

Business and Personal.

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

Vertical Engines, 10 to 15 H. P., thoroughly wellmade. John Hartrick & Co., 47 Gold street, New York.

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

Wanted.—Manufs. to make new Toy Gun and Target, mostly of wood. Address W. D. Skidmore, 340 E. 120th St., N. Y.

Latest and best Books on Steam Engineering. Send stamp for catalogue. F. Keppy, Bridgeport, Conn.

"The Plumber and Sanitary Engineer" contains popular, practical, and scientific articles on drainage, water supply, heating, and gas lighting. 15 cents a copy. \$1.50 per year. P. O. Box 3037, New York.

New York Safety 4 H. P. Engine and Boiler for sale cheap for cash. Lovegrove & Co., Philadelphia, Pa.

James T. Pratt & Co., 53 Fulton St., N. Y. Scroll Saws and Designs. Send for circular.

Exhibition Magic Lantern and 60 Views, only \$25. Catalogue free. Outfits wanted. Theo. J. Harback, Importer and Manufacturer, 809 Filbert St., Phila., Pa.

A Civil Engineer, a graduate of the Rensselaer Institute, wants employment, and an opportunity to perfect himself in the designing of machinery.

Safety Linen Hose and Rubber Hose for all purposes at the best rates. Greene, Tweed & Co., 18 Park Pl., N. Y.

Babbitt Metal. Four plain receipts for making best grades of Babbitt Metal. Send one dollar. Address James Swan, Larned, Pawnee Co., Kansas.

The improved Gatling Guns fire over 1,000 shots per minute, and are the most destructive war weapons ever invented. Gatling Gun Co., Hartford, Conn., U. S. A.

For Town and Village use, comb'd Hand Fire Engine & Hose carriage, \$350. Forsaith & Co., Manchester, N. H.

Blowers.—One No. 5, two No. 6, regular pattern, steel, pressure Sturtevant's; one No. 6, Hot Blast Apparatus; also other sizes for sale very low. Exeter Machine Works, 140 Congress St., Boston, Mass.

Sheet Metal Presses, Ferracute Co., Bridgeton, N. J.

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

Use the Patent Improved Sheet Iron Roofing and Drip Crimped Siding made by A. Northrup & Co., Pittsburg, Pa. Send for circular and prices.

Engine Builders' Brass Goods, Oil Feeders, Glass Oil Cups, Shaft Cups. All goods strictly first class. Address Cincinnati Brass Works.

Nickel Plating.—A white deposit guaranteed by using our material. Condit, Hanson & Van Winkle, Newark, N. J. English Agency, 18 Caroline St., Birmingham.

Write to E. & F. Gleason, 56 Canal street, Philadelphia, for standard wood tools.

Sperm Oil, Pure. Wm. F. Nye, New Bedford, Mass.

North's Lathe Dog. 347 N. 4th St., Philadelphia, Pa.

J. C. Hoadley, Consulting Engineer and Mechanical and Scientific Expert, Lawrence, Mass.

Boilers ready for shipment, new and 2d hand. For a good boiler, send to Hilles & Jones, Wilmington, Del.

Punching Presses, Drop Hammers, and Dies for working Metals, etc. The Stiles & Parker Press Co., Middletown, Conn.

Hydraulic Presses and Jacks, new and second hand. Lathes and Machinery for Polishing and Buffing Metals. E. Lyon & Co., 470 Grand St., N. Y.

1,000 2d hand machines for sale. Send stamp for descriptive price list. Forsaith & Co., Manchester, N. H.

Presses, Dies, and Tools for working Sheet Metals, etc. Fruit and other Can Tools. Bliss & Williams, Brooklyn, N. Y., and Paris Exposition, 1878.

Alcott's Turbine received the Centennial Medal.

Warranted best and cheapest Planers, Jointers, Universal Woodworkers, Band and Scroll Saws, etc., manufactured by Bentel, Margedant & Co., Hamilton, Ohio.

Howard Patent Safety Elevators. Howard Iron Works, Buffalo, N. Y.

Expectant Advertisers will serve their interests by consulting C. K. Hammit's Advertising Agency, 208 Broadway, N. Y.

Emery, Glce, Vienna Lime, and all polishing goods. Greene, Tweed & Co., 18 Park Place, N. Y.

Krider, Campbell & Co., 1030 Germantown Ave., Phila., Pa., contractors for mills for all kinds of grinding.

The only Engine in the market attached to boiler having cold bearings. F. F. & A. B. Landis, Lancaster, 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.

Pulverizing Mills for all hard substance and grinding purposes. Walker Bros. & Co., 23d and Wood St., Phila.

The Cameron Steam Pump mounted in Phosphor Bronze is an indestructible machine. See advertisement.

Any of our readers in the smaller towns who are seeking employment, or who wish to add to their income, would do well to correspond with the H. W. Johns Manufacturing Co., 87 Malden Lane, N. Y.

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.

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.

Bolt Forging Machine & Power Hammers a specialty. Send for circulars. Forsaith & Co., Manchester, N. H.

Improved Wood-working Machinery made by Walker Bros., 73 and 75 Laurel St., Philadelphia, Pa.

For Solid Wrought Iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburg, Pa., for lithograph, etc.

Best Turbine Water Wheel, Alcott's, Mt. Holly, N. J.

NEW BOOKS AND PUBLICATIONS.

REPORT OF THE NEW JERSEY STATE COMMISSION FOR THE ENCOURAGEMENT OF MANUFACTURES OF ORNAMENTAL AND TEXTILE FABRICS. 1878. Trenton. 8vo., paper, pp. 90.

The greater portion of this pamphlet is devoted to a review of efforts made at home and abroad to secure the industrial and artistic education of the artisan class, the Commission believing that by such means the object aimed at can best be attained.

GENERAL INDEX TO APPLETON'S AMERICAN CYCLOPEDIA. 1 vol. 8vo. pp. 810. New York: D. Appleton & Co.

This volume is intended to make readily accessible the information given in Appleton's Cyclopaedia, and must prove a great time saver to such as have frequent occasion to consult that work.

Notes & Queries

(1) M. B. writes: Could you inform me if there are any set rules for the signals between the pilot and engineer on a steamboat...

(2) W. W. S. writes: We have a 3 x 4 inch vertical yacht engine, with variable (link) cut-off, and we wish to get all the power we possibly can from it.

(3) E. J. P. writes: I have stated to a friend that the moon can never be absolutely full, which he denies.

(4) G. S. McG. asks if there is a formula given to calculate the height that water can be raised by suction at different elevations above the level of the sea...

(5) P. C. asks for a recipe for harness blacking. The principal requirements are that it should make the leather flexible, waterproof, give a good smooth black finish...

(6) C. G. asks: Does the generating of steam rapidly cause any extra strain on boilers when not allowed to go beyond a certain pressure...

(7) M. J. C. writes: I piped a stationary engine the other day, and ran the exhaust pipe 25 feet horizontal and 25 feet perpendicular...

(8) K. F. asks: Can the sound from a number of voices or instruments of any kind be heard at a greater distance than the sound from one voice or instrument...

(9) C. N. O. asks: Which will support the greater weight, a 12 foot 8 inch diameter solid column, or a 12 foot 8 inch diameter 3/4 inch metal hollow column?

If a machine were made to use any natural force, as gravity, continuously, would it be perpetual motion, as that term is generally used?

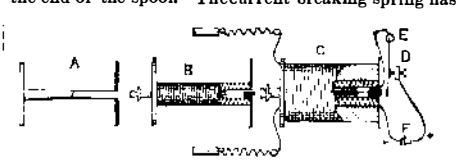
(10) W. H. B. asks for a method of preparing paper blue for clothes. A. Mix dry Prussian blue with about 60 per cent of hot water and 15 percent of potassium ferrocyanide...

(11) G. A. R. asks: What is the best and cheapest substance to enamel bricks, and the mode of applying it?

(12) J. W. S. asks for a good black dye for restoring color on hats without boiling them in it, and also what makes a good dye for dyeing black by boiling?

(13) R. B. writes: 1. We have a telephone circuit of about a mile; there are no telegraph wires near it, and of late the clicking sound has become so great...

(14) F. F. C., W. A., and others: An ordinary induction coil may be made in the following manner: Turn a spool, A, of wood or hard rubber...



attached to it a small disk of platinum, which rests against the adjusting screw in the post, D. This post is connected with the battery, F, and the latter communicates with the terminal of the primary coil.

(15) C. B. writes: My brownstone front stoop is covered with a green mouldy substance that looks bad. Please give me a recipe for removing it and not injuring the stone.

(16) D. W. A. writes: I want a cheap and simple method of manufacturing gas for an experimental air carriage, not out of coal. Also the size of a cigar shaped balloon large enough to raise about 300 lbs.

(17) H. B. asks what size a boiler and engine should be for marine use (size of engine 2 inches in diameter and 3 inches stroke), double engines. I want the engines for a row boat, with speed from 6 to 8 miles per hour.

(18) A. E. R. writes: 1. I am running a Corliss engine, made about the year 1863. The cylinder is 14 inches x 3 3/4 feet, 50 revolutions a minute, and 60 lbs. steam.

(19) S. K. asks if the United States Steam Boiler Explosion Commission will experiment again this year. A. We believe the Commission has adjourned sine die.

(20) D. S. E. asks: Is it at all possible for a steam boiler to burn out if it is kept free from scale and has the proper care in keeping it clean?

(21) C. E. G. asks: I wish to raise the greatest amount of water possible, using a 5 or 10 horse power engine. Please give the best machine for that purpose.

considered the best oil for cylinders? A. We do not know of any very simple tests except that of use. Some of the natural oils are much used for cylinder lubrication.

(22) G. W. writes: As we contemplate building a steamboat we have clubbed (six of us) together, and we come to you for advice.

(23) J. J. N. asks if vertical retorts for the distillation of coal are much in use. A. Such retorts are rarely employed in this country.

(24) H. H. C. writes: In a back number you stated that if a person wanted to become a locomotive engineer, shop experience would be requisite...

(25) G. W. M. asks: Can I obtain a liquid of greater specific gravity than sulphuric acid? A. (Specific gravity at 32° Fah.)

Mercury..... 13.59  
Bromine..... 3.18

Phosphorus tribromide..... 2.92  
Silicon bromide..... 2.81

Stannum (tin) perchloride..... 2.26  
Arsenic trichloride..... 2.20

Methyl iodide..... 2.19  
Sulphuric acid..... 1.85

(26) J. S. Q. writes: I have a tugboat, 60 feet long, 14 feet wide, scow bow and stern. She runs 7 1/2 miles per hour up stream, and makes all the steam I want to carry, 120 lbs., with lump coal.

(27) W. McC. writes: Having had some doors to varnish, I was asked if I could leave them so that the panels would be glossy and the stiles dead or flat.

(28) D. W. B. writes: 1. The switching engine No. 60 of the N. Y. & N. H. & H. R. R., after the steam has been shut off, and while fetching, makes a heavy thumping noise, apparently in the cylinders.

(29) C. F. B. asks: Can any reader of the SCIENTIFIC AMERICAN give me a rule to measure rubber belting in the roll? A. The following rule is given in Cooper's work on belting: D=diameter of outer coil in inches. d=diameter of inner coil in inches. n=number of coils. Length in feet equals 0.1309 pi x (D+d).

(30) W. H. A. asks for a formula for preserving insects. A. Labouliere recommends for the preservation of insects in a fresh state, plunging them into a preservative fluid consisting of alcohol with an