

brush. 7. Starch paste with which a little Venice turpentine has been incorporated while it is warm.

(7114) A. A. B. writes: Please give the very latest authority on velocity of transmission of light. Our authors vary from 186,000 miles per second to 187,000. The authority I use is Newcomb, who makes it about 186,317. A. We submit the following resumé of recent results by different authorities, with dates:

Table with columns for year, name, and velocity value (e.g., 1879, Michelson... 186,337±31.7 miles per second).

The average deduced from four of the best determinations gives 186,347±14.3 miles per second. The last of Newcomb's, 186,336, is considered the best single determination.

(7115) P. B. writes: I have a storage cell which I connect in circuit with a 16 candle power lamp. 1. Will this affect the main current or any part of it? A. It will not affect the main current. 2. The cell charges very slowly; can I connect so as to charge quickly, and how? Circuit has 220 volts potential. A. Put it in series with more lamps, the lamps being in parallel. 3. I connect a Porter motor No. 2 in same manner as cell, but it will not run; neither will an induct coil. How can I employ the current to run motor and coil? Why? A. If your current is direct, the trouble is that there is too little, only one-quarter ampere. 4. How can the current be adapted to run simple motor described in "Experimental Science"? A. Do as recommended in answer 2. We assume that your current is direct.

(7116) G. R. asks: 1. What is the best method of charging one or several storage batteries from a 110 volt circuit? A. There is no good way under the usual conditions of house supply. To charge a battery, for each square foot of positive plate five amperes of current may be used. This is approximately the current which would be passed by ten lamps in parallel. Therefore, for a battery of this size the current from a ten lamp lead may be passed through ten lamps in parallel and then through the battery. Of course the battery consumes voltage, about 2 1/2 volts per couple. This may be compensated for by adding one more lamp in parallel with the others for each ten or fifteen cells in series. The best method would be to connect in shunt with a suitable portion of the main circuit in parallel with the battery, but this is not practicable with ordinary house service connections. 2. Is a voltmeter made adapted to measuring the voltage of storage batteries, say with range from 1 to 3 volts? I refer to a moderate price instrument. A. Such voltmeters can be procured, but will always be somewhat expensive if reliable. 3. What do you consider the best book on storage batteries? A. We consider Salomon's work on "Accumulators," price \$1.50 by mail, one of the most practical and useful. We have also "How to Make and Use the Storage Battery," by Warwick, price \$1.50; "The Voltaic Accumulator," by Reynier, price \$3 mailed. We can supply any of these by mail.

(7117) J. W. says: How can I solder and braze cast iron? A. Cast iron is not easy to braze or solder. The surfaces must be made perfectly clean by file scratching, and treated to a wash of a solution of muriate of zinc and sal ammoniac, then tinned with a soldering copper. For brazing rub the cleaned surfaces with sal ammoniac and zinc. Then apply borax and spelter as usual for brazing. Another plan is to rub an extemporized brass wire brush over the surfaces of the fracture. The surfaces thus become coated with brass and are supposed to take solder. Success in soldering cast iron under any conditions is more than doubtful.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

FEBRUARY 9, 1897.

AND EACH BEARING THAT DATE.

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

Table of inventions starting with 'Air compressor, R. Toennes...' and 'Air gun, H. S. Bayre...' listing inventor names and patent numbers.

Main table of inventions with columns for description and patent number, including items like 'Bicycle support, Ober & Schottmuller...' and 'Gas, method of and apparatus for generating, J. A. Deuther...'.

Table of inventions continuing from the previous page, including items like 'Saw, hack, I. S. Starrett...' and 'Sawmill carriage, G. H. Patullo...'.

TRADE MARKS.

Table of trade marks including 'Alloys and ordnance metals, metal, C. N. Choate...' and 'Antiseptic tablets, A. C. Liepe...'.

DESIGNS.

Table of designs including 'Bicycle saddle clamp head, E. J. Toof...' and 'Brush, cycle, J. T. Burnip...'.

A printed copy of the specification and drawing of any patent in the foregoing list, or any patent in print issued since 1883, will be furnished from this office for 10 cents. In ordering please state the name and number of the patent desired, and remit to Munn & Co., 361 Broadway, New York. Special rates will be given where a large number of copies are desired at one time.

Canadian patents may now be obtained by the inventors for any of the inventions named in the foregoing list, provided they are simple, at a cost of \$40 each. If our services are desired, we will be a little more. For full instructions address Munn & Co., 361 Broadway, New York. Other foreign patents may also be obtained.