

## 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 publishers of this paper guarantee to advertisers a circulation of not less than 50,000 copies every weekly issue.*

Carbon Plates. P. Bowe, 48 R.R. Ave., Jersey City, N.J. Advertising of all kinds in all American Newspapers. Special lists free. Address E. N. Freshman & Bros., Cincinnati, O.

Blake's Patent Belt Studs. The best fastening for rubber or leather belts. Greene, Tweed & Co., N. Y.

Patent for Sale Cheap.—Entire Patent or State Rights. Just the thing for the summer. Money can be made out of it. Other business prevents owner from handling it. A. H. Watkins, 224 Harrison Ave., Boston, Mass.

The patented trademark, "Baldwin the Clothier," is the exclusive property of O. S. Baldwin, of New York and Brooklyn, and is used only at the northeast corner of Broadway and Canal street, New York, and at the southwest corner of Smith and Fulton streets, Brooklyn. Baldwin leads the retail clothing trade of the United States.

OFFICE TROY (N. Y.) FIRE BRICK WORKS, June 1, 1880.

H. W. Johns Mfg Co., 87 Maiden Lane, New York. GENTLEMEN: We are in want of a quantity of roofing for some new buildings. . . . It gives us pleasure to say the Asbestos Roofing gives better results than any we have used. (Signed.) Yours truly, JAMES OSTRANDER & SON.

We keep a full assortment of Esterbrook's, Gillott's, Spencerian, Perry's, and Lamar's Pens. Send for price list to J. Leach, 86 Nassau St., New York.

For Sale.—A Baltimore City Fire Department Steam Fire Engine, in complete working order. Address P. O. Box 676, Baltimore, Md.

For Jack Chain Machines, making from 60 to 100 links per minute, direct from the coil, address Cross & Speirs, Waterbury, Conn.

Wanted.—A good reliable person, who has sufficient means to apply for foreign patents for a valuable invention. Address George S. Agee, Minthill, Osage Co., Mo.

Metallic Piston Rod Packing Company, 773 Broad St., Newark, N. J. Agents wanted terms liberal.

Lubricene, Gear Grease, Cylinder and Machinery Oils. R. J. Chard, 6 Burling Slip, New York.

Skinner & Wood, Erie, Pa., Portable and Stationary Engines, are full of orders, and withdraw their illustrated advertisement. Send for their new circulars.

Recipes and Information on all Industrial Processes. Park Benjamin's Expert Office, 49 & 50 Astor House, N. Y.

Asbestos Board on Chimneys prevents their heat from affecting the temperature of rooms through which they pass. Asbestos Pat. Fiber Co., lim., 194 Broadway, N. Y.

Sweetland & Co., 126 Union St., New Haven, Conn., manufacture the Sweetland Combination Chuck.

Power, Foot, and Hand Presses for Metal Workers. Lowest prices. Peerless Punch & Shear Co., 52 Dey St., N. Y.

The Brown Automatic Cut-off Engine; unexcelled for workmanship, economy, and durability. Write for information. C. H. Brown & Co., Fitchburg, Mass.

Corrugated Traction Tire for Portable Engines, etc. Sole manufacturers, H. Lloyd, Son & Co., Pittsburg, Pa.

For the best Stave, Barrel, Keg, and Hoghead Machinery, address H. A. Crossley, Cleveland, Ohio.

Best Oak Tanned Leather Belting. Wm. F. Forepaugh, Jr., & Bros. 331 Jefferson St., Philadelphia, Pa.

National Steel Tube Cleaner for boiler tubes. Adjustable, durable. Chalmers-Spence Co., 40 John St., N. Y.

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

Stave, Barrel, Keg, and Hoghead Machinery a specialty, by E. & B. Holmes, Buffalo, N. Y.

Steel Figures, \$1; Letters, \$3 a set. York & S., Clev., O.

Linen Hose for Warehouses and Hotels as protection from fire. Greene, Tweed & Co., 118 Chambers St., N. Y.

Solid Emery Vulcanite Wheels—The Solid Original Emery Wheel—other kinds imitations and inferior. Caution.—Our name is stamped in full on all our best Standard Belting, Packing, and Hose. Buy that only. The best is the cheapest. New York Belting and Packing Company, 37 and 38 Park Row, N. Y.

Sheet Metal Presses. Ferracute Co., Bridgeton, N. J. Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, importers Vienna lime, crocus, etc. Condit, Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Wright's Patent Steam Engine, with automatic cut off. The best engine made. For prices, address William Wright, Manufacturer, Newburgh, N. Y.

Presses, Dies, and Tools for working Sheet Metal, etc. Fruit & other can tools. Bliss & Williams, B'klyn, N. Y. Bradley's cushioned helve hammers. See illus. ad. p. 397.

Electrical Indicators for giving signal notice of extremes of pressure or temperature. Costs only \$20. Attached to any instrument. T. Shaw, 915 Ridge Ave. Phila.

Instruction in Steam and Mechanical Engineering. A thorough practical education, and a desirable situation as soon as competent, can be obtained at the National Institute of Steam Engineering, Bridgeport, Conn. For particulars, send for pamphlet.

Hydraulic Jacks, Presses and Pumps. Polishing and Buffing Machinery. Patent Punches, Shears, etc. E. Lyon & Co., 470 Grand St., New York.

Forsyth & Co., Manchester, N. H., & 207 Centre St., N. Y. Bolt Forging Machines, Power Hammers, Comb'd Hand Fire Eng. & Hose Carriages, New & 2d hand Machinery. Send stamp for illus. cat. State just what you want.

Telephones repaired, parts of same for sale. Send stamp for circulars. P. O. Box 205, Jersey City, N. J.

Blake "Lion and Eagle" Imp'd Crusher. See p. 365.

Special Wood-Working Machinery of every variety. Levi Houston, Montgomery, Pa. See ad. page 366.

Peck's Patent Drop Press. See adv., page 364.

Air Compressors, Blowing Engines, Steam Pumping Machinery, Hydraulic Presses. Philadelphia Hydraulic Works, Philadelphia, Pa.

Circulars and Prices of Baling Presses Wanted. Charles Cook, 93 John St., New York

For Patent Shapers and Planers, see illus. adv. p. 380.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 316.

For Separators, Farm & Vertical Engines, see adv. p. 382.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 381.

Rollstone Mac. Co.'s Wood Working Mach'y ad. p. 380

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

Silent Injector, Blower, and Exhauster. See adv. p. 397.

Portable Railroads. Sugar Mills. Horizontal & Beam Steam Engines. Atlantic Steam Engine W'ks, B'klyn, N. Y.

For Alcott's Improved Turbine, see adv. p. 297

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

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.

Brass & Copper in sheets, wire & blanks. See ad. p. 398.

Air Compressors. Clayton Stm. Pump W'ks, B'klyn, N. Y.

For Shafts, Pulleys, or Hangers, call and see stock kept at 79 Liberty St., N. Y. Wm. Sellers & Co.

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

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

For Superior Steam Heat. Appar., see adv., page 397.

The "Fitchburg" Automatic Cut-off Horizontal Engines. The "Haskins" Engines and Boilers. Send for pamphlet. Fitchburg Steam Engine Co., Fitchburg, Mass.

Millstone Dressing Machine. See adv., page 397.

Cut Gears for Models, etc. Models, working machinery, experimental work, manufacturing, etc., to order. D. Gilbert & Son, 212 Chester St., Phila., Pa.

Holly System of Water Supply and Fire Protection for Cities and Villages. See advertisement in SCIENTIFIC AMERICAN of last week.

The best Truss ever used. Send for descriptive circular to N. Y. Elastic Truss Co., 683 Broadway, New York.

Inventors' Institute, Cooper Union. A permanent exhibition of inventions. Prospectus on application. 733 Broadway, N. Y.

Steam Engines; Eclipse Safety Sectional Boiler. Lambertville Iron Works, Lambertville, N. J. See ad. p. 413.

Nellis' Cast Tool Steel, Castings from which our specialty Plow Shares. Also all kinds agricultural steels and ornamental fencings. Nellis, Shriver & Co., Pittsburg, Pa.

Improved Steel Castings; stiff and durable; as soft and easily worked as wrought iron; tensile strength not less than 65,000 lbs. to sq. in. Circulars free. Pittsburg Steel Casting Company, Pittsburg, Pa.

New Economizer Portable Engine. See illus. adv. p. 397.

Wm. Sellers & Co., Phila., have introduced a new injector, worked by a single motion of a lever.

Ore Breaker, Crusher, and Pulverizer. Smaller sizes run by horse power. See p. 397. Totten & Co., Pittsburg. For Mill Mach'y & Mill Furnishing, see illus. adv. p. 381.

## NEW BOOKS AND PUBLICATIONS.

MINES AND MINING IN JAPAN. By C. Netto, M.E. Professor of Mining and Metallurgy, University of Tokio, Japan.

To Professor H. Kato, President of the Department of Law, Science, and Literature, in the University of Tokio, are we indebted for a copy of an English translation of a report on the mining industries of Japan. This Report contains a description of the modes employed in opening, ventilating, illuminating, draining, and equipping mines, and also the processes used in smelting, roasting, washing, and assaying of gold ores. It also contains the laws which govern the mining industries of Japan, and a statement of the approximate products of both the government and private mines of the country. Another interesting feature in this Report is a number of very well executed engravings representing the implements used by the miners, many of which, are not unlike those used by our own miners.



## 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.

(1) J. M. M. G. writes: In your number of April 24, you ask for a mode of killing moles. Pills made of lard, flour, and a very little strychnine dropped into their holes will kill them. Corn or ground peas soaked in a strong decoction of strychnine will kill them. Perforate their holes with a small probe and drop in the poison. [Should any of our readers try the above, they should bear in mind that strychnine is one of the active poisons and should be used with great caution.]

(2) H. K. M. asks: 1. Please inform me of some good book on steam engines and the price. A. Forney's "Catechism of the Locomotive," Edwards' "Catechism of the Marine Steam Engine," Roper's "Horse Power of Land and Marine Engines." 2. Can you tell me of any preparation by which I can take grease off pigeons? They get in the garbage and get grease all over the breast, and the grease gets in the pores of the eggs, and they will not hatch. A. Try benzole. 3. What is the best polish for walnut wood? A. Thin alcoholic shellac applied with a drop of oil on the polishing cushion. 4. What is the difference between a moment of force and a moment of time? A. See definition of moment in Webster.

(3) G. D. asks if there is any process by which bone can be softened so as to be cut in any size or shaped piece wanted, and afterwards the piece so cut hardened back to its original hardness. A. Bone may be softened by boiling it in muriatic acid diluted with two parts of water, hardened by digesting in limewater.

(4) S. E. asks What chemical can be put on black walnut to prevent the fire from burning it? A. Wood may be rendered to some extent non-inflammable by saturating the fibers as far as may be with a hot saturated aqueous solution of commercial tungstate of soda, and then drying slowly.

(5) W. W. asks. Can you tell me of anything that I can use in parlor match composition to prevent the crack? I have been using 4 oz glue; 4 oz. whiting; 2 oz. crocus; 12 oz. potassium; 1 oz. phosphorus. A. Coat the heads by dipping with a common shellac varnish: shellac (common), 1 lb.; wood alcohol, 1 quart. Swift & Courtney's match is said to have the following composition

Phosphorus	30
Gum	5
Water	30
Sand	20
Binoxide of lead	20
	105

(6) R. E. A. asks how to make a mucilage in stick form (solidified), also would like to know of best plan for making a thick ink suitable for "Stokes' Automatic Pen." A. Dissolve gum arabic in hot water to form a sirupy liquid, add a little clove oil and thicken with powdered gum dextrine; mould and dry slowly. Concentrate a good iron gall indigo ink by evaporation over a gentle heat. Or dissolve soluble nigrosine in hot water to form an ink of the requisite consistence.

(7) R. H. S. writes: Putting common salt on a hard coal fire that is almost out seems or does revive it. Will you please give me the chemical action that takes place. A. Salt does not materially aid combustion. If the fire is hot enough the salt is volatilized; if small, the salt is more likely to extinguish it, we think.

(8) F. H. C. asks (1) how to remove rust from brass screws and trimmings, or mountings on a camera that has been exposed for a long time to dampness. A. Probably the best way to clean your brass work is to repolish with emery paper of different grades, finishing with crocus cloth. 2. How to ebonyize cherry or pine wood, with details of the logwood preparation. A. For directions for ebonyizing wood, see p. 91 (18), Vol. 40, SCIENTIFIC AMERICAN.

(9) W. P. asks for the most practical method, if there is any, of destroying the canker worm after it has gained a foot hold in the tree. A. Try syringing the tree with soap suds to which has been added a little hellebore.

(10) R. G. asks for the best method of putting new counters in seal presses (notary, etc.) A. They are usually cast in type metal in the same way that stereotypes are cast, but an easier way is to take a piece of gutta-percha, soften it in warm water, put it in the press, and bring the seal down on it. A counter of this kind does not last as long as metal, but it may be very readily renewed.

(11) E. L. K. writes 1. I am making a boiler like the one described in SUPPLEMENT 182. The tubes are three inches in diameter and 18 inches long. Will it do to make the casing, which is 16 inches in diameter, of cast iron? A. If you refer to the boiler on page 2891, you can make the casing of cast iron, but it should be lined with fire brick or some other non-conductor. 2. How large an engine will the boiler run? 2. It will depend upon the speed of the engine and the pressure you wish to carry. 3. How much pressure will it safely stand? A. If the tubes are properly proportioned and sound, 120 to 140 lb.

(12) H. writes: I desire to make a small ice box, one in which I can preserve for twenty-four hours a few pounds of ice. What is the best material to pack such a box with, and how thick should the packing be? A. A box with a 2½ inch air space between the walls all around answers very well, providing the air space be perfectly tight. Saw dust, when dry, makes a good filling. Powdered charcoal is frequently used.

(13) J. T. H. asks: Has any one ever used a line of shafting laid at an incline in place of horizontal? Will such a shaft inclined say one foot in ten, 2½ diameter, 100 feet long, work? A. A shaft inclined one foot in ten will work, but all connections with it must be made to conform to the angle.

(14) W. H. P. asks for a rule for calculating the pressure of steam on a cylinder boiler at any given number pounds of steam. A. Multiply the diameter in inches by the length in inches and by the pressure per square inch; the result is the total pressure tending to rupture the boiler.

(15) R. F. R. writes I made a copying pad after the receipt given in the SCIENTIFIC AMERICAN, but I notice the copies have a faint color; I think they should be darker. Can you tell me what to put in with the ink to produce a clear impression? A. In preparing the ink use pure methylaniline violet (3 B shade) or blue, and see that the solution is complete before attempting to use it. If the directions are properly carried out there will be no difficulty. If the ink does not flow readily add a little more alcohol.

(16) G. W. R. asks: 1. How can I find the pressure of wind per square foot at different velocities? A. Use a wind pressure gauge or anemometer. 2. Why is the common galvanometer not used in receiving discharges on the Atlantic cable instead of the looking glass attachment which requires a darkened room? A. Because the pencil of light from the reflector forms a very long index having no weight. 3. What would be the cost of one of Edison's lamps and generators ready for motive power? A. We believe they are not in the market yet. 4. How high will a pressure of fifty pounds per square inch raise water? A. 112 feet. 5. How much is air compressed at a pressure of fifty pounds per square inch? A. 4.38 times or volumes. 6. Is a rotary bellows the best machine for compressing air to the above pressure? A. No. 7. Is a rotary engine best for applying its power to machinery? A. No. 8. Is compressed air the best agent for keeping a power which is supplied (irregularly) for future use (once in 24 hours)? A. You may use compressed air, but a column or head of water is to be preferred.

(17) F. W. & Co. ask: What can be used to remove the gloss on tin cake cans so as to make the labels stick well which are put on with flour paste? A. Try strong hot solution of caustic potash or soda.

(18) J. T. asks what to put into glue to make it perfectly insoluble. A. Glue is rendered insoluble by tannic acid (tannin). The tannin may be dissolved in a small quantity of soft water.

(19) A. P. G. asks: What will remove oil spots, such as grease and dirt, from parchment paper, such as diplomas are written upon? A. To remove the grease spots cover with hot pipe clay and place under pressure for a few hours. Dirt stains must be removed by mechanical means.

(20) W. H. asks: Is there a single engine made to reverse with one eccentric, without changing the position of the eccentric on the shaft? A. Yes, by making the valve without lap or lead.

(21) J. J. W. asks how Leghorn hats are whitened (otherwise than with the fumes of sulphur), or can you give a receipt to whiten with a varnish? A. Immerse in a strong aqueous solution of sulphite of soda or bleaching powder (chloride of lime), and then in dilute sulphuric acid (acid 1, water 5). The bleaching powder treatment requires much subsequent washing, or the use of an antichlore dip, hyposulphite of soda dissolved in 20 parts of water.

(22) A. B. H. asks for some simple test for water to see whether it is safe to use or not. I took some tannic acid and put it in well water. No. 1 turned greenish blue; No. 2 acquired a reddish tinge; No. 3 bluish green with quite a deposit on the bottom of the tumbler and quite a bit of substance floating around in it. The surface of all these waters had a glassy look. The water was hard. No. 4 was water taken out of a cistern; the acid did not change this water. Please tell me what the above tests—if they can be called tests—indicate? A. Pure tannic acid (tannin) causes a bluish or greenish blue discoloration or precipitate in water containing salts of iron—with which it forms ink. When the water contains any considerable quantity of gelatine or albuminous matters, tannin occasions the formation of a finely divided precipitate, at once or after standing for a time. When the quantity is small this gives the water an opalescent appearance, and sometimes a slightly pinkish tint when viewed by transmitted light. After remaining in a warm, quiet place for some hours, the precipitate separates as a curdy or semi-gelatinous mass. Such water may be considered unfit to drink. Before using the tannin solution should be allowed to stand for some hours and should then be filtered.

(23) R. F. asks how to clean rubber stamps.

A. Try a little strong hydrochloric acid.

(24) S. L. writes: I propose building a double boat, 50 feet long, ½ inch iron, air tight; each boat 30 inches in diameter, joined by stanchions making an outside beam of 12 feet. 1. What would be the carrying capacity? A. We cannot give the carrying capacity without knowing the form of your cylinders. 2. Would it carry engine power sufficient to propel at rate of seventeen miles per hour, and the power required? A. No, not with paddle wheels. 3. What diameter of side wheels, with feathering floats, would be required, and the number of buckets to each wheel? A. You cannot put in wheels of any size that will give the speed. 4. What would be the best coating inside and out to keep the iron from rusting on a fresh water lake? A. Brown oxide paint ground in pure linseed oil. There is a catamaran steamboat building here, which will be completed within the next sixty days. We advise you to wait the result, before investing your money in a similar project, if speed is your object.

(25) O. & D. write: Owing to the mildness of last winter the ice crop was scarce and the price is high. Is there not some simple way by which one can at little expense reduce the temperature of our city water, so as to render it a little more drinkable? I thought of using a jar and covering it with a layer or two of some coarse cloth, and keeping a small stream of water running on it, just enough to keep it wet. Would the evaporation reduce the temperature materially, and what part of the house would it be best to keep it? Perhaps there is some better method, if so, I am sure you would confer a great favor on many who cannot afford to take ice this summer. A. The simplest form of water cooler is perhaps the porous (unglazed) earthen jar. When filled with water the latter oozes slowly through the porous material, evaporates, and keeps the jar cool. The jar must, however, be kept away from heat radiating surfaces. The plan you suggest is also a good one; the cloth should not be too thick, and the jar should be as tall and narrow as convenient so as to expose as large an evaporating surface as possible.

(26) A. B. asks for a receipt to make ice cream. A. The following gives excellent results: Scald a gallon of good sweet milk, and add to it with constant stirring eight eggs well beaten with one pound white sugar, and four spoonfuls of cornstarch, first mixed into a thick cream with cold milk. Cool, flavor to suit and freeze.