

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.

Hollar's Safe and Lock Co., York, Pa., manufacturers of improved Fire and Burglar-proof Safes, Bank and Safe Deposit Vaults and Locks. See adv. p. 61.

25' Lathes of the best design. Calvin Carr's Cornice Machinery. G. A. Ohi & Co., East Newark, N. J.

For Sale.—Engine Lathes. One 16' x 6' Blaisdell, 2d hand; one 18 x 6 Lodge & Barker, hollow spindle, new; also one each, 8', 10', and 14' x 21', Steptoe make, new. Each lathe complete. Jno. Steptoe & Co., 214 W. 2d St., Cincinnati, O.

Drop Forgings. Billings & Spencer Co. See adv., p. 45.

Wanted.—A good draughtsman and pattern-maker for modern engines. Adolph Lettelt, Grand Rapids, Mich.

Equatorial Silvered Glass Telescopes, 5 1/2" aperture, \$135; 6 1/2" aperture, \$175; 7 1/2" aperture, \$225; 7 1/4" aperture, \$275. Eye Pieces and Finder. J. A. Brashear, Pittsburg, Pa.

Unfailing water power, buildings, and planing mill plant. Best point for manufacturing and shipping. Very cheap. J. F. Palmer, Auburn, N. Y.

The Ide Automatic Engine, A. L. Ide, Springfield, Ill. Steam Pumps. See adv. Smith, Vaile & Co., p. 30.

Contracts taken to manuf. small goods in sheet or cast brass, steel or iron. Estimates given on receipt of model. H. C. Goodrich, 66 to 72 Ogden Place, Chicago.

Brush Electric Arc Lights and Storage Batteries. Twenty thousand Arc Lights already sold. Our largest machine gives 65 Arc Lights with \$5 horse power. Our Storage Battery is the only practical one in the market. Brush Electric Co., Cleveland, O.

Engines, 10 to 50 horse power, complete, with governor. \$250 to \$550. Satisfaction guaranteed. More than eight hundred in use. For circular address Heald & Morris (Drawer 127), Baldwinville, N. Y.

Best Squaring Shears, Timmers', and Canners' Tools at Niagara Stamping and Tool Company, Buffalo, N. Y.

Lathes 14 in. swing, with and without back gears and screw. J. Birkenhead, Mansfield, Mass.

The Best.—The Dueber Watch Case.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN Patent Agency, 361 Broadway, New York.

Farley's Directories of the Metal Workers, Hardware Trade, and Mines of the United States. Price \$3.00 each. Farley, Paul & Baker, 530 Market Street, Phila.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Send for catalogue.

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.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J. "Abbe" Bolt Forging Machines and "Palmer" Power Hammers a specialty. Forsath & Co., Manchester, N.H.

Railway and Machine Shop Equipment. Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 103 Reade Streets, New York.

"How to Keep Boilers Clean." Book sent free by James F. Hotchkiss, 84 John St., New York.

Wanted.—Patented articles or machinery to make and introduce. Gaynor & Fitzgerald, New Haven, Conn.

Water purified for all purposes, from household supplies to those of largest cities, by the improved filters manufactured by the Newark Filtering Co., 177 Commerce St., Newark, N. J.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock Mfg. Co., 80 to 82 Market St., Chicago, Ill.

Ice Making Machines and Machines for Cooling Breweries, etc. Plotet Artificial Ice Co. (Limited), 142 Greenwich Street, P. O. Box 3033, New York city.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Machinery for Light Manufacturing, on hand and built to order. R. E. Garvin & Co., 139 Center St., N. Y.

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

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.

The Sweetland Chuck. See illus. adv., p. 46.

Improved Skinner Portable Engines. Erie, Pa.

Catalogues free.—Scientific Books, 100 pages; Electrical Books, 14 pages. E. & F. N. Spon, 35 Murray St., N. Y.

Am. Twist Drill Co., Meredith, N. H., make Pat. Chuck Jaws, Emery Wheels, Grinders, automatic Knife Grinders. American Fruit Driver. Free Pamphlet. See adv., p. 62.

Brass & Copper in sheets, wire & blanks. See adv. p. 60.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 20,000 Crank Shafts and 15,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

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

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

Gear Wheels for Models (list free); Experimental Work, etc. D. Gilbert & Son, 213 Chester St., Phila., Pa. Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 61.

Our goods rank first for quality, safety, and durability. Please compare them with any other make, and is not found better and cheaper, quality considered, we will bear the expenses of the trial. Lehigh Valley Emery Wheel Co., Leighton, Pa.

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

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 62.

20,000 Duc Spherical Elevator Buckets, sizes 3 1/4 to 17 inches, constantly on hand. Telegraphic orders filled. T. F. Rowland, sole manufacturer, Brooklyn, N. Y.

Straight Line Engine Co., Syracuse, N. Y. See p. 61.

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

NEW BOOKS AND PUBLICATIONS.

PSYCHE, A JOURNAL OF ENTOMOLOGY. Published by the Cambridge Entomological Club, Cambridge, Mass.

This periodical is in the tenth year of its publication. The editor and his associates are entomologists of standing, four of them being appointed by State governments and one is assistant entomologist to the United States Department of Agriculture. The object of the periodical is to give valuable information useful to agriculturists on the habits and lives of insects injurious to vegetation. The indices to each number form a synopsis of entomological literature for the period and scope they cover.

DAS ELEKTRISCHE LICHT (ELECTRIC LIGHT). By Dr. Alfred von Urbanitzky. Wien, Pest, Leipzig, 1883. 218 pages.

In this work the author gives a description of the various kinds of electric lamps, the theory of the incandescent lamp, the theory of the arc lamp, the temperature, and the strength of the light. He then describes various means of subdividing the current, the loss of the current caused by the subdivision, etc. Then follow the lamps and carbons. He divides the incandescent lamps into two classes, those having imperfect conductivity, such as the lamps of Edison, Maxim, Swan, etc., and into incandescent lamps with perfect contact, for instance, such lamps as the Reynier, Werdermann, Hauck, etc. He describes the different systems of arc lamps, the various kinds of carbons, the method of manufacturing the carbons, and finally describes the lamps having inclined carbons. This work is the third volume of Hartleben's Electro-Technical Library.

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 the 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) J. H. P. asks for the French formula of making a hektograph, which for several reasons, we understand, is superior to any other in use. A. The composition is:

- Good ordinary glue.....100 parts.
- Glycerine.....500 "
- Barium sulphate finely powdered....25 "
- (Or the same amount of kaolin.)
- Water.....375 "

(2) E. S. R. writes: I have about 4 dwt. of 10 k. gold dissolved in nitro-muriatic acid. What can I use to precipitate it so I can prepare it for electroplating? A. Evaporate to crystallization and dissolve the resulting chloride of gold in water. It may then be used for plating. Iron sulphate will precipitate the gold as metallic powder.

(3) L. T. S., of Launceston, Tasmania, proposes freezing out yellow fever and similar diseases by converting a dwelling or hospital into an immense refrigerator by means of ice. This would not be practicable except in a building specially constructed for the purpose.

(4) A. writes: 1. I have two cisterns; the water is full of little mites or lice; sometimes they are almost invisible, then they get larger till they show very plain; but what finally becomes of them or where they come from I do not know. What are they and what will destroy or keep them out? A. The larvae of mosquitoes, flies, and other insects infest cisterns that are open to the air or dirty. Cleanliness and closing the top with a stone or earth will generally keep the water free from larvae. 2. Is it so that a lightning rod can be dangerous? I have supposed that if insulated it neither attracts nor repels, and if not insulated it must transmit a portion of the charge, according to capacity; if the connection is perfect, the rod large enough, and the ground sufficient, the entire charge. A lightning rod is dangerous to persons near them in thunderstorms. They are liable to be overcharged. 3. You always say "solder" all connections. Now, isn't there some mistake? Is not solder a poorer conductor than iron, and would not the simple contact of the two ends be better than to fill between with solder? Or if the conductor is flat, say 3/4 x 1/4 inches, would it not make a better joint to lap and bolt or rivet the ends together. A. Solder, because it is very sure to make a perfect connection. Riveting with copper rivets is also good, but should be well done with two or three rivets.

COMMUNICATIONS RECEIVED.

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- On the Eclipse Expedition. By A. F. G.
- On Centrifugal Strain in Revolving Cylinders. By S. W.
- On Improvements in Railways. By P. D.

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DESIGNS.
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 Carpet, E. Petit..... 14,108, 14,104
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 Currycomb back handle, M. Sweet..... 14,108
 Curtain band, C. Otto..... 14,101
 Hoe, J. Crosley..... 14,092
 Oilcloth floor, C. T. & V. E. Meyer..... 14,096 to 14,099
 Flow point or share, J. W. Lawson..... 14,085
 Sleigh, G. E. Watson..... 14,109
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