

No. 647,752.

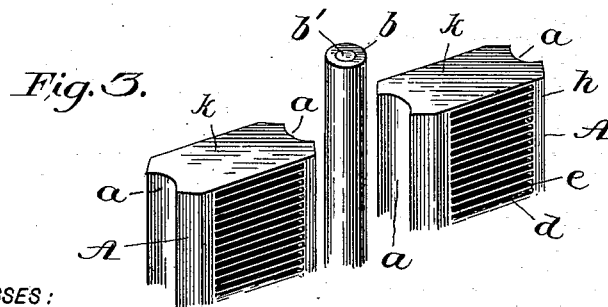
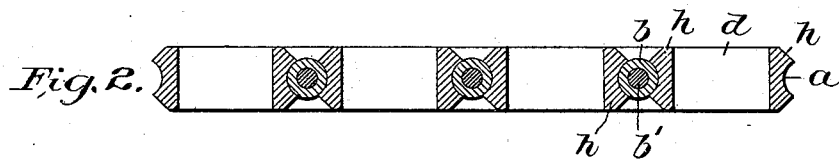
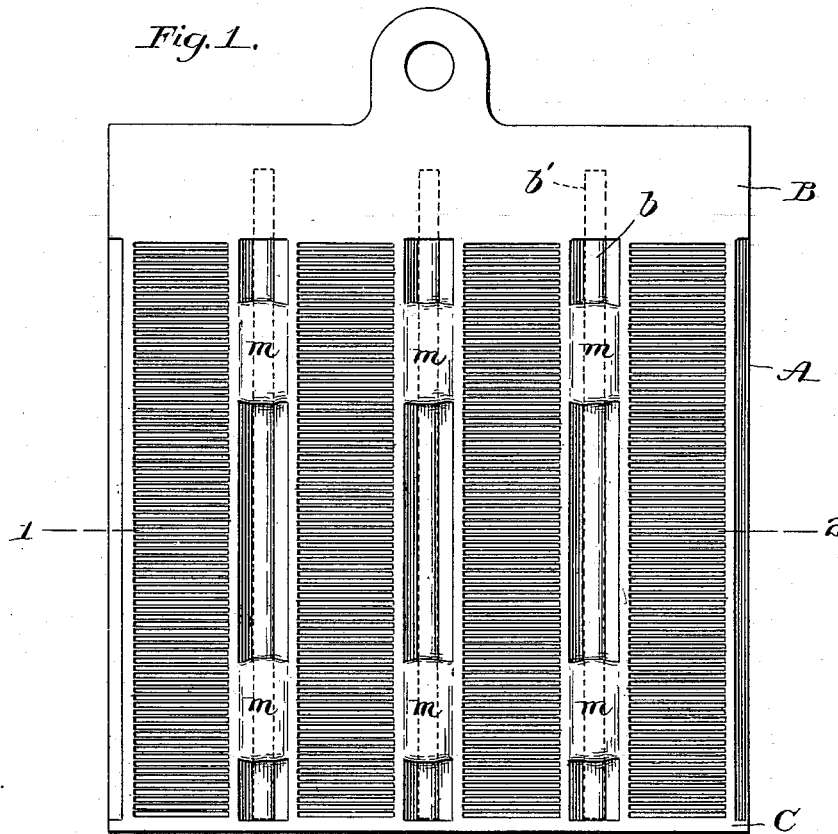
Patented Apr. 17, 1900.

R. MACRAE.  
STORAGE BATTERY ELECTRODE.

(Application filed Apr. 24, 1899.)

(No Model.)

Fig. 1.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

RODERICK MACRAE, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF  
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## STORAGE-BATTERY ELECTRODE.

SPECIFICATION forming part of Letters Patent No. 647,752, dated April 17, 1900.

Application filed April 24, 1899. Serial No. 714,280. (No model.)

*To all whom it may concern:*

Be it known that I, RODERICK MACRAE, a subject of the Queen of Great Britain and Ireland, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Storage-Battery Electrodes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to electrodes for storage and other batteries; and it consists of the novel features of construction hereinafter fully described, and pointed out in the claims, the object of my present invention being principally an economy and facility of construction of the improved device due principally to the novel manner in which the elemental parts are constructed, assembled, and combined.

In the accompanying drawings, illustrating my invention, Figure 1 is a front elevation of my improved battery-electrode; Fig. 2, a section on the line 1 2 of Fig. 1, and Fig. 3 a perspective view of the principal elements separated from each other and ready to be assembled.

That feature of the device which consists in forming an integral slatted structure by uniting at the edges of their opposite ends a series of slats or plates spaced or separated by flanges or spacing-plates I do not claim herein, as it forms the subject of a separate and now-pending application for patent, filed April 8, 1899, Serial No. 712,270.

The essential features in the present device are, first, the formation of such an elemental unit with a vertical groove *aa* on the opposite edges, (see Fig. 3,) and, secondly, locking or keying a series of these units together by interposing a lead-covered conducting-wire (indicated at *b*) in such coinciding open vertical grooves of each pair of unit sets of plates.

To enable others skilled in the art to understand and construct the improved device, I will endeavor to describe it first by reference to said pending application for patent, in which is fully stated that the unit A, Fig. 3 hereof, is composed of a series of slats or

plates *d*, which are spaced and separated from each other by interposed flanges or narrow spacing-plates, (indicated at *e*,) and then these spaced plates *d* are united at their end edges by fusing and soldering thereon a solid vertical edge piece, (indicated at *h*,) a core of conducting-wire being at the same time embedded in the solder-formed edge *h*. In the present device I proceed the same except that I do not embed the conducting-wire in the solder-formed edge *h* nor construct each unit-electrode complete in itself; but having formed such solder edge *h* it is run through an appropriate machine to form a vertical open groove *aa* therein on either side, preferably a semicylindrical open groove, as shown in the drawings, top and bottom plates *k*, of lead, being first formed or attached by soldering. These units A A may be made of any convenient lengths in the process of manufacture, and sections can be cut therefrom of such length as may be desired for any specific battery use. To assemble them in a battery-electrode composed, say, of four of these units, the parts are brought together, as indicated at Fig. 3, so that the vertical grooves *aa* on opposite sides of each pair of units A will coincide to form a cylindrical or closed groove or opening the length of the units, and in this groove is placed a proper conducting-wire, preferably a lead-covered wire, *b'* indicating the wire, (which is preferably copper or aluminium,) and *b* the lead-pipe covering, the same forming a keying device, as well as operating as a conducting-wire. The parts being in position, as described and as indicated in the cross-section, Fig. 2, the said parts are fastened together at one or more places in their length by solder, as at *m m*, Fig. 1, and the lower ends of the conducting-wire cores covered with lead, preferably by soldering a continuous lead plate C to the base of the concrete device. A top supporting means is provided, such as the plate B, formed of lead, into holes or slots, in which the ends of the wire cores, uncovered, are inserted and then the said plate B soldered fast to the series of units, to which it is thus brought into proper position.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. A battery-electrode composed of two or more centrally-slatted units the vertical edges  
5 whereof have longitudinal grooves which coincide, and an interposed conducting-wire filling said coinciding grooves when the parts are brought into register, with solder fastenings operating to maintain said parts permanently in proper relative position; substantially as described.

2. A unit-blank for a battery-electrode, consisting of a centrally-slatted lead structure and continuous solid edge portions exteriorly  
15 grooved to receive a portion of the periphery of a conducting and connecting wire, substantially as described.

3. A battery-electrode composed of two or more centrally-slatted units, the vertical edges

of which have central longitudinal grooves 20 which coincide when the parts are brought together, in combination with a lead-covered conducting-wire adapted to fill said coinciding grooves, means to fasten the parts permanently together, means to protect the 25 lower ends of the conducting-wires from the action of the electrolyte, and a supporting top plate soldered to the units in the series and in which the upper ends of the conducting-wires are embedded; substantially as described. 30

In testimony whereof I have hereunto affixed my signature this 22d day of April, A. D. 1899.

RODERICK MACRAE.

Witnesses:

WALTER C. PUSEY,  
H. T. FENTON.