

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.

ATLANTA, GA., Dec. 24, 1881. H. W. Johns Mfg Co., 87 Maiden Lane, New York. DEAR SIR: . . . The warehouse (300 x 300) in Columbus, Ga., was covered with your roofing, ordered by Col. W. L. Salisbury, some ten years ago, and it is now apparently as good as new. Yours truly, J. T. WARNOCK, M.D.

Granville Hydraulic Elevator Co., 1193 B'way, N. Y. Will Manufacturers of Baking Powder Tins send their address to Am. Chemical Co., Box 348, Pittsburg, Pa.

To Stop Leaks in Boiler Tubes, use Quinn's Pat. Ferrules. Address S. M. Co., So. Newmarket, N. H.

The Universal Calculator.—A novel labor-saving machine for solving questions in arithmetic and mensuration without mental labor. The most tedious problems solved in less than half a minute. Invaluable to engineers, mechanics, and business men. Sent free for \$1. Send for circular. Address W. H. Wythe, Red Bank, N. J.

Wanted.—A Scientific Inventor to improve a secured Patent Imitation Ostrich Feather. A fortune for the right party. Address, in real name, "Feather," Box 773, New York.

The Berryman Feed Water Heater and Purifier and Feed Pump. I. B. Davis' Patent. See illus. adv., p. 44. Light and Fine Machinery and Tools to Order. Lathe catalogue for stamp. E. O. Chase, Newark, N. J.

For Machinists and Apprentices.—The Student's Illustrated Guide to Practical Draughting. Sent on receipt of \$1. T. P. Pemberton, 142 Greenwich St. P. O. Box 3083, N. Y.

Chemist's Pocket Book.—For Chemical Manufacturers, Metallurgists, Dyers, Distillers, Brewers, Sugar Refiners, Photographers, etc. By Thomas Bayley. \$2, mail free. E. & F. N. spon, 446 Broome St., New York.

Patent Wanted.—I want to buy whole or part interest, or manufacture on royalty. Address H. C. Lyon, New York.

Manufacturers, Steam Boiler Owners, Towns and Cities desiring pure water, send for circular to the Newark Filtering Co., Newark, N. J.

For Sale Cheap—6 Lathes, 23 Engines, 4 Bolt Cutters, 1 Fowler Press. All on hand. York & Smith, Cleveland, O. Malleable and Gray Iron Castings to order, by Capital City Malleable Iron Co., Albany, N. Y.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J. Combination Roll and Rubber Co., 27 Barclay St., N. Y. Wringer Rolls and Moulded Goods Specialties.

Lightning Screw Plates and Labor-saving Tools, p. 30. Send for Pamphlet of Compilation of Tests of Turbine Water Wheels. Barber, Keiser & Co., Allentown, Pa.

List of Machinists in United States and Canada, just compiled; price, \$10. A. C. Farley & Co., Philadelphia. Presses & Dies (fruit cans) Ayar Mach. Wks., Salem, N. J.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock, 89 to 88 Market St., Chicago, Ill. Wood Working Machinery of Improved Design and Workmanship. Cordesman, Egan & Co., Cincinnati, O.

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

"How to Keep Boilers Clean," and other valuable information for steam users and engineers. Book of sixty-four pages, published by Jas. F. Hotchkiss, 84 John St., New York, mailed free to any address.

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.

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

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

Presses & Dies. Ferracite Mach. Co., Bridgeton, N. J. Corrugated Wrought Iron for Tires on Traction Engines, etc. Sole mfrs., H. Lloyd, Son & Co., Pittsburg, Pa.

Presses, Dies, Tools for working Sheet Metals, etc. Fruit and other Can Tools. E. W. Bliss, Brooklyn, N. Y. Cope & Maxwell Mfg Co.'s Pump adv., page 45.

Saw Mill Machinery. Stearns Mfg. Co. See p. 29. List 27.—Description of 3,000 new and second-hand Machines, now ready for distribution. Send stamp for same. S. C. Forsaith & Co., Manchester, N. H., and N. Y. city.

Supple Steam Engine. See adv. p. 30. Peck's Patent Drop Press. See adv., page 30.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's adv. p. 45. Safety Boilers. See Harrison Boiler Works adv., p. 44.

Mineral Lanes Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 45.

Improved Skinner Portable Engines. Erie, Pa. For best Portable Forges and Blacksmiths' Hand Blowers, address Buffalo Forge Co., Buffalo, N. Y.

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

Ball's Variable Cut-off Engine. See adv., page 60. Paragon School Desk Extension Slides. See adv. p. 61.

Fire Brick, Tile, and Clay Retorts, all shapes. Borgner & O'Brien, M'rs 23d St., above Race, Phila., Pa.

Brass & Copper in sheets, wire & blanks. See ad. p. 61. Clark & Heald Machine Co. See adv., p. 62.

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.

Millstone Dressing Diamonds. Simple, effective, and durable. J. Dickinson, 64 Nassau street, New York.

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

Ajax Metals for Locomotive Boxes, Journal Bearings, etc. Sold in ingots or castings. See adv., p. 61.

Geiser's Patent Grain Thrasher, Peerless, Portable, and Traction Engine. Geiser Mfg. Co., Waynesboro, Pa. Tight and Slack Barrel machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 60.

For the manufacture of metallic shells, cups, ferrules, blanks, and any and all kinds of small press and stamped work in copper, brass, zinc, iron, or tin, address C. J. Godfrey & Son, Union City, Conn. The manufacture of small wares, notions, and novelties in the above line, a specialty. See advertisement on page 62.

For Walrus Leather, Bull Neck Emery, Glue, Crocus, and Composition, write Greene, Tweed & Co., N. Y.

Magic Lanterns and Stereoscopes of all kinds and prices. Views illustrating every subject for public exhibitions, Sunday schools, colleges, and home entertainment. 116 page illustrated catalogue free. McAllister, Manufacturing Optician, 49 Nassau St., New York.

Draughtsman's Sensitive Paper. T. H. McCollin, Phila., Pa. For Mill Mach'y & Mill Furnishing, see illus. adv. p. 60.

New Economizer Portable Engine. See illus. adv. p. 62. Renshaw's Ratchet for Square and Taper Shank Drills. The Pratt & Whitney Co., Hartford, Conn.

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

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

Common Sense Dry Kiln. Adapted to drying of all material where kiln, etc., drying houses are used. See p. 62.

The Porter-Alien High Speed Steam Engine. Southwork Foundry & Mach. Co., 430 Washington Ave., Phila. P. Skinner's Chuck. Universal, and Eccentric. See p. 61.

For Rubber Packing, Soap Stone Packing, Empire Packing, and all kinds, write Greene, Tweed & Co., N. Y.

Don't buy a Steam Pump until you have written Valley Machine Co., Easthampton, Mass.



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) J. L. asks: Is there a composition which, when applied to the ends of soft wood, will fill up the pores and leave a soft rubber-like surface? A. Try the following: Fuse together over a water bath and mix together equal parts of glue size and good glycerine. Continue the heating for several hours, and use hot. Almost any of the ordinary pigments may be used with this preparation to give color.

(2) M. T. asks: Will you please describe a simple or inexpensive method of producing chlorine in gas or liquid form for bleaching purposes? A. Chlorine may be prepared economically by heating in a stoneware or glass retort a mixture composed of common salt, 10 parts (by weight); manganese dioxide (black oxide), 8 parts; sulphuric acid, 24 parts; water, 12 parts. When this gas is passed through cold water, the water dissolves a considerable portion of it, and the solution (chlorine water) may be employed instead of the gas for bleaching purposes.

(3) G. W. K. asks: 1. Is there not a rule by which I can calculate the centrifugal force of governor balls when number of revolutions per minute and diameter of circle described by center of balls and weight of balls is known? A. Yes, you will find rules for governors in many works on the steam engine: "Haswell's Pocket Book," and "Templeton's Engineer's Common place Book." 2. With a common plain slide valve, and pressure in boiler at eighty pounds, how many pounds would it probably require to be applied to valve connecting rod for each square inch of valve surface? A. About one-fourth the unbalanced pressure.

(4) E. E. B. asks: How can I cure tobacco for chewing after it has dried? It was taken from the stalk about three months ago and hung in a barn tied up in hanks of about a quarter of a pound each. A. You will find this information in SUPPLEMENTS, Nos. 133 and 126. 2. I have a telephone running from house to shop, a distance of about 50 feet. I use very fine brass wire; the diaphragms are of tin type, and common wooden mouthpieces. It goes very well when the wire is wet, but when it is dry it rings, so that it is hard to understand. Will you tell me how to remedy it? A. Use a finer wire cable cord for your telephone.

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

A. B. C., P. M.—It is a common variety of fossiliferous clay slate. Usually found in or near the coal measures.

COMMUNICATION RECEIVED.

On the Protection of Electric Light Wires. By W. C.

[OFFICIAL.]

INDEX OF INVENTIONS

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

January 10, 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., 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.

Table listing inventions with patent numbers and names. Includes items like Accordion, R. Bergner; Acids, treating mineral pyrites; Alarm, See Burglar alarm; Album clasp, J. C. Koch; Amalgamator, L. A. Merriam; Artistic articles, manufacturing and decorating; Bag or sack for storing or transporting fertilizers; Baling press, L. Ensinger; Baling press, G. K. Rice; Bar, See Grate bar; Bed lounge, J. D. Westgate; Bedstead, W. P. Miller; Beehive, H. L. T. Overbey; Bell, gong, F. W. Brocksieper; Bell, self-switching signal, C. E. Scribner; Bells, striking mechanism for electric, G. E. Bowers; Belt, driving, T. Jack; Berth, self-leveling, A. M. Crosby; Bevel and try square, C. Thomas; Bicycle seat, C. H. Veeder; Blasting powder, W. R. Quinan; Blotter, rotary, W. H. Kelly; Boat raising and lowering apparatus, R. H. Earle; Boiler, See Clothes boiler, Steam boiler; Boiler furnace, stationary, Harris & Farr; Boiler furnace, steam, M. C. Jones; Bolster spring, C. A. Howard; Book clasp, adjustable, A. C. Hafely; Book rack, R. W. Myers; Boot and shoe healing machine, W. J. Heffernan; Boot and shoe shank stiffeners, machine for cutting, C. B. Webb; Boot or shoe sole, J. D. Stoddard; Bottle stopper, E. Aldom; Bottle stopper and fastener, A. E. Rich; Box, See Axle box, Match box, Post office box; Box or basket, J. M. & S. H. Gardner; Bracelet, etc., J. Stanley; Brake, See Car brake, Electro-magneto brake; Brick and fireproof lining for furnaces, fire, H. Ulsmann; Brick and other kilns, S. W. Bieckley; Brush making tool, A. P. Smith; Building blocks, manufacture of, J. J. Schillinger; Burglar alarm, J. Giles; Burglar alarm cut out, W. H. Sawyer; Burial case, J. Askins; Butchering apparatus, G. F. Dickinson; Button attachment, C. Newburgh; Can for ivory black, etc., W. D. Carter; Capstan, combined steam and hand power, H. J. Johnson; Car brake, Mills & Isbister; Car coupling, R. H. Dowling; Car coupling, J. C. Fowler; Car coupling, McMurray & Scott; Car roof, H. Aldridge; Car stock, G. J. Cline; Cars, draught and buffing apparatus for railway, F. W. Marston; Carriage button, W. H. Tufts; Carrier, See Grain carrier, Trace carrier; Case, See Burial case; Caster, trunk, J. J. Cowell; Chair, See Folding chair, Gynecological chair, Rocking chair, Tilting chair; Chandler, C. F. Jacobsen; Chopper, See Cotton chopper; Churn, J. F. Ferguson; Churn motor, McLachlan & McFarland; Chute, coal, J. D. Pettit; Cigarette holder, G. Rodriguez; Clasp, See Album clasp, Book clasp; Clothes boiler, C. B. Vernee; Clover huller, Jones & Kiefer; Clutch, friction, S. S. Cook; Coal, apparatus for unloading, W. Hett; Coin holder, P. O. Kornbeck; Collars, combined shoulder and neck pad for horse, J. R. Hamilton; Coloring matter, manufacture of blue, J. H. Stebbins, Jr.; Coloring matter, preparation of rosaniline blue, O. Fischer; Coloring matter, rosaniline red, O. Fischer; Cooking pans, device for handling, J. W. Ross; Cotton chopper, J. L. Hughes; Coupling, See Car coupling, Harness and trace coupling, Tubing coupling; Crushing ores, etc., machinery for, G. Dalton; Cuff, I. P. Turner; Cuffadjuster and support, A. J. Halsey; Cuffholder, J. F. Guignon; Cultivator, O. O. Booth; Cultivator, F. O. Williams; Cultivator tooth, W. A. Van Brunt; Curtain roller support, H. Farley; Die, See Screw setting die; Direct acting engine, G. E. Dow; Door spring, C. B. Clark; Draught equalizer, D. M. Harkrader; Drill, J. W. Webber; Drying kiln, G. F. Speer; Dyestuff or coloring matter, purple, J. H. Stebbins, Jr.; Eaves trough hanger, W. Hatch; Egg tray machine, Schroder & De Beauvais; Electric cable, W. J. Philips;

Table listing inventions with patent numbers and names. Includes items like Electrical illumination, C. E. Buell; Electrical signal transmitter, G. S. Mott; Electrical signaling apparatus, Buell & Buel; Electro-magnet brake, Goss & Walter; Elevating machinery, device for stopping the revolutions of the drum in, G. Dryden; Engine, See Direct acting engine, Pumping engine, Steam engine; Faucet, T. Mackel; Feed water heater and purifier, C. H. Shields; Fence, I. Colvin; Fence, H. Smith; Fences, warning strip for barbed, O. P. Briggs; Fertilizers, treating phosphates for, Gibbons & Liebig; Firearm, breech-loading, W. Soper; Firearm, magazine, A. Schneider; Fire escape, J. F. Newton, Jr.; Fire kindler, C. K. Bradford; Fishing rod, G. P. Andrews; Floor covering, C. T. & V. E. Meyer; Flour, etc., machinery for dressing and sifting, Thompson & Williamson; Folling chair, E. C. Flint; Forge, portable, C. Hammelmann; Frame, See Thrashing and clover hulling machine frame; Fruit picker and tree trimmer, W. Mustart; Fruit press, F. N. Marais; Furnace, See Boiler furnace, Hot air furnace; Furnace doors, device for opening, J. A. Carr; Furnace grate, McClave & Price; Furniture, packing fastener for, M. E. McMaster; Gas trap, J. W. Rogers; Gate roller, C. B. Rice; Gearing, flexible, A. S. Gear; Generator, See Steam generator; Glycerine from soap lyes, recovery of, C. Thomas et al.; Governor, steam engine, J. E. Sweet; Grain binder, J. M. McMaster; Grain binder tension, C. Colahan; Grain carrier, J. S. Davis; Grain drill point, D. J. Shults; Grain scourer, D. Mann; Grate bar, T. F. Van Keuren; Grinding and polishing machine, J. L. Taplin; Grinding mill, S. P. Walling; Grinding mill, feed, O. E. Winger; Grinding mill feed regulator, Graves & Heede; Guard, See Saw guard; Gynecological chair, G. W. Archer; Handle for manure forks, etc., J. M. Young; Hanger, See Eaves trough hanger; Hame, J. W. Hudson; Harness and trace coupling, G. W. Hunter; Harness check hook, H. C. Buell; Harrow, T. Mathieson; Harrow, G. A. Paddock; Harvesting machine, D. W. Entrikin; Hay and grain cap, J. W. Angus; Hay rack, J. M. Diffeander; Heater, See Feed water heater; Heating apparatus, L. T. Terwilliger; Heel nailing machine, H. A. Henderson; Heel trimmer, Moulton & Adams; Hinge, spring, W. H. Williams; Hog nose ring, E. Major; Hogs, apparatus for catching and suspending, Lowry & Crawford; Holder, See Cigarette holder, Coin holder, Cuff holder, Label holder, Pen holder, Strap holder; Hook, See Harness checkhook, Snap hook; Hoop dressing machine, S. R. Garner; Horse hoof pad, W. F. Raymond; Horseshoe, R. A. Goodenough; Hot air furnace, W. P. Brewin; Huller, See Clover huller; Ice cream freezer, M. Richeimer; Ice machine and refrigerating apparatus, T. & C. E. Davis; Indicator, See Speed indicator; Indicator lock, J. McNeven; Insulated electrical conductor, W. H. Sawyer; Iron, manufacture of sheet, W. D. Wood; Joint, See Universal joint; Kiln, See Drying kiln; Label holder, H. F. Clinton; Labeling machine, packet, G. Pritchard; Lamp, J. M. Dexter; Lamp, bracket and standard, J. H. White; Lamp, electric, A. G. Holcombe; Lamp, electric, R. M. Humter; Lamp, electric, Moffatt & Chichester; Lamp, electrical, A. J. B. Cance; Lamp, miner's, D. D. Williams; Lamp, safety, C. E. Grannis; Lathe, railway car axle, A. Gordon; Lathe, watchmaker's, F. Ecaubert; Lifter, C. F. Fellows; Lock, See Indicator lock, Nut lock, Trace lock; Lubricator, See Shuttle race lubricator; Match box and cigar cutter, combined, C. F. Pierce; Measure, pocket tape, E. P. Haff; Mechanical movement, R. E. Breed; Mechanical movement, H. Lord; Medical use, electrical apparatus for, J. Butler; Meter, See Water meter; Middlings purifiers, etc., dust collector for, W. S. Russell; Mill, See Grinding mill, Windmill; Miners, etc., prospecting tool for, J. B. T. Chase; Mining implement, T. M. Gallaher; Motion, device for converting reciprocating into rotary, A. G. Smyth; Motor, See Churn motor, Water motor; Mouse trap, H. L. Norton; Nut lock, D. P. Prescott; Nuts upon bolts, locking, A. R. Clark; Oven, baker's, E. A. C. Petersen; Packing, deep well, L. Stewart; Pad, See Horse hoof pad; Paint for roofs, J. B. Barnard; Paper machine dandy roll, D. McKay; Paper scoring and cutting machine, J. C. Marshall; Peanut picker and cleaner, E. H. Powell; Pen holder, reservoir, T. A. Hearson; Piano sounding board attachment, J. G. Seebold; Picker, See Fruit picker, Peanut picker; Pins, safety catch for, G. W. Washburn; Plaiting machine, J. I. D. & L. Y. Woodruff; Planter, corn, C. U. Crandall; Planter, corn, L. Scofield; Plow, M. Cooper; Plow, C. Domschke; Plow, W. A. Estes; Plow, J. S. & E. C. Robinson; Post office box, Temple & Pierce; Post office box, C. S. Thompson; Powder, See Blasting powder;