

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 the following week's issue.

The new material, "Linenoid," Westfield, Mass. "U. S." metal polish. Indianapolis Samples free. Improved iron planers. W. A. Wilson, Rochester, N. Y. For coal hoisting engines. J. S. Mundy, Newark, N. J. Handle turning machinery. Trevor Mfg. Co., Lockport, N. Y. Microbe Killer Water Filter, McConnell Filter Co., Buffalo, N. Y. Wanted—Light machinery or specialties to build. P. G. Fleming's Machine Works, Elizabeth, N. J. Pipe frame truck brackets, steel and wooden trucks, etc. L. M. Moore, Rochester, N. Y. See page 393. Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York. Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Fairb and Canal Sts., New York. Centrifugal Pumps. Capacity, 100 to 40,000 gals. per minute. All sizes in stock. Irvin Van Wie, Syracuse, N. Y. Carborundum—hardest abrasive known. Send for prices of wheels, powder, etc. The Carborundum Co., Monongahela, Pa. Models and experimental work. Small articles made in quantity for the trade. For catalogue, etc., write L. G. Winn Mfg. Co., Indianapolis. Guild & Garrison, Brooklyn, N. Y., manufacture steam pumps, vacuum pumps, vacuum apparatus, air pumps, acid blowers, filter press pumps, etc. The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4; Munn & Co., publishers, 361 Broadway, N. Y. For the original Bogardus Universal Eccentric Mill, Foot and Power Presses, Drills, Shears, etc., address J. S. & G. F. Simpson, 26 to 36 Rodney St., Brooklyn, N. Y. Patent Electric Vise. What is claimed, is time saving. No turning of handle to bring jaws to the work, simply one sliding movement. Capital Mach. Tool Co., Auburn, N. Y. Competent persons who desire agencies for a new popular book of ready sale, with handsome profit, may apply to Munn & Co., Scientific American office, 361 Broadway, New York. Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

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Notes & Queries

HINTS TO CORRESPONDENTS. Names and Address must accompany all letters, or no attention will be paid thereto. This is for your information and not for publication. References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(5796) A. M. S. asks: 1. I have a small electric battery motor rated at one-sixth horsepower at 10 volts. Now I wish to run it from a lamp current from an Edison standard dynamo rated at 8 1/2 kilowatts, 125 volts, with 60 amperes as working load. How shall I proceed? Shall I have to put any lamps in the circuit? If so, how many? A. According to your figures, your motor can absorb a maximum of 7 1/2 amperes at 10 volts. If used on a 125 volt circuit, you must put lamps or other resistance of 11 ohms and 10 amperes capacity in circuit with it. The system would involve great waste of energy. Sixteen 28 candle 31 volt lamps, four in parallel and four in series, or ten 94 candle power lamps in parallel, would give the result approximately. This is on the assumption that the motor is shunt wound. 2. What would be the results to motor should I put on full potential of 110 volts? The motor is wound as follows: Armature 3 coils 1 1/2 pounds No. 21 wire, field magnet single coil of 4 pounds No. 16 wire. A. It would burn out both field and armature.

(5797) D. D. W. writes: 1. Is the one horse power eight light dynamo, SUPPLEMENT, No. 600, a high tension machine? If not, what is a high tension and also low tension current? A. There is no such thing as a high tension or low tension current. A circuit can be thus described, reference being made to the maximum difference of potential existing between any two points of it. 2. With one-half horse power will it give about one-half as much current; one-fifth horse power, one-fifth as much current, as with one horse power? A. On short circuit this would be the general effect; on a circuit of high resistance the voltage would vary mostly; on an intermediate circuit both voltage and amperage would vary. 3. Will motor Nos. 641 and 161, with drum armature, run all right with current from this machine? A. The voltage is too high for the motors mentioned.

(5798) J. O. F. asks: If a small amount of caustic soda water accidentally introduced into steam boilers with feedwater would cause priming? We boil our double effect with very strong caustic soda water and have a considerable (inaccessible) leak, which, when steam is shut off and vacuum broken, allows the soda to enter the steam chamber, and when steam is again turned on is blown into feedwater heater. There can certainly be but a very small amount, but am unable to account for the behavior of boiler water otherwise. A. Pure caustic soda in small quantity will keep a boiler clean from incrustation by frequently blowing off the boiler, and will not cause

serious foam. We assume, although you do not state it, that a little sugar goes into the boiler with the soda, which we have no doubt is the cause of the foaming. As a remedy, the water that leaks into the steam chamber should be blown out and wasted by an outlet in the pipe leading to the heater.

(5799) E. P. W. asks (1) how to make carbonic acid gas. A. Pour hydrochloric acid on marble dust. 2. What pressure it takes to liquefy? A. 36 atmospheres at 32° Fah. 3. How to condense it after expansion? A. By pressure applied by a pump.

(5800) R. S. C. asks: 1. How are the spots made on the barometer which you will find inclosed? A. They are marked with a cobalt compound; possibly the chloride. 2. How is fuse wire made for 110 volts? A. Fuse wire is calculated for amperage, not for voltage. 3. How should the hand power dynamo described in SUPPLEMENT, No. 161, be wound to give about 12 volts, to run an electric dental mallet? A. Use a drum armature with 500 turns of wire. See our SUPPLEMENT, No. 599. It is better to make the whole core of iron washers. 4. Where can I get the directions for making a steam siphon? Also what size suction and discharge pipe should I use for a quarter inch steam pipe? A. The size of discharge nozzle should be from two to three times the diameter of the steam nozzle. The smaller size for greater elevations, suction five times diameter of steam nozzle. The steam nozzle should be taper like a short hose nozzle and stop at three times its diameter from the discharge pipe mouth, which would be bell shape, to allow an easy entrance of the water. We have no detailed illustration of the siphon ejector. 5. Can the telephone used by the Bell Telephone Company be made by anybody after the last of January? A. The receiver can, not the transmitter.

TO INVENTORS.

An experience of forty-four years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

February 6, 1894.

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions with names and dates. Includes entries like 'Acid and caustic alkali, making nitric, Lunge & Lyt', 'Electric alarm, Sauer & Hentzschel', 'Electric battery motor, A. M. S.', etc.

Table listing inventions with names and dates. Includes entries like 'Chair, See Reclining chair. Shoulder and back bracing chair', 'Check carrier, sales, W. M. Kinnard', 'Check identifying, N. H. Bledsoe', etc.

Table listing inventions with names and dates. Includes entries like 'Heater, J. Hauser, Evans', 'Hoe, working, A. Evans', 'Hoist drum for discharge apparatus of coal or ore', etc.