

origin. Meteoric iron is perfectly malleable and may be readily worked in a forge and put to the same use as manufactured iron.]

(27) G. G. G. writes: 1. I am making an induction coil according to directions given in SUPPLEMENT, No. 160, page 2548. How can I tip the screw, which presses against the vibrating spring, with platinum? A. By drilling the end of the screw and driving in a short piece of platinum wire. 2. What is vulcanite? A. Hard rubber. 3. Could not the cylinder of the commutator be made of hard wood? A. Yes. 4. How many sheets of tin foil should be used for the condenser? What size should they be? A. About 50; make them a third larger than the dimensions given. 5. Will common lead foil do, or should they be pure tin? A. Tin foil is best; ordinary tin foil will answer. It need not be made of absolutely pure tin.

(28) W. M. G. writes: 1. In your SUPPLEMENTS the figures of magneto-electric machines, induction coils, etc., are marked "half size." Do you mean exactly half size, or that the dimensions each way are one-half as large as the original? A. The latter. 2. About what would be the weight of the Nos. 16 and 18 wire for the magneto-electric machine described in SUPPLEMENT, No. 161? A. About 2 lb. No. 16 and 1 1/2 lb. No. 18. 3. Should the cores for the large magnets be of wrought or cast iron? A. They would be better of wrought iron, but cast iron magnets are easier made and will answer very well.

(29) C. A. B. asks: Does the piston in a rapidly running reciprocating engine stop at the end of each stroke? A. The piston of all reciprocating engines stops at the end of each stroke, otherwise the movement could not be reversed.

(30) F. K. asks how to make a waterproof coating for cloth. A. Dissolve gum caoutchouc in excess of a bisulphide of carbon containing six per cent of absolute alcohol, concentrated by evaporation, away from the fire, as the mixture is quite inflammable.

(31) W. T. D. asks what will remove stains from kalsomined ceilings. In this country we put up a great many ceilings made out of brown muslin. The roof not being waterproof will leak on them and stain them, and rekalsomining them will not cover up the stain. A. Muslin may be bleached by soaking it in solution of bleaching powder, dipping afterward in sulphuric acid diluted with 10 parts of water, and then rinsing in plenty of cold water. 2. What will make muslin waterproof? A. See answer to F. K., above.

(32) G. P. P. asks: 1. How can carbon be soldered to brass or copper so as not to hinder the passage of electricity? A. By the process known as galvanic soldering, or you may copper your carbon by electro deposition and afterward solder the coppered surface to the brass. 2. How can a resonator be made by the use of which a Bell telephone can be heard in any part of a room 12 feet square? A. We know of nothing better than a plain funnel or trumpet similar to an ear trumpet.

(33) W. H. K. asks: Can you inform me what the preparation to polish ladies' leghorn hats consists of, as is used by straw hat manufacturers, and how to prepare and use it? A. An ammoniacal solution of bleached lac, is employed by some makers, we believe.

(34) E. H. N. writes: In a school room near by a new oak floor was laid last August. In the fall a few drops of ink were spilled on the floor, and to remove it oxalic acid in solution was applied, removing the stain where it was, but apparently leaving a kind of "halo" of darkness on the edges of the place where the acid was applied. More acid on this spread the ink matter, until, by successive applications, the color had spread all over the room. A peculiarity of the appearance is the bringing out of black color in places which seemed to have been cleared when water is spilled or sprinkled on the floor. By what means can the black be removed? A. Use a little strong hydrochloric (muriatic) acid then plenty of water; afterward dry and oil the floor.

(35) F. R. W. writes: An old photographer tells me that he at one time used bichromate of potash for a positive bath, exposing the paper through the negative for just a moment, and then using a developer which brought out the picture beautifully. He has since forgotten the name of his developer, and cannot do the same thing over. Can you tell me what would develop the picture in such a case? A. Expose the print to the vapor of aniline (oil). The bichromate should be mixed with a trace of phosphoric acid. 2. Also, if there is anything that will stick India rubber to leather, so that neither weather nor usage will separate them? A. Try a cement composed of equal parts of guttapercha and pitch.

[OFFICIAL.]

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