

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion: about eight words to a line.

U. S. metal polish. Indianapolis. Samples free. Presses & Dies. Ferracite Mach. Co., Bridgeton, N. J.

Practical Ammonia Refrigeration. Redwood, Cloth, \$1. Spon & Chamberlain, 12 Cortlandt St., New York.

Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Laight and Canal Sts., New York.

Centrifugal Pumps for paper and pulp mills. Irrigating and sand pumping plants. Irvin Van Wie, Syracuse, N. Y.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins.

Woven wire brushes.—The Belknap Motor Co., of Portland, Me. are the patentees and manufacturers of the best woven wire commutator brush on the market.

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.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication.

(6402) W. C. McC. writes: 1. I am about to wind an induction coil for a medical battery. In what way would you wind the wire, so that it will give three currents—primary, secondary, and primary and secondary combined?

(6403) S. M. M. asks: Will you please let me know by letter what the resistance of ordinary fresh water is, hot and cold, and through what resistance will an ordinary gravity battery, say a bluestone, ring a vibrating bell.

(6404) O. J. asks: 1. Which is the best for the core of an induction coil—a solid core or one built up of wires? A. A wire core.

(6405) H. E. asks: 1. Can electricity be created or formed in a closed box or vessel in which there is a pressure of three or four atmospheres of air, as well as in open or one atmosphere of air?

pound per square foot, or 25 pounds for the sail as above stated. The speed per minute in feet multiplied by the pressure will equal foot pounds of power, 440 feet x 25 = 11,000

(6406) R. K. B. writes: I have in my office an electric bell communicating by wire and knob with my private room. The bell has been in operation for six months, and for the first four months worked properly.

(6407) T. R. says: In a cylinder boiler 36 inches in diameter lying horizontal, filled with water, it was found necessary to take out one-fourth the water. What would be the perpendicular distance from top of boiler to the level of the water?

As in your case area 36 inches = square inch = area of segment = 254.49 square inches and 36 x 36 = 1296, and opposite 0.1963 in the segment table will be found 0.298 x 36 = 10.72 in the answer.

(6408) R. L. E. writes: I would like to submit the following. With water pressure 100 pounds to the square inch, how large a nozzle must I have to drive a Pelton water wheel directly attached to a 200 light dynamo?

(6409) H. K. asks: 1. What size wire shall I require to make a helix like the one illustrated in "Experimental Science," on page 577, Fig. 6, if the dynamo on page 488 is employed to work it?

(6410) C. M. A. writes: Some few days ago one of the rubbers in one of the ball gauge try cocks on Erie City boiler water column blew out, causing a small jet of steam to escape from it, and while replacing with new rubber I received rather a heavy shock, and upon investigation found that one of our boilers seemed to be charged with electricity.

(6411) W. W. F. writes: 1. What effect has tension on the molecular vibrations in metal? If a hot wire were made to sustain a heavy weight, would

this shorten the swing of its atoms or lessen their rapidity, or, in other words, would the tension cause the metal to cool and contract more rapidly than it otherwise would? A. Simple tension has no effect as such.

(6412) L. R. C. asks: 1. Would it be practical to run a dynamo with a water motor? The motor is 10 horse power, with an unlimited supply of water at 102 pounds pressure per square inch.

(6413) F. P. C. writes: Is differential or integral calculus used in the work of electrical engineering? If so, to what extent, i. e., in the calculations necessary in above mentioned profession?

(6414) M. S. P. writes: Is asbestos paper a good material to use between the plates of a storage battery? If not, what can be used?

(6415) E. W. A. asks how to make an inexpensive paste that will do to stick a paper label on tin. I have tried several different kinds of paste and glue, but after becoming dry the label peels off every time.

(6416) M. C. C. says: Will you kindly inform me through your columns if there is anything to put on windows to keep them from frosting, and what its composition is?

(6417) E. A. G. writes: Please give rule for figuring the power derived from balance wheels. A. There is no power derived or generated by the motion of balance wheels. They only transmit power that is imparted to them when augmenting their motion.

(6418) W. H. Van A. writes: 1. Does it ever snow when the thermometer is at zero or below? A. There is no place on our earth where it is too cold to snow.

(6419) G. T. asks: 1. One part of diastase can convert 2,000 parts of starch into dextrine and then into grapesugar, at a temperature of 150° Fah. How much longer would it take if the temperature were 100° Fah?

(6420) G. A. writes: 1. How many gravity cells 6x8 will it take to maintain a chloride accumulator, giving a current of 6 volts, 250 ampere hours, used from two to four hours per week, running 1/4 horse power motor?

to 10 each, the small gear being brass, with an escapement as governor? A. The arrangement will involve a very large loss by friction, and as you do not give the rate of descent of the weight, the query cannot be answered.

(6421) L. W. C. asks how to figure the lines of force in a magnet, that is, how many ampere turns should I wind a magnet in order to get 10,000 lines to the square centimeter.

(6422) C. B. V. asks: 1. What size and how many turns and layers of wire to use in the primary of an induction coil where the secondary is 60,000 turns of No. 30, wound in 63 layers?

(6423) A. L. C. asks: 1. Is it considered safe to have the disks of a dynamo armature in electrical connection with the shaft? A. Yes.

(6424) T. H. M. asks what size wire to use in the circuit of the sixty light dynamo described in SCIENTIFIC AMERICAN SUPPLEMENT, No. 865, the circuit to be about two miles long.

(6425) W. B. P. asks: How many and what size cells of Edison-Lalande type will run the motor described in SUPPLEMENT, No. 641? A. Ten cells type W.

(6426) E. A. T. asks: 1. Will a simple atomizing burner be suitable for a small forge? A. Yes, if properly constructed.

(6427) G. J. W. writes: How can I fix the skins of some small animals so they may be used for furs? A. Skins to Preserve (as a Mole Skin).—Supposing the skins are dry, they should be softened throughout by soaking in pure water.

TO INVENTORS.

An experience of nearly fifty 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.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

February 12, 1895,

AND EACH BEARING THAT DATE.

(See note at end of list about copies of these patents.)

Table listing inventions and their patent numbers: Adding and daily receipts registering mechanism, 534,184; Aeration device for M. H. Hart, 533,890.

