

Business and Personal.

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

Marine Iron Works. Chicago. Catalogue free. For logging engines. J. S. Mundy, Newark, N. J. "U. S." Metal Polish. Indianapolis. Samples free.

FERRACUTE Machine Co., Bridgeton, N. J. Full line of Presses, Dies and other Sheet Metal Machinery.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company.

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

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway New York. Free on application.



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 This is for our information and not for publication.

(7542) J. D. asks: How many pounds of compression is required to the inch to make liquefied air? A. No amount of compression will liquefy air, unless it is at the same time cooled to at least 220° Fah. below zero.

(7543) Q. writes: 1. I have a battery composed of four Edison-Lalande cells. What charge should be used in the cells? What E. M. F. should each cell have? A. The Edison-Lalande cell is charged with a 25 per cent solution of caustic potash in water.

(7544) C. T. P. asks: 1. Would good Lowmoor iron forgings be better for the field magnets of the simple electric motor described in SCIENTIFIC AMERICAN SUPPLEMENT, No. 641, than the Russian iron and have them jointed at each end? A. Any good soft wrought iron may be used for the field of the dynamo.

(7545) F. B. F. writes: 1. I have a motor made from the drawings and specifications in the SUPPLEMENT, No. 641, which I wish to convert into a dynamo. What size wire and what quantity will it require on the field magnets?

No. 641, into a dynamo is one thing, to build a dynamo from the sketch inclosed is quite another thing. First, to convert the motor, connect to some source of power and run it up to full speed. In case it does not generate current, disconnect the field circuit and excite the field by a battery.

(7546) J. E. D. writes: 1. Treating on the velocity of falling bodies, Avery's "Physics," on page 107, example 53, statement is made as follows: "From an upper window drop simultaneously, from each hand, an iron and a wooden ball, both of same size, but varying in weight, and observe that both reach the ground practically at the same time."

(7547) W. J. K. asks: 1. What kind of lead is used for storage battery plates, cast or rolled? A. The plates of accumulator are of cast lead. 2. If litharge is used to coat the plates, how long will it take the plates to "form" so that they can be used?

(7548) G. H. F. asks: Will the heater described in SUPPLEMENT No. 1112 work on alternating current? A. Certainly. One sort of electric current may be transformed into heat as well as another.

(7549) J. R. C. writes: Please give something of the construction of a repeating coil. Such as used in connecting a ground circuit with metallic telephone circuit. A. A repeater coil is an induction coil whose two windings are put on together and are of equal length.

(7550) C. O. H. writes: 1. I am about to make a new armature of the drum type for motor 641, as I think it will have double the efficiency with the same amount of wire. How many wrought iron rings would be best to use and of what thickness?

the purpose with projections making grooves into which the coils are wound. These disks are about 3/8 inch thick. The armature will then be built as shown in SUPPLEMENT No. 600, price 10 cents.

(7551) T. E. says: 1. I intend to make a storage battery of six cells, having a capacity of 100 ampere hours to each cell. They will be made on the Faure system. What would be the highest amperage that could be used in charging them (without injury)?

(7552) W. M. P. asks: 1. How can I change the current of a small magneto (10,000 ohms) so as to get an even and smooth current as from batteries? A. By running it so fast that the impulses of the current are as rapid as those from the battery, which, we hardly need to say, cannot be done.

(7553) E. F. S. writes: For reply to question how to make an electric heater, you give me amount and size of wire to connect to arc light circuit. What I wanted was something to connect to ordinary incandescent circuit, even if the heating capacity is very small.

(7554) W. B. B. writes: 1. I am building the simple motor described in SUPPLEMENT No. 641. Where shall I connect the battery to the machine, Fig. 9? A. Connect the battery to the binding posts, g and g', in Fig. 9.

(7555) M. L. asks: What is the meaning or derivation of the word "Breguet," used in describing certain watch movements - as "Breguet hair spring." The word is, of course, French, and cannot be found in dictionaries. A. "Breguet" is the name of a man, a Swiss watchmaker, Abraham Louis Breguet, born 1747, died 1823.

(7556) A. C. S. writes: In your issue of November 19, under Notes and Queries in answer to H. J. L., you stated that the alternating current taken

from the street line can be changed into a direct current by the use of a rotary transformer. Will you please publish in your paper for the benefit of the readers how such a transformer can be made? A. A rotary transformer is a motor and dynamo working together.

(7557) J. L. B. asks: 1. Can you furnish me with a process of cutting an oval-shaped hole from a plate of double thickness glass, without boring? A. A hole is first to be drilled through the glass with a corner of a file wet with camphor dissolved in turpentine.

TO INVENTORS. An experience of 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 unexcelled facilities for procuring patents everywhere.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

JANUARY 3, 1899,

AND EACH BEARING THAT DATE.

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

Table listing various patents and their dates, including items like 'Advertising apparatus, C. A. Rollason et al.', 'Air purifying and ventilating system, W. S. Whitner', 'Air tight lid, F. W. Forster', etc.