

Business and Personal.

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The publishers of this paper guarantee to advertisers a circulation of not less than 50,000 copies every weekly issue.

Chard's Extra Heavy Machinery Oil.
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Chard's Patent Lubricant and Gear Grease.
R. J. Chard, Sole Proprietor, 6 Burling Slip, New York.

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Wanted—Two heavy Planers, to plane 12 ft.; new or second hand. J. Howard John, Harrisburg, Pa.

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Houston's Four-Sided Moulder. See adv., page 237.

Wanted—Wide Elm Boards Planed. P. O. Box 13, New York.

A great Water Power for sale. Full particulars by addressing J. M. & F. Potts Green, Bellefonte, Pa.

The desideratum of a Steel Pen that should write with the ease and freedom of a quill has been attained in the turned-up point pens of the Esterbrook Pen Company, 26 John St., New York.

Improved Rock Drills and Air Compressors. Illustrated catalogues and information gladly furnished. Address Ingersoll Rock Drill Co., 1½ Park Place, N. Y.

Collection of Ornaments.—A book containing over 1,000 different designs, such as crests, coats of arms, vignettes, scrolls, borders, etc., sent on receipt of \$2. Palm & Fechteler, 403 Broadway, New York city.

The Eureka Mowing Machine now is acknowledged as the best in the market. It has taken the first premium in nearly every State Fair this year. Prices to suit the times. Send for illustrated circular to Eureka Mower Company, Towanda, Pa.

The Boomer & Boschert Press Co. have in daily operation, at the Am. Inst. Fair, a complete cider mill and cider jelly manufactory. New York Office, 15 Park Row.

Packing once tried always used. Phoenix Packing from 1-16 up in spools or on coils. Phoenix Packing Company, 108 Liberty St., N. Y.

Hygeia Hotel, Old Point Comfort, Va., Aug. 3, 1880. H. W. Johns Mfg Co., 87 Maiden Lane, New York:

DEAR SIRS—I desire to express most heartily my entire satisfaction with your paints, which I have been using a number of years. I now have over thirteen acres of wood-work covered with your paints. They have successfully withstood the effects of salt air, and I consider them in every way satisfactory, and take pleasure in recommending them. Most respectfully,
H. PROEBERS, Proprietor.

Electric Batteries, Wires, Bells, and Materials. Catalogue free. E. M. Wood & Co., Worcester, Mass.

Gas Machines.—Be sure that you never buy one until you have circulars from Terrill's Underground Meter Gas Machine, 39 Dey St., New York.

Brick Presses for Fire & Red Brick, and Brickmaker's Tools. S. P. Miller & Son, 309 South Fifth St., Phila., Pa.

Small Brass and Iron Rivets made to order by Blake & Johnson, Waterbury, Conn.

Experts in Patent Causes and Mechanical Counsel. Park Benjamin & Bro., 50 Astor House, New York.

Corrugated Wrought Iron for Pipes on Traction Engines, etc. Sole mfrs., H. Lloyd, Son & Co., Pittsburg, Pa.

Malleable and Gray Iron Castings, all descriptions, by Erie Malleable Iron Company, limited, Erie, Pa.

Skinner & Wood, Erie, Pa., Portable and Stationary Engines, are full of orders, and withdraw their illustrated advertisement. Send for their new circulars.

Sweetland & Co., 126 Union St., New Haven, Conn., manufacture the Sweetland Combination Chuck.

Power, Foot, and Hand Presses for Metal Workers. Lowest prices. Peerless Punch & Shear Co., 53 Dey St., N. Y.

The Brown Automatic Cut-off Engine; unexcelled for workmanship, economy, and durability. Write for information. C. H. Brown & Co., Fitchburg, Mass.

Recipes and Information on all Industrial Processes. Park Benjamin's Expert Office, 50 Astor House, N. Y.

For the best Stave, Barrel, Keg, and Hoghead Machinery, address H. A. Crossley, Cleveland, Ohio.

Best Oak Tanned Leather Belting. Wm. F. Forepaugh, Jr. & Bros., 531 Jefferson St., Philadelphia, Pa.

National Steel Tube Cleaner for boiler tubes. Adjustable, durable. Chalmers-Spence Co., 40 John St., N. Y.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Stave, Barrel, Keg, and Hoghead Machinery a specialty, by E. & B. Holmes, Buffalo, N. Y.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, importers Vienna lime, crocus, etc. Condit, Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Blake "Lion and Eagle" Imp'd Crusher. See p. 205.

Presses, Dies, and Tools for working Sheet Metal, etc. Fruit & other can tools. Bliss & Williams, B'klyn, N. Y.

Hydraulic Jacks, Presses and Pumps. Polishing and Buffing Machinery. Patent Punches, Shears, etc. E. Lyon & Co., 470 Grand St., New York.

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

Wright's Patent Steam Engine, with automatic cut off. The best engine made. For prices, address William Wright, Manufacturer, Newburgh, N. Y.

National Institute of Steam and Mechanical Engineering, Bridgeport, Conn. Blast Furnace Construction and Management. The metallurgy of iron and steel. Practical Instruction in Steam Engineering, and a good situation when competent. Send for pamphlet.

Reed's Sectional Covering for steam surfaces; any one can apply it; can be removed and replaced without injury. J. A. Locke, Agt., 32 Cortlandt St., N. Y.

Peck's Patent Drop Press. See adv., page 204.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 205.

Saw Mill Machinery. Stearns Mfg. Co. See p. 205.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 220.

For Separators, Farm & Vertical Engines, see adv. p. 220.

For Patent Shapers and Planers, see ill. adv. p. 220.

For Mill Mach'y & Mill Furnishing, see ill. adv. p. 221.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 221.

Horizontal Steam Engines and Boilers of best construction. Atlantic Steam Engine Works, Brooklyn, N. Y.

Millstone Dressing Machine. See adv., page 237.

Apply to J. H. Blaisdell for all kinds of Wood and Iron Working Machinery. 107 Liberty St., New York. Send for illustrated catalogue.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 15,000 Crank Shafts, and 10,000 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. 237.

Air Compressors. Clayton Stm. Pump Wks., B'klyn, N. Y.

A 4½ in. 2 Jaw Chuck, Independent or Universal, for Brass Finishers. Address A. F. Cushman, Hartford, Ct.

Clark Rubber Wheels adv. See page 237.

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

Eagle Anvils, 10 cents per pound. Fully warranted.

Gear Wheels for Models (list free): experimental and model work, dies and punches, metal cutting, manufacturing, etc. D. Gilbert & Son, 212 Chester St., Phila., Pa.

The best Truss ever used. Send for descriptive circular to N. Y. Elastic Truss Co., 683 Broadway, New York.

For Superior Steam Heat. Appar., see adv., page 237.

Comb'd Punch & Shears; Universal Lathe Chucks. Lambertville Iron Works, Lambertville, N. J. See ad. p. 205.

H. A. Lee's Moulding Machines, Worcester, Mass.

New Economizer Portable Engine. See ill. adv. p. 238.

Jas. T. Pratt & Co., 53 Fulton St., New York.

Scroll Saws and Designs. Send for circular.

Rollstone Mac. Co.'s Wood Working Mach'y ad. p. 237.

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

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

Ore Breaker, Crusher, and Pulverizer. Smaller sizes run by horse power. See p. 237. Totten & Co., Pittsburg.

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

Machine Knives for Wood-working Machinery, Book Binders, and Paper Mills. Large knife work a specialty. Also manufacturers of Solomon's Parallel Vise. Taylor, Stiles & Co., Riegelsville, N. J.

Vacuum Cylinder Oils. See adv., page 237.

Lightning Screw Plates and Labor-saving Tools, p. 190.

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.

(1) F. S. S. asks: 1. Will a small (one or two man power) dynamo-electric run a lamp with sufficient quantity of light for projection purposes? A. Yes. 2. How would such a lamp compare with an oil lamp—what candle power? A. The power of the lamp will depend on its construction, on the efficiency of the dynamo, and on the power applied to it. The light, however, should be much stronger than that of an oil lamp. 3. Where and for about what cost can disks fit for condensers 4x¾ be had? A. They may be procured from any manufacturing optician; the price we cannot quote. 4. Would emery wheel or grindstone rough them to shape more quickly? If emery, what grade? A. Sharp sand, used on a cast iron tool with plenty of water, is preferred by opticians for roughing.

(2) D. D. M. asks: Will a boiler in good condition, with two gauges of water, explode, no matter what the steam pressure is, or will it simply fracture at the weakest point? Please give what information in regard to boiler explosions you can. A. It will not "explode," in the strict technical sense, but will "burst," and do much damage. We refer you to the experiments of the Franklin Institute on boiler explosions, to "Robinson on Boiler Explosions," and to "Wilson on Steam Boilers."

(3) O. W. W. asks: 1. If a lump of lead was thrown into the deepest part of the ocean, would it sink to the bottom, or only go so far and float? A. It would sink. 2. What is the greatest depth ever actually sounded? A. 4,655 fathoms. 3. If a stout bottle of water, corked and sealed, is lowered into the sea to a great depth, will anything happen to it? A. The

cork will be driven in or compressed, but as water is practically incompressible, nothing further will happen. 4. What is the strain on a rope with ten men on each end pulling in opposite directions? Is it the strength of 10 men or of 20? A. 10 men.

(4) J. R. S. asks: 1. What is the horse power of an engine 2 inches bore, 6 inches stroke, 250 revolutions a minute, and 80 lb. steam? I figure it a little over 1½. Am I right? A. You are right; but deducting 20 per cent for friction and losses, reduces it to 1¼. 2. How many feet heating surface does the boiler require to have to furnish the amount of steam for two such engines working on the same shaft, the boiler to be upright flue boiler? A. 44 to 50 feet.

(5) F. B. D. writes: 1. I have a cell of Grenet battery, consisting of one zinc and two carbon plates, about 2x5 inches. I wish to make a single electro-magnet, or two single ones, to act alternately; what size of wire and core should I use? A. Use ¼ inch cores 2 inches long, and wind with 6 or 8 layers of No 22 wire. 2. Please tell me how to charge a gravity cell consisting of a zinc suspended at the top and a thin sheet of copper, about 1½ inch wide, bent around on the inside of the cell at the bottom? A. If the cell is of the usual size, place two pounds of sulphate of copper in the bottom of the jar. Suspend your zinc and fill with water so as to cover the zinc half an inch. Connect the poles, and let it stand for ten or twelve hours, when it will be ready for work.

COMMUNICATIONS RECEIVED.

On Preventing the Firing of Oil Tanks. By E. G. H. With What Do We Think? By T. B. McC. On a Remarkable Group of Sun Spots. By W. R. B. On Cause of Perpetual Snow. By C. B.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were

Granted in the Week Ending


September 14, 1880,

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 one dollar. In ordering please state the number and date of the patent desired and remit to Munn & Co., 37 Park Row, 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.

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