Sept. 16, 1924. 1,508,829

J. L. WOODBRIDGE

ELECTROLYTE LEVEL INDICATOR FOR STORAGE BATTERIES

Filed Oct. 31, 1922

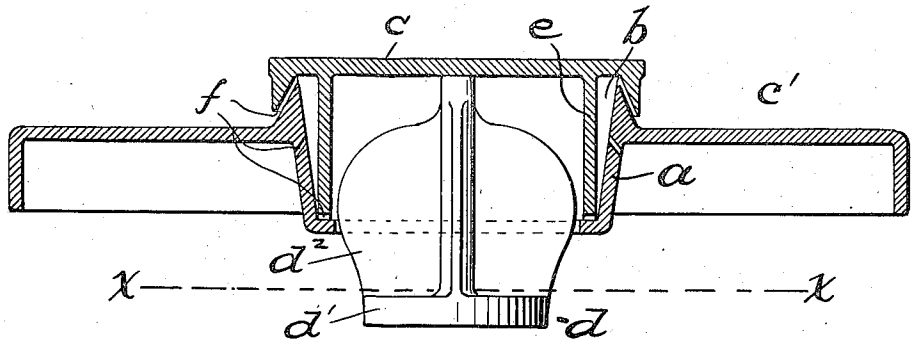


FIG. 1.

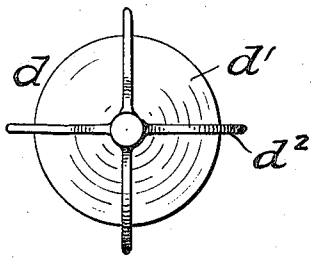


FIG. 2.

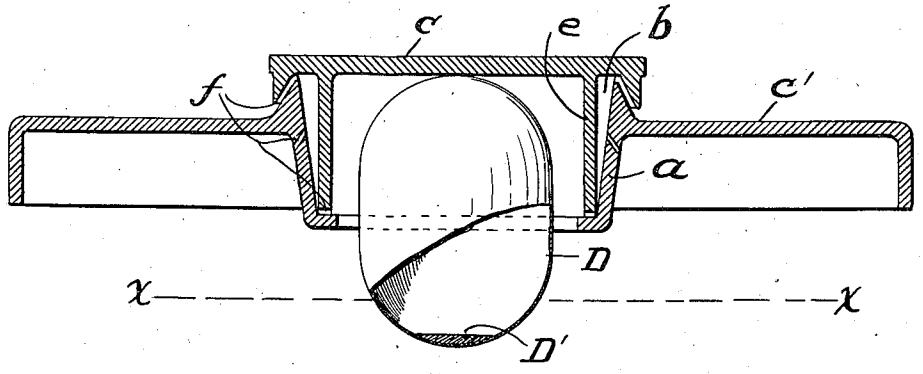


FIG. 3.

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Patented Sept. 16, 1924. 1,508,829

UNITED STATES PATENT OFFICE.

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ELECTROLYTE-LEVEL INDICATOR FOR STORAGE BATTERIES.

Application filed October 31, 1922. Serial No. 598,068.

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 Electrolyte-Level Indicators for Storage Batteries, set forth in the annexed specification.

The principal object of the present invention is to provide a comparatively inexpensive and reliable electrolyte level indicator which can be readily seen even when the batteries to which it is applied are located in inaccessible places, for example, under railway cars as in the case of train lighting. Other objects of the invention will appear from the following description and the invention may be said to comprise the combination with the imperforate cover of a storage battery having a filling and vent opening, and the seat element or barrel of the cover-vent- and filling opening, of an indicator float arranged for guidance by the seat element or barrel and buoyant to protrude through the opening when the vent cap is removed. The invention also comprises the improvements to be presently described and finally claimed.

In the following description reference will be made to the accompanying drawings forming part hereof and in which—

Figure 1 is a transverse sectional view of the cover of a storage battery cell illustrating my invention in application thereto.

Fig. 2 is a top or plan view of the indicator float shown in Figure 1, and

Fig. 3 is a view similar to Fig. 1 but illustrating a modification of the invention.

Referring to Figs. 1 and 2, *a* is the seat element or barrel of the vent opening *b* of the cover *c'*. *d*, generally, is an indicator float arranged for guidance by the seat element or barrel *a* and buoyant to protrude through the opening *b* when the vent cap *c* is removed. The vent cap is shown as provided with a cylindrical projection *e* which, when present, guides the float when it is submerged by the application of the vent cap *c*. *f* are usual and well understood provisions that are commonly employed in cells for train lighting. The float *d* consists of a buoyant portion d^1 from which rises a superstructure d^2 constituting a guide member which co-operates with the barrel or seat *a* and with the cylindrical projection *e*, when present. The construction and arrangement and operation of the modification shown in Fig. 3 is as has been described except that the float D is of hollow ovoidal form and is weighted as at D^1.

The weight of the vent cap *c* is sufficient to submerge the float in the electrolyte of which the level is indicated at *x*—*x*, and the seat element *a* or cylindrical projection *e*, when present, keeps the float in position. When the vent cap *c* is removed, the float rises, being guided by the seat element *a*, and protrudes through the opening *b* so that it is readily visible and thus, for example, indicating that the electrolyte is at the proper level or if the float is not visible indicating that the level of the electrolyte is low. It is evident from the foregoing description that the float may be said to be elongated in the sense that it projects upward above the level of the electrolyte for co-operation with the wall of the opening *b*.

It will be obvious to those skilled in the art to which the invention relates that the invention is not limited in matters of detail nor otherwise than as the prior art and the appended claims may require.

I claim:

1. An electrolyte level indicator for storage batteries comprising the combination of a cover having an opening useful for both vent and filling and said cover being otherwise substantially imperforate, a seat element which is a provision of the wall of said opening, and an indicator float detached from both the seat element and cover and arranged for freedom of movement in respect to and for guidance by said seat element and buoyant to protrude through the opening.

2. An electrolyte level indicator for storage batteries comprising the combination of a cover having an opening for both filling and venting and said cover being otherwise substantially imperforate, a seat element provided on the wall of said opening, a vent cap for the opening, and a detached indicator float arranged for guidance by the seat element and buoyant to protrude through the opening when the cap is removed and to be submerged by the cap when in place.

JOSEPH L. WOODBRIDGE.