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 asearly as Thursday morning to appear in next issue. First-class Patents Bought and Sold on Commission

by Chas. Babson, Jr., 24 Congress Street, Boston, Mass. Curtis Pressure Regulator and Steam Trap. See p. 76.

Free.-" Useful Hints on Steam," a book of 96 pages, illustrated. By mail, 15 cents. E. E. Roberts, 107 Liberty Street, New York

Mammoth, the celebrated cave in Kentucky, and the name of the largest Falcon pen made by Esterbrook. Ask your stationer for Esterbrook's Mammoth Falcon Pens.

The Portable Electric Light Co. are having large sales for their Portable Electric Lighter. See adv.

Wanted.-Situation in electric lighting. Understands machines, etc. References. Buren, 12 Orange Place, Newark, N. J.

A mancompetent to write specifications may secure permanent situation at the Iowa Patent Office. Des Moines. Ia.

Apple Drier wanted. Capacity, 100 to 250 bushels daily. Geo. S. Worcester, Thetford, Vt.

Inventions for children's use solicited for manufacture. D. Higham & Sons. manufacturers of wooden goods in general, Cumberland Street and Aramingo Canal. Philadelphia, Pa.

Fire Brick. Tile, and Clay Retorts, all shapes. Borgner & O'Brien, M'f'rs, 23d St., above Race, Phila., Pa. Drop Forgings of Iron or Steel. See adv., page 76.

Cope & Maxwell M'f'g Co.'s Pump adv., page 77. Steam Hammers, Improved Hydraulic Jacks, and Tube

Expanders. R. Dudgeon, 24 Columbia St., New York. Diamond Engineer, J. Dickmson, 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.

Gould & Eberhardt's Machinists' Tools. See adv., p. 76.

For Heavy Punches, etc., see illustrated advertise ment of Hilles & Jones, on page 76.

Barrel, Key, Hogshead, Stave Mach'y. See adv. p.76.

Upright Self-feeding Hand Drilling Machine. Excellent construction. Pratt & Whitney Co., Hartford, Conn. Woodwork'g Mach'y, Rollstone Mach. Co. Adv., p. 77.

For best low price Planer and Matcher. and latest improved Sash. Door, and Blin1 Machinery, Send for catalogue to Rowley & Hermance, Williamsport, Pa.

The Porter-Allen High Speed Steam Engine. South-Common Sense Dry Kiln. Adapted to drying of all ma-

terial where kiln, etc., drying houses are used. See p. 78. The Sweetland Chuck. See illus. adv., p. 78.

Knives for Woodworking Machinery Bookbinders, and Paper Mills. Taylor, Stiles & Co., Riegelsville, N. J. For Sale.- A Foundry and Machine Shop, with a Corn

and Feed Mill, the whole driven by an automatic engine and boiler of 30 H.P. No other shop within a radius of 50 miles. The present owner will retain a one-half in-terest, if the purchaser will superintend the business. Address N. W. Girdwood, Asheville, N. C.

Works by Tyndail, Huxley, Spencer, etc., 15cts. each. J. Fitzgerald, 30 Lafayette Place, New York.

Railway and Machine Shop Equipment.

Send for Monthly Machinery List

to the George Place Machinery Company 121 Chambers and 103 Reade Streets, New York.

Scientific Books. See page 44. 100 page Catalogue free. E. & F. N. Spon. 44 Murray Street, N. Y.

Drop Forgings. Billings & Spencer Co. See adv., p. 45. For Pat. Safety Elevators, Hoisting Engines. Friction Clutch l'ulleys, Cut-off Coupling. see Frisbie's ad. p. 44.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423. Pottsville, Pa. See p. 46.

Improved Skinner Portable Engines. Erie, Pa. Contracts taken to Manuf. small goods in sheet or cast brass, steel, or iron. Estimates given on receipt of model. H. C. Goodrich, 66 to 72 Ogden Place, Chicago

Steam Pumps. See adv. Smith, Vaile & Co., p. 29. Stone bottles for beer and ink. Merrill & Co., Akron.O. 25" 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. \$50 to \$550. Satisfaction guaranteed. More than seven hundred in use. For circular address Heald & Morris (Drawer 127), Baldwinsville, N. Y.

Brass Finishers' Turret Lathes, 131/2 x 4, \$165. Lodge, Barker & Co., 189 Pearl St., Cincinnati, O.

Wanted .- Patented articles or machinery to make and introduce. Gaynor & Fitzgerald, New Haven. Conn. Improved Diamond Drills.

Split Polleys at low prices, and of same strength and weather? My idea is to obtain a substitute for glass in definite mineralogical character. Sample c. Limonite, ppearance 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 scien- insoluble. tific subject. can have catalogue of contents of the SCI-ENTIFIC AMERICAN SUPPLIEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing

Presses & Dies. Ferracute Mach. Co., Bridgeton, N.J.

prices. Views illustrating every subject for public exhibitions, Sunday schools, colleges, and home entertainment. 116 page illustrated catalogue free. McAllister, Manufacturing Optician, 49 Nassan St., New York,



HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless companied 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 formeranswers or articles, will be kind enough to cooked fruits or preserves and jellies from souring or 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 identification.

(1) E. M. H. asks: 1. Is there any difference between the effect of quantity and intensity currents upon an electro-magnet? A. Yes; quantity currents are adapted to coarse wire magnets used on short work Foundry & Mach. Co., 430 Washington Ave., Phil. Pa. | circuits. Intensity currents are adapted to fine wire magnets and circuits of high resistance. 2. What proportion should the size of the core bear to the number of coils to get the greatest effect? A. In general, the winding should equal the core in thickness. 3. Should phosphates:" SUFFLEMENT, 186, "How to Make a Poor a larger gauge wire be used for an intensity current Soil Fertile." Dealers in fertilizers furnish pamphlets than for a volume current when wrapping a magnet? A. See reply to first query

> fish for export-canned, smoked, and salted. Will ex- | (in water). traction of air from tins prevent putrefaction? A. See SUPPLEMENT, No. 320.

of the water for use in boilers. The water is very A. Potassium dichromate, 2 parts; potassium nitrate, 1 I hard and alkaline. A. Dr C. F. Chandler says, in his part, white sugar, 3 parts. Pulverize each of the in. I report on "Water for Locomotives, and Boiler Incrustations," that barium chloride decomposes calcium sulphate (sulphate of lime), forming barium sulphite, the mixture into them. Also, see SUPPLEMENT, 250. which is deposited; barium carbonate is sometimes How can I make a brilliant black ink? A. The addiused, but these are, perhaps, too expensive, and hence catechu, nutgalls, oak bark, shavings and sawdust, tan see SCIENTIFIC AMERICAN SUPPLEMENT, 157. bark, tormentilla root. mahogany, logwood, etc., are recommended. These substances contain tannic acid, which is extracted by the water, and forms a basic calcium tannate (tannate of lime) that separates out. The use of the aqueous extract of these substances is the best on account of avoiding mechanical obstructions liable to occur in the use of chips, sawdust, etc. An incrustation powder composed of sawdust, 70 parts; barium chloride, 15 parts; ammonium chloride (sal ammoniac), 10 parts; is good, but perhaps too expensive.

(4) C. H. L. writes: I have in my parlor a chandelier made in imitation of bronze. The bronze has worn off, and consequently gives the chandelier a whitish gray appearance. Is there not a paint or stain by which I can rebronze it? A. All dealers in artist's colors sell bronze powders and bronze or gold paint, which will answer your purpose.

(5) H. G. L. asks: 1. Could a Ruhmkorff induction coil have a wooden hobbin on which the insulated wire is wound? A. Yes. 2. Would it be better to coat this bobbin with shellac? A. Yes. 2. Is there any article in the SCIENTIFIC AMERICAN OF SUPPLE-MENT which relates to induction coils? A. See Scien-

hot bed sash. A. Possibly gelatine may answer, in folchromate of potash. The latter renders the gelatine mineral sent is calcite, a calcium carbonate. If it con-

(8) W. C. & Co. ask: What is the best way to burnish tin? We have a foot lathe capable of makthe whole range of engineering, mechanics, and physi-cal science. Address Munn & Co.. Publishers, New York. Machinery for Light Manufacturing, on hand and polished steel burnisher and soap water. It is also built to order. E. E. Garvin & Co., 139 Center St., N. Y. planished with polished hammers in the process of manufacture; but these are tedious processes for ordinary ware. A revolving brush and wet whiting or chalk Magic Lanterns and Stereopticons of all kinds and will be more appropriate for your work. Some use a buff wheel of wood covered with felt, where the surfaces are large and plain. Buff or brush crosswise so as not to streak the work. For a final finish a soft cotton cloth and dry Vienna lime gives a fine luster.

> (9) F. E. G. asks: 1. In which of two cases will a wire wear the least and run with the least friction in turning a right angle--to make the turn around one wheel 7 inches in diameter, or to run around two wheels of 31/2 inches to make the turn? A. The wire will work better and last longer running over the larger wheel. It is sharp bending around the small wheels that soon breaks the wire; besides, in using two wheels to make a turn, the wire is bent and straightened twice in making the turn. 2. Are there any pearls found in the oysters of this country? A. Pearls are occasionally found in the common oyster; they are of no value.

> (10) ∇ . T. asks: Will salicylic acid prevent moulding? Is there anything better than salicylic acid to keep preserves and jams from spoiling? A. Salicylic acid will answer your purpose. Prof. Kolbe says "that the preserving power of salicylic acid will be greatly increased by adding a small proportion of potassium bisulphate and potassium chloride; these will prevent the salicylic acid from combining with the phosphates contained in the substance, thereby losing its efficiency." Benzoic acid is considered, according to Watts' 3d Sap., to be more powerful as an antiseptic than salicylic, boracic, or formic acids.

> (11) J. C. asks: 1. Of what is printer's varnish made that is used to thin ink, and the amount of each ingredient used in a pint? A. Either resin or linseed oil. 2 What is used for a "drier"? A. Manganese borate. 3. How can job ink be made indelible? A. See Scientific American Supplement, No. 157. 4. How can it be made to give a glossy appearance? A. Job ink cannot be made glossy, except by the subsequent application of varnish.

(12) J. E. A. writes: I am in want of information in regard to the best manures for orange growing in the soil of Florida. A. SUPPLEMENT, 227, contains "Florida Orange Culture;" SUPPLEMENT, 242, "Cheap Manure for Gardens;" SUPPLEMENT, 177, "Agricultural Plant Feeding;" SUPPLEMENT, 171, "Homemade Superon this subject.

(13) G. F. asks: How can 1 wash or erase (2) Ph. L., Brazil, writes: Please let me printed matter from paper? A. Use plenty of naphtha know through your columns a good recipe for preparing or benzol, or strong hot caustic soda or potash solution

(14) S. H. J. asks: 1. How to make those small pellets known as serpent eggs, which, when ig-(3) A. M. W. asks how to take the lime out nited, form themselves into long masses or cylinders. gredients separately, and then mix them thoroughly. Make small paper cones of the desired size and press tion of sugar will give a gloss to the ink. For receipts,

> (15) R. V. J. asks: 1. What is the effect of burning salicylic acid in atmospheric air? A. There would result from the combustion of salicylic acid in air, carbon dioxide and water. From the general properties of nitrogen, we should infer that its presence would have no effect upon the combustion. With nitrous oxide, a decomposition of the latter would result. Nitrous oxide is one of the most stable of the oxides of nitrogen, and we presume it could be kept for some time without its becoming decomposed, providing, of course, that it was kept away from the air. 2. Can protoxide of nitrogen be confined in closed vessels for a length of time without change? A. Yes.

C (16) R. B. C. asks: 1. After the sand is packed around the pattern for casting, how is the pat-С tern taken out without breaking the mould? A. Use a flask that divides through the middle, and place the pattern in the flask, so that every part shall have a taper from the dividing plane; or, if the pattern be properly Cl made and itself divided, mould one half upon a board Chain bar, watch, J. Hoagland and in a half flask, then turn the flask over and place Chain link. Simons & Scofield..... 271,141 Chest. See Ice chest. place. Then sift a little powdered charcoal mon the (6) B. T. B. asks: 1. Should the resistance separate the flasks and take out the patterns, after rap-

hydrated sesquioxide of iron Sample d. Quartz conlowing proportions: Water ounce, gelatine ounce; bi- taining pyrites-probably carrying gold.-C. H. D.-The tains phosphorus, it would be of value for fertilizers; from its appearance we would jufer that it does not contain sufficient of that constituent to make it desirable,-C. J. S .- Iron pyrites, iron sulphide probably carrying gold.

COMMUNICATIONS RECEIVED.

On Vital Force Developed in Hatching Eggs. By H. S. On the Tides. By C. W. T.

On the Sun. By J. T. R.

On Fire Escapes. By P. T. S.

On the Chemistry of the Galvanic Current. By W. H. G.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

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

January 23, 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 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 Nunn & Co. 261 Broad-way. 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.

Aerial ship, E. F. Falconnet 270.939
Air motor, compressed, C. W. Potter 270,982
Alarm. See Clock alarm.
Alkali, packing caustic, T. C. Taylor
Amalgamating and separating gold, etc., from
tbeir ores, apparatus for, S. L. Trippe
Axie box J Kritch 270 903
Axte box, J. Kritch 270,903 Axle box, car. T. Milholland
Axles, device for truing, Thomas & Baker 270,916
Bag and twine holder, L. Steinberger 271,147
Baling press, G. H. Sullivan 271,153
Bar. See Chain bar. Harvester cutter bar.
Beans, staddle for drying. R. S. Morse 270,970
Bed bottom, spring, J. V. Gray
Beebive, Fife & Mercer
Beer, etc., air pressure apparatus for forcing, W.
T. Fox
Belt fastener, W. F. Wilkins 271.010
Blower, W. S. Sharpneck
Blower, fan, C. Hammelmann 270,897
Boiler. See Steam boller. Straw burning boiler. Bolt. See Door bolt. Thill coupling bolt.
Bolt guard. W. Newbold 270.972
Boot and shoe last. Packard & Arnold
Boot and shoe show-box. F. M. Kelly 271.08
Boot and shoe show-box. E. M. Kelly 271.081 Boots and shoes, heel plate for rubber, F. Richard-
son
Bottle box, J. E. Luscomb 271,087
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hicle brake. Wagon brake.
 Brake. See Car brake. Locomotive brake. Ve- hicle brake. Wagon brake. Brake lever, W. Moore
Brush for cleansing water closets, etc., flexible, C.
F. Pike 270.979
Bung, barrel, Flood & Richardson
Burring machine, F. G. Sargent
Buttons, machine for securing, B. C. Young 271,183
Camera box, W. M. Elrod 271,048
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Car brake, A. H. Marden 270,962
Car brake, J. C. Patterson 271,111
Car coupling, Dulaney & Owens
Car coupling, J. P. Lancaster
ar coupling, L. Wilkerson
ar motor, spring, G. Stites <i>et al.</i>
ar starter, W. H. Harrison 271,066
arding machines, etc., coiler for, R. Tatham 271,155
arpet lining, etc., L. P. Jenks 271,075
arpet linings, machine for folding, T. H. Farn- ham
ham 270,940 arrier. See Harvester bundle carrier. Package
carrier.
art, dumping, W. Loughridge
artridge case, paper, T. L. Sturtevant 270,996
ase. See Paper cartridge case.
hain, C. G. Anderson

circu to M. C. Bullock Mfg. Co., 89 to 88 Market St., Chicago, III.

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.

Assays and Analyses of ores and all commercial pro ducts. Advice given and investigations made in all branches of chemical industry. Send for circular. N. Y. Assay Laboratory, 40 Broadway, New York.

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

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

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 3033, New York city.

Steel Stamps and Pattern Letters. The best made. J.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 62.

TIFIC AMERICAN SUPPLEMENT, 160.

of the field magnets in a self-exciting dynamo be ping it a little one way and the other. We recommend equal to that of the armature? A. No; it may be more you to visit a foundry before you commence. 2. What in some cases and less in others, 2. If the resistance kind of a crucible should I use for melting brass, and of the armature in a low tension machine be such a where can I obtain such? A. Use r black lead crucismall fraction of an ohm, how can the resistance of the ble. Such crucibles are sold by all dealers in metalfield be the same, and yet have enough wire to magnet- lurgists' supplies. 3. At what temperature is brassfusi-Ize sufficiently? A. In this class of machines the resistance of the magnet exceeds that of the armature. 3. Is there any advantage in having long magnets, as on the Edison machine? A. Yes. 4. I want to make a ceived from the following correspondents, and Gramme machine with ring core, outside diameter 3% examined, with the results stated: inches, and 21/2 wide, wound with four layers No 18 wire, making resistance of armature about one ohm. What size and quantity of wire would be best for field? A. Use six or seven layers of No. 16. Bettermake a larger machine. It will cost no more, and will give better satisfaction.

F.W.Dorman, 21 German St., Baltimore. Catalogue free. gum or article of any kind that can be applied in a liquid form to fill the openings of wire cloth, so as to brownish quartz with small crystals; and also smaller

ble? A. Brass melts at 1,900°.

MINERALS, ETC.-Specimens have been re-

G. M. W.-Sample a. Hornblende. Sample b. Contains two small brown paper packages, one containing iron pyrites with quartz gangue, the other, darker, is similar with an iron oxide gangue. They may carry gold, which can only be determined by assay. One large specimen of hornblende showing small crystals (7) G. L. G. says: Can you tell me of any and crystalline structure. Several specimens of quartz with pyrites, possibly gold bearing. One specimen of

hopper e Meat chopper. Cleaner. See Spectacle cleaner. etc., N. H. Davis. 270.893 Collar pad, horse. M. W. Lynch. 270,960 Cornice, F. J. Geissinger..... 271,058 Cot. A. W. Martial..... 270,961 Cut-off valve gear, D. Halpin..... 271.063 Cutter. See Stalk cutter. Cutter head attachment. J. Green...... 271,199 Digger. See Potato digger.

271 069