

ing upon a chair or small table by simply placing the hands upon them? A. Sometimes a ring is worn which has a slot in it. A pin is driven into the chair or table. The performer catches the pin in the slot and so lifts the table.

(5966) I. R. asks: 1. Can a storage battery be charged off an alternating circuit of 50 volts? A. It cannot be so charged. 2. What is the difference between the make-up and winding of an alternating and continuous current motor? A. We must refer you to our SUPPLEMENTS which illustrate the same. They are quite different. 3. How many storage batteries will it take to run a Stanley fan motor (made by the Electric Supply Co., Chicago) 10 hours daily? A. Two or three if the motor is wound for them. Otherwise, many more may be needed. 4. Can a 2,000 volt arc continuous circuit be tapped in such a way as to get a current of 50 volts, and not be able to hinder the lights nor short-circuit the wires in any way? A. It can be done by putting in a shunt of forty times the resistance of the line included between its connections thereto. It will if used tend to interfere with the service and will be very dangerous to admit into a house. We advise you not to attempt it.

(5967) A. W. S. asks: 1. How much wire and what size will be required to wind a 60 ohm telegraph sander? A. 903 feet of No. 28, which requires 2066-116 feet for a pound of wire of this size; or if you prefer, you can wind with 568 feet No. 30, 3,111 feet to the pound. 2. Also for an instrument of 150 ohms resistance? A. 893 feet of No. 32. Of this 5963 feet are required for one pound. 3. What is the advantage of silk-covered wire over cotton-covered for this purpose? A. Silk makes a better insulator and takes up less room. 4. Can you recommend any book which treats on telegraphy? A. We recommend "Modern Practice of Electric Telegraphy," by F. L. Pope, price by mail \$1.50; "Hand Book of Telegraphy," by T. D. Lockwood, price \$2.50.

(5968) B. B. M. asks: 1. Will a storage battery of 4 cells, each cell composed of 8 plates, 1 1/2 x 3 and 1-16 inch thick, be sufficient to run a 2 candle power incandescent lamp for several hours at a charging? A. No. The plates are too small. 2. Is there any good metal of which the containing jars of a storage battery could be made, and which would not be attacked by the solution? A. Lead will answer. 3. Which is the best method for making the plates of a storage battery? To merely roughen the plates, and allow the lead oxide to be formed by repeatedly charging and discharging in opposite directions, or to coat all the plates with red lead, or to coat the positive plates with red lead and the negative plates with litharge. A. This is a very open question. For amateur's use probably the roughened plate, treated with nitric acid, and then formed, is probably the best. In commerce pasted or porous plates are almost universal in this country.

(5969) J. G. says: Could you inform me what is used by laundries to bleach clothes, besides javelle water, and a so what they use to remove fruit stains from clothes? A. Make a strong solution of chloride of lime (hypochlorite of lime—bleaching powder) in water, allow to settle and draw off the clear liquid. Rinse the goods in clean water containing about 5 per cent of sulphuric acid, and then pass them slowly through the bleaching solution. They should then be well rinsed in water containing a little carbonate of soda. If the cloth is much colored, it may be necessary to allow it to remain for a short time in the bath. This is the usual method of bleaching in laundries. 2. To remove fruit and wine stains from table linen, moisten with dilute sulphuric acid and then rub with aqueous solution of sulphite or hyposulphite of soda in water, or spr ad the stained part over a bowl or basin, and pour boiling water through it, or rub on salts of lemon and pour boiling water through until the stain disappears or becomes very faint.

(5970) J. H. B. says: Can you tell me how a soft solder can be made so that it can be used without acid? I want one that can be run into sticks and used with a slight heat. A. Melt together in a crucible, at a very moderate heat, bismuth, 1 part; tin, 3 parts by weight; lead, 2 parts; and cast in slender sticks. You will need acid or some flux however. No solder is made that will work without, except on very clean surfaces.

(5971) M. L. writes: Is the hypothetical ether supposed to be rigid or not? Can it be matter and be imponderable also? If it occupies space between the molecules, say of glass, and vibrates freely among them, must not the molecules of ether be very much smaller than those of glass, and will the molecular theory of matter admit of this condition? Why does glass transmit light, and wood not? Are there any other theories of light, heat, and sound propagation besides the ether wave and air wave theories? A. The ether is very imperfectly described, and cannot have the attributes defined as in the case of perceptible matter. It is not matter in the everyday sense, and is not subject to the molecular laws of matter. No reason can be given for transparency except that certain bodies seem to exclude ether from the space they occupy. Wood however is not transparent, from multiple reflection largely. Other theories have been advanced, but are rather more unsatisfactory.

(5972) E. H. E. asks: What was the composition of the mixture called "staff," used in the modelling of the statuary and in the construction of the World's Fair Buildings at Chicago? A. Staff is composed of plaster of Paris, alumina, Portland cement, mixed with glycerine, dextrine, and water; coarse bagging or New Zealand hemp is used to give strength. The composition varies according to the particular kind of work to be done. See the SCIENTIFIC AMERICAN for August 8, 1891, and March 18, 1893.

(5973) Constant Reader asks: What is the color and general appearance of aluminum as found in the raw clay, and is it visible to the naked eye? Also, what is the cheapest price that it has been marketed for? Are there any chances for a person to-day to try and discover a means by which to lessen the expense of the so-called metal? A. Aluminum is not found in the metallic state. It cannot therefore be discerned in clay. The lowest price is about 50 cents per pound. There is a possibility of course of reducing the cost of extraction.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

April 10, 1894,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions with names and patent numbers. Includes items like Abdominal supporter, Air brake retainers, Alarm, Animal shears, etc.

Table listing inventions with names and patent numbers. Includes items like Gas generator, Gas governor, Gas holder, etc.

Table listing inventions with names and patent numbers. Includes items like Speed and power regulator, Spike drawing bar, Spoons, etc.

DESIGNS.

Table listing designs with names and patent numbers. Includes items like Bottle, G. Lloyd, Bottle stopper, etc.

TRADE MARKS.

Table listing trade marks with names and patent numbers. Includes items like Beer, lager, Christian Moerlein Brewing Company, etc.