.... 264,330

## Business and Personal.

The Charge for Insert on under the shead is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office asearly as Thursday morning to appear in next issue.

For Sale. - Engine and boiler. Steam cylinder, 10 x 20; boiler, 22 feet long, 4 feet diameter; two flues, 12 inches diameter. Also one steam rendering tank, 10 feet long. 5 feet diameter; of three-eighthsiron. One open square iron tank. 7 x 4 % x 4 feet high; three-eighths iron. All at very low prices. Farmers' Fertilizer Company, 61 W. Water Street, Syracuse, N. Y.

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Woodworking Mc'h'y. Bentel, Margedant & Co., see p. 220.

 $25^{\prime\prime}$  Lathes of the best design. G. A. Ohl & Co., East Newark, N. J.

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Copies Wanted -- London Engineering, issues Janu ary 2d. 9th, 16th, 23d, and March 5th, 1880; also September 30th, 1881. 50 cents each is offered. Address B. R. Western, No. 8 Broad Street. New York.

Cope & Maxwell M'f'g Co.'s Pump adv., page 220. Steam Hammers, Improved Hydraulic Jacks. and Tube Expanders. R. Dudgeon. 24 Columbia St., New York.

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

The Berryman Feed Water Heater and Purifier and Feed Pump. I. B. Davis' Patent. See illus. adv., p. 220. For Pat. Safety Elevators, Hoisting Engines, Friction Clutch l'ulleys, Cut-off Coupling. see Frisbie's ad. p. 222. Gould & Eberhardt's Machinists' Tools. See adv., p. 221. Empire Gum Core Packing, Soapstone Packing, and ideation. ali kinds of Rubber Packing. Greene. Tweed & Co.

Barrel, Key, Hogshead, Stave Mach'y, See adv. p.222. For Heavy Punches, etc., see illustrated advertisenent of Hilles & Jones, on page 220,

Red Jacket Adjustable Force Pump. See adv., p. 220. Vertical Engines, varied capacity. See adv., p. 221. Upright Self-feeding Hand Drilling Machine. Excellent construction. Pratt & Whitney Co., Hartford, Conn. Mineral Lands Prospected, Artesian Wells Bored, hy For best low price Planer and Matcher, and latest improved Sash, Door, and Blin I Machinery, Send for

catalogue to Rowley & Jermance, Williamsport, Pa. Theonly economical and practical Gas Engine in the market is the new "Otto" Silent built by Schleicher. Schumm & Co., Philadelphia. Pa. Send for circular.

The Porter-Allen High Speed Steam Engine. Southwork 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.222 4 to 40 H. P. Steam Engines. See adv. p. 220.

Baxter's Adjustable Wrenches fit peculiar commen where no other wrench will answer. Greene, Tweed & Co. New York.

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The Sweetland Chuck. See illus. adv., p. 190. Steam Pumps. See adv. Smith, Vaile & Co., p. 188. Knives for Woodworking Machinery Bookbinders, and

Paper Mills. Taylor, Stiles & Co., Riegelsville, N. J. Send stamp to Morse Yellow Dock Root Sirup Co. Providence, R. I., for descriptive circular and sets of elegant Advertising Cards.

Drop Forgings. Billings & Spencer Co. See adv., p. 205.

Machinery of every kind. See adv., page 205. Lightning Screw Plates, Labor-saving Tools. p 206. Engines, 10 to 50 horse power, complete, with governor, \$250 to \$550. Satisfaction guaranteed. Six hundred in use. For circular address Heald & Morris (Drawer 127), Baldwinsville, N. Y.

at low prices. C. Beseler, 218 Center Street. New York. Improved Skinner Portable Engines. Erie, Pa

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Pure Water furnished Cities, Paper Mills, Laundries, Steam Boilers, etc., by the Multifold System of the Newark Filtering Co., 177 Commerce St., Newark, N. J.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock Mfg. Co., 80 to 88 Market St., Chicago, Ill. how ready. F. C. & A. E. Rowland, New Haven, Conn.

Greenwich Street. P.O. Box 3083, New York city.

Jan. F. Hotchkiss, 84 John St., N. Y.: Send me your sping useful information for steam users & engineers. Dorman, 21 German St., Baltimore. Catalogue free. dicted."

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Wood-Working Machinery of Improved Design and Workmanship. Cordesman, Egan & Co., Cincinnati, O. Presses, Dies, Tools for working Sheet Metals, etc.

Fruitand other ('an Tools. E. W. Biss. Brooklyn, N. Y. Supplement Catalogue.—Persons in pursuit of information on any special engineering, mechanical, or scientific subject, can have catalogue of contents of "he Sci-ENTIFIC 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.

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### HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the

Names and addresses of correspondents will not be given to inquirers.

We renew our requestthat 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 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 Supple-MENT 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 identi

(1) G. A. C. sends formulæ for solders for nickel. They are the result of practical experience and may be recommended. The solders are more malleable than those recommended in Scientific AMERICAN, August 12, but not so white. They are: For fine or high grade nickel, 3 parts yellow brass, 1 part coin silver. For low grade nickel, 15 parts yellow brass, 5 parts coin silver, 4 parts zinc (pure or plate zinc). Melt the brass and silver with borax for a flux, and add Pa. Diamond Drill Co. Box 423. Pottsville, Pa. See p. 220, the zinc in small pieces, stir with an iron rod, pour in a slab mould, and cool slowly, when it can be rolled thin for cutting

> (2) S. K. H. asks: 1. Is there any preparation which can be applied to horses and cattle, as well as to men, that will effectually keep away flies and mosquitoes? A. Some one of the mixtures containing oil of pencyroyal might answer. 2. How long will one application be effective? A. Until its presence ceases to be perceptible by its odor. 3. How can the preparation be procured or made? A. See Scientific American, August 5, 1882.

> (3) J. R. S. writes: 1. I am about to build a boat 19 feet long, 3 feet 10 inches broad and 18 inches depth in center. Are my proportions right for a screw wheel yacht for speeds? A. We think 20 inches or 21 inches better depth, and if 3 feet longer, would be better for speed. 2. What size engine and boiler, also wheel, are required to run it from 8 to 10 miles per hour? A. 4 inches diameter of cylinder by 4 inches stroke; boiler with about 110 feet heating surface. 3. About what will such a boiler cost? A. It will depend upon the kind of boiler you use, probably \$200 to \$220; propeller 20 inches to 24 inches diameter, and 36 inches or 38 inches pitch. 4 Will such a boat have to be inspected? It is to be run only on a small river. A. Yes.

(4) J. F. L. asks: Can a locomotive pull more than its own weight? Example: If a 70 ton engine had 70 tons of solid matter in one cart attached to it, could it draw it? If so, could it pull it more easily than if it were put into 7 cars of 10 tons each, the engine not to use any substance to assist it, the track C. B. Rogers & Co., Norwich, Conn., Wood Working to be straight and level? A. Yes, the friction and resistances of air, etc., are less to one car than to a larger number. The pull of a locomotive is not the dead weight of the load, but merely the resistance due to friction, resistance of air, etc. See "How much will a Locomotive Pull," in SUPPLEMENT 184.

(5) B. A. L asks: 1. Is there anything Air Pumps for High Pressure, Hand, or Steam Power, that is really straight, or is it possible to draw a true straight line? A. Depends upon what is meant by "really straight," and "true straight line." A mathematical straight line is not a "thing." A conventional straight line is a mark whichmore or less exactly covers the shortest distance between two points. The imperfection of our means for describing such a line makes it practically impossible to attain absolute straightness. 2. Can a true circle be made? If these are impossibilities how is it demonstrated? A. A circle practically "true" can be made. An absolute "true" circle can-First Class Engine Lathes, 20 inch swing, 8 foot bed, not be made. 3. What means were used in showing that the earth itself exerted attractions on bodies, such as Ice Making Machines and Machines for Cooling drawing a plumb line from the vertical? A. Every Breweries, etc. Pictet Artificial 1ce Co. (Limited), 142 falling body proves it. 4. What influence has the moon over the weather? A. The moon's influence upon the weather is so exceedingly alight that its amount is not thook entitled "How to Keep Boilers Clean," con- determinable. 5 If none, how is it that the so-called wet and dry moons very frequently and mostly come ward above by postal or letter; mention this paper.) out as predicted? A. Wea'her predictions based on el Stamps and Pattern Letters. The best made. J. the moon's changes "do not mostly come out as pre-

(6) E. M. C. writes: 1. I am erecting a factory in which I shall have occasion to convey steam For Power & Economy, Alcott's Turbine, Mt. Holly, N. J. for both power and heat (boiling) considerable distances and in considerable quantities. Boiler pressure will be about 80 pounds. Would there be any advantage either in economy or otherwise in superheating the car brake, J. R. Wilhelm. 264,089 either in economy or otherwise in superheating the car coupling, J. B. Goodwin. 264,075 steam? A By superheating you would lose less presstances and in considerable quantities. Boiler pressure ure by the traverse of the pipe and have higher temperature for boiling. 2. What is the best material and mode of protecting the pipes, many of which will traverse open air intervals, where the thickness of the covering may be carried to any desirable extent without inconvenience? A. Hair, felt, asbestos, and mineral wool are all good if not exposed to moisture. 3. Can you refer me to any work in which the qualities and Carpet stretcher, J. B. Fuller. 364,144 employment of superheated steam are comprehensively Carpet sweeper, P. C. Wright 264,399 treated in a practical manner? A. This information is scattered through various works on steam and the steam engine.

> (7) D. H. R. asks how to make good black or red indelible ink; red is preferable. A. See "Inks," in Supplement. No. 157.

> (8) C. B. J. asks: Please describe a cheap solution for rendering wood waterproof and fireproof.
>
> A. "Preservation of Wood," in Supplement, No. 272.

> (9) C. C. R. writes: I am building a threecylinder engine to take steam at one end only of each cylinder The cylinders are 215 inch bore, with 4-inch stroke, with a boiler pressure of 75 pounds; engine to run 400 revolutions. How can I figure out the power of said engine? A. You can calculate the engine as a single cylinder, taking steam at both ends, and then add 50 per cent to the result for the third cylinders. But the loss by friction and radiation will be greater in the three cylinders than in one cylinder giving out the same

(10) G. M. writes: A and B have a controversy concerning a hollow brick wall built to exclude the heat of summer. A claims that the inclosed air space should be entirely cut off from the external air and no circulation allowed. B claims that the circulation should be as free as possible. Which is right? What is the best way to build such a wall? A. B is tied as that difference of expansion and contraction shall crack the walls.

[OFFICIAL.]

## INDEX OF INVENTIONS

FOR WHICH

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

September 12, 1882,

## 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. also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by band.

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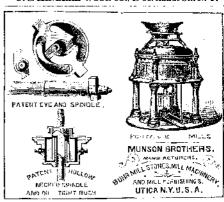








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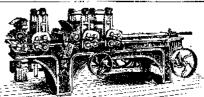
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