

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 Hat Holder Patent, illustrated on page 198, will be let on royalty, or a part interest sold.

Wanted.—First-class metal pattern-maker. One familiar with gating and making small metal patterns. Address St. Louis Malleable Iron Co., St. Louis, Mo.

Gear Wheels for Models (list free); Experimental Work, etc. D. Gilbert & Son, 212 Chester St., Phila., Pa.

Another Victory!—In spite of all competition the contract for furnishing 7,000 seven thousand feet iron fence to inclose Woodland Avenue Cemetery, at Cleveland, O., was on March 5, 1883, awarded to Champion Iron Fence Company, Keaton, Ohio.

The Automatic Cut-off Engine, designed for driving electric lights and furnishing steady, reliable power; high speed; superior construction; economy in fuel guaranteed. A. L. Ide, Springfield, Ill.

Read the Electrical Review, advertised in this issue.

Comfort Dinner Pails—Most convenient in use. For sale everywhere. Reardon, Ennis & Co., Troy, N. Y.

For Sale Cheap.—New and second-hand engines, boilers, pumps, pipe, etc. Address Young & Locke, 68 and 70 South Franklin Street, Titusville, Pa.

The following letter from a well known dealer in building materials will explain itself:

AKRON, O., February 24, 1883. Mr. —: In reply to your request to give you my opinion of H. W. Johns' Paints, I take pleasure in stating that I have been handling these paints for nearly eight years, keeping them on sale in all the different shades and using them in my building business, and I have no hesitancy in saying I believe them to be the cheapest and best paints in use, not excepting pure lead and oil. They are cheaper because they will spread over more surface and cover better. I know to a certainty that two coats will cover better and last longer than three of any other paint, and it will outwear and retain its luster and color better than any other. I have tried many kinds of paint, and had concluded before using these that pure lead and oil was the only reliable paint, but after years of experience I am entirely satisfied that these paints are much better and more economical to use.

D. W. THOMAS.

Storage Electricity, \$1; Dictionary Electricity, \$2. All inventions described. Best out. School Electricity, N. Y. American Fruit Drier. Free Pamphlet. See ad., p. 189.

Am. Twist Drill Co., Meredith, N. H., make Pat. Chuck Jaws, Emery Wheels, Grinders, automatic Knife Grinders.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 20,000 Crank Shafts and 15,000 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. 190.

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

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

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 190.

For best Portable Forges and Blacksmiths' Hand Blowers, address Buffalo Forge Co., Buffalo, N. Y.

Cutters for Teeth of Gear Wheels formed entirely by machinery. The Pratt & Whitney Co., Hartford, Conn.

Catechism of the Locomotive. 625 pages. 250 engravings. Most accurate, complete, and easily understood book on the Locomotive. Price \$2.50. Send for catalogue of railroad books. The Railroad Gazette, 73 B'way, N. Y.

C. B. Rogers & Co., Norwich, Conn. Wood Working Machinery of every kind. See adv., page 190.

20,000 Duc Spherical Elevator Buckets, sizes 3 1/4 to 17 inches, constantly on hand. Telegraphic orders filled. T. F. Rowland, sole manufacturer, Brooklyn, N. Y.

First Class Engine Lathes, 20 inch swing, 8 foot bed, now ready. F. C. & A. E. Rowland, New Haven, Conn.

Scientific Books. See page 188. 100 page Catalogue free. E. & F. N. Spon, 44 Murray Street, N. Y.

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.

Drop Forgings. Billings & Spencer Co. See adv., p. 173.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad., p. 174.

For Mill Mach'y & Mill Furnishing, see illus. adv., p. 172. See New American File Co.'s Advertisement, p. 174.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 172.

Steam Pumps. See adv. Smith, Valle & Co., p. 172.

Common Sense Dry Kiln. Adapted to drying of all material where kiln, etc., drying houses are used. See p. 174.

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.

Lighting Screw Plates, Labor-saving Tools, p. 156.

Woodwork Mach'y. Rollstone Mach. Co. Adv., p. 158.

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.

Guill & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description.

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

Forsaith & Co., 209 Centre St., N. Y. city, have the following new, first-class modern engine lathes ready for instant shipment: 6' x 16", \$300; 8' x 18", \$325; 8' x 18", \$345; 9' x 18", \$355; 10' x 18", \$375; 12' x 20", \$415; 8' x 22", \$450; 14' x 26", \$700; 16' x 28", \$730. Also, of new first-class upright drills, as follows: 18", \$110; 20", \$150; 24", \$185; 28", \$215; 32", \$265. One 48" radial drill, \$750. With a large stock of other machine tools.

James Hamblet, Electrical Clocks. P. O. Box 1414, N. Y.

"Abbe" Bolt Forging Machines and "Palmer" Power Hammers a specialty. Forsaith & Co., Manchester, N. H.

Magis lanterns, stereopticons, cond. lenses, etc., on hand and made to order, C. Beseler, 218 Centre St., N. Y.

Railway and Machine Shop Equipment.

Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 103 Reade Streets, New York.

Improved Skinner Portable Engines. Erie, Pa.

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

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

"How to Keep Boilers Clean." Book sent free by James F. Hotchkiss, 84 John St., New York.

Engines, 10 to 50 horse power, complete, with governor. \$250 to \$550. Satisfaction guaranteed. More than seven hundred in use. For circular address Heald & Morris (Drawer 127), Baldwinville, N. Y.

Wanted.—Patented articles or machinery to make and introduce. Gaynor & Fitzgerald, New Haven, Conn.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock Mfg. Co., 80 to 88 Market St., Chicago, Ill.

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.

Ice Making Machines and Machines for Cooling Breweries, etc. Pictet Artificial Ice Co. (Limited), 142 Greenwich Street. P. O. Box 3083, New York city.

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.

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

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 this 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. B. writes: I read that lead put in sweet oil and set in the sun would make good oil to use on a gun. After it has been in the sun a number of days a white sediment falls. What is this sediment? A. We cannot tell what the white sediment is; probably a combination of lead with some acid contained in the oil.

(2) Is there any quicker way to make the oil than by the sun? A. None. 3. Is this oil poisonous if it was taken by accident? A. The lead is poisonous, but the mixture would probably be harmless. 4. Will it hurt guns in any way by using it on the works or barrel? A. No.

(3) C. H. D. asks: What benefit is it to have castings blue? I think it opens the iron, and the Japan adheres to it. If there is any benefit derived from it, please state it through your paper. How much heat is required for japanning sewing machine work black, brown, white, green, and blue? A. The heating of iron work, or bluing as it is called, is to make the Japan take evenly, and also to clear the work of any oil or grease that may remain in the corners or on the porous surface, which interferes with evenness of drying. The heat required must be suited to the kind of Japan used, and must be ascertained by trial, as the same kinds and colors of Japan made by different establishments will vary very much in their baking qualities. As a general rule, the best strong blue requires a heat of 250°. Colored Japans require from 200° to 240°, according to the nature of the pigments, oxides generally drying easier than carbonates or sulphates.

(3) S. W. asks: 1. What are the component parts of smoke, or of what gases is it composed; and in what proportion, both of wood and coal, and what is it that is in the smoke or passes off with it that is incombustible? If the oxygen of the air in passing through the fuel causes its combustion and is burned with it, what becomes of the nitrogen? A. The results of a perfect combustion of either wood or coal are carbon dioxide and water, but as there is generally insufficient oxygen to combine the carbon, small particles of it pass off and color the smoke. Nitrogen is inert, and has no effect on the combustion at all. 2. Is there anything that passes off from the burning fuel that is not combustible; or can everything that escapes from the fuel, or that passes out of the smokestack, be burned or utilized? A. Most combustions are imperfect, and therefore it frequently happens that vapors pass out of the chimney without being consumed. 3. Has water gas (i.e., decomposed water) ever been used to any advantage in making or assist in making steam; or is there any known way of using it to be a benefit? A. Water gas is in common use for illuminating and heating purposes.

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

F. G.—The sample is iron sesquioxide (limonite) containing iron sulphide (pyrites). The latter may contain gold. An assay would cost \$5. A simple determination of the amount of iron would be the same.—G. L. N.—The specimen is a clay iron ore. It is composed of pyrites (iron sulphide) which has become oxidized externally by the influences to which it has been subjected.—A. B. C.—The powder has the appearance of being a micaceous mineral pulverized. We do not think that it contains sufficient alumina to be of any service as a material for fire brick.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

March 13, 1883,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for 25 cents. In ordering please state the number and date of the patent desired and remit to Munn & Co., 261 Broadway, corner of Warren Street, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications, not being printed, must be copied by hand.

Table listing inventions and their patent numbers. Includes items like: Advertising device, card and picture holder, E. W. Taylor... 274,052; Alarm signal, H. A. Eaton (r)... 10,295; Amalgamating and concentrating ores, machine for, G. Dean... 273,969; Amalgamator, dry, I. Stead... 273,775; Ambulance, J. E. Wiklie... 273,925; Axle box, car, C. M. & R. M. Wood... 273,928; Axle lubricator, F. C. Hockensmith... 273,990; Axle lubricator, car, C. P. Holmes... 273,981; Bag, See Paper bag; Balcony, adjustable, W. Donegan... 273,823; Bale tie, W. R. Williamson... 273,926; Baking powder, W. P. Clotworthy... 273,958; Bar, See Grate bar; Bar or toggle, G. E. Adams... 273,792; Barrel, J. Kautz... 273,853; Basket, J. H. Marvill... 273,964; Battery, See Electric battery. Galvanic battery. Secondary battery; Bessemer converter, S. G. Thomas... 274,055; Binder, self, W. N. Whiteley et al... 274,071; Bit stock, H. V. Smith... 274,040, 274,041; Blast furnace, W. Kent... 273,742; Blind for skylights, O. 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Horne... 273,842; Feed water heater and purifier, E. E. Stillwell... 274,048; Feed water, purifying, G. S. Strong... 273,778; Feed water regulator, balanced, J. Woodruff... 273,929; Fence and telegraph post, iron, L. Petrequin... 273,887; Fertilizer distributor, C. E. Patric... 273,883; File, J. D. Crosthwaite... 273,821; File for invoices, letters, bonds, etc., E. D. Aver-rell... 273,797; Fire escape, L. Baumeister... 274,090; Fire escape, H. E. Braunfeld... 273,807; Fire escape, J. Godfrey... 273,722; Fish-hook holder, self-adjusting fish-shaped, C. Hymers... 273,996; Florist's form, C. A. Kuehn... 274,006; Flour bit, H. A. Graeter... 273,896; Folding chair, camp stool and settee, Champlin & Bland... 273,954; Friction brake for pulleys, etc., J. C. & C. H. Tise... 273,914; Furnace, See Blast furnace. Smelting furnace. Tube heating furnace; Furnace door, T. R. 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