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CLOSURE FOR STORAGE BATTERY CELLS

Filed Feb. 24, 1922

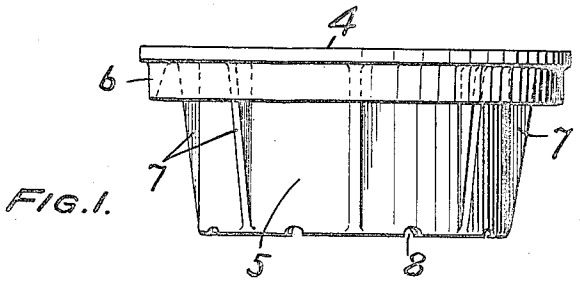


FIG. 1.

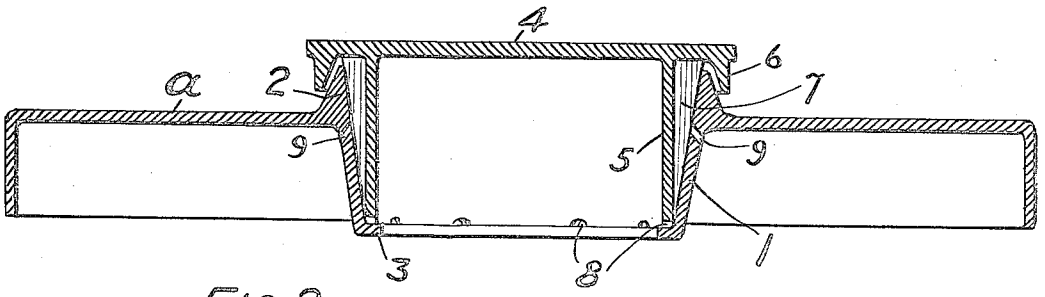


FIG. 2.

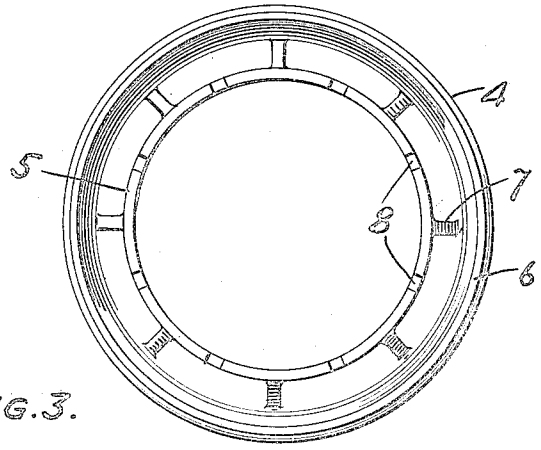


FIG. 3.

WITNESS:

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UNITED STATES PATENT OFFICE.

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CLOSURE FOR STORAGE-BATTERY CELLS.

Application filed February 24, 1922. Serial No. 538,957.

To all whom it may concern:

Be it known that I, JOSEPH L. WOODBRIDGE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Closures for Storage-Battery Cells, of which the following is a specification.

The principal objects of the present invention are to provide a filling opening and vent closure for the cover of a storage battery cell which shall be of simple and convenient construction, and which shall exclude dirt and dust, oppose the escape of spray and drain it back into the cell and provide proper ventilation.

Other objects of the invention will appear from the following description at the end of which the invention will be claimed and which will be made in connection with the accompanying drawings forming part hereof and in which—

Figure 1 is a side view of the cap.

Fig. 2 is a sectional view showing a closure embodying one form of the invention, and

Fig. 3 is a plan view of the under side of the cap.

Referring to the drawings, the vent opening in the cover *a*, of the cell consists of an outwardly flaring seat element or conically shaped barrel 1, extending above the upper surface of the cover in the form of a circular boss or rim 2, and having an internally projecting circular ledge 3 at the bottom. The vent cap 4 is provided with a cylindrical projection 5 which when the cap is in place extends into the vent opening and rests on the ledge 3. The cap 4 extends over the boss 2 and is provided with a downwardly projecting skirt or rim 6 which serves to prevent dirt from getting into the cell. The rim 6 of the vent cap is prevented from coming into contact with the boss 2 of the cover by reason of the ledge 3 at the bottom of the vent opening, which supports the vent cap 4 in a position to provide clearance between 6 and 2. Furthermore the vent cap 4 is centered in the vent opening by the tapering ribs 7 located at intervals around the periphery of the cylinder 5 and whose outer edges fit closely against the inner surface of the barrel 1. The spaces between the cylinder 5 and the barrel 1 serve as condensing chambers or spray traps, to prevent the escape of spray from the electrolyte in the cell, which may be thrown up by the gassing during charge or by any violent mechanical motion of the cell. Any drops of electrolyte which may collect in this space will fall to the bottom and will be drained back into the cell through the openings 8 which consist of small grooves in the lower surface of the cylinder 5. If, however, the lower surface of the cylinder 5 is somewhat irregular, this drainage may be provided without constructing these special grooves 8. Vent openings 9 are shown in the barrel 1 to permit the escape of gas from the cell. This gas passing through these small openings at a comparatively high velocity may carry some entrained moisture which, however, will be deposited on the opposite surface of the cylinder 5 and drained back into the cell.

It is important that there should be some clearance between the overhanging lip 6 of the vent cap and the boss 2 of the cover, since if these two come in contact, the effect of capillary action is to collect moisture between them which runs down on the upper surface of the cell when the vent cap is removed. The construction shown prevents this action.

The ledge 3 at the bottom of the barrel 1 serves not only to support the vent cap 4 in the proper position, but also acts as a baffle to prevent spray of electrolyte from being thrown directly into the spaces between the barrel 1 and the cylinder 5.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details of construction and arrangement without departing from the spirit of the invention which is not limited to such matters or otherwise than as the prior art and the appended claims may require.

I claim:

1. A vent closure for storage battery cells comprising in combination a cell cover having a flaring wall providing a filling opening and terminating in an inturned ledge, an externally cylindrical cap overhanging one end of said wall and spaced from the cover and seated on the ledge to provide for ventilation at all times, and spacing ribs between the cylindrical portion of the cap and the face of the flaring wall.

2. A vent closure for storage battery cells comprising in combination a cover, an outwardly flaring seat or barrel element extend-

ing through and above and below the cover and provided below the cover with an inturned ledge, and a cylindrical cap element resting on the ledge and provided with spacing ribs for co-operation with the flaring wall of the seat element and with a skirt projecting downwardly around the upper end of the seat element and spaced from the latter and from the cover to provide ventilation at all times.

3. A vent closure for storage battery cells comprising detachably nested seat and cap elements having flaring and cylindrical confronting walls of which walls one is provided with spacing ribs and of which elements one is provided with an inturned ledge for supporting the other element in spaced relation to provide between the walls and ribs chambers having open tortuous inlets and outlets, substantially as described.

JOSEPH L. WOODBRIDGE.