

Business and Personal.

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The Buckeye Engine Co. Automatic Cut-off Engines, condensing or non-condensing, 10 to 1,000 H. P.

Vertical Scientific Grain Mills. A. W. Straub & Co., Phila.

Cornice Brakes. J. M. Robinson & Co., Cincinnati, O.

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

Power & Foot Presses, Ferracute Co., Bridgeton, N. J.

Water Wheels, increased power. O. J. Bollinger, York, Pa.

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

Vertical & Yacht Engines. N. W. Twiss, New Haven, Ct.

Painters' Metal Graining Plates. J. J. Callow, Cleveland, O.

Blake's Belt Studs, the best fastening for Rubber and Leather Belts. Greene, Tweed & Co., 18 Park Place, N. Y.

The SCIENTIFIC AMERICAN Export Edition is published monthly, about the 15th of each month.

Scroll Saws.—Three 2d hand, Cordesman, Egan & Co. make. Send for cuts. Steptoe & Co., 214 W. 2d St., Cin. O.

For Sale.—A 30 ft. Yacht. Yacht and Stationary Engines. Iron and Wood Machinery. S. E. Harthan, Worcester, Mass.

The undersigned wish to obtain financial assistance to carry on a valuable and lucrative industry.

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.

Wanted.—Party to Manufacture on Royalty a Spring Draught Attachment for Vehicles. R. W. Smalley, Salem, Mass.

Rubber Belting, Packing, Hose, and Manufacturers Supplies. Greene, Tweed & Co., 18 Park Place, N. Y.

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

Valuable Invention to users of Steam Boilers. See advt., page 318, last issue. Address U. S. Automatic Stoker Co., No. 2 Chestnut St., Philadelphia, Pa.

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

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

For Heavy Punches, Shears, Boiler Shop Rolls, Radial Drills, etc., send to Hilles & Jones, Wilmington, Del.

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

The great Wheelock Engine, which furnishes the power to the machinery of the American Exhibit at the Paris Exposition this year, is lubricated by Patent Lubricant and Cups.

Fricition Clutches for heavy work. Can be run at high speeds, and start gradual. Safety Elevators and Hoisting Machinery a specialty. D. Frisbie & Co., New Haven, Ct.

24 inch Second-hand Planer, and 12 inch Joiner, or Buzz Planer, both in first-class order, for sale by Bentel, Margendant & Co., Hamilton, Ohio.

Wrenches.—The Lipsey "Reliable" is strongest and best. Six inch sample by mail 60 cents. Roper Caloric Engine Manufacturing Co., 91 Washington St., N. Y.

The Cameron Steam Pump mounted in Phosphor Bronze is an indestructible machine. See ad. back page.

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

John T. Noye & Son, Buffalo, N. Y., are Manufacturers of Burr Mill Stones and Flour Mill Machinery of all kinds, and dealers in Dufour & Co.'s Bolting Cloth.

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.

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

Manufacturers of Improved Goods who desire to build up a lucrative foreign trade, will do well to insert a well displayed advertisement in the SCIENTIFIC AMERICAN Export Edition.

For Boul's Paneling, Moulding, and Dovetailing Machine, and other wood-working machinery, address B. C. Machinery Co., Battle Creek, Mich.

Special Planers for Jointing and Surfacing, Band and Scroll Saws, Universal Wood-workers, etc., manufactured by Bentel, Margendant & Co., Hamilton, Ohio.

Climax Washing Machine. Reliable Agents wanted. Descriptive circulars furnished. N. C. Baughman & Co., York, Pa.

Patent Scroll and Band Saws. Best and cheapest in use. Cordesman, Egan & Co., Cincinnati, O.

Lansdell's Steam Siphon pumps sandy and gritty water as easily as clean. Leng & Ogden, 212 Pearl St., N. Y.

For Best Insulated Telegraph Wire, Telephone Wire, and Flexible Cordage, Eugene F. Phillips, 67 Stewart St., Providence, R. I. W. H. Sawyer, Electrician and Supt.

The Turbine Wheel made by Rison & Co., Mt. Holly, N. J., gave the best results at Centennial test.

Dead Pulleys, that stop the running of Loose Pulleys and Belts, taking the strain from Line Shaft when Machine is not in use. Taper Sleeve Pulley Works, Erie, Pa.

Notes & Queries

(1) T. S. writes: I am prevented from sleeping by noises in the next room, such as talking, walking, etc. Is there any simple means of deadening the sounds? A. One method is to wear a night cap having very thick soft pads of wool or cotton arranged to cover the ears.

(2) H. M. writes: 1. I have a cylindrical boiler, 7 feet long, 38 inches diameter; fire box 20 by 36 inches; 26 flues, 2 inches, 4 1/2 feet long. What is the power of boiler? A. We do not know of any standard rule for estimating the power of a boiler.

(3) F. T. W. asks: How is soluble acid chromate of lime made? A. Boil 33 parts of potassium bichromate in a porcelain-enameled iron vessel with 300 parts of water; cool a little, and add to the solution 1 1/2 times its volume of strong oil of vitriol.

(4) A. G. G. has constructed a telescope which shows five or six indistinct images, in addition to a well defined one, and wishes to know wherein the fault lies. A. You neglect to state whether your deflector is silvered on the concave or convex surface.

(5) A. K. writes: I have to draw the water to a vacuum pan a distance of about 40 feet. Now I think that if I lay a pipe 3 inches in diameter 30 feet, and the other 10 feet a pipe of 2 inches diameter, I would get more water in a given time than by having the whole length only 2 inch piping.

(6) L. W. J. asks: What is the amount of sugar in beets? A. Beet juice is commonly estimated to contain from 8 to 10 per cent of sugar, the range being from about 6.5 to 17 per cent.

(7) T. C. D. asks: What kind of machine is used for driving a sand blast for depolishing the surface of glass? A. Any of the small rotary blowers will answer.

(8) E. C. L., referring to the question of E. W. D., page 283, issue of May 4, 1878, writes: The so-called "extra current" probably prevented the telephones from working as well in dry weather as they did on the damp day, for when the wire is a little damp the extra current escapes to a certain extent from the line.

(9) W. S. N. asks: What amount of water flow, in gallons, does the miner's inch represent? A. According to some experiments by Professor F. L. Vinton, recently published, the miner's inch is equivalent to a discharge of 0.0254 cubic foot per second.

(10) C. L. G. asks: What is type metal? A. Lead is the chief constituent; antimony is added to compensate for the softness of the lead, and tin to give toughness. Sometimes copper is added in very small percentage to give a still greater degree of tenacity.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

J. N. H.—No. 1 is iron and copper sulphite (chalcopyrite) and impure limonite. No. 2 is iron sulphide (pyrite) in indurated clay.—W. B.—It is globular marcasite—iron 46.4, sulphur 53.3.—W. L. W.—Slate spar—lime carbonate.—J. E. P.—Tourmaline.—W. H. D.—No. 1 is marble veined with pyrites. No. 2 is limonite. No. 3 is specular iron ore. No. 4 is quartz, orthoclase, and pyrite. No. 5 is galenite, of some value. No. 6, pyrite. No. 7, ilmenite. No. 8, gaylussite. No. 9, phlogopite. No. 10, missing. No. 11, tourmaline. No. 12, quartz. No. 13, barite. The amount of metal in the ores can only be determined by assay.—J. H. S.—The sample of ore sent contains a large percentage of copper and a trace of silver. If the sample is a fair representative of the body of the ore the property is of value.—W. S. L.—Quartz with chalcopyrite (copper-iron sulphide and pyrite). Chalcopyrite is a valuable ore of copper. An assay would be necessary to determine the precise value of the ore.—L. & R. B. N.—It is globular marcasite, containing 46.4 per cent of iron and 53.6 per cent of sulphur.—J. F.—The water contains much iron combined with various organic acids and chlorine. The wood contains tannin, which forms with iron a black stain (ink); hence the darkening of the wood. A little copperas or other neutral salt of iron added to moderately pure water will cause it to impart to the woods mentioned a similar stain under like conditions. The water is of little value for medicinal purposes.

COMMUNICATIONS RECEIVED. The Editor of the SCIENTIFIC AMERICAN acknowledges with much pleasure the receipt of original papers and contributions on the following subjects: Condensation and Steam Heat. By W. R. Cinders in the Eye. By E. H. M. and W. S. N. Mending Boiler. By J. F.

Advertisements. Single Page, each insertion --- 75 cents a line. Back Page, each insertion --- \$1.00 a line. Engravings may head advertisements at the same rate per line, by measurement, as the letter press.

WALTHAM WATCHES. We beg to announce that we have recently entirely remodeled the very popular grades of full-plate movements, known by the marks, "Wm. Ellery," "Appleton, Tracy & Co.," "Waltham Watch Co.," "P. S. Bartlett," and "Broadway," giving to them not only a highly improved appearance, but great additional value.

New Books. Rock Blasting for Industrial Purposes. By G. G. Andre. Plates, 8vo. \$4.25. Aid Book to Engineering Enterprise Abroad. By E. Matheson. Illustrations, 8vo. \$5.00.

E. & F. N. SPON, 448 Broome Street, New York. THE ONLY Genuine GRISER SELF-REGULATING GRAIN SEPARATOR. Celebrated for its light and smooth movements, also for PARAFINING and CLEANING all kinds of grain.

MORE STEAM POWER, AND STEADIER, with less Fuel. Improved Slide Valve, may be put on any Engine at small cost. "Can grind 40 lbs. flour with 4 cords wood." B. P. PERRY, Richmond, Indiana. Agents Wanted. Circulars free. J. F. TALLANT, Burlington, Iowa.

B. W. Payne & Sons, Corning, N. Y. Eureka Safety Power. h. p. cyl. ht. space. wt. price. 2 3 1/2 x 4 48 in. 40 x 25 1000 \$150.

MAKE YOUR OWN ELECTRIC CLOCKS. Cheap but good. For full particulars address, with stamp. A. P. ATENSON, Vermont, Fulton Co., Ills.

KREIDER, CAMPBELL & CO., 1030 Germantown Ave., Phila., Millwrights, Steam Engineers, Builders, and Mill Stone Manufacturers. Contractors for Paper, Flour, Malt, and Saw Mills, Breweries, Paint, Drug, and Chemical Works, Portable Mills, Hoisting Machines, and Patent Mill for Grinding Bones, Fertilizers, etc., Patent Patent Mills, Mill Bushes, Proof Stuffs, Straight Edges, Bolting Cloth, Conveyors, Mill Furnishings. All orders for Jobbing promptly attended to. Trimmer's Patent Smutter, Grain and Sizing Machines.

WARRANTED THE BEST. 1 H. P. Boiler & Engine, \$150. 2 H. P., \$175. 3 H. P., \$200. Te ted to 200 lbs. Steam. LOVEGROVE & CO., 152 N. 3d St., Philadelphia, Pa., Builders of Engines and Boilers, 1 to 100 horse power. Send for circulars and prices, and state size and style you want.

EXPLOSIVE DUST. A COMPREHENSIVE description of the Dangers from Dust in various Manufactures and the Cause of many Fires. How combustible substances can explode. Spontaneous Combustion of Iron, Charcoal, and Lampblack in Air. Flour Dust and Brewer's Dust Explosions. Explosions of Coal Dust in Mines. Contained in SCIENTIFIC AMERICAN SUPPLEMENT No. 125. Price 10 cents. To be had at this office and of all newsdealers.

PATCH BLUE. Latest Article out and 40 best Money Making Articles in the World. Free Sample to Agents for 3 cent stamp for postage. J. BRIDE & CO., 297 Broadway New York

EVERY DESCRIPTION OF STEEL, IRON, and Brass Screws for Machinery. Send for Catalogue. L. F. STANBISH & CO., 26 Artisan Street, New Haven, Ct. NO ADVERTISING AGENT can insert an advertisement in our list of twenty-six STANDARD WEEKLIES at ten dollars a line without losing money. Those advertisers who want to obtain the best and largest circulation possible without expending more than from \$30 to \$100 should address GEO. P. ROWELL & CO., 10 Spruce St., New York.

DRAWINGS AND ENGRAVINGS OF MACHINERY A SPECIALTY. PEMBERTON & SCOTT, 37 Park Row, Room 8. RAILWAY APPLIANCES AT THE Philadelphia Exhibition. Being a Paper read before the Institution of Civil Engineers, London. By DOUGLAS GALTON, F. R. S. Showing the characteristic differences between American and European Railways, etc.

KILL THE POTATO BUGS AND SAVE THE POTATOES. SURE DEATH to the Colorado Potato Bug is only to be had by the use of Paris Green. Prof. Cook and others say that all other remedies have failed. ENDORSED BY W. FULLER, AGRICULTURAL EDITOR OF THE "SUN."

PURE PARIS GREEN, Made by F. W. Devoe & Co., can be relied on for the extermination of the Potato Bug and Cotton Worm. Circular on the use of Paris Green distributed free on application. F. W. DEVOE & CO'S MIXED PAINTS. FOR THE CONVENIENCE AND ECONOMY OF CONSUMERS OF PAINT the well-known house of F. W. DEVOE & CO. now prepare PAINTS READY FOR USE FOR FARMERS and MANUFACTURERS.

F. W. DEVOE & CO., Manufacturers and Importers of Colors, White Leads, Zinc White, Varnishes and Artists' Materials, CORNER FULTON AND WILLIAM STREETS (OLD DUTCH CHURCH CORNER), NEW YORK CITY.

MILLS For Crushing Bones, Fire Brick, Clay, Phosphates, Hoofs, Horn also for Grinding Wheat, Tobacco, Paint, Slate, Corn, Sumac, Coal, Chalk, Bark, Coffee, Black Lead, Saltpetre, Cochineal, Spices, Ores, and many other substances. Shafting, Pulleys and Machinery in general, manufactured by WALKER BROS. & CO., 3rd and Wood Streets, Philadelphia

BIG PAY.—With Stencil Outfits. What costs 4 cents sells rapidly for 50 cents. Catalogue free. S. M. SPENCER, 112 Wash'n St., Boston. IRON RAILWAY TIES AND SLEEPERS. By CHARLES WOOD, C. E. Twelve illustrations. The various Systems of Iron Sleepers; the Bowl, Pot, or Oval; the Longitudinal Wrought Iron; the Transverse Wrought Iron. Practical experience with each. Durability of Wrought Iron for Sleepers. Adjustment of Gauge on Curves. Spreaung Out. The Barlow Combination Sleeper and Rail. Hills, Hoenegger's, and Thomson's Systems. Serre's and Battigs' Systems. Mc Lellan's and Fotel's Sleepers. Wood's Cross System. The several systems illustrated, with particulars of Basting, Spikes, Keys, Collars, Chairs, and Tools; Labor, First Cost, Repairs, Wear, Corrosion, etc.

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This widely circulated and splendidly illustrated paper is published weekly. Every number contains sixteen pages of useful information, and a large number of original engravings of new inventions and discoveries, representing Engineering Works, Steam Machinery, New Inventions, Novelties in Mechanics, Manufactures, Chemistry, Electricity, Telegraphy, Photography, Architecture, Agriculture, Horticulture, Natural History, etc. All Classes of Readers find in THE SCIENTIFIC AMERICAN a popular resume of the best scientific information of the day; and it is the aim of the publishers to present it in an attractive form, avoiding as much as possible abstruse terms. To every intelligent mind, this journal affords a constant supply of instructive reading. It is promotive of knowledge and progress in every community where it circulates.

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One copy of THE SCIENTIFIC AMERICAN and one copy of THE SCIENTIFIC AMERICAN SUPPLEMENT will be sent for one year, postage prepaid, to any subscriber in the United States or Canada, on receipt of seven dollars by the publishers.

The safest way to remit is by Postal Order, Draft, or Express. Money carefully placed inside of envelopes, securely sealed, and correctly addressed, seldom goes astray, but is at the sender's risk. Address all letters and make all orders, drafts, etc., payable to

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