(No Model.)

# R. P. OSGOOD.

## PRIMARY BATTERY.

No. 562,019. Patented June 16, 1896.

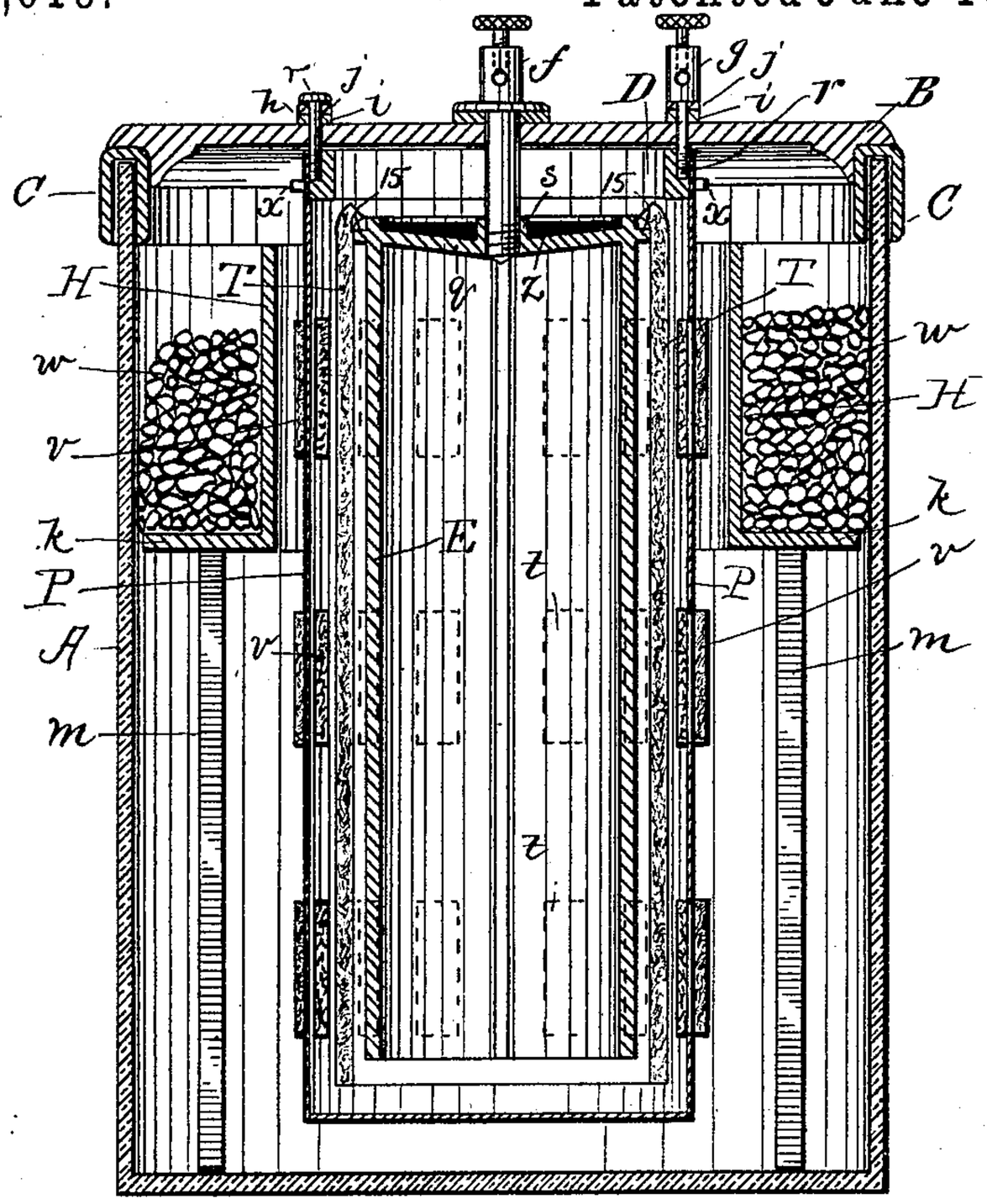


Fig. 1.

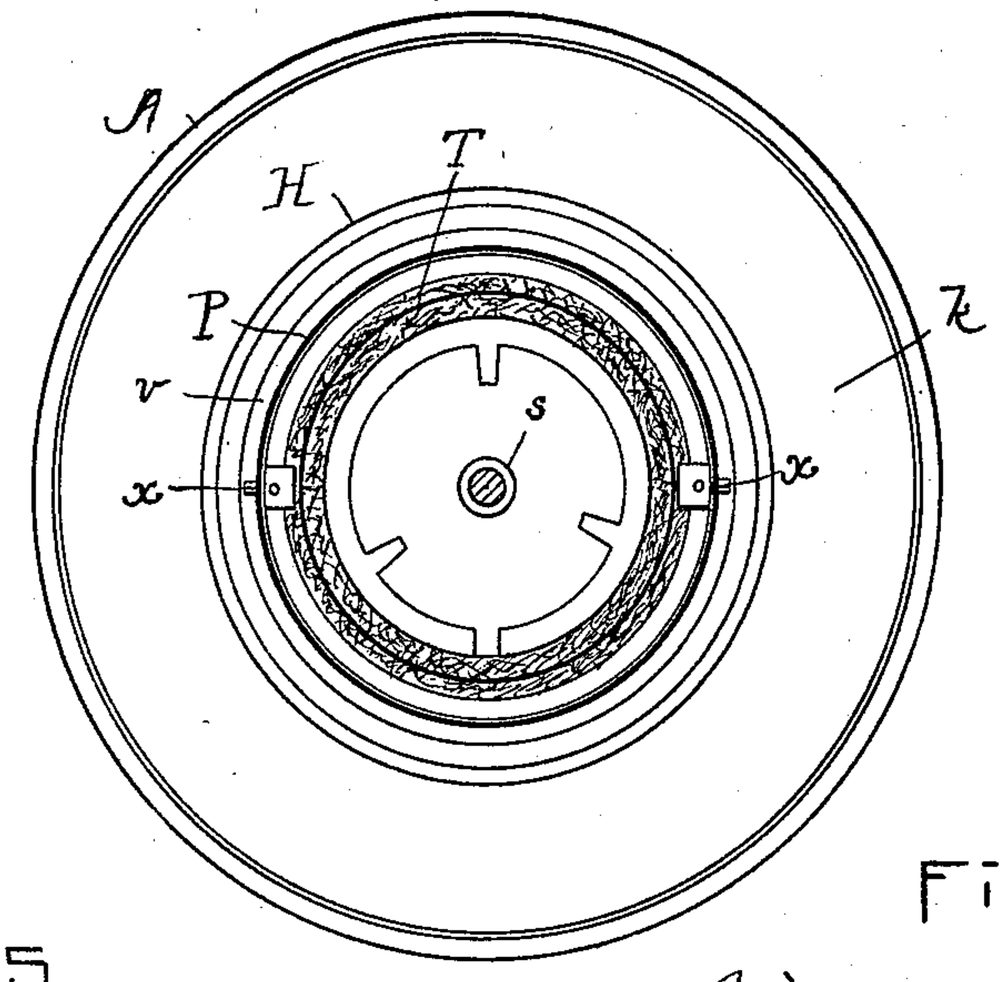


Fig. 2.

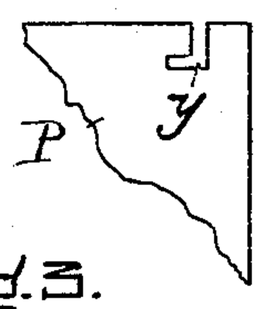


Fig. 3.

WITNESSES.
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ATT'Y

# UNITED STATES PATENT OFFICE.

RICHARD P. OSGOOD, OF SALEM, MASSACHUSETTS, ASSIGNOR OF ONE-THIRD TO EDGAR E. RAMSDELL AND OSGOOD RAMSDELL, OF SAME PLACE.

## PRIMARY BATTERY.

SPECIFICATION forming part of Letters Patent No. 562,019, dated June 16, 1896.

Application filed September 30, 1895. Serial No. 564,143. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD P. OSGOOD, of Salem, in the county of Essex, State of Massachusetts, have made certain new and useful Improvements in Primary Batteries, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical transverse section of my improved battery; Fig. 2, a top plan view of the same, the cover being removed; Fig. 3, a sectional elevation illustrating details of construction.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates especially to improvements in primary batteries whereby the internal resistance may be reduced to a minimum, the copper solution will not deposit on the zinc, and there shall be practically no local action on the zinc.

The nature and operation of the improvement will be readily understood by those conversant with such matters from the following explanation.

In the drawings, A represents the containing-jar, which may be of any suitable construction. A flanged cover B closes the jar and rests on a rubber ring or washer C. On the under side of the cover there is a brass ring D, held by a binding-post *g* and a screw *r*, between which and the cover a copper washer *j* and rubber washer *i* are interposed. This ring has two radially-projecting pins *x*, which are adapted to engage in the angle-slots *y* of a copper cup P, whereby the cup may be detachably suspended from the ring. A binding-post *f* has a long shank passing centrally through the porcelain cover B. This shank is screw-threaded. A zinc cylinder E has a concaved top *q*, in the center of which there is a cylindrical throat *s*, into which the threaded shank of the post *f* turns and supports the zinc within the copper P. This top *q* forms a receptacle in which mercury *z* is disposed, whereby the zinc may be amalgamated. The zinc cylinder is flanged at its top at 15, and a cylinder T, of felt, encircles the zinc and is pendent from said flange. This felt cylinder forms a partition between the zinc and copper. Encircling the copper P there is a cylinder H, having a horizontal annular foot or base *k*, supported by legs *m*, which rest on the bottom of the containing-jar. Crystals of blue vitriol *w* rest on this base. In the wall of the copper cup there are formed series of rectangular openings *t*. These openings are closed by felt rings *v*, which fit tightly over the cup.

In the use of my improvement, the battery being filled, the vitriol solution deposits on the outer face of the copper cup, and, percolating through the felt rings *v*, is caused by the felt cylinder to pass downward under said cylinder before it contacts with the zinc. The remaining copper in the solution is thus deposited on the inner face of the copper cup and the hydrogen is constantly replaced to decompose the copper sulfate as it comes through. Only clear acid thus reaches the zinc. The felt acts as a guard for the zinc, and by effecting the result specified greatly reduces the internal resistance. By this construction there is no deposit of copper on the zinc, and hence there is no local action on said zinc. The solution when it reaches the zinc is substantially clear acid, as the felt gives the copper or polarized surface more time to decompose the vitriol before it reaches the zinc.

Having thus explained my invention, what I claim is—

1. In an electric battery the combination of a containing-jar; a copper cup suspended therein and provided with openings closed by fibrous material; a positive pole suspended within said cup and a partition of felt between said poles substantially as set forth.

2. In an electric battery a containing-jar and cover in combination with a negative pole comprising a copper cup suspended from said cover and provided with openings covered by a fibrous material; a positive pole suspended within said cup; and a felt partition between said poles.

3. In an electric battery a containing-jar and cover in combination with a stand, H, within said jar; a copper jar pendent from said cover and provided with openings; a zinc cylinder pendent within said jar; and a fibrous partition between said copper and zinc substantially as specified.

4. In a battery of the class described a containing-jar and cover in combination with a metallic projection on said cover connecting with a binding-post; a copper cup detachably secured to said projection and having openings closed by a fibrous material; a zinc suspended from the cover within said cup; and a fibrous partition between said zinc and cup substantially as set forth.

5. In a battery the containing-jar and cover in combination with the ring, D, on said cover; the cup, P, detachably secured to said ring and having openings closed by felt rings, *v;* the zinc cylinder, E, suspended from said cover and having the sunken head, *q;* and the felt partition between said zinc and cover.

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Witnesses:
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