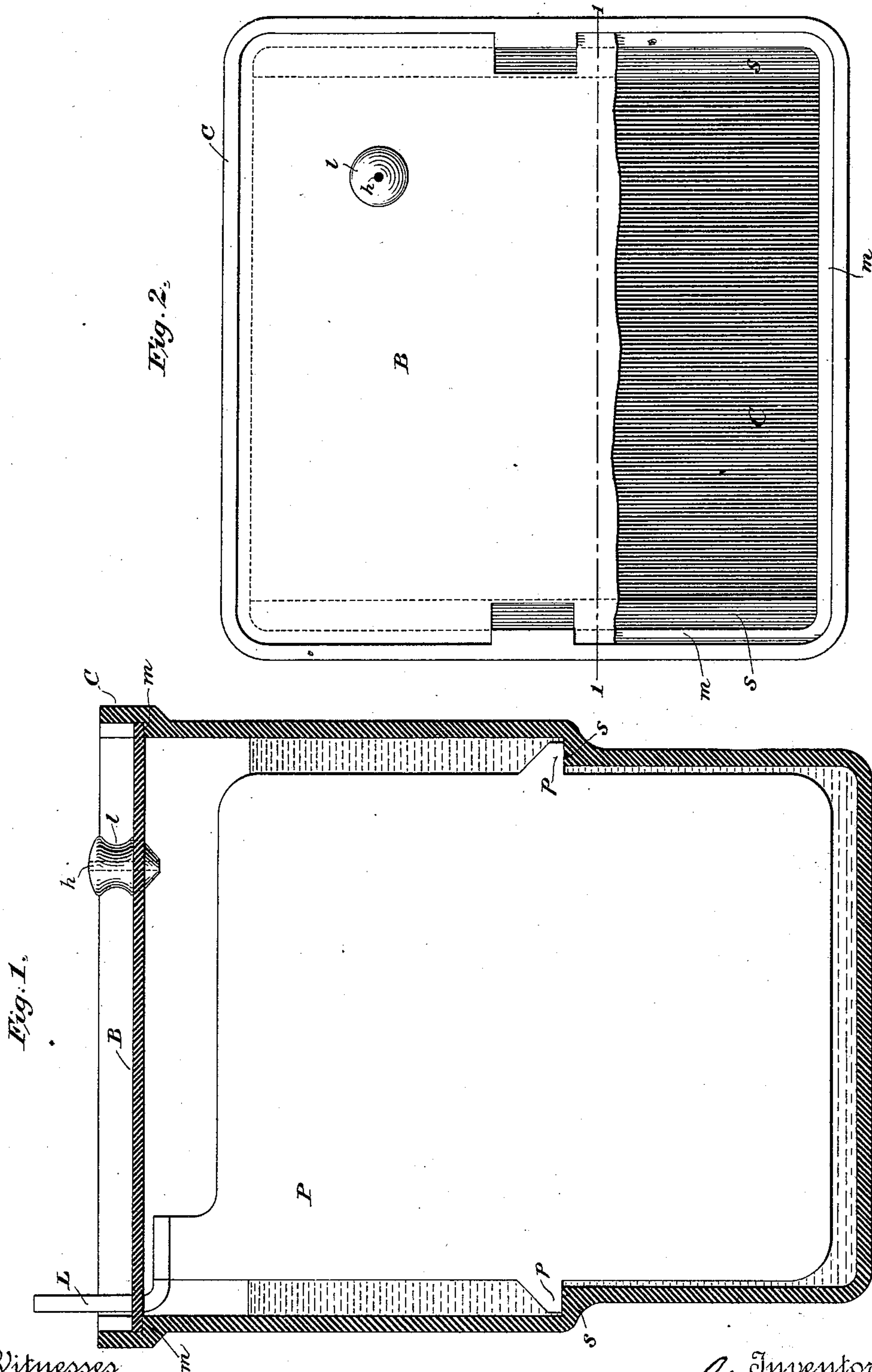


(No Model.)

W. W. GRISCOM.
SECONDARY BATTERY.

No. 406,439.

Patented July 9, 1889.



Witnesses
Geo. W. Breech
Henry W. Lloyd.

Inventor
William W. Griscom,
By his Attorney J. D. Vaneig

UNITED STATES PATENT OFFICE.

WILLIAM W. GRISCOM, OF HAVERFORD COLLEGE, PENNSYLVANIA, ASSIGNOR
TO THE ELECTRICAL ACCUMULATOR COMPANY, OF NEW YORK.

SECONDARY BATTERY.

SPECIFICATION forming part of Letters Patent No. 406,439, dated July 9, 1889.

Application filed April 12, 1889. Serial No. 306,921. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. GRISCOM, a citizen of the United States, and a resident of Haverford College, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Secondary Batteries, of which the following is a specification.

My invention is an improvement in secondary batteries.

The invention consists of an inclosing-cell having shoulders upon interior opposite sides, about midway the vertical height thereof, combined with elements having projections upon opposite edges, midway the vertical height, which rest upon and are supported by the shoulders within and forming part of the cell. I provide shoulders or projections near the upper edge for the purpose of supporting a rigid cover of insulating material completely inclosing the cell, and in this cover I place one or more perforated buttons of hard rubber or some equally rigid material, to provide an escape for the accumulating gases and to serve as handles by which to lift the cover.

Heretofore an inclosing-cell has been provided having a separate support midway the vertical distance, upon which the elements of the battery, furnished with suitable projections upon opposite sides, have been rested. My invention differs from this, in that the supporting points or shoulders are formed out of and are part of the cell itself. By this means I avoid displacement of the points of support when the electrolytic liquid is being placed in the cell. It is also old to furnish a cover with a vent-hole of a soft and yielding material, such vent-hole or perforation automatically closing when the pressure of gas decreases.

The distinguishing characteristic of this part of my invention consists in providing a vent-hole through the button, which also serves as a handle and is sufficiently hard and rigid to avoid temporary closure of the vent-hole.

The accompanying drawings illustrate my invention.

Figure 1 is a vertical section on the line 1 1, Fig. 2, of the cell, showing the element in position, with its projections resting upon the

shoulders of the cell. Fig. 2 is a plan view, showing the cover and cell in section.

C is a cell of insulating material—as hard rubber—having shoulders S upon its interior, at or about the central vertical distance thereof. The two elements, each formed of a series of interleaved plates, like P, are furnished with projections *p p* upon opposite edges near the central vertical distance, which rest upon and are supported by the shoulders S within the cell.

B is a cover of insulating material—as hard rubber—tightly fitting the interior of the top of the cell and resting upon projections *m* within the cell and near the top thereof. In this cover are located one or more buttons of hard rubber *l*, having a perforation extending completely therethrough, like *h*. These buttons serve as handles by which to remove the cover B, and the vent-holes *h* furnish a passage for the accumulating gases of the cell.

A cell constructed in this way occupies less floor-space and affords a means for supporting the elements free from the bottom of the cell in such a manner that one element may be freely removed without disturbing the other, to the end that it may be examined, repaired, or substituted. Each element is provided with a lug, as L, projecting from the cell at or near a central point on opposite sides.

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

1. In a secondary battery, a cell of insulating material having projections formed in or upon its interior opposite walls and near the central vertical distance, in combination with two elements, each composed of a series of interleaved parallel plates having projections upon opposite sides, near the central vertical distance, resting upon or supported by said projections from the interior of the cell, whereby one element may be removed without disturbing the other, substantially as described.

2. The combination, in an electric battery, of an inclosing-cell of insulating material, having shoulders or projections upon its opposite interior walls, near the upper edge thereof, a cover of insulating material resting upon said projections and having one or more rigid perforated handles, suitable elements or

electrodes for said battery, and an electrolytic liquid, all arranged and operating substantially as and for the purpose described.

3. In an electric battery, the combination
5 of a hard-rubber inclosing-cell having projections upon interior opposite walls, at or near the central vertical distance and at or near the upper edge thereof, elements resting upon the first-named projections and supported
10 thereby, a hard-rubber cover resting upon said second projections, and one or more perforated rigid buttons of hard rubber located

in said cover, whereby the cover may be removed and replaced and the accumulating gases may escape, all arranged substantially 15 as described.

Signed at New York city, in the county of New York and State of New York, this 11th day of April, A. D. 1889.

WILLIAM W. GRISCOM.

Witnesses:

DANIEL E. DELAVAN,
V. E. SCHAUMBURG.