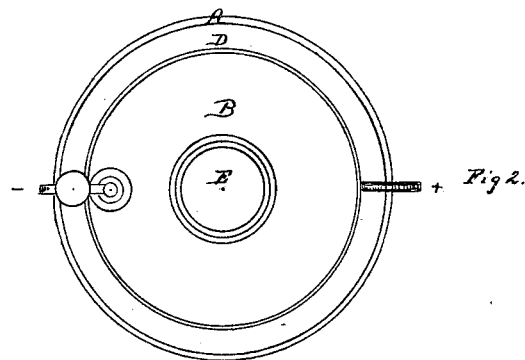
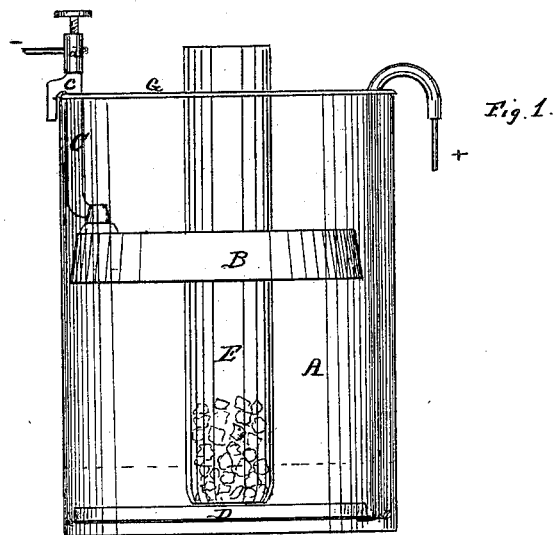


E. A. HILL.  
GALVANIC BATTERY.

No. 114,006.

Patented Apr. 25, 1871.



Witnesses:

J. Munday  
L. L. Corbun

INVENTOR:

Edward A. Hill

# United States Patent Office.

EDWARD A. HILL, OF CHICAGO, ILLINOIS.

Letters Patent No. 114,006, dated April 25, 1871.

## IMPROVEMENT IN GALVANIC BATTERIES.

The Schedule referred to in these Letters Patent and making part of the same.

I, EDWARD A. HILL, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Galvanic Batteries, of which the following is a specification.

My invention relates to a battery of novel construction, whereby a greater convenience in operating the same is attained as well as a more perfect action of the chemicals, all of which will presently more at length appear.

In the accompanying drawing which, together with the letters and figures of reference marked thereon, forms part of this specification—

Figure 1 is a front view of my invention.

Figure 2 is a top or plan view of same with the cover removed.

Figure 3, a sectional view of the zinc plate.

### General Description.

A is the battery-cup, which I ordinarily make of glass, porcelain, or similar material.

B is the zinc, which is made in the form of a ring.

C is the hanger or support which is attached to the zinc, and supports the same from the rim of the battery-cup by means of the hook c.

This hanger also serves to attach the negative pole-wire which is inserted into a hole near the top of the upright part d, and is secured and compressed by the set-screw e.

D is a copper plate lying flat in the bottom of the battery-cup.

To the under surface of this plate is soldered the positive pole-wire, +, which extends up and over the edge of the battery-cup.

This wire is covered by some substance, for instance, gutta-percha, which will be impervious to the action of the chemicals of the solution contained in the active working battery.

E is a magazine or receptacle, consisting of a glass tube extending downward through the opening in the cover G and the zinc plate or ring B, and resting on the horizontal flat copper plate D.

I employ the usual positive and negative elements in this battery, viz., zinc and its sulphate in solution as the positive element, and copper and its sulphate in crystals and solution as the negative element, although any similar suitable elements bearing the same relation may be employed.

The zinc and copper having been placed in position

in the jar or cup the latter is filled to the level of the top of the zinc with a moderately strong but not saturated solution of sulphate of zinc.

The tube or magazine is then introduced and filled to the height of the liquid with crystals of sulphate of copper.

The purpose of the tube or magazine E is to facilitate the introduction of the crystals of sulphate of copper without agitating the solutions, and to retain them in position while and previous to being dissolved, so that they shall always be in contact with the plate D.

The magazine E is sufficiently long to extend somewhat above the upper rim of the battery-cup, so that a cover, G, may be placed over said cup with an aperture to fit around said magazine, leaving it always open and ready of access without uncovering the battery.

The copper lying flat in the bottom of the battery-cup presents a very much greater surface to the action of the solution, viz., the side instead of the edge of said plate, thereby increasing the power of the battery by diminishing the resistance, and enabling me to remove the elements further apart to avoid the liability of creating local action.

By extending the magazine to the bottom of the battery and resting it upon the copper plate I have a much thinner stratum or layer of the saturated sulphate of copper overlying the copper element than when the copper plate is on edge and the magazine is suspended in the cup above it.

### Claims.

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

1. The combination of the annular zinc plate B with the metallic hanger C, provided with the hook c and set-screw e for securing the wire thereto, substantially as specified and shown.

2. The combination of the magazine E and the copper plate or disk D, when the said disk lies horizontally and flat upon the bottom of the battery-cup and the said magazine rests thereon, substantially as, and for the purpose specified.

EDWARD A. HILL.

Witnesses:

J. W. MUNDAY,  
L. L. COBURN.