

and 767. 7. Can you tell if the new compound Fuller battery is suitable to run a small motor? A. Yes. 8. How many hours will the plunger battery, as given on page 401, "Experimental Science," run the motor as described in SUPPLEMENT, No. 641, at a time? After a rest will this battery regain its power? A. The battery will but slightly regain power; it will run the motor probably four hours to six hours. 9. How many days approximately will one solution run the motor, using it two hours per day? Approximately, how many days would the zinc last, using two hours per day? A. Two or three days. The duration of the zinc may be based on a consumption of 80 grains of zinc per hour in each cell. Besides this about 1/4 of the zinc will be wasted in the part above the fluid, so that it will be safe to take 3/4 of the weight of the zinc plates in one cell in grains and divide by 80 to get the hours of duration.

(6721) B. J. C. says: Can you inform me how to make a simple machine for straightening wire? A. Such a tool is shown in the accompanying cut. It consists of a casting about 10 in. in length, hav-



ing on each end a bearing which may be supported in suitable boxes. The pulley is a part of the casting, and is 3 in. in diameter and 2 in. wide. Four steel pins are inserted 1 in. apart and a little to one side of a central longitudinal line. A hole a little larger than the wire to be straightened is drilled axially through the bearing. The wire passes through the tool over and under the steel pins. It is well lubricated and is pulled through as the tool revolves rapidly.

(6722) W. R. B. says: Will you kindly advise me how to prepare gelatine for making gelatine casts, so that it will be non-shrinkable when drying? A. Allow 12 oz. of gelatine to soak for a few hours in water until it has absorbed as much as it can, then apply heat, by which it will liquefy. If the mould is required to be elastic, add 3 oz. of treacle and mix well with the gelatine. If a little chrome alum (precise proportions are immaterial) be added to the gelatine, it causes it to lose its property of being again dissolved in water. A saturated solution of bichromate of potash brushed over the surface of the mould, allowed to become dry and afterward exposed to sunlight for a few minutes, renders the surface so hard as to be unaffected by moisture.

(6723) R. P. G. writes: 1. I have a set of telephones with Blake transmitters and have them on a metallic circuit, but they do not transmit the sound loudly. How can I fix them? A. We can only suggest that you try adjusting the transmitter. Possibly there is dust on the contacts. 2. Does it make any difference whether you wind a magnet even? A. Only that it gives you less wire in the same volume, except in extreme cases, when the distribution of the lines of force is materially affected. 3. How much sulphate of copper does a Crowfoot battery No. 2 take to ring an electric bell a quarter of a mile off? A. There is no question of how much for one or another piece of work. Put in a layer of crystals an inch or two deep. 4. How can I temper brass? A. Long hammering, drawing or rolling will tend to harden it. Heating to redness and quick cooling softens it.

(6724) P. A. R. asks: 1. Is the acetylene gas practicable for both light and fuel in an ordinary family? A. Acetylene gas has not yet been tried on the large scale. It seems probable that it will be practicable if the price is sufficiently reduced. 2. How expensive is it? A. The calcium carbide costs from 50 to 75 cents a pound, giving, perhaps, 4 feet per pound. This price is prohibitive for everyday uses. 3. Do you recommend the apparatus described in your paper for January 4? A. We consider this apparatus a very good one. 4. Will it be necessary to get a book of instruction for making a gas plant of this kind for family use? If so, where can it be obtained? A. We think not. 5. How can I drill a hole in a glass bottle? A. With a file and spirits of turpentine. Use the file in a brace-drill fashion—and sever the edge from time to time by breaking off little fragments. 6. Is there anything that will take out or obliterate ink writing without injury to the paper? Please give formula. I think I heard of a fluid, made in New York, called "Columbian Ink Obliterator." A. Javelle water or solution of hypochlorites with a preliminary application of dilute sulphuric acid.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

February 4, 1896,

AND EACH BEARING THAT DATE.

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

Table of inventions including items like 'Album, F. Reifschneider', 'Automatic switch, J. F. McElroy', 'Axle box, H. A. Hyde', etc., with corresponding patent numbers.

Table of inventions including items like 'Bearing, ball, C. F. Pontious', 'Bed fastening, metallic, P. H. Mellon', 'Bed, folding, M. Samuels', etc., with corresponding patent numbers.

Table of inventions including items like 'Grinding machine, C. W. H. Blood', 'Gun, recoil operated bolt, W. W. Kimball', 'Gun, apparatus for checking recoil of, A. Von Kerpely', etc., with corresponding patent numbers.

Table of inventions including items like 'Soldering machine, can, J. Solter', 'Sole laying machine, E. E. Winkley', 'Sole leveling machine, E. C. Judd', etc., with corresponding patent numbers.

DESIGNS.

Table of designs including items like 'Badge, F. C. Combes', 'Brush core, H. M. Lior', 'Hutton, J. M. Litchfield', etc., with corresponding design numbers.

TRADE MARKS.

Table of trademarks including items like 'Beer, lager, H. Koehler & Company', 'Bicycles, National Sewing Machine Company', 'Bicycles and tricycles, S. D. Warfield', etc., with corresponding trademark numbers.

A printed copy of the specification and drawing of any patent in the foregoing list, or any patent in print issued since 1863, will be furnished for this office for 25 cents. In ordering please state the name and number of the patent desired, and remit to Munn & Co., 361 Broadway New York.