulphide—the principal ore of lead.—C. M. C.—1. Chiefly hornblende. 2. Chiefly hornblende.—P. P.—It is copper containing a small per cent of iron—not native. The ore from which this was produced may be found in the vicinity. As an ore of copper it is valuable.—W. M. R.—It is a partially altered iron sulphide—possibly contains traces of silver. An assay would be necessary to determine this.—R. S.—It is a kaolin containing a small per cent of calciferous matter. We would advise an analysis.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

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

July 18, 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.

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