

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.

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

Wanted to sell on commission on the road, engine and boiler supplies. Box 127, Painesville, O.

For Sale.—Clock maker's wheel cutting engine, dial, 24 inches; fly and mill cutters. J. L. Finn, Elyria, O.

Fifty for fifty cents, one hundred for one dollar. Bona fide addresses of thriving South Carolina farmers. Men who make money. Archer & Rains, Strother, S. C. Fire Brick, Tile, and Clay Retorts, all shapes. Borgner & O'Brien, M'rs, 23d St., above Race, Phila., Pa. Peck's Patent Drop Press. See adv., page 365.

Diamond Tools. J. Dickinson, 64 Nassau St., N. Y. Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

50,000 Emerson's Hand Book of Saws. New Edition. Free. Address Emerson, Smith & Co., Beaver Falls, Pa.

Eagle Anvils, 10 cents per pound. Fully warranted.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 364.

Gould & Eberhardt's Machinists' Tools. See adv., p. 365.

Barrel, Key, Hogshead, Stave Mach'y. See adv., p. 366.

For Mill Mach'y & Mill Furnishing, see illus. adv. p. 364.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 366.

Upright Self-feeding Hand Drilling Machine. Excellent construction. Pratt & Whitney Co., Hartford, Conn.

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

The Porter-Allen High Speed Steam Engine. Southwork Foundry & Mach. Co., 430 Washington Ave., Phil. Pa.

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 35 horse power. Our Storage Battery is the only practical one in the market. Brush Electric Co., Cleveland, O.

Curtis Pressure Regulator and Steam Trap. See p. 349.

Lightning Screw Plates, Labor-saving Tools, p. 248.

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), Baldwinsville, N. Y.

Metal Patterns, Punches and Dies to order. Geo. Van Sands, Middletown, Conn.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 333.

The Sweetland Chuck. See illus. adv., p. 334.

Knives for Woodworking Machinery, Bookbinders, and Paper Mills. Taylor, Stiles & Co., Riegelsville, N. J.

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

Lewis' Combination Force Pump makes three machines made of brass throughout. See Adv. page 317.

Saw Mills, Hauck & Comstock, Mechanicsburg, Pa.

Stenographers, type-writers, clerks, and copyists may be obtained free of charge at the Young Women's Christian Association, 7 East 15th Street, New York.

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

Five foot planers, with modern improvements. Geo. S. Lincoln & Co., Phoenix Iron Works, Hartford, Conn.

The Best.—The Duerber 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, 261 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.

Improved Skinner Portable Engines. Erie, Pa.

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

Permanent Exposition.—Inventors' Institute, Cooper Union, N. Y. City. Every facility for exhibition of machinery, merchandise, and inventions. The expense is small—the advantages great. Send for particulars.

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.

Lists 29, 30 & 31, describing 4,000 new and 2d-hand Machines, ready for distribution. State just what machines wanted. Forsaith & Co., Manchester, N. H., & N. Y. city.

"Abbe" Bolt Forging Machines and "Palmer" Power Hammers a specialty. Forsaith & 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.

25' Lathes of the best design. G. A. Ohl & Co., East Newark, N. J.

"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 88 Market St., Chicago, Ill.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J.

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

Presses & Dies, Ferracute Mach. Co., Bridgeton, N. J.

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

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., 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.

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) W. A. P.—Lacquer for brass: Dissolve good clear shellac half an ounce in one pint 95 per cent alcohol, in a bottle, corked; put in a warm place and shake occasionally for a day or so. Then let it settle; pour off the clear transparent part for use. If too thick, thin with 95 per cent alcohol. If more color is required, add a little dragon's blood for red and turmeric for yellow.

(2) A. W. W. asks: Where can I find data relating to the number of units of heat that will be radiated from steam pipes? A. The following formula is given by Haswell, and may answer your purpose:

$$R = \frac{1.74(T-t)}{d v}$$

R=Radiation in degrees per second.
l=length of pipe in feet; T=temperature of surface of pipes; t=temperature of the air; d=diameter of pipe in inches; v=velocity of the heat in feet per second.

(3) H. C. asks if it is possible for water to be forced through rubber which is warranted to be waterproof, supposing that the rubber is supported by a hard substance so as to prevent its stretching; or suppose it to be stretched, how thin a piece would prevent the water from penetrating it? If it will penetrate a thin piece and not a thick one, how thick should it be in order to prevent water from coming through it? A. It is probable that rubber that is warranted waterproof is waterproof under ordinary circumstances. Water under pressure will pass through many substances that are considered waterproof when no pressure is applied. You may possibly obtain pure gum that will stand considerable pressure if it is properly stored or backed.

(4) S. S. M. asks how to make a paint for blackboards. A. To make one gallon of the paint take 10 ounces of pulverized and sifted pumice stone, 6 ounces powdered rotten stone (or infusorial silica), three-quarters pound of good lampblack, and alcohol enough to form with these a thick paste, which must be well rubbed and ground together. Then dissolve 14 ounces of shellac in the remainder of the gallon of alcohol, by digestion and agitation, and finally mix this varnish and the paste together. It is applied to the board with a brush, care being taken to keep the paint well stirred so that the pumice stone will not settle. Two coats are usually necessary. The first should be allowed to dry thoroughly before the second is put on. The second coat should be applied so as not to disturb or rub off any portion of the first. One gallon of this paint will ordinarily furnish two coats for sixty square yards of blackboard. When the paint is to be put on plastered walls, the walls should be previously coated with glue size—glue, 1 pound; water, 1 gallon; lampblack, q. s. to color; put on hot.

(5) B. G. writes: I want to know how to tan skins so as to leave the fur on. Can you give this information? A. Wash the skins in water, and cleanse them thoroughly by scraping or rubbing. Then rub well into the flesh side of the skin the following mixture—Alum, powdered, 2½ pounds; salt and coarse wheat meal, each one pound; sour milk, q. s. to form a thin paste. When the skin will absorb no more of this preparation, spread a layer of the latter over it (on the flesh side), and fold up the skin with the flesh surfaces together and put it away in a cool place for a day. Repeat this pasting and rubbing each day for a week, washing out and half drying the skin every third day. Finally, thoroughly wash the skin in running water, drain, brush over it (flesh side) a strong solution of alum in water, and hang it up to dry. The dry skin is softened by rolling and pounding it with mallet or rubbing and stretching it with a flexible tool. It is commonly finished by rubbing down the flesh side with pumice stone.

(6) E. A. Y. asks: Can any injurious effects result from having plants in living or sleeping rooms? A. It has been fully proved by chemical examination and otherwise that plants in living rooms or

in bed rooms rather purify the air than otherwise. Yet they may in some cases prove injurious in sick rooms, when the odor is offensive to invalids. Whatever annoys the sick does harm to a greater degree than healthy persons can understand.

(7) L. B. D. asks how to remove black worms from the face. A. The black points, flesh-worms, or comedones, which are found in the face, and especially near the nostrils, are not at all produced by the accumulation of the particles of dirt or dust, as has generally been believed, but by pigmentary matter which is soluble in acids. The following treatment has been recommended: Kaolin, 4 parts; glycerine, 3 parts; acetic acid, 3 parts, with or without the addition of a small quantity of some ethereal oil. With this pomade cover the parts affected in the evening, and if need be during the day. After several days all the comedones can be easily expressed; most of them even come out by washing the parts with pumice stone soap. The same results can be obtained by bandaging the parts affected for a long time with vinegar, lemon juice, or diluted hydrochloric acid. The acids act like cosmetics, as they transform the black color into a brown and yellow shade and destroy it gradually altogether.

(8) J. asks how to produce artificial marble. A. Reduce marble dust or white limestone to a very fine powder by grinding and sifting, mix with it intimately about one-fourth its weight of zinc oxide (zinc white) and one-eighth its weight of Portland cement, and mix thoroughly into a thick paste with a sufficient quantity of a hot aqueous solution of waterglass, containing about 40 per cent of the glass. Mould the paste under pressure while warm, and expose the moulded form for a week or ten days to warm dry air, before finishing.

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