

No. 757,355.

PATENTED APR. 12, 1904.

C. B. SCHOENMEHL.
GALVANIC BATTERY.

APPLICATION FILED NOV. 22, 1899.

NO MODEL.

Fig. 1.

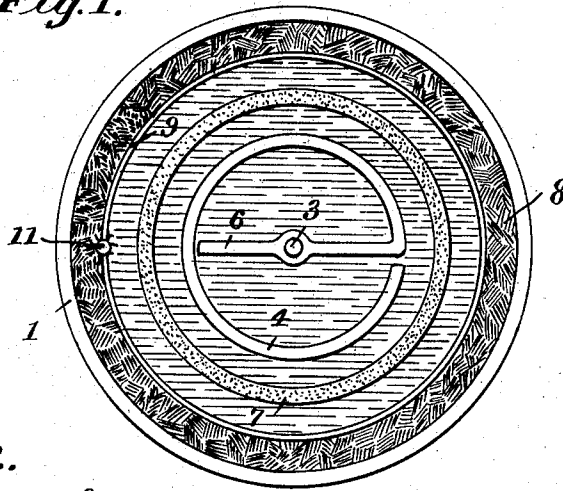


Fig. 2.

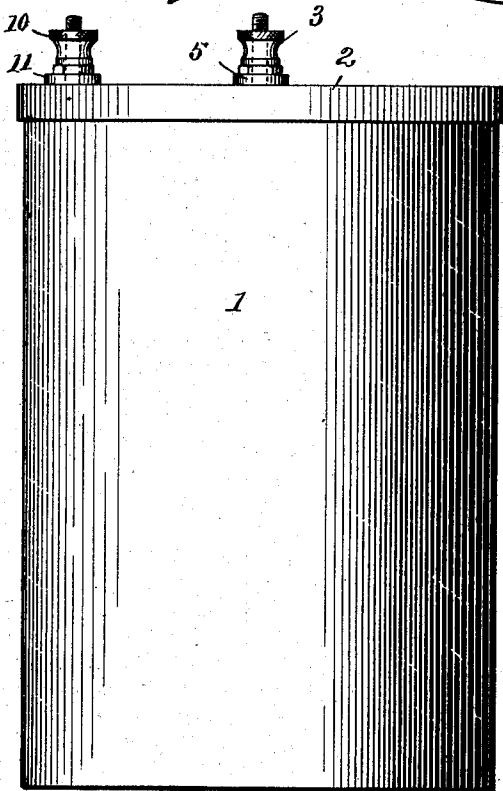
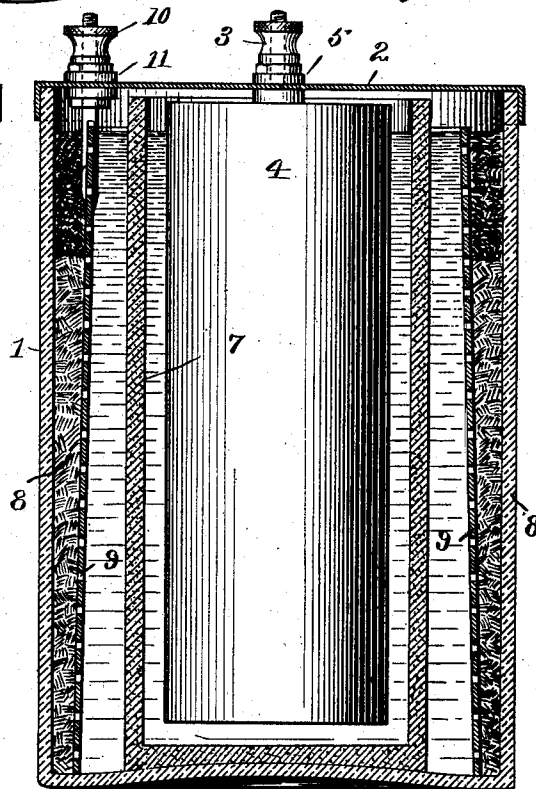


Fig. 3.



Witnesses

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GALVANIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 757,355, dated April 12, 1904.

Application filed November 22, 1899. Serial No. 737,884. (No model.)

To all whom it may concern:

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

This invention relates to closed-circuit galvanic batteries wherein oxid of copper, zinc, and an exciting fluid may constitute the essential elements.

Batteries of the above class gradually become inactive in their lower strata by gravitation of the consumed zinc. Consequently the solution acts upon the elements stronger adjacent to the top surface. The result is that where the oxid of copper is retained in a receptacle of uniform diameter the said copper oxid will not only be consumed first at the top, but the solution frequently becomes so weak at the bottom that it will not consume the entire bulk of copper oxid, thus lessening the ampere-hour output of the cell. Consequently the battery has to be recharged and said unused copper oxid is wasted.

It is accordingly the essential feature of this invention to provide a battery with an oxid-receptacle whose thickness or breadth is greatest adjacent to its top, thus insuring a more uniform and thorough consumption of the ingredient contained therein. The above is accomplished by arranging at least one of the walls of the receptacle at an angle other than a right angle to a vertical line passing through the said receptacle.

A further object of my invention resides in the production of visible means whereby the condition of batteries may be detected by a mere glance, said object being accomplished by locating the depolarizing agent in a special manner adjacent to the exterior of the glass jar, as will later be more fully explained. Finally, I provide in connection with the above an improved form of zinc.

With the above objects in view my invention resides and consists in the novel construction, combination, and arrangement of parts

shown upon the accompanying sheet of 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 plan view of my improved battery with its nuts and cover removed. Fig. 2 is a side view of said battery complete, and Fig. 3 is a central vertical cross-sectional view of the same.

Referring in detail to the characters of reference marked upon the drawings, 1 represents the usual form of glass jar, which is provided with a metallic cover 2.

3 represents a binding-screw for the pole of the zinc element 4, which pole is insulated from the cover by means of rubber washers 5 in the usual manner. The zinc referred to comprises a cylindrical-shaped body bent up of one piece having a straight transverse portion 6, to the center of which the binding-post is secured.

The zinc element referred to is preferably located within a porous cup 7, which is designed to afford a resistance of current between the two elements of my battery and whereby the rapid destruction of life or energy of the battery is prevented.

As before stated, the negative element 8 of my battery is preferably oxid of copper. This, as is well known, changes color during the action of the hydrogen thereon. Said transformation or coloration is first apparent on the surface of the copper scale and gradually works down through the body thereof, thus consuming the entire quantity. In view of this visible change of the copper I locate the same adjacent to the exterior of the surface of the jar and provide an annular angular perforated wall 9 within the jar in a manner to retain the copper between said wall and jar in an annular depolarizing-receptacle. This wall is arranged at a slight angle to a central line through the cell, as shown in the drawings, so as to form the compartment for the copper thinner at the bottom than at the top, producing a tapering depolarizer-chamber, better to insure the more uniform and thorough con-

sumption of the copper scale contained therein. A connection for the second circuit - wire is provided by attaching a binding-post 10 to the wall 9 before mentioned, said post being insulated from the cover by suitable insulating-washers 11, as shown.

From the above it will be apparent that as the surface of the body of the copper is attacked and changes color the same is readily perceivable and that it will also be understood that as this transformation takes place down through the body of said copper it will likewise be apparent that the life of the battery is proportionately consumed and its future days of usefulness may accordingly be recorded.

In the drawings I have shown the copper resting upon the bottom of the jar; but it will be obvious that the depth of the perforated partition, as well as the copper-chamber, can be shortened up and supported from the cover, if desired.

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

1. In a battery, the combination with the other parts, of an annular perforated depolarizer-receptacle, broadest through its top edge.

2. In a battery, the combination with the other parts, of an annular receptacle for holding a depolarizer having a perforated side wall set at an angle other than a right angle to a vertical line passing through said receptacle, and a zinc adjacent to said perforated wall.

3. In a battery, the combination with the other parts, of an annular receptacle for holding a depolarizer having an interior perforated tapering side wall, an exterior cylindrical vertical side wall and a zinc intermediate of said receptacle.

4. In a battery, the combination of the other parts, a receptacle for holding a depolarizer comprising an interior annular independently removable perforated side wall inclined at an angle other than a right angle to a vertical line passing through the receptacle, and a solid exterior wall.

5. In a battery, the combination with the other parts, of an annular depolarizer-holder with a perforated side wall, at least one of its walls being set at an angle other than a right angle to a vertical line through the holder.

6. In a battery, the combination with the other parts, of a receptacle for holding a depolarizer having an annular interior perforated side wall set at an angle other than a right angle to a vertical line passing through the said receptacle and an exterior cylindrical vertical wall.

7. The combination in a battery, of a jar, an oxid-of-copper element in said jar, a com-

partment for said element adjacent to the vertical wall of said jar and having a perforated inner wall, a cylindrical element bent up of a single sheet-metal piece, and having a central transverse end containing a binding-post thereon, an exciting fluid to operate in conjunction with said copper and zinc, substantially as shown and described, and means interposed between the two elements to form an electrical resistance.

8. In a galvanic battery of the class described, the combination with a glass jar, of a perforated sheet-metal cylinder arranged therein resting upon the bottom and forming an annular compartment adjacent to the jar, an oxid-of-copper element in said compartment, a cylindrical zinc element arranged centrally of said oxid and comprising a single piece of sheet-zinc rolled up with its inner end extending diametrically across the axial line of said cylindrical body, a post centrally arranged upon said transverse portion, and an electrical resistance disposed between said copper and zinc elements to preserve the energy of the battery.

9. In a galvanic battery of the class described, the combination with a suitable negative element, of a positive pole comprising a cylindrical body formed only of a single piece of sheet metal bent around with its inner end freely deflected diametrically across the axial line of said zinc body, a binding-screw centrally located on said deflected portion, substantially as shown and described.

10. In a battery, the combination with the other parts, of a receptacle for holding a depolarizer having an interior annular perforated side wall set at an angle other than a right angle to a vertical line passing there-through and forming a central opening in the receptacle.

11. In a battery, the combination with the other parts, of a receptacle for holding a depolarizer, one wall of which is in the form of a hollow perforated cone extending under some part of the depolarizer-holding space, all substantially as set forth.

12. In a battery, the combination with the other parts, of a receptacle for holding a depolarizer, having a perforated wall circular in cross-section which extends under some part of the depolarizer-holding space and set at an angle other than a right angle to a vertical line passing through the said receptacle.

Signed at Bridgeport, Fairfield county, Connecticut, this 18th day of November, A. D. 1899.

CHARLES B. SCHOENMEHL.

Witnesses:

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