

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.

CAVENDISH, VT., October 21.
H. W. Johns Mfg Co., 87 Maiden Lane.

GENTLEMEN: I have just completed painting on my building with paint ordered from you September 1. It gives perfect satisfaction. I find the only misrepresentation to be this: One gallon will cover considerable more than the number of feet given—a good fault. . . . My building looks tiptop, and all say they are the best colors yet seen in this town. . . . My painter says it is the best he ever spread. . . .

Yours respectfully, E. G. WHITE.

Wanted.—A situation by a practical "nickel plater" who understands polishing, grinding, dipping, and brass finishing. Address W. H. Wright, Indianapolis, Ind.

The Nameless City—the elder and mysterious name of ancient Rome; said to be Valentinia. None of Estersbrook's Pens are nameless, each having a designating name as well as number.

Mathematical Instruments of all kinds, Drawing Papers, Tracing Cloth, etc. Send for illustrated catalogue. Keuffel & Esser, 127 Fulton St., New York.

For Sale Cheap—One Boiler Plate Power Punch and Clipper. Inquire of Noble & Hall, Erie, Pa.

The Double Induction Motor and Automatic Battery, Grison's patents, are manufactured and for sale by the Electro Dynamic Co., Philadelphia. This little electric motor, illustrated and described in our editorial, June 24, 1882, is now on exhibition at the American Institute Fair, Alceve 14, New York. Power from 1,000 to 6,000 ft. lb., according to battery. Weight 2½ lb. The only practical power for driving the family sewing machine, small lathes, dental and surgical instruments, etc. 1,000 stitches per minute on the sewing machine. 7,000 revolutions per minute on dental tools. Apparatus complete for sewing machines, lathes, \$35 and \$40. Dental apparatus, nickel plated, complete, \$50.

Woodworking M'ch'y. Bentel, Margendant & Co., p. 284.

Cope & Maxwell M'g Co.'s Pump adv., page 285.

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

Diamond Engineer, 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. 285.

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

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 286. Gould & Eberhardt's Machinists' Tools. See adv., p. 285.

For Heavy Punches, etc., see illustrated advertisement of Hilles & Jones, on page 286.

Barrel, Key, Hoghead, Stave Mach'y. See adv. p. 285.

Magic Lanterns and Stereopticons 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.

Vertical Engines, varied capacity. See adv., p. 285.

Lathes, Planers, Drills, with modern improvements. The Pratt & Whitney Co., Hartford, Conn.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 286.

C. B. Rogers & Co., Norwich, Conn. Wood Working Machinery of every kind. See adv., page 286.

For best low price Planer and Matcher, and latest improved Sash, Door, and Blind Machinery, Send for catalogue to Rowley & Hermance, Williamsport, Pa.

The only 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. South-west Foundry & Mach. Co., 430 Washington Ave., Phil. Pa. 4 to 40 H. P. Steam Engines. See adv. p. 286.

Sheet and cast brass goods, experimental tools, and fine machinery. Estimates given when models are furnished. H. C. Goodrich, 66 to 72 Ogden Place, Chicago.

Drop Forgings. Billings & Spencer Co. See adv., p. 270.

Improved Skinner Portable Engines. Erie, Pa.

Common Sense Dry Kiln. Adapted to drying of all material where kiln, etc., drying houses are used. See p. 270.

Lubricator. See adv., Detroit Lubricator Co., p. 252.

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

The Sweetland Chuck. See illus. adv., p. 254.

Steam Pumps. See adv. Smith, Vaile & Co., p. 252.

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

Calcium Light Apparatus and Stereopticons at low prices. C. Beseler, 218 Centre Street, New York.

Bostwick's Giant Riding Saw Machine, adv., page 283.

See New American File Co.'s Advertisement, p. 238.

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

Collection of Ornaments.—A book containing over 1,000 different designs, such as Crests, Coats of Arms, Vignettes, Scrolls, Corners, etc., will be mailed free on receipt of \$1. Address Palm & Fechteler, 6 West 14th Street, New York.

Combination Roll and Rubber Co., 68 Warren street, N. Y. Wringer Rolls and Moulded Goods Specialties.

Pure Water furnished Cities, Paper Mills, Laundries, Steam Boilers, etc., by the Multiford 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.

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

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

Jas. F. Hotchkiss, 84 John St., N. Y.: Send me your free book entitled "How to Keep Boilers Clean," containing useful information for steam users & engineers. (Forward above by postal or letter; mention this paper.)

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

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J. Presses, Dies, Tools for working Sheet Metals, etc. Fruit and other Can Tools. E. W. Bliss, Brooklyn, N. Y. Presses & Dies (fruit cans) Ayar Mach. Wks., Salem, N. J.

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

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.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

Wood-Working Machinery of Improved Design and Workmanship. Cordesman, Egan & Co., Cincinnati, O. Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

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) B. D. V. R. writes: 1. How can I make a copying ink that can be copied thirty days after writing? A. See, "Inks" SUPPLEMENT, No. 157. 2. How are erasing tablets for lead pencil made? A. They are merely more or less vulcanized gum rubber and moulded into shape. 3. How are aniline leads made? A. See SCIENTIFIC AMERICAN SUPPLEMENT, 186, under "Colored Pencils." 4. How large should be the reservoirs in the acetate of soda stove described in the SCIENTIFIC AMERICAN, vol. xlii., No. 3, page 40, to warm a common sized bedroom? How much of each of the soda salts will it require to properly fill the three reservoirs? How long will they require boiling to be melted? A. About 2 ft. 8 in. in height. 1 pound hyposulphite of soda and 10 pounds acetate of soda. Twenty or thirty minutes at a good heat.

(2) L. B. S. asks by what means the crystallized tin used for covering trunks is prepared, how the crystals are produced, and by what the varnishes are colored. A. The crystalline effect may be produced by dipping it into a bath of equal parts muriatic and nitric acids, and 5 parts of water, and quickly rinsing off with hot water. Ordinary transparent colors are mixed with the varnish.

(3) C. B. D. asks: 1. What quantities respectively of nitrate of lead and chloride of sodium must I use to make a saturated solution of chloride of lead in one gallon of water? A. Lead chloride (PbCl₂) may be prepared by precipitating a solution to contain 65 ounces. If both salts are quite pure, 23½ parts (by weight) of sodium chloride will precipitate 65 parts of lead nitrate, yielding 55½ parts dry lead chloride. Lead chloride is scarcely at all soluble in cold water at 60° Fahr. A gallon of water will not hold more than one-quarter ounce of the substance. It dissolves in hot water readily, but crystallizes out again as the water cools. 2. Is such a solution an efficient disinfectant for water closets? A. When used as a disinfectant in closets, etc., the salt may be mixed with or suspended in water (half a pound to the gallon), but it is better to use the hot solution. Lead chloride is an excellent disinfectant. It absorbs or neutralizes various organic nitrogenous and ammoniacal vapors and sulphureted hydrogen.

(4) E. B. asks: Is there a simple test to determine whether the air of an apartment contains sewer gas? A. Saturate unglazed paper with a solution of one ounce of pure lead acetate in half a pint of rain water; let it partially dry, then expose in the room suspected of containing sewer gas. The presence of the latter in any considerable quantity soon darkens or blackens the test paper.

(5) J. Z. & Co. write: 1. We tried your ebony receipt, "hot solution of logwood and cold solution of sulphate of iron." But we cannot put fine carvings where there are more or less glued parts on it, in the solution; therefore we would like to know of an ebony stain which could be applied with a small brush. If you know of one please state it. A. Have the work smooth and free from holes. Dissolve in one quart of hot water about one-half ounce of ordinary logwood, and add to it two ounces of sulphate of iron (copperas) previously dissolved in half pint of water; mix well and apply to the wood hot with a brush. Digest two pounds of iron filings with a pint of good vinegar for several days, draw off the liquid, and when the work treated as above is dry, go over the surface again with this liquid. Dry again, sandpaper smooth, oil, and fill in with powdered drop black in the filler. Use a quick drying varnish, and rub down smooth with pumice. 2. Please give us

a receipt to make a good polish to polish walking canes and other hard wood, also wood carvings. State how it shall be used. A. The following process gives the most satisfactory and hardest finished surface: Fill with best clear filler or with shellac; dry by heat; rub down with pumice stone; then put on three coats of clear spirit copal varnish, hardening each in an oven at a temperature as hot as the wood and gum will safely stand. For extra work the two first coats may be rubbed down and the last allowed a flowing coat. For colored grounds alcoholic shellac varnish with any suitable pigment (very finely ground in) can generally be used to advantage.

(6) C. T. E. asks whether and in what rubber can be dissolved. A. Unvulcanized rubber dissolves in bisulphide of carbon or warm naphtha. For common vulcanized rubber we know of no good solvent.

(7) H. M. R. asks: Can you tell me how to prepare a paint which will adhere to my galvanized iron tank and not crack off? A. Heat asphaltum to boiling in a capacious iron vessel for eight hours, then add one-sixth its weight of boiled linseed oil, and one-twentieth its weight of well calcined copperas. Stir well together for half an hour or more; then remove out of doors (away from fire), let it cool a little, and stir in enough oil of turpentine to reduce it to proper consistency for use with the brush.

(8) W. A. H. asks: 1. If such were possible, how far need a body go above the earth before the earth would cease to attract it? A. Theoretically every particle of matter in the universe is attracted by the earth. 2. Is that point above the atmosphere, and what distance? A. At any point within our atmosphere the earth's attraction preponderates. 3. Would a body which would get outside the earth's attraction be attracted by some other planet? A. A body cannot get beyond the earth's attraction. Whether it is attracted most by the earth or some other body will depend upon relative proximity.

(9) C. A. B. asks: 1. Is it unsafe in a dwelling house to have the pipes from hot air furnace near to or in contact with woodwork? A. It is not considered safe to let the hot air pipes touch any wood work; two inches clearance is generally allowed here. Registers on lower floors should have iron or soapstone frames, so as to keep the pipes clear from the floors. The smoke pipe should be at least one foot clear of woodwork. In steam heating apparatus, it is not so necessary to have a clearance around hot air pipes or rings around registers. But the smoke pipe should have nearly the same clearance as in hot air furnaces. 2. Is there any way to remove iron stains from marble without injury to the latter? A. Try oxalic acid. 3. I am making a cane from ebony; how shall I polish it? A. Varnish the cane with shellac and rub down with French polish.

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

A. B.—It is chiefly iron sulphide—pyrites.—G. W.—It is galena, a sulphide of lead, and contains silver; if it occurs in any quantity an assay would be advisable.—E. L. D.—The yellow part is iron pyrites—of little or no value; the rest is quartz and limestone.—H. A. I.—It is a common clay slate, not what is sometimes called "blossom." It cannot be strictly considered as an indication of coal.—J. W. J.—1. Is a mixture of mica albite and quartz, similar to many granites. 2. Are fossil belemnites. 3. Is a crystal of calcite, a carbonate of lime. 4. Fossil crinoid stems.—F. J. F.—No. 1. Galena, lead sulphide. Some of this ore may contain silver. No. 2. Silicious selvage from lead ore vein.—J. V. McC.—It is sulphide of iron pyrites—of very little value.—C. V. K.—It is a piece of bitumen mixed with some iron pyrites.—Rev. H. C. S.—It is a nodule of partially altered iron pyrites; iron sulphide—not valuable.—E. W.—It is an impure silicious limestone. The bright particles are iron sulphide, of little value.—C. D. P.—It is gypsum-lime sulphate; when properly roasted it yields plaster of Paris.

[OFFICIAL.]

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

October 17, 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. 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.

Alarm. See Burglar alarm.
Bar. See Sewing machine needle bar.
Basins, etc., trap and overflow stop for wash, W. D. Schuyler. 266,208
Battery. See Galvanic battery. Secondary battery.
Bed bottom. S. H. Reeves. 266,200
Bed, spring, I. & E. Purcell. 266,197
Beehive, J. W. Silcott. 266,059
Binder. See Grain binder.
Blackboard and support, G. Elsey. 266,118
Boat detaching apparatus, Hill & Clark. 266,150
Boiler furnace, J. Collis. 266,945
Boiler furnace and attachment, R. R. Zell. 266,249
Boiler tube, steam, G. S. Strong. 266,220
Bolt cleaner, H. C. McKeen. 266,177
Book, copying, J. L. O'Connor. 266,189
Book covers, protector for the edges of, A. L. Clark. 266,093
Book, letter copying, G. C. Lipman. 266,169
Book support, F. Schubert. 266,209
Boot or shoe sole, device for holding back the channel lip of, A. G. W. Day. 266,018
Boring machine, rock, W. Hasenzahl. 266,140

Bottling machine, J. W. Chewning. 266,095
Brake. See Car brake.
Brick for building arches and furnace roofs, W. G. Bell. 266,010
Brick, furnace linings, etc., compound for fire, J. Henderson. 265,961
Brick machine, Collinge & Serfass. 266,100
Bucket, dinner, W. H. Etz. 266,122
Bucket elevator, J. Boardman. 266,082
Buckle, G. P. Edney. 266,023
Buckle, W. A. Fisher. 266,125
Buckle, trace, H. J. Butler. 266,093
Bung hole reamer, H. F. W. Buecker. 266,091
Burglar alarm, Decker & Deming. 266,252
Burner. See Vapor burner.
Bustle, H. W. Moulton. 266,185
Buttons to fabrics, connecting, J. B. Secor. 266,055
Caloric compound, L. Roth. 266,205
Camera attachment, E. R. Higgins. 266,035
Can filling machine, V. Barker. 266,077
Can jacket, I. Sexton. 266,211
Candy making machine, H. Maillard. 266,970
Cane and fan, combined, W. H. Fuller. 265,955
Car brake, H. Barratt. 266,260
Car coupling, N. M. Hale. 266,138
Car coupling, Owen & Snider. 265,977
Car coupling, Roberts & Duane. 266,202
Car, hand, G. S. Sheffield. 265,987
Car, stock, G. F. Oehrl. 266,190
Car wheel, E. G. Josef. 265,965
Car wheel, F. H. Smith. 266,061
Carriage top joint, N. L. Fox. 265,952
Carriage trimming, J. Irving. 266,158
Castings, cements, lead pencils, etc., production of materials for, J. J. Sachs. 266,053
Chain, wire, E. G. Burt. 265,943
Check row lines, anchor for, J. E. Bering. 266,250
Chenille, manufacturing, G. F. Hensel. 266,147
Chopper. See Meat and vegetable chopper.
Chronograph, J. Karr. 266,162
Chuck, adjustable bit and drill, G. H. Summers. 265,990
Churn, J. H. Dunbar. 266,253
Churn, R. Gardner. 266,128
Churn, F. P. Stebbins. 266,219
Churn dasher, A. J. Blackman. 266,011
Cigar machine, G. D. Elges. 266,024
Cleaner. See Bolt cleaner.
Clothesdrier, J. H. McCanna. 266,040
Club foot apparatus, J. Burns. 265,942
Clutch for throttle valves, friction, E. R. Trammell. 266,221
Clutch, friction, D. Frisbie. 265,953
Clutch, friction, H. James. 266,159
Cock, C. H. Goodrich. 266,132
Cock, steam gauge, M. D. L. Swank et al. 265,992
Collar pad, horse, A. H. Petty. 266,255
Corkscrew, G. W. Griswold. 266,135
Corkscrews to bottles, attaching, H. W. Simms. 266,060
Corn sheller, E. E. Towns. 265,968
Corset, J. D. Banfield. 266,088
Corset forming and shaping apparatus, J. A. House. 265,963
Cotton cleaning machine, J. F. Cunningham, Sr. 266,106
Cotton tie, pivot, J. W. Brown. 266,085
Coupling. See Car coupling.
Cultivator, J. Q. Adams. 266,066
Cultivator, W. Evans. 266,123
Cultivator, W. H. West. 266,238
Cultivator and cotton chopper, M. H. Keys. 265,968
Cultivator, wheeled, W. P. Brown. 266,096
Cup. See Lubricating cup.
Curtain fixture, P. Osgood. 266,191
Curtain rod holder, R. S. Gould. 266,028
Cutlery, manufacture of, G. L. Hart. 265,959
Cutter. See Fish cutter.
Damper, stovepipe, W. E. Quiggle. 265,982
Dental plugger, B. Fitts. 265,950
Disintegrating machine for fute, etc., F. Luft. 266,038
Door, grain, J. Brenzel. 266,084
Drawing table, E. C. Cleaves. 266,099
Drier. See Clothes drier.
Drying calico, machine for, F. J. Crowley. 266,104
Eaves trough hanger, C. L. Pierpont. 265,981
Electric arc light, E. Thomson. 265,993
Electric circuits, cut-out for, E. Weston. 266,241
Electric conductors, conduit for underground, W. Mackintosh. 266,171
Electric machine, dynamo or magneto, E. Weston. 266,243
Electrical indicator, E. Weston. 266,244
Electrical transmission of power, system for the, E. Weston. 266,239
Elevator. See Bucket elevator. Hay elevator. Hydraulic elevator.
Elevators safety attachment, D. Frisbie. 265,954
Elevators, electric safety device for, R. M. Curtis. 266,107
End gate, wagon, F. Ball. 266,076
Evaporating or concentrating liquids and saturating liquids with gases, apparatus for, F. B. Nichols. 265,974
Evaporator, J. C. Henderson. 266,148
Fabrics, machine for crimping and preparing elastic, T. H. Ball. 266,074
Fan wheel, W. Schmolz. 265,984
Feathers, machine for cutting the shafts or stems of, Morris & Westerman. 266,259
Feeder for revolving cylinders, E. S. Bennett. 266,080
Fence machine, wire, J. Ash. 266,072
Fence post, D. W. Copeland. 266,261
Fences, metallic post for wire, T. J. Smith. 265,989
Fibers of plants, machinery for preparing, P. A. Favier. 266,124
File blanks and apparatus therefor, forming teeth upon, W. T. Nicholson. 265,975
File blanks, machine for forming teeth upon, W. T. Nicholson. 265,976
Firearm, breech-loading, H. R. Granger. 266,133
Firearm lock, A. E. Whitmore. 266,245
Firearm sight, H. Rowell. 266,206
Fire escape, E. J. Moore. 266,193
Fire escape, C. F. Spencer. 266,062
Fire extinguisher, automatic, O. C. Heath. 266,142
Fish cutter, J. B. Grady. 266,154
Folding seat for theaters, Underhill & Lake. 266,226
Fuel, artificial, G. F. Brot. 266,028
Furnace. See Boiler furnace.
Furnace lining, J. Henderson. 265,962
Furnace linings and fire brick, compound for, J. Henderson. 266,143, 266,145
Furnacelinings and fire brick, manufacture of compounds for, J. Henderson. 266,144, 266,145
Gauge. See Railway track gauge.
Gauge, M. Merz. 266,042
Galvanic battery, portable, C. Gibbs. 266,129
Gas burners, shield for protecting taper flame of, W. D. Schooley. 266,210
Gate. See End gate.
Gate, E. M. Cass. 266,094
Generator. See Steam generator.
Glass furnaces, water-jacketed eye plate for, S. M. Kane. 265,967