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C. E. LOCKWOOD & G. A. LUTZ.

PRIMARY BATTERY.

APPLICATION FILED JULY 18, 1904.

Fig. 1.

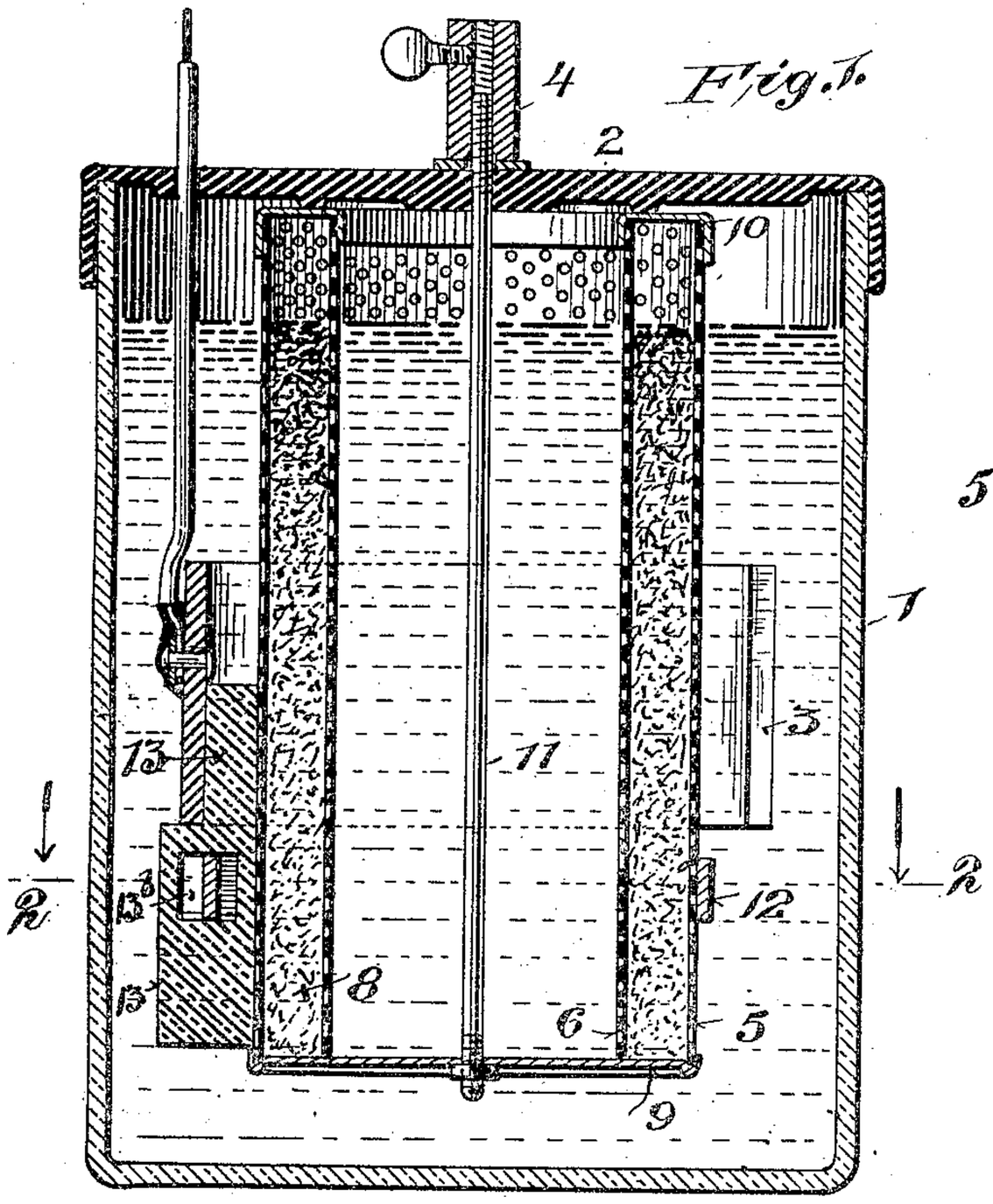
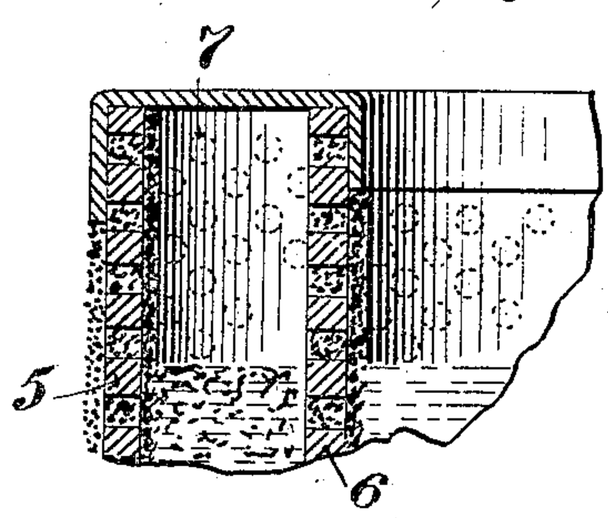


Fig. 2.



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UNITED STATES PATENT OFFICE.

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PRIMARY BATTERY.

No. 812,504. Specification of Letters Patent. Patented Feb. 13, 1906.

Application filed July 18, 1904. Serial No. 217,063.

To all whom it may concern:

Be it known that we, CHARLES E. LOCKWOOD, a resident of the borough of Manhattan, and GEORGE A. LUTZ, a resident of the borough of Brooklyn, city of New York, State of New York, citizens of the United States, have invented certain new and useful Improvements in Primary Batteries, of which the following is a specification.

In primary batteries heretofore made as known to us using cupric oxid as contained in a perforated cylinder it has been customary for the recharges to be supplied in cans, which necessitates the removal of the perforated cylinder from the jar, removal of the refuse oxid, recharging the cylinder with oxid, and replacing the parts, the cans containing the recharges being thrown away.

The object of this invention is to provide means to permit cupric oxid or other depolarizer to be packed for transportation in perforated retainers that are to be used in the batteries in such manner that the oxid will be prevented from sifting through the perforations of the retainer during transportation and handling, whereby perforated retainers or cylinders may be charged with the oxid, shipped to destination, and adjusted in the battery-jars without the necessity of handling the oxid in any manner, the used or exhausted retainer being discarded or thrown away. To this end we provide a binder for retaining the cupric oxid within the perforated retainer or cylinder, which binder is soluble in the liquid or solution of the battery, and such binder is either mixed with the cupric oxid or the perforations in the cylinder are filled with or covered by such binder.

The invention comprises the novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a vertical section of a primary battery embodying our invention substantially on the line 1 1 in Fig. 2. Fig. 2 is an enlarged detail section through the perforated retainer, showing the binder applied to the walls of the retainer.

Similar numerals of reference indicate corresponding parts in the several views.

The numeral 1 indicates the jar; 2, its cover; 3, the zinc, and 4 the binding-post connecting with the oxid retainer or cylinder, which may be of usual construction. In the drawings the retainer or holder for the cupric oxid is shown in the form of two perforated shells or cylinders 5 6, one within the other in the space 7, between which cylinders the cupric oxid 8 is located, the ends of such space being closed by covers 9 10, to which the cylinders 5 6 are attached. The rod 11 is shown connecting the cover 9 with the binding-post 4, whereby the retainer is supported from the cover 2. The cupric oxid in granular or analogous form is charged into the space 7 and is mixed with a binder, causing the particles to adhere together to prevent them from passing through the apertures in the cylinders 5 6, which binder is soluble in the liquid or solution used in the cell. We may use sugar or similar saccharine matter, which is mixed with the oxid in such proportion as will assure the adherence together of the particles, or, as shown in Fig. 2, the binder or sugar is filled in the apertures in the cylinders 5 6 or is pasted along the wall thereof, either inside or outside, or both, so as to prevent the loose cupric oxid that is charged in the space 7 from passing through the apertures, such binder being soluble in the solution or the liquid of the cell, as before explained. These retainers charged with the cupric oxid or depolarizer provided with the binder preventing the oxid from passing through the apertures of the retainer are to be furnished ready for use, so that when a cell or battery is to be recharged with the oxid it is merely necessary to remove the old and used-up retainer, which may be discarded; and apply a new retainer by passing the rod 11 through it and attaching it to the binding-post 4. These perforated retainers may thus be charged at the factory and shipped without danger that the oxid will be lost therefrom, and thereby the requirement of removing used-up or exhausted oxid from a retainer and recharging the latter from a can or the like is overcome, thereby enabling the quicker recharging of the cell or battery and saving the annoyance and inconvenience incident to recharging retainers in the ordinary manner. The zinc 3 rests upon insulating-blocks 13, held upon the retainer by a band or ring 12, adapted to encircle the cylinder 5 and grip the same with sufficient firmness to support the zinc 3. The band and blocks can be adjusted to hold the zinc at the required height in the cell.

It will be understood that our invention is not limited to the use of cupric oxid with a binder soluble in the battery solution, as any

other well-known corresponding material for the purpose of depolarizing may be used according to the character of the battery.

Having now described our invention, what we claim is—

1. A battery element comprising a perforated retainer containing a depolarizer and having a binder soluble in a battery liquid or solution for preventing such depolarizer from passing through the perforations in the retainer, substantially as described.

2. A battery element comprising perforated shells disposed one within another providing a space closed at opposite ends, a depolarizer within said space, and a binder soluble in a battery liquid or solution serving to prevent the depolarizer from passing through the perforations of the shells, substantially as described.

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