

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.

Magic Lanterns, new model; best made, small and cheap. Wm. T. Gregg, 77 Fulton street, New York.

Blind Wire and Boring. B. C. Davis, Binghamton, N. Y.

See New American File Co.'s Advertisement, p. 46.

Combination Roll and Rubber Co., 68 Warren street, N. Y. Wringer Rolls and Moulded Goods Specialties.

For Sale.—New High Speed Engine, 10x10; will indicate 50 horse power; price complete, \$250. S. M. York, Cleveland, O.

Steam Yacht, 4½ ft. by 17. Geo. F. Shedd, Waltham, Mass.

Model making, and large or small Experimental Machinery. Jerome Reading & Co., 30 Hanover st., Boston, Mass.

American Fruit Drier. Free Pamphlet. See ad., p. 45.

72" Independent 3 Jaw Chucks, \$42; 48", \$36; 24", \$30. Warranted best in the world, and sent on trial. American Twist Drill Co., Meredith, N. H.

Ball's Variable Cut-off Engine. See adv., page 46.

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

Drop Forgings of Iron or Steel. See adv., page 46.

For best Portable Forges and Blacksmiths' Hand Blowers, address Buffalo Forge Co., Buffalo, N. Y.

Paragon School Desk Extension Slides. See adv. p. 45.

Brass & Copper in sheets, wire & blanks. See ad. p. 45.

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.

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

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

Eagle Anvils, 10 cents per pound. Fully warranted.

Tight and Slack Barrel machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 46.

Draughtsman's Sensitive Paper. T. H. McCollin, Phila., Pa. For Mill Mach'y & Mill Furnishing, see illus. adv. p. 44.

Cutters for Teeth of Gear Wheels formed entirely by machinery. The Pratt & Whitney Co. Hartford, Conn.

Steam Pumps. See adv. Smith, Vaile & Co., p. 46.

Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 28.

The Berryman Feed Water Heater and Purifier and Feed Pump. I. B. Davis' Patent. See illus. adv., p. 29.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch P'ls, Cut-off Coupling, see Frisbie's ad. p. 23.

Bostwick's Giant Riding Saw Machine, adv., page 28.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 29.

4 to 40 H. P. Steam Engines. See adv. p. 23.

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.

Red Jacket Adjustable Force Pump. See adv., p. 13.

Cope & Maxwell M'f'g Co.'s Pump adv., page 13.

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

Supplee Steam Engine. See adv. p. 13.

Malleable and Fine Gray Iron Castings to order, by Capital City Malleable Iron Co., Albany, N. Y.

Drop Forgings. Billings & Spencer Co. See adv., p. 405.

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

"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., 88 to 88 Market St., Chicago, Ill.

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

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

Gas. 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. Presses & Dies (fruit cans) Ayar Mach. Wks., Salem, N. J.

Wood-Working Machinery of Improved Design and Workmanship. Corliesman, Egan & Co., Cincinnati, O.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & 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.

NEW BOOKS AND PUBLICATIONS.

SYNOPSIS OF THE FRESH WATER RHIZOPODS. Compiled by Romeyn Hitchcock. Published by the author, 53 Maiden Lane.

A condensed account of the genera and species of American fresh water rhizopods, founded on the large work of Professor Leidy and intended as a sort of introduction to it. In view of the comparatively little that is known of the life histories of this class of organisms, Mr. Hitchcock sees in their study a broad field for original investigation, and hopes by means of his convenient handbook to awaken a livelier interest among microscopists in this interesting pursuit.

THE PETTIBONE NAME, by Margaret Sidney; AFTER THE FRESHET, by E. A. Rand; ROCKY FORK, by Mary Hartwell Catherwood. Boston: D. Lothrop & Co.

Three cleverly told stories of American life, dealing chiefly with young people, and well calculated to interest girls and the gentler sort of readers generally. Without rising to the level of permanent literature they are first-rate of their class, bright, clean, and entertaining.

MEMOIRS OF THE SCIENCE DEPARTMENT. Tokio Daigaku (Tokio University), Tokio, Japan. Quarto, paper.

These memoirs bear witness of commendable activity in the science department of Tokio University. No. 6 (pp. 73, plates xix.) is an elaborate study of the chemistry of saki brewing, by R. W. Atkinson, Professor of Analytical and Applied Chemistry. No. 7 (pp. 81, charts 26) is a report on the meteorology of Tokio, for 1880, by T. C. Mendenhall, Professor of Experimental Physics, with a chapter on fires in Tokio, by Professor K. Yamagawa. No. 8 (pp. 27) embodies a reinvestigation of the wave lengths of some of the principal Fraunhofer lines of the solar spectrum, also by Professor Mendenhall.

THE LORD'S PURSE BEARER. By Hesba Stretton. Boston: D. Lothrop & Co.

An English story; life among the vicious poor of London. Why such books should be reproduced and read here is unaccountable.

THE MOTHER'S RECORD. Boston: D. Lothrop & Co. \$1.

A record book with spaces for entering year by year the more important or interesting facts of a child's history. The items of entry are largely of sentimental or domestic interest, yet others of a strictly scientific nature are provided, with blank space for such additional entries as the parent may wish to make. Properly kept, a record of a child's physical and intellectual nurture, growth, and development could not fail to be interesting and valuable. The studies of infancy made by Darwin and Taine already prove that. It is doubtful, however, whether many parents will follow their example.

THE GAS AND WATER COMPANIES' DIRECTORY, 1882; GAS WORKS STATISTICS, 1882; WATER WORKS STATISTICS, 1882. Edited by Charles W. Hastings. London: The Scientific Publishing Company.

These useful annuals have now reached respectively their sixth, fourth, and second issue. They all show a creditable advance in the fullness of their statistics and other information of use to all interested in or having dealings with water and gas works and their management.

MODERN HOUSE PAINTING. By E. K. Rossiter and F. A. Wright, Architects. New York: William T. Comstock.

Contains twenty colored lithographic plates exhibiting the use of color in exterior and interior house painting, with letterpress describing the preparation, use, and application of color. The arrangements of color will be found very suggestive, even when they may not be deemed suitable for imitation.



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.

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. D. A., M.D., asks: What is the difference in value of pure gold and pure platinum? A. Gold is worth about \$21 an ounce (troy), platinum \$8 an ounce.

(2) C. E. P. asks: Please inform me of a good inexpensive material—which is a non-conductor of sound—to be used between the inner and outer matched board sheathing. A. Dry, coarse sawdust, loosely packed, or coarsely powdered charcoal, is cheap, and will probably give satisfaction if properly employed.

(3) Miss M. C. G. asks: What shall I use to cleanse some old engravings and lithographs, neglected and dirty, but apparently uninjured otherwise? A. To clean engravings, prints, or plain uncolored lithographs: Free the paper from traces of dust, and float it, face downward, for half an hour or more on the surface of a clear solution of six ounces of fresh chloride of lime (calcium hypochlorite) in a pint of soft cold water contained in a shallow porcelain dish. Float on the surface of water containing about three drachms of sulphuric acid to the pint. If not then white enough repeat the operations, and finally rinse thoroughly in a spray of clear cold water, and dry between clean blotting pads under pressure. Colored lithographs cannot be safely cleansed by this or other chemical treatment.

(4) F. A. R. asks: What will prevent moisture gathering on a water pipe that runs through my cellar, overhead? A. Cover the pipe with a non-conductor of heat.

(5) J. B. writes: Reading your correspondence with reference to defective sheets in steam boilers, caused by flat surfaces at the end of sheets after bending. I am a practical boiler maker, and I have always used the following plan when bending sheets, which has saved me the trouble of having to draw in the ends with the hammer after bending. To place a thin strip of sheet iron betwixt the end of sheet and the lower roll the whole width of plate when passing through the rolls. [This is a very good way of overcoming the difficulty.—Eds.]

(6) A. W. R. writes: Please inform me whether it is necessary that a Leclanche battery must be hermetically closed or sealed; or is it just done to avoid the evaporation of water? You would oblige me very much by answering in the Notes and Queries column of the SCIENTIFIC AMERICAN, of which I am subscriber. A. The cups are sealed mainly with a view to prevent evaporation of the solution and the disagreeable creeping of the salt dissolved, which in some cases materially affects the insulation of the cells. This sealing is not absolutely necessary, however.

(7) D. A. O.—Our answer to this correspondent, about injectors, published July 8, needs to be rendered more full. The Korting Double Tube Injector will elevate water from wells 60 feet deep, by placing the injector within 20 feet of the water and elevating 40 feet to boiler, also feeding the boiler. One handle operates the injector, and by attaching a wooden lever, any one can start and stop injector from top of well very readily.

(8) H. B. J. asks: 1. Is a large building covered with a tin roof lightning proof? A. No. But a metallic roof has the advantage that it may diffuse the electricity and assist it in taking to the ground by several different routes, with less destructive effect than if it went on one route. 2. Is there a case known of a building being seriously damaged by lightning when so covered? A. Yes; you will find examples of buildings that were damaged that had metallic roofs, but no rods, in back volumes of SCIENTIFIC AMERICAN.

(9) H. H. F. asks: Will you please inform me in the Notes and Queries in the SCIENTIFIC AMERICAN how what is called "burnt finish" is produced on tool handles, etc.? It produces a clouded surface of various shades of brown which is very fine after polishing. A. This may be done by running a red hot iron over the surface quickly; producing a variety of effect by touching or not touching the surface or by varying the shapes of the irons. Similar effects may also be produced by using a blow pipe with a sharp hot blast. It should be attached to the lamp and also to a blower with a small rubber hose, so that it can be quickly moved over the work. Rings or bands are made as of old by friction against hard wood while running in the lathe. Polish with a mixture of alcoholic shellac varnish, two parts, boiled linseed oil one part, shaken well together, and applied with a cloth while the work is in motion.

(10) M. L. S. writes: 1. If the heat of the sun is seventy degrees on each square foot of surface, what will be the heat if the rays, naturally falling on three square feet of surface, be reflected by mirrors on to one square foot of surface? A. Other things being equal, the heat will be multiplied by the number of reflectors. The Adams solar boilers (Madrass) are operated by batteries of plane reflectors set so as to converge the solar rays upon the boiler. 2. Is there anything for removing ink (writing ink) stains from hands? A. Yes; different inks require different treatment.

(11) A. L. R. writes: You say in SUPPLEMENT, No. 157, in describing De la Rue's chloride of silver cell (page 2490): "The pure silver deposit can be readily turned into chloride of silver again by means of a small quantity of chlorine." I do not know this process. I have been told that the usual method is that of precipitating silver, by a quantity of salt dropped into a solution of nitrate of silver, and fusing this precipitate in a crucible with charcoal. Will this produce chloride of silver, or must it be done in a different way? A. The process referred to is intended to convert fine metallic silver into silver chloride. Silver chloride may be produced from dissolved silver nitrate more economically by the addition of muriatic (hydrochloric) acid to the liquid chloride of silver precipitates. This chloride may be purified by washing on a filter (with distilled or rain water) and drying in a porcelain dish over a sand bath in the dark.

(12) W. H. E. asks: Is there anything that will take off tattooing? A. The tattooed work can only be removed by a surgical operation, but the color may be cloaked by carefully "pricking in" fresh cream over the design.

(13) A. W. asks: Will you please tell me why hair falls, and what are the principal substances that make it fall? A. See "Hygiene of the Hair," by Professor Erasmus Wilson, in SUPPLEMENT, No. 102.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

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

June 27, 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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