

(53) W. S. W. asks (1) how heavy an object will the strongest magnet to be procured raise four inches, holding magnet that distance from object? A. We do not know that the limit of the power of an electric magnet has ever been determined. Probably with sufficient outlay for electric generators and for the material of the magnet, you would be able to raise several tons a distance of four inches. 2. What would be the size of the magnet? A. This would be entirely a matter of experiment. 3. Where can I procure the strongest horseshoe magnet, or is the horseshoe the strongest permanent magnet? If not, what is? A. The strongest permanent magnets in the market are what are known as the machine magnets. You can buy them from any of our dealers in electric supplies. 4. What metal would the magnet have the most attraction for? A. For a permanent magnet, chrome steel is considered the best; for an electro-magnet, there is nothing superior to the softest iron. 5. What would be the cost of such a magnet? A. It is impossible to say.

(54) E. E. D. asks: Is it a fact that if a tank of water be weighed, and a fish of say 10 pounds placed in the tank, the weight will not be increased? A. If the amount of water is undiminished, the weight of the vessel will be increased by the weight of the fish.

(55) F. B.—Brass is seriously affected by mercury; copper is less affected; and iron is not affected at all. A common way of transporting mercury is by the use of iron flasks.

(56) J. M. A.—Your experiment producing electricity from a cat is quite old.

(57) L. H. asks for a polish with which tool handles, stocking bulbs, and small turned woodwork generally can be quickly and cheaply polished while in the lathe. A. A mixture of boiled linseed oil 2 parts, alcoholic shellac varnish, 1 part, well shaken together and applied sparingly with a cloth to the revolving work, will produce a fine polish.

(58) G. W. H. asks: 1. Would a top weighing one pound while at rest, weigh less while revolving at the rate of 10,000 revolutions a minute? A. The top would weigh the same under all circumstances. 2. Would a one pound weight weigh less at equator than at the poles? A. The difference would be very slight.

(59) C. V. asks how to make a shunt between the armature and field magnets, on a plating dynamo. A. Connect the terminals of your field magnet with your brushes. Unless your field magnet has a high resistance it is not adapted to a shunt, as most of the current from the armature would pass through the wires of the field magnet.

(60) D. E. B. writes: Suppose a cone-shaped piece of steel be placed on the positive and negative ends of a horseshoe magnet, thus joining them and continuing to a point; will that point be negative or positive? A. If the magnet is perfectly balanced, and the armature is symmetrical and of homogeneous material, the point will be neutral.

(61) C. L. P. writes: I have two second-hand magnets. Will they ring bell on a line one mile long? Also, do they depreciate in efficiency by use? Suppose three magnets in the houses A, B, and C; can any two houses communicate without ringing the bell at third house? Thus: B can call either A or C, but can A call B without calling C, or vice versa? A. Your magnets should be capable of ringing bells on a line much more than a mile in length. If the magnets are of good quality, the machine should maintain its efficiency indefinitely. You cannot communicate in the manner suggested without having what is known as an individual call.

(62) H. W. B. asks: What size electro-magnet and with what size and quantity wire should it be wound in order to get the best results with five cells of gravity battery? A. Make the cores of your magnet $\frac{3}{4}$ inch in diameter and 6 inches long. Wind half the length of each arm with No. 20 wire to a depth equal to the diameter of the core.

(63) C. H. M. asks why a person will take cold quicker lying down on a bed than if sitting up—yet when they get into or go to bed, they are warmer than while sitting up. A. If you are correct in your statement, it is probably because more vital energy is put forth by people who are not lying down, and in bed one is generally protected by additional clothing.

(64) D. L. asks how to connect two electric bells (not magnetos) on one wire; the line is about $\frac{1}{4}$ of a mile long. Intend to use spring keys, but cannot figure out how to connect. When the key is pushed, the bell at the other side is ringing, or both. A. Use what is known as back contact keys, and ground the ends of your line through the back contacts and through the bells; take your battery current through the lower contact. If you desire to use a closed circuit, you may place your battery keys and bells directly in the circuit. In this case the keys will be normally closed, as in the ordinary telegraph circuit.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined with the results stated.

E. N. J.—No. 1 appears to be a clay containing shiny particles of mica. No. 2 is a rock consisting principally of the mineral hornblende. No. 3 is a hard siliceous rock containing iron silicates as coloring materials.—H. J. B.—The specimens are ordinary clay colored by means of iron oxide, and have no value in New York. In the absence of a better material in your immediate vicinity, it is quite possible that you might be able to utilize them.—E. H.—The sample appears to be gold bearing quartz. The sulphurets are of iron, and possibly lead and silver. The specimen we should consider of value. The expense of an assay would be \$5.00.—H. S. D.—The specimen is calcite, or crystallized limestone, and of no commercial value.—H. P. D.—The specimen is too light for kaolin, and is not sufficiently plastic to be of value for the making of pottery. It is probably a mixture of magnesite with clay.—H. P. B.—The mineral sent is staurolite.—A. D.—The specimen is of no value; it contains too much iron. The white variety of long fiber is the most sought after.

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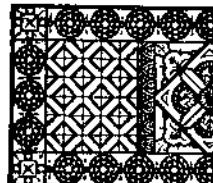
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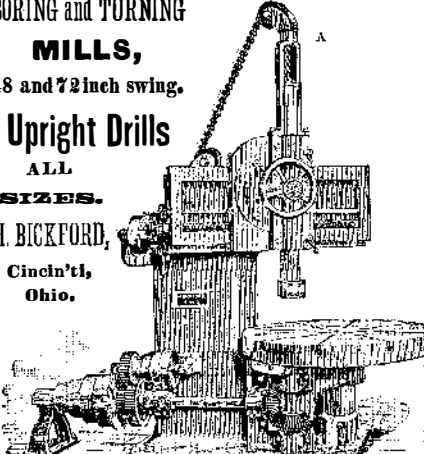
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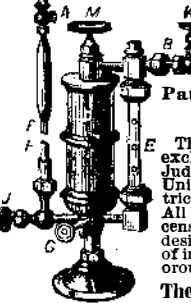


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