

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.

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.

The schoolmaster is abroad, we often hear, but when he is at his desk he is exemplifying by precept and example the merits of Esterbrook's Steel Pens.

Storage Electricity, \$1; Dictionary Electricity, \$2. All inventions described. Latest, best. School Electricity, N. Y. Drop Forgings. Billings & Spencer Co. See adv., p. 173.

Fire Brick, Tile, and Clay Retorts, all shapes. Borgner & O'Brien, M'Frs, 23d St., above Race, Phila., Pa. Peck's Patent Drop Press. See adv., page 172.

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

Machine Diamonds, J. Dickinson, 64 Nassau St., N. Y.

50,000 Emerson's Hand Book of Saws. New Edition. Free. Address Emerson, Smith & Co., Beaver Falls, Pa.

Eagle Anvils, 10 cents per pound. Fully warranted. For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 174. Gould & Eberhardt's Machinists' Tools. See adv., p. 174.

For Heavy Punches, etc., see illustrated advertisement of Lillies & Jones, on page 174.

Barrel, Key, Hogshead, Stave Mach'y. See adv. p. 174. For Mill Mach'y & Mill Furnishing, see illus. adv. p. 172.

See New American File Co.'s Advertisement, p. 174.

Drop Hammers, Power Shears, Punching Presses, Die Sinkers. The Pratt & Whitney Co., Hartford, Conn.

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

For best low price Planer and Matener, and latest improved sash, Door, and Blnd Machinery, Send for catalogue to Rowley & Hearnance, Williamsport, Pa.

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

The Porter-Allen High Speed Steam Engine. South-west Foundry & Mach. Co., 430 Washington Ave., Phil. Pa.

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, 68 to 72 Ogden Place, Chicago.

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

Woodwork'g 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.

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

The Celebrated Wooten Desk. See adv., page 142.

Lists 29, 30 & 31, describing 4,000 new and 2d-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; 6' x 18", \$325; 8' x 18", \$345; 9' x 18", \$365; 10' x 18", \$385; 8' x 20", \$375; 12' x 20", \$415; 8' x 22", \$550; 14' x 26", \$700; 16' x 28", \$736. Also, of new first-class upright drills, as follows: 18", \$110; 20", \$150; 24", \$185; 28", \$315; 32", \$365. One 48" radial drill, \$750. With a large stock of other machine tools.

James Hamblet, Electrical Clocks. P. O. Box 1414, N. Y. Cope & Maxwell M'Fg Co.'s Pump adv., page 142.

Curtis Pressure Regulator and Steam Trap. See p. 140.

"Abbe" Bolt Forging Machines and "Palmer" Power Hammers a specialty. Forsaith & Co., Manchester, N. H. The Sweetland Chuck. See illus. adv., p. 142.

Knives for Woodworking Machinery, Bookbinders, and Paper Mills. Taylor, Stiles & Co., Riegelsville, N. J.

Magic 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.

5/ Lathes of the best design. G. A. Ohl & 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. Pletet Artificial Ice Co. (Limited), 142 Greenwich Street. P. O. Box 3083, New York city.

Steel Stamps and Pattern Letters. The best made. J. F. V. Dorman, 21 German St., Baltimore. Catalogue free.

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. Ferracuta 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) D. P. asks if the Leclanché prism battery—one cell—would operate Prof. Hughes' induction balance. A. Yes.

(2) J. S. asks: Will a cannon ball fired vertically in the air return with the same force with which it left the cannon's mouth? A. The same force, less the friction of the atmosphere during its ascent and return.

(3) B. H. asks: How can I make a cast iron tank hold coal oil? It does not appear to leak through the pores of the iron, but creeps up the sides and over the edges as though they were lamp wicks. I want a composition that can be easily applied. A. Make your receiver airtight. Creeping cannot be avoided.

(4) J. S. P. asks: Does it require any more feed water to keep the steam pressure of a boiler at 60 pounds than at 40, after the pressure has been raised, provided the amount of steam used from boiler is governed by the governor on engine? A. If the work done by the engine is the same, the difference would be scarcely appreciable; it would be a trifle greater at 60 pounds, as the loss from leaks and radiation would be somewhat more.

(5) V. E. N. writes: I have noticed many times that while whittling the shavings would stick to my hands, knife blade, and clothes, the same as bits of iron would to a magnet. T is was while sitting close to a stove. Will you please explain the cause of that? A. The adherence of the shavings is due to electrical attraction, the electricity being generated by the friction of the knife on the dry wood.

(6) F. W. D. writes: In SUPPLEMENT, No. 252, are given instructions for making telescopes; the eye-piece is described as of medium power. Will you please give the foci required for a higher and a lower power, as there mentioned. A. For a lower power use a field lens of 2 1/2 inch focus and eye-lens 3/4 inch focus, 1 1/2 inch apart; both plano-convex. For a higher power use a field lens of 1 1/2 inch focus, eye-lens 3/4 inch focus, 3/4 inch apart; plano-convex.

(7) J. L. asks for the method of making asbestos lime and magnesium carbons. A. Powder the materials very finely and then mix in any desired proportion with the carbon, however, in such a manner that the conductivity of the carbon is not impaired in any very great degree, for energy is lost in heating up these incombustible materials. For further information consult Dr. Moncel's work on the "Electric Light."

(8) E. I. G. writes: Will you inform me through your paper as to what use ground or pulverized mica is put? A. Diamond dust, which is used to powder the hair, is ground mica. The luster of the costly French silver mouldings is due to ground mica. As a lubricator, it is very good, and mixed with oil it lasts longer than any other ingredient. The wonderful showers of diamonds in spectacular plays are mica scales. It is also used to dust signs, to make them glisten. See SCIENTIFIC AMERICAN, May 21, 1881.

(9) C. R. R. asks: 1. Could I use a common double-acting vertical steam pump for compressing air into a reservoir to run a 3 horsepower rotary engine? A. No. 2. Will compressed air work as well as steam in a steam engine, the air in the reservoir being at usual pressure of steam in a boiler? A. No. 3. Would a steam gauge do for air reservoir? A. Yes. It would be much better for you to use your steam direct than to compress air for power. With steam you will get more than double the effect at the same cost.

(10) W. C. asks: 1. Is the "go-ahead" eccentric on a locomotive ahead of the crank pin or behind? In what position do both eccentrics stand on the crank shaft with the pin? A. Both the go-ahead and backing eccentrics are set ahead of the cranks, so as to be in advance of the crank, whatever way the engine is running. 2. What is the simplest way to tell which of the eccentrics has slipped in case they do slip? Also the simplest way to set them. A. The eccentric and shaft should be marked in the correct position, then a slip can be detected by mere examination and the eccentric reset in its proper place by the marks.

(11) A. H. S. M. Co. ask: 1. What kind of wood can be used for a tank to hold material for sizing hats, which is a mixture of hot water and oil vitriol, of different degrees of strength? A. Sulphuric acid, unless very concentrated, can be retained in lead lined tanks without its attacking the lead. 2. Can you advise us how the pitch from yellow pine can be expelled from the wood? A. Possibly by heating the wood cautiously in a steam chamber or oven, the pitch can be expelled more or less.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

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

March 6, 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 1836, 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 1836; but at increased cost, as the specifications, not being printed, must be copied by hand.

Table listing inventions with patent numbers and names of inventors. Includes items like Alcohol and acoholic liquors, Amalgamating and concentrating ores, Animal trap, Arch and ceiling, etc.

Table listing inventions with patent numbers and names of inventors. Includes items like Clock, electric, D. F. Sweet, Clock winding device, A. Cupit, Cloth reeling and measuring machine, G. W. Kemery, etc.