D. ROSEN.

BATTERY.

APPLICATION FILED NOV. 13, 1920.

1,417,692.

Patented May 30, 1922.

Fig. 1.

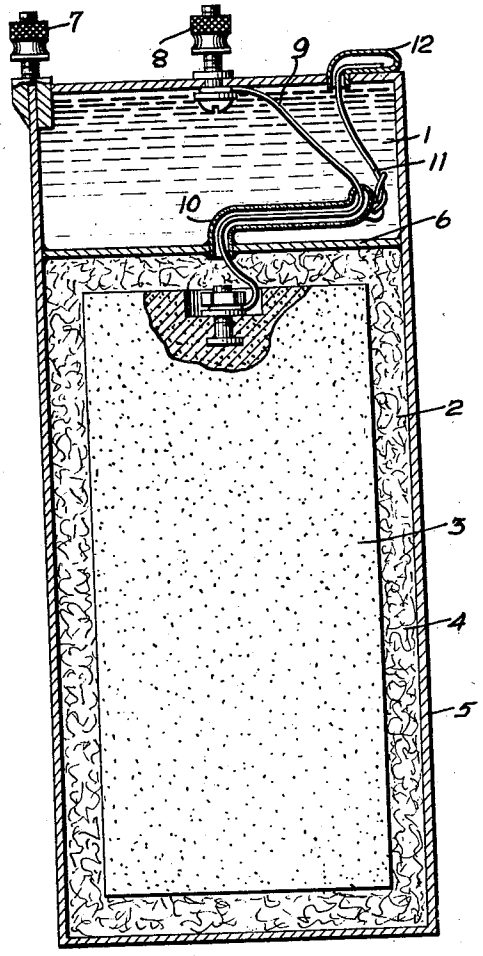
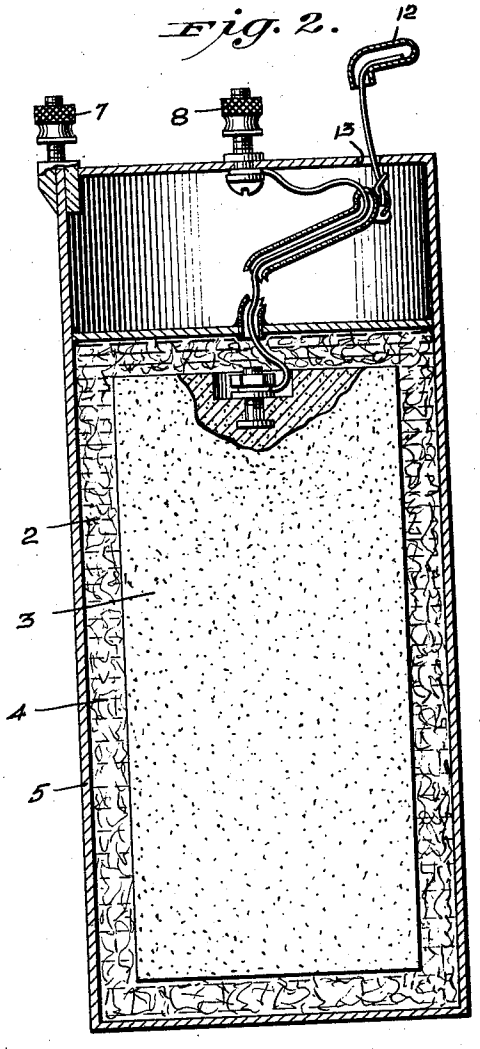


Fig. 2.



WITNESSES

W. J. Jones

Robert D. Hulsizer

INVENTOR

DAVID ROSEN

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

DAVID ROSEN, OF NEW YORK, N. Y.

BATTERY.

1,417,692. Specification of Letters Patent. Patented May 30, 1922.

Application filed November 13, 1920. Serial No. 423,831.

To all whom it may concern:

Be it known that I, DAVID ROSEN, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Battery, of which the following is a full, clear, and exact description.

This invention relates to batteries, and has particular reference to a new and improved dry battery.

An object of the invention is to provide means whereby the solid and liquid materials entering into the electrolytic action of the battery can be simply and efficiently kept apart until such time as it is desired to put the battery into use.

Another object resides in the provision of simple and efficient means whereby the above mentioned object may be achieved by any one.

A further object resides in the provision of means whereby by the manipulation of a single element the liquid is positively driven into the chamber and into association with the solid material with which it co-operates to result in the electrolytic action.

A still further object resides in the particular construction and arrangement of parts hereinafter described and claimed and shown in the accompanying drawings.

The invention in general comprises a battery casing having two spaced chambers, one containing solid material and the other containing liquid. Simple and efficient means are provided whereby a valve or opening between these two chambers, which is normally closed, may be opened when desired to permit the introduction of the liquid into contact with the solid material. Furthermore, it is an additional feature of my invention to provide a partial vacuum within the chamber containing the solid material so that when the connection between the chambers is broken the atmospheric pressure will force the liquid more efficiently into the previously evacuated chamber.

It will be readily understood from a consideration of the following description, when taken in connection with the drawings, that modifications of my device may be made without departing from the spirit of the invention.

The invention is illustrated in the drawings, of which—

Figure 1 represents a cross section of the battery showing the two chambers sealed off from one another; and

Figure 2 represents a similar view showing the seal broken.

As shown in the figures, the battery structure comprises a casing having an upper compartment 1 adapted to contain any desired solution, such as an aqueous solution of the desired electrolyte, and a lower chamber 2 containing an electrode 3, which may be the carbon electrode, and a light packing 4 surrounding the electrode 3 and comprising any suitable absorbent matter. Surrounding the packing and forming the outer shell of the battery is the other electrode 5 which, preferably, is of zinc. The compartments 1 and 2 are separated by a diaphragm 6, which may be of any suitable material sufficiently characterized to prevent the passage of water from the chamber 1 to chamber 2 except through the valve or opening hereinafter to be described. The battery is provided with the usual terminals 7 and 8 connected respectively to the zinc electrode 5 and the carbon electrode 3. A wire 9 connecting the terminal 8 with the corresponding electrode 3 is adapted to pass through a sealed glass tube 10. This tube at one end is sealed tightly into an aperture in the diaphragm 6, and at the other end is sealed off airtight. Previous to the sealing off of the free end of this tube it is connected to some suitable evacuating apparatus whereby the chamber 2 may be evacuated to any desired degree. The end of the tube through which the wire 9 passes is then sealed off to maintain this vacuum. The outer end face of the tube 10 is connected in any suitable manner to a link or connection 11, which may be a string, which is disposed along the upper surface of the battery casing and is preferably sealed in any desired manner within a short piece of tubing 12 which tightly fits within an aperture in the upper face of the casing.

When it is desired to put the battery into operation, the tube 12 is broken or withdrawn from the aperture into which it tightly fits, and by pulling upon the connection 11 the tube 10 is broken, as shown in Figure 2. The atmospheric pressure exerted through the aperture 13 in the casing forces the liquid in chamber 1 through the broken portion of the tube in diaphragm 6 and into the chamber 2 to cause its association with the material in this chamber. If

it is so desired, the tube 12 may thereafter be reinserted into the aperture 13 to seal this opening after the liquid has been introduced into the lower chamber.

It is readily observable that this particular idea is applicable to any type of dry battery and that minor modifications necessary to apply it to one type or another are perfectly proper without departing from the spirit of the invention.

By keeping the liquid and the solid material separate until the battery is to be used, the ordinary and usual deterioration of dry batteries is avoided, and they may be kept in storage when not in use for indefinite periods and still maintain their strength.

What I claim is:

1. A dry battery casing comprising a plurality of spaced chambers, one of said chambers adapted to contain liquid and the other of said chambers adapted to contain solid material, a diaphragm between said chambers, a valve in said diaphragm, and means for opening the valve when desired to cause the association of the liquid with the solid material.

2. A battery casing comprising a chamber containing liquid, an evacuated chamber containing solid material, a diaphragm separating said chambers, a valve in said diaphragm, and means for opening the valve at will to permit introduction of the liquid in the one chamber into the other chamber.

3. A battery comprising a plurality of chambers, one of said chambers containing a liquid, another of said chambers containing the electrodes of the battery, an impervious diaphragm separating the chambers, a glass tube sealed at one end into the diaphragm and extending into the liquid chamber, the free end of the tube being closed, and a connection between the free end of the tube and the outside of the battery casing whereby when said connection is operated the glass tube is broken to admit the liquid in the one chamber into another chamber.

DAVID ROSEN.