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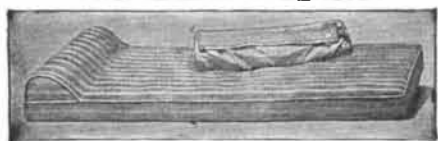


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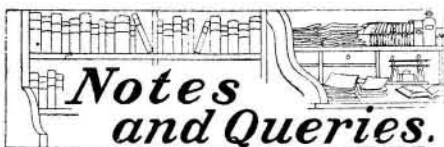
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(8668) A. M. asks: 1. I have made motor described in SUPPLEMENT No. 641 and it runs perfectly as a motor, but will not generate any current when driven as a dynamo. It is series wound. Please let me know the remedy. A. Small motors very often are not wound so that they will excite their own fields and they cannot be used as dynamos, except by disconnecting the field and using a battery to excite the field. 2. Would there be any practical way to run it on 110-volt alternating lighting circuit? A. No.

(8669) H. M. W. writes: We understand there is an easily prepared paper which may be used for the finding of the negative and positive poles of an electric wire. Will you kindly inform us how to make this paper and whether it will keep? We only wish for a small quantity. A. We give below two methods for this purpose, both of which are easy. First method: Dissolve sodium sulphate, a teaspoonful, in a half pint of water, in which also dissolve about the same quantity of potassium iodide and of starch. To dissolve the starch the water must be heated. Soak white blotting paper in this solution and dry it. Cut it into strips of any convenient size, a half inch by two inches is suitable. Keep the paper in a dry place such as a tin box or a glass bottle. To use, moisten a strip and place the two poles upon it, nearer together or farther apart, according to the voltage of the current. A dark spot will appear at the positive pole. Second method: Dissolve 15 grains of phenolphthalein in a half ounce of common alcohol. Dissolve also 20 grains of sodium sulphate in 4 ounces of water. Soak blotting paper in the first solution and drain off the superfluous liquid. Then soak it in the second solution and dry it. Afterward treat it in the same manner as in the first method. A red spot appears at the negative pole.

(8670) A. S. writes: Our M. E. Church steeple of Freeport is about 160 feet high, is slate roofed or covered and the top consists of a sheet iron ornament some 12 or 15 feet; the church is of brick. The steeple has been struck and badly damaged by lightning within 3 years, although it stood for 20 odd years before it was first struck. It is thought by some that the large number of overhead telephone wires that go right by the church and the telephone station just across the street tend to attract lightning, which strikes the steeple first, it being a considerably higher point. Some contend that proper lightning rods would prevent damage, while others claim that lightning rods are incapable of carrying the great amount of electricity forming such a bolt of lightning. A. 1. We should not dare to have a building with an iron top disconnected with the earth metallically, as is this church spire. It is an invitation to a visit of the lightning. The lofty Washington Monument, in Washington, was struck and damaged till its metal tip was grounded by a lightning rod, since which it has been repeatedly struck, but without damage. Suitable lightning rods certainly are of service in protecting a building. We should suppose that the telephone wires were a partial protection to a neighborhood. 2. Is it a fact that no suction pump will pump or draw a greater height than 33½ feet before entering the pump, or, in other words, before passing through the valves? If water can be raised a greater height by such a pump before it passes through the pump valves can you tell what distance it can be drawn and what causes the limit if there is any? A. A lifting, or as it is sometimes called, a suction pump, can raise water no more than 23 to 30 feet. Theoretically 34 feet is the limit to which the pressure of the atmosphere can push water up a tube with a vacuum above the water. No pump can exhaust the air above the water perfectly, hence no pump can get water 34 feet above the level of the water below. The pump lifts the air off the water in the pipe; the air outside the pipe pushes on the water in the well and pushes it up into the partial vacuum in the pipe below the valve of the pump. For this see any text book of physics under pumps in pneumatics.

(8671) A. J. T.: Use zapon celluloid lacquer for chandelier work. It can be reduced by using the proper solvent.

September 30

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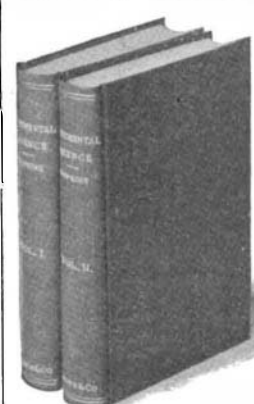
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