

C. B. SCHOENMEHL.
BATTERY ELEMENT SUPPORT.
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943,275.

Patented Dec. 14, 1909.

Fig. 1.

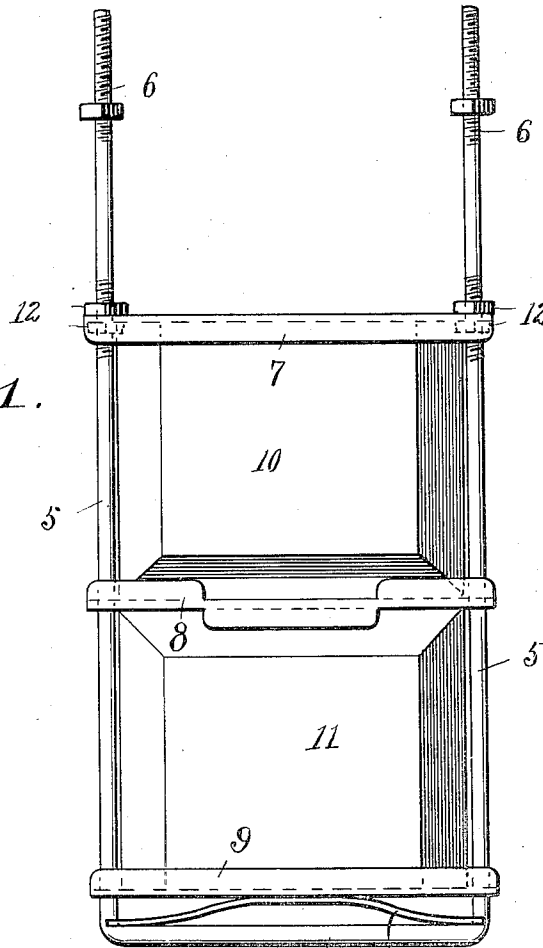


Fig. 3.

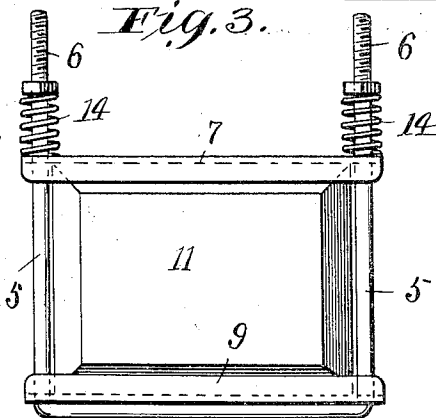
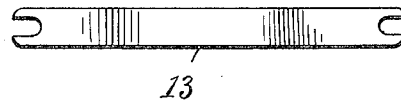


Fig. 2.



Witnesses

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BATTERY-ELEMENT SUPPORT.

943,275.

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed April 1, 1909. Serial No. 487,114.

To all whom it may concern:

Be it known that I, CHARLES B. SCHOENMEHL, a citizen of the United States, and resident of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Battery-Element Supports, of which the following is a specification.

My invention relates to primary batteries and particularly to that class which employs compressed copper and zinc plates as their electrodes and a suitable frame for supporting the same.

The purpose of the invention may better be understood by referring to some of my prior inventions as for instance that disclosed in application filed January 10, 1908, #437,616, and upon which my present form of construction is an improvement.

It is the purpose of my invention to improve upon the construction of frames for supporting positive and negative plate electrodes by providing for the expansion of the compressed copper oxid plates, which is caused by the said plates being submerged in the solution of the battery and thus preventing them from cracking when they begin to swell.

With the above objects in view my invention resides in means for accomplishing the above purpose as will be more fully understood from the accompanying drawings forming a part of this specification and upon which similar characters of reference denote like or corresponding parts throughout the several figures, and of which,

Figure 1, shows a side elevation of a supporting frame embodying my improvements and containing a pair of plates therein.

Fig. 2, is a plan view of a sheet metal spring strip used in the construction shown in Fig. 1, for yieldably retaining the plates in place, and Fig. 3, shows a modified form of frame, and including a slightly different form of spring.

The negative plates for this type of batteries are usually formed of oxid of copper, which is first finely ground then molded into plate form and baked to a suitable degree of hardness. These plates are mostly suspended in a suitable frame with the positive plate suspended on either side but insulated one from the other. It is not material to me in carrying out my present invention whether the positive plates are supported by the said frame or from the battery cover direct, but

obviously would be arranged upon opposite sides of the copper plates and reasonably close thereto.

In the drawing my invention is shown applied to a frame formed of wire and sheet metal parts so shaped and assembled as to engage only the edges of the plates to support and retain them in position.

The wire part 5 is of a U shape, having its upper ends 6 threaded and provided with nuts for its attachment to a battery cover, not shown. Channel strips 7, 8 and 9 are arranged crosswise to engage the top and bottom edges of the plates 10 and 11 and are provided with holes in their ends to receive the vertical side portions of the wire. The bottom channel strip is arranged between the wire side portions of the frame in a way to receive and support the bottom plate, while the intermediate strip is located between the adjoining edges of the two plates, and has its side portions disposed in opposite directions to engage the sides of the plates in a way to prevent sidewise movement. The top channel strip rests upon the top edge of the top plate, and nuts 12 threadably attached to the side wires serve to engage the said top strip and adjustably secure it in position to engage the top edge of the top plate. When these plates are first assembled they are hard and dry and naturally contracted, but after being submerged in the battery solution for a while they will swell and therefore if rigidly secured in the frame are liable to crack and go to pieces. I have therefore provided means to permit of such edgewise movement as is necessary to prevent this trouble and which as shown in Fig. 1, comprises a spring 13 that is situated intermediate of the transverse body portion of the U shaped wire portion of the frame and the bottom sheet metal channel strip that supports the bottom plate. The end portions of this sheet metal spring are notched to engage the side portions of the wire frame while the intermediate portion of the spring is bowed up to engage the underside of the strip 9. It will be apparent therefore from the construction shown that with the lowering of the two nuts 12 upon the side rods, the plates and strips will be forced together against the resistance of this spring and that the same will be held in place by the tension of the spring which is such as to permit of any slight expansion or contraction of the plates that may take

place. It is also true that with this construction of frame the plates may be replaced without operating the nuts, but by pressing down on the channel strip 9 until the bottom plate is freed and removed which obviously will permit the top one also to be taken out. The renewal plates can then be inserted and the said spring released to act against the bottom strip so as to hold them edgewise one against the other.

In the construction shown in Fig. 3, I have shown a wire holder of somewhat the same design as that shown in Fig. 1, though proportioned to support a single negative plate, instead of two. I have also shown a slightly different form of spring device for holding the channel strips against the edge of the plate and which as illustrated comprises two spiral springs 14 arranged upon the upper end portions of the side members of the U shaped wire, said springs being located intermediate of the top channel strip 7 and the nuts 12 of the frame. With this construction the plate is permitted to swell and expand freely without possible injury to the same and yet is held securely in place for use as desired.

Having thus described my invention what I claim and desire to secure by Letters Patent is:—

1. An electrode support for batteries, comprising a pair of guide wires, two or more transverse channel strips mounted upon the

wires, and a sheet metal spring arranged beneath the lower channel strips to hold the plate intermediate of the said strips.

2. An electrode support for batteries, comprising a metal frame adapted to engage the edges of a negative electrode, and a sheet metal spring piece to bear against a part of said metal frame to clamp the plate edgewise to retain the same in position.

3. An electrode support for batteries, comprising in part a pair of wires arranged along the opposite edges of an electrode, cross pieces to engage the remaining two edges of the plate, and means for yieldably pressing the said cross pieces against the edges of said plate to hold the same within the frame.

4. An electrode support for batteries, comprising a U shaped wire frame, a sheet metal spring seated within the lower portion of the frame, a channel strip resting upon said spring, a plate seated in the channel strip, a top strip to engage the top edge of the plate, and nuts upon the side wires to hold the top strip against the action of the spring.

Signed at Waterbury, in the county of New Haven and State of Connecticut this 24th day of March, A. D., 1909.

CHARLES B. SCHOENMEHL.

Witnesses:

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T. E. ROGERS.