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 issu

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., Lock-

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 baskets, steel and wooden trucks etc. L. M. Moore, Rochester, N. Y. See page 399.

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

Screw machines, milling machines, and drill press The Garvin Mach. Co., Laight 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.

Models and experimental work. Small articles made

Monongahela. Pa.

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 Forthe 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

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HINTS TO CORRESPONDENTS.

10 volts. Now I wish to run it from a lampcurrent from an Edison standard dynamo rated at 8 1-5 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 71/2 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 %4 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 1:0 volts? The motor is wound as follows: Armature 3 coils 114 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 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 torned 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. 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 itafter 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 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 stopat three times its diameter from in quantity for the trade. For catalogue, etc, write L. the discharge pipe mouth, which would be bell shape, to G. Winn Mfg. Co., Indianapolis. tailed 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-tour years, and the preparation of more than one hundred thousand applications for petents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled 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 Scientiffic American, 361 Broadway, New York.

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February 6, 1894,

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	Ratchet drill, double-acting, J. Meahl 514,127	,
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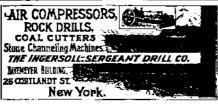
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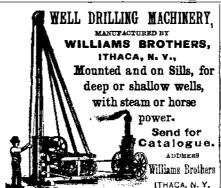
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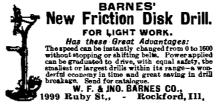
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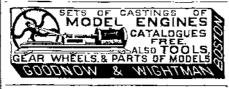
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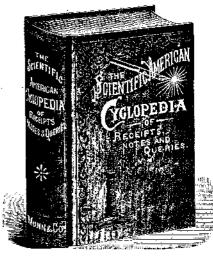
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