

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line.

For Sale—New and second hand iron-working machinery. Prompt delivery. W. P. Davis, Rochester, N.Y.

Tuerk water motors at 12 Cortlandt St., New York.

For best hoisting engine. J. S. Mundy, Newark, N. J.

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

Wanted—Right parties to push new patent, or will sell.

Best electroplating machinery. Low prices. Redding Electric Co., 48 Hanover St., Boston.

Send to H. W. Knight & Son, Seneca Falls, N. Y., for catalogue of pattern letters and figures.

Billings' Patent Breech-loading Single Barrel Shotgun. Billings & Spencer Co., Hartford, Conn.

Belting.—A good lot of second hand belting for sale cheap.

Best Ice and Refrigerating Machines made by David Boyle, Chicago, Ill. 140 machines in satisfactory use.

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

Safety Elevators, steam and belt power; quick and smooth. The D. Frisbie Co., 112 Liberty St., New York.

"How to Keep Boilers Clean." Send your address for free 55p. book. Jas. C. Hotchkiss, 120 Liberty St., N. Y.

Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Lighthouse Canal St., New York.

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

Guild & Garrison, Brooklyn, N. Y., manufacture steam pumps, vacuum pumps, vacuum apparatus, air pumps, acid blowers, filter press pumps, etc.

For low prices on Iron Pipe, Valves, Gates, Fittings, Iron and Brass Castings, and Plumbers' Supplies, write A. & W. S. Carr Co., 138 and 140 Centre St., New York.

For the original Bogardus Universal Eccentric Mill, Foot and Power Presses, Drills, Shears, etc., address J. S. & G. F. Simpson, 26 to 30 Rodney St., Brooklyn, N. Y.

The Holly Manufacturing Co., of Lockport, N. Y., will send their pamphlet, describing water works machinery, and containing reports of tests, on application.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins.

By mail, \$4; Munn & Co., publishers, 361 Broadway, N. Y.

Wanted—Foreman for machine shop in large city in Wisconsin, employing about 100 men.

Wanted, mechanic or designer of machinery, familiar with wire bending and paper bag machines, to design and make an attachment to latter, to make and attach wire fasteners to paper bags.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all, either by letter or in this department, each must take his turn.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(2191) F. H. W. writes: Can you tell me something that I can use to coat either zinc or wood that will not be affected by acids or chemical action of any kind?

(2192) L. P. L. asks: With what force will a body weighing 150 pounds strike a jumping net, falling from a height of 45 feet, and how many men will it take to hold the net?

(2193) Subscriber asks: Which is the more economical for feeding a 40 horse power tubular boiler, a power or steam pump, and why?

(2194) S. P. C. asks how to prepare glue size in liquid form to keep fluid at 34° to 40° above zero.

(2195) E. L. asks: Is there any way whereby the quicksilver can be restored or the vacant spots restored where the quicksilver is off in spots on a mirror?

(2196) R. H. S. asks (1) the formula for fluid that will allow the zinc to be left in a one-fluid plunge battery when not in use.

(2197) A. H. A. asks how to plate with fourteen carat gold.

(2198) J. J. B. asks whether there is any plant or vegetable known to science that contains mercury in any shape or form.

(2199) F. A. K. asks: 1. What is terra japonica made of? A. It is an aqueous extract from the wood of the Acacia catechu (nat. ord. Leguminosae, Mimoseae).

(2200) H. B. asks what the composition of oroid is, such as writing pens are made of, and how are such pens made.

(2201) R. H. D. asks for a formula for boiling meerschaum pipes.

(2202) E. S. M. asks for a recipe for a black kalsomine, which, when applied to a white wall, will give a dull black.

(2203) R. B. asks for a formula for a good furniture polish to use on furniture in use.

water with vinegar or nitric acid. Try first an equal measure of strong vinegar. If insufficient, add some nitric acid.

(2195) E. L. asks: Is there any way whereby the quicksilver can be restored or the vacant spots restored where the quicksilver is off in spots on a mirror? A. Take a small fragment of mirror, put mercury on its back, push off the coating, and let it drop upon the spot, press with a piece of tin foil above it. Success is doubtful.

(2196) R. H. S. asks (1) the formula for fluid that will allow the zinc to be left in a one-fluid plunge battery when not in use. I have reference to a battery for running a small motor. A. Keep zincs thoroughly amalgamated. Even then they will be attacked except in caustic soda batteries. In latter amalgamation is not needed.

(2197) A. H. A. asks how to plate with fourteen carat gold. A. If you will mix copper cyanide and gold cyanide solutions by varying the area of your anode, you may get an alloy deposit. Brass can be thus deposited.

(2198) J. J. B. asks whether there is any plant or vegetable known to science that contains mercury in any shape or form. A. None is known.

(2199) F. A. K. asks: 1. What is terra japonica made of? A. It is an aqueous extract from the wood of the Acacia catechu (nat. ord. Leguminosae, Mimoseae).

(2200) H. B. asks what the composition of oroid is, such as writing pens are made of, and how are such pens made.

Table listing materials and parts for pens: A. Copper... 6821 parts; Zinc... 1352; Tin... 048; Iron... 024.

(2201) R. H. D. asks for a formula for boiling meerschaum pipes. A. Heat wax up to boiling. Plug openings in pipe, and plunge it into wax for 1 minute. It should be done by an experienced person, as you may injure the pipe.

(2202) E. S. M. asks for a recipe for a black kalsomine, which, when applied to a white wall, will give a dull black. For one gallon soak 1/2 pound good glue in water, heat until dissolved, and dilute to one gallon.

(2203) R. B. asks for a formula for a good furniture polish to use on furniture in use. A. Mix oil of amber (refined) and olive oil, 1 pound of each, with 1 ounce tincture of henna.

(2204) A. B. S. asks: Will you kindly advise me by return mail if there are any two or three kinds of metal that will form an electric current when brought in contact with each other?

(2205) L. A. J. asks for a receipt for making waterproof cement, to be used in constructing aquarium. A. Take 25 parts gutta percha in shreds and melt it carefully.

(2206) E. W. M. asks: 1. Can No. 24 cotton-wound copper wire be used for the secondary coil of an induction coil?

(2207) H. H. G. says: I would like you to explain in the SCIENTIFIC AMERICAN why the moon which full on April 5 was so late in getting up?

(2208) W. L. asks: 1. Would a cast iron ring two inches diameter, two and one-half inches wide and one-fourth inch thick, do for an armature core for a small electric motor, or would it not be thick enough?

enough? A. Better use a ring formed of wire. Cast iron will not answer well in this place. A. Please tell me what these "fire eaters" use and how they use? Something which they blow out of their mouth, which will ignite by a flame? A. A piece of lamp wick an inch long is soaked in nitrate of soda solution.

(2209) S. B. asks: Is hypnotism a humbug or not? A. Hypnotism is a legitimate subject of study for scientists. It is still a subject of investigation, and no very definite conclusions have been reached.

(2210) R. M. N. asks: 1. Please give the method of embalming flowers, and chemicals used? A. As generally executed, embalming flowers consists in making wax imitations or copies, and this is really the best approach to the real thing.

(2211) S. B. asks: 1. How to temper a drill so it would be hard enough to drill holes in glass? A. A drill heated to a low red, and plunged in a strong solution of chloride of zinc, will drill glass.

(2212) J. C. B. says: A dispute arose lately upon which I wish your opinion. A 3 inch safety valve has an outlet or a waste pipe of 3 inches in diameter. As the safety valve is weighted at 100 pounds to the square inch, one person contends that a 2 inch waste pipe will give abundant outlet.

(2213) W. R. writes: I have 30 cells of gravity battery, each cell having an E. M. F. of 1 volt; would above mentioned battery do for electric lighting, and what candle power lamp would it supply?

(2214) J. E. F. L. asks: What is the desired object to be attained in "squaring the circle"? A. It resolves itself into finding the ratio between circumference and radius.

(2215) W. M. D. writes: Can you tell me of some plan for preventing the green stains on marble caused by water dripping from a bronze tablet?

(2216) C. F. T. writes: 1. Is there any way I could stain or color a white glass bottle to a deep ruby color? A. Mix clear dammar varnish with red extract of alkanet root and varnish the bottle.

(2217) F. E. K. J. asks: How can I make a fluid like binders use in ruling letter paper? I made same with aniline and water, but it seemed to flow too freely.

(2218) W. H. writes: Every week I receive an English paper containing an advertisement wherein the word "patentor" occurs.

me if it is proper, and if so, why is it not generally used? A. Patentee means one who has patented, and is applicable to all recipients of patents.

(2219) G. H. S. asks: If there is any fluid or liquid in existence which always remains the same in weight and quantity, and which climate has no influence on.

(2220) W. H. O. writes: Is there any difference in the degree or extent to which water and (or) oil may be reduced in bulk by forcible compression under the air pump or otherwise?

(2221) O. O. asks: How is it that telegraph lines make a musical sound when there is no perceptible breeze blowing? A. There seem to be particular directions and strengths of wind that correspond with the natural vibration period of the wires.

(2222) A. W. G. asks: 1. A current of electricity is said to flow, always, from the positive to the negative pole when they are connected by a conductor. If this is correct, how, in working a differential duplex, with the positive pole of the battery to the ground and the negative to the line, can the current divide at the relay so as to pass through both coils?

(2223) J. B. asks (1) for the formula to apply to the tin in making tin types. The formula and process of developing and finishing. A. The plate is coated with a collodion made as follows, but which can be bought at photo dealers ready made:

Table listing chemicals for collodion: Iodide of ammonium... 4 grs.; Iodide of cadmium... 2; Bromide of cadmium... 1; Bromide of copper... 1.

There are 8 grains of salt to the ounce. When the collodion has set, the plate is immersed in a silver bath, made by dissolving 50 grains of nitrate of silver in 1 ounce of distilled water.

Table listing chemicals for developer: Water... 64 oz.; Protosulphate of iron... 4; Acetic acid... 4; Alcoholic solution of tannin, ten grains to the ounce... 4.

The acid and tannin solutions should be added after iron has been dissolved. The developer has to be flowed over the plate with one sweep. The picture is fixed by putting the plate into

Table listing chemicals: Cyanide of potassium... 2 oz.; Water... 64.

Then washed and dried. We obtain the above particulars from "Photography in the Studio," by E. M. Estabrook.

(2224) H. R. N. writes: I have made simple electric motor described in SUPPLEMENT, No. 641. It runs finely when connected as a shunt machine on Edison current of 110 volts.

(2225) R. A. writes: 1. I should like to know why they use permanent magnets in the telephone now in general use. A. Permanent magnets are used in telephones to avoid the necessity of a battery, involving expense and trouble.