

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.

THE SINGER MANUFACTURING COMPANY'S
CASE FACTORY,
SOUTH BEND, Ind., November 4, 1881.

H. W. Johns Manufacturing Company, New York.
GENTLEMEN: Some of your Asbestos Roofing was used to cover our dry kilns during 1879, and at this date is in good order. The under side of the roof is exposed to steam and acid generated in drying lumber, and a temperature of 250° heat; while the roof rafters and sheathing have cracked by the heat, your roofing shows no sign of damage.

Tin roofs, painted both sides, used to last but a few months, while the ordinary gravel roofs are useless on our kilns. Yours very truly, THE SINGER MFG CO.,
L. PINE, Supt.

New York Assay Laboratory, Thos. B. Stillman & Co., 40 Broadway and 53 New St., New York. Send for descriptive circular.

Prepare to save your apple crop this year. By the use of Boomer & Boschert's Cider Press more money can be realized from your orchard than from all the rest of your farm. Send for illustrated circular, with prices, which are unusually low. 15 Park Row, New York.

Garmore's Artificial Ear Drums, an appliance for the relief of partial or entire deafness, invented by one who has been deaf thirty years. Simple and scientific in construction, and not observable when in use. Send for circular. Jno. Garmore, S. W. Cor. 5th and Race Sts., Cincinnati, Ohio.

A Valuable Christmas Present.—Volumes of the *Manufacturer and Builder*, for any year since 1869, beautifully bound, \$2.50 each, postpaid; or complete set, from 1869 to 1880, inclusive, for \$27. Address H. N. Black, 37 Park Row, New York.

Workshop Receipts.—A reliable Handbook for Manufacturers and Mechanics. \$2, mail free. Ornamental Penman and Signwriter's Pocketbook of Alphabets. 20 cents. E. & F. N. Spon, 446 Broome St., New York.

For Sale.—Patent on Ice Machines. W. J. Lyons, Decherd, Tenn.

Wanted.—Situation by Gold, Silver, and Nickel Plater; 22 years' experience. Address Plater, Oakville, Conn.

Engines purchased for cash or advances made on consignments. E. E. Roberts, 107 Liberty St., N. Y.

Presses & Dies (fruit cans) Ayar Mach. Wks., Salem, N. J.

Portable Power Drills. See Stow Shaft adv., p. 348.

Mailed free. Catalogue of Books for Engineers. Theoretical and Practical. E. & F. N. Spon, 446 Broome St., New York.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock, 80 to 88 Market St., Chicago, Ill.

Completed and ready for shipment to purchaser, one of our celebrated Milling Machines. Weight, about 1,300 pounds. George S. Lincoln & Co., Phoenix Iron Works, 60 Arch St., Hartford, Conn.

Telegraphic, Electrical, and Telephone Supplies, Telegraph Instruments, Electric Bells, Batteries, Magnets, Wires, Carbons, Zincs, and Electrical Materials of every description. Illustrated catalogue and price list, 73 pages, free to any address. J. H. Bunnell & Co., 112 Liberty St., N. Y.

Wood-Working Machinery of Improved Design and Workmanship. Corliesman, Egan & Co., Cincinnati, O.

For Sale.—A complete set of Patterns, Flasks, and Core Arbors, for making Cast Iron Flanged Pipe, Elbows, Tees, and Greenhouse Fittings. Will be sold low to clean out a branch of a business. Address C., Box 1353, New York.

Abbe Bolt Forging Machines and Palmer Power Hammers a specialty. S. C. Forsaith & Co., Manchester, N. H. Foot Lathes, Fret Saws, &c. 90 pp. E. Brown, Lowell, Mass.

"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.

Combination Roll and Rubber Co., 27 Barclay St., N. Y. Wringer Rolls and Moulded Goods Specialties.

Punching Presses & Shears for Metal-workers, Power Drill Presses, \$25 upward. Power & Foot Lathes. Low Prices. Peerless Punch & Shear Co., 115 S. Liberty St., N. Y.

Rollstone Mac. Co.'s Wood Working Mach'y ad. p. 301.

Pure Oak Leather Belting. C. W. Arny & Son, Manufacturers, Philadelphia. Correspondence solicited.

The Best constructed low priced Engines are built by E. E. Roberts, 107 Liberty St., New York. Communicate.

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

Experts in Patent Causes and Mechanical Counsel. Park Benjamin & Bro. 234 Broadway, New York.

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

National Steel Tube Cleaner for boiler tubes. Adjustable, durable. Chalmers-Spence Co., 10 Cortlandt St., N. Y.

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

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

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

4 to 40 H. P. Steam Engines. See adv. p. 318.

Electric Lights.—Thomson Houston System of the Arc type. Estimates given and contracts made. 631 Arch, Phil.

Presses, Dies, Tools for working Sheet Metals, etc. Fruit and other Can Tools. E. W. Bliss, Brooklyn, N. Y.

Improved Skinner Portable Engines. Erie, Pa.

Peck's Patent Drop Press. See adv., page 333.

Learn Telegraphy. Outfit complete, \$4.50. Catalogue free. J. H. Bunnell & Co., 112 Liberty St., N. Y.

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.

Saw Mill Machinery. Stearns Mfg. Co. See p. 333.

Cope & Maxwell Mfg. Co.'s Pump adv., page 334.

The American Electric Co. and Proprietors and Manufacturers of the Thomson Houston System of Electric Lighting of the Arc Style. New Britain, Conn.

For Mill Mach'y & Mill Furnishing, see illus. adv. p. 332.

Supplee Steam Engine. See adv. p. 270.

See Bentel, Margedant & Co.'s adv., page 349.

For the best Diamond Drill Machines, address M. C. Bullock, 80 to 88 Market St., Chicago, Ill.

Clark & Heald Machine Co. See adv. p. 350.

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

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

50,000 Sawyers wanted. Your full address for Emerson's Hand Book of Saws (free). Over 100 illustrations and pages of valuable information. How to straighten saws, etc. Emerson, Smith & Co., Beaver Falls, Pa.

Telegraph, Telephone, Elec. Light Supplies. See p. 350.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 350.

Peerless Colors for Mortar. French, Richards & Co., 410 (allowhill St., Philadelphia, Pa.

Gear Wheels for Models (list free); Experimental Work, etc. D. Gilbert & Son, 212 Chester St., Phila., Pa.

Gould & Eberhardt's Machinists' Tools. See adv., p. 349.

Elevators, Freight and Passenger, Shafting, Pulleys and Hangers. L. S. Graves & Son, Rochester, N. Y.

Safety Boilers. See Harrison Boiler Works adv., p. 349.

The Medart Pat. Wrought Rim Pulley. See adv., p. 349.

For Heavy Punches, etc., see illustrated advertisement of Hilles & Jones, on page 349.

Engines, 10 to 50 H. P., \$250 to \$500. See adv., p. 350.

Pays well on small investment.—Stereopticons, Magic Lanterns, and Views illustrating every subject for public exhibitions. Lanterns for colleges, Sunday schools, and home amusement. 116 page illustrated catalogue free. McAllister, Manufacturing Optician, 49 Nassau St., N. Y.

Barrel, Key, Hoghead, Stave Mach'y. See adv. p. 349.

Renshaw's Ratchet for Square and Taper Shank Drills. The Pratt & Whitney Co., Hartford, Conn.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 348.

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

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 346.

Common Sense Dry Kiln. Adapted to drying all of material where kiln, etc., drying houses are used. See p. 350.

The Porter-Allen High Speed Steam Engine. Southwork Foundry & Mach. Co., 430 Washington Av., Phila., 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.

Ore Breaker, Crusher, and Pulverizer. Smaller sizes run by horse power. See p. 349. Totten & Co., Pittsburg.

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) D. S. asks: 1. Are not the steel tires of locomotive driving wheels put on by means of shrinking? A. Yes. 2. I have read a number of times of the sudden rupture of the tire on a drive wheel. Now, if my first question is answered in the affirmative, may not the rupturing of the tires be due largely to the strain on the tire caused by shrinking it on to a rigid wheel? A. If the work is properly done, the shrinking should not rupture the tire. 3. If shrinking on the tire has a tendency to weaken the same, why do not the builders of locomotives adopt some means of setting the tires of the drive wheels so that there will be no strain on the said tires? A. Because there is no known method of fastening which would bind the tire to the wheel with sufficient firmness.

(2) E. A. asks: Will you be kind enough to give me a good recipe how to bleach bones? A. Dip the bones for a few moments in a boiling solution of one pound caustic soda in a gallon of water, then rinse thoroughly in water, rub down with fine pumice stone, and expose until whitened, to the vapor of burning sulphur largely diluted with air, then rinse in warm water. Bones may also be whitened by exposure in a weak solution of javelle water.

(3) D. B. & Co. ask: Can you inform us how to make javelle water? A. Javelle water proper is prepared by passing gaseous chlorine—derived from the action of hot sulphuric acid on a mixture of common

salt and oxide of manganese—into a ten per cent aqueous solution of carbonate of potash until the latter will absorb no more. It may also be made by adding a solution of carbonate of potash to a solution of chlorinated lime (bleaching powder) as long as a precipitate continues to form, the liquid being afterward decanted or filtered. Ordinarily, however, the liquid called javelle water is chlorinated soda and not potassa. This liquid, also known as Labarraque's disinfectant, is prepared by dissolving 12 oz. (avoird.) of soda crystals in 1 quart (imperial), and saturate with chlorine gas evolved from 3 oz. of black oxide of manganese, 4 oz. common salt, and 2½ fl. oz. of sulphuric acid diluted with 3 fl. oz. of water by aid of heat in a retort. A readier way of making the solution for ordinary purposes consists in mixing a solution of ½ lb. good lime chloride in 3 pints of water with 7 oz. carbonate of soda (crystals) in 1 pint of water—drawing off the clear liquid after the mixture has settled. Glauber salt (sulphate of soda) may be used instead of part of the carbonate; with this the proportion may be 5 lb. bleaching powder, 10 lb. sulphate of soda, 4 lb. sal-soda, and 4 pails of water, well mixed. Sulphate of lime deposits from this liquid.

(4) J. W. S. asks: Can you oblige me by answering through your column of Notes and Queries the following questions? 1. I should like a good receipt for taking out blots and ink stains from writing paper. I have tried a mixture of acetic acid with solution of chloride of lime, but after a week or two it is of no account, owing, I suppose, to the loss of the chlorine gas which, I suppose, gives it its value when freshly prepared. A. We know of no good preparation for this purpose that can be kept for any length of time. The preparation mentioned is about as good as any. Have you tried dilute aqueous solution of peroxide of hydrogen? 2. Can you give me any good method of toughening the edges of pasteboard, say for about half an inch from the edge, so that it will not be easily cut by a small cord when drawn tightly over it? Can it be treated the same as tissue paper with sulphuric acid, or would there be difficulty in washing the acid from the pasteboard? A. Sulphuric acid cannot be employed advantageously. Try listing the boards in a hot sirupy solution of zinc chloride and then in sal-soda solution. 3. Can you give me the name of any substance which I can mix with white sand so as to keep white marble steps up to the "Quaker City" standard of whiteness with a little less muscular exertion than has to be bestowed upon them in the ordinary way of cleaning? A. A stiff wire brush greatly facilitates the cleaning. Oxalic acid (dilute aqueous solution) is frequently used in connection with sand, but it gradually rots and wears away the stone.

(5) P. W. asks: Will you please inform me the process or how to mix for marbling either wood or iron? I think I am pretty near right. I have mixed my colors in boiled linseed oil, but a great quantity of the color settles or goes to the bottom of the water. A. See Marbling on Paper, etc., in SUPPLEMENT, No. 119.

(6) H. M. R. asks: Please give a formula for making a cement which will adhere to glass and stand water heated to 140° Fah. I have a number of bath tubs lined with plates of thick glass, and find it difficult to get a cement which will not soften or crack by the hot water. A. Try marine glue. See Cements, page 2510, SUPPLEMENT, No. 158.

(7) C. G. B. asks: Is there any process whereby newly made bread, cake, etc., can be hermetically sealed up so as to keep for an indefinite length of time? A. Bread or cake could not be sealed as proposed so as to remain sweet or unchanged for any length of time.

(8) J. A. P. writes: 1. I wish to experiment for a special purpose with static electricity. Can I produce this electricity by friction on hard rubber with chamois leather or wool pads? If so, will it be necessary to use amalgam on the cushions? A. In cold weather you can use a Holtz electrical machine to great advantage in producing static electricity. In damp weather use an induction coil. You can generate a small quantity by using friction of a wool or silk pad on rubber disk. Sulphide of tin, in powder, should be put on the pad. 2. Which is the best form for the rubber, disk or cylinder? A. A disk. 3. Can the electricity be collected or taken off by points same as in plate glass machines? A. Yes. 4. What would be the best size for disk or cylinder? A. It depends altogether on the quantity of electricity required. 5. Is there any better method of producing static electricity than the above? A. See answer to first query.

(9) O. H. B. asks: Can you inform me how to produce a good finish (gloss and stiffness) on collars, cuffs, and shirt bosoms? I have tried gum arabic, gelatine, and white glue, but with no satisfaction. A. Put the fabric through a pretty stiff clear boiled starch, dry and dampen with the following: Fine raw starch, 1 oz.; gum arabic, ¼ oz.; water, 1 pint; heat the water to dissolve the gum, let it cool, stir in the starch, and add the white of one egg. Beat well together before using. Apply lightly with a sponge, and use a polishing iron to properly develop the gloss.

(10) W. J. N. asks: How can I avoid the smoking and fuming of the acid in dipping small brass articles preparatory to plating them? The shape of the articles is such as not to allow the acid to run off from them readily. The dipping must render the brass not only clean but bright and shiny. I have used for the purpose a mixture of equal parts of nitric and sulphuric acids with a little muriatic acid added. Will any other acid or mixture of acids do the same work without producing the fumes and smoke? A. The production of fumes by the acids cannot be obviated. The dipping is usually performed under closehoods connected with a chimney having a good draught. A strong aqueous solution of potassium cyanide can in some cases be advantageously substituted for the acid dip.

(11) A. P. asks: Is there any process by which a tent, made of light drilling, can be rendered perfectly waterproof, and, if possible, fireproof? A. See Waterproofing, page 74, vol. xlv. Sulphate of ammonia (crude) added to the rinse water will render the goods non-inflammable.

(12) E. J. O. writes: The streams here contain quite pretty pearl shells. How can I remove the dark or outside portion without injuring the pearl? A. It is generally removed by grinding and polishing. An ordinary grindstone will remove it. Powdered pumice stone will smooth the shells, and they can be polished with rotten stone.

(13) W. R. says: Three of us (steam fitters) have had a dispute, and could not agree as to who was right; so we decided to ask you for advice. The question is, what is the proper way to bend ordinary pipe? I say the seam should be on the inside of the bend. A says the seam should be on the outside. B says the seam should be at the side of the bend. A. B is right. The pipe will be less likely to split in bending by his plan.

(14) F. H. S. asks: Can you inform me of a preparation of acid that will brighten tarnished brass by simply dipping the brass into the acid liquid and then rinsing it in water? A. A bath composed of nitric acid mixed with an equal volume of water is used for this purpose. The brass must not remain more than a few moments in the dip, and should be well rinsed in running water immediately after removing from the acid liquid.

(15) O. H. T. writes: I have an induction coil the primary coil of which is composed of three layers (the spool is 6 inches long) of insulated copper wire, No. 14; the secondary coil is made of No. 30 insulated copper wire; there are a little more than two pounds of the latter. What have I gained or lost by the extra layer in the primary coil? A. You have lost some of the effect of the magnetism of the core on the finer wire of your coil; but on the other hand you have gained something by having a longer primary wire. Four layers of No. 18 would be appropriate for a coil of the size given. 2. Have I used too much wire in my secondary coil? A. No; but the same length of No. 36 wire would be more effective, since the outer layer would be nearer the primary and its core. 3. How much tin foil must I use to get the best effect? A. About ten square feet. 4. What is a Grenet battery cell, and how charged? A. See SUPPLEMENTS, No. 157, 158, 159, for information on batteries. 5. Why is platinum used where the current is broken by the vibrator? A. Because it is least affected by the discharge of the extra current.

(16) O. H. M. writes: 1. I have a small engine that I run a part of the time during the day, and as I have some surplus power, would it be practical for me to run a small dynamo electric machine during the day, and charge a secondary Plante battery, so that I could use from one to three of the Edison or some similar light during the evening? My room or store is about 50 feet by 20 feet. A. It would depend upon the size of engine and dynamo, also upon the size of the secondary battery. With these things properly proportioned to each other, and to the number of lamps to be used, it is possible to accomplish what you propose. 2. Is there any better or improved form for the secondary battery than that illustrated on page 406, vol. xlv, No. 26? The battery referred to answers very well, but the canton flannel is soon destroyed by the acid. Felt and woolen flannel has been used with good results, but even this is destroyed after a time. As to convenience and capacity the battery referred to is probably superior to the Plante. 3. The probable cost of a battery sufficient for the above if practical? A. This depends upon whether you make it yourself, and also upon the cost of materials in your locality. We do not know of a battery of this kind in market.

(17) G. R. B. asks: Can you inform me if the engine illustrated in SUPPLEMENT No. 279 would be double the power by using two cylinders and placing balance wheel in center of shaft? A. Yes. 2. Would it be powerful enough to run a small boat, say about eighteen feet long? A. Hardly. Its size should be doubled. 3. Would a coil of pipe be better than boiler, described in No. 183 SUPPLEMENT. A. The flask boiler would be the best for an engine of that size. 4. Are there any small editions of United States Patent Laws, in condensed form, I can get for information on the subject? A. The SCIENTIFIC AMERICAN REFERENCE BOOK contains the information you want.

(18) J. S. G. says: I have been a long time trying to get something top up in a glass case where cutlery is kept to keep it from rusting, but so far have not succeeded very well. Can you inform me what is the best thing for such a purpose? A. Put in the case a small dish of powdered quicklime, or good calcium chloride, in small lumps, and keep the case closed tightly as much as possible.

(19) F. E. K. asks: What materials can I use to make a lining to a fire box in a stove, to be applied in a plastic state to take the place of the ordinary fire brick and to become hard on standing? A. Mix intimately good fire clay with one-fourth its weight of clear fine quartz sand and water enough to make a thick paste. It should be allowed to dry slowly (and thoroughly) before heating. Heat slowly at first.

(20) T. H. J. asks: Will you please give or refer to information as to ozone, viz.: Will ozone kill the germs or spores of mould and ferment? A. Yes, if present in sufficient quantity. 2. Can it be used successfully in preventing decomposition of animal or vegetable substances? If ozone were mixed with fluid extracts or decoctions, would they keep good? A. No. Ozone can not be used fully employed as an antiseptic, though it is a very good disinfectant.

(21) W. J. W. asks: Is potato flour manufactured in America, and to what extent and where? What is its worth in English markets? A. Potato flour (potato starch) is largely manufactured in this country. See "A Technical Treatise on Starch." Address the booksellers who advertise in this paper.

(22) S. H. C. writes: Please let me know what chemicals are used on paper that a current of electricity will stain or mark on? A. Saturate the paper with a strong aqueous solution of ferrocyanide of potassium or of iodide of potassium with a little starch.

(23) W. J. T. asks: Which will stand the fire best: the hard or soft cast iron? A. The latter.