

G. A. LUTZ.  
 PRIMARY ELECTRIC BATTERY.  
 APPLICATION FILED DEC. 12, 1908.

919,900.

Patented Apr. 27, 1909.

Fig. 2.

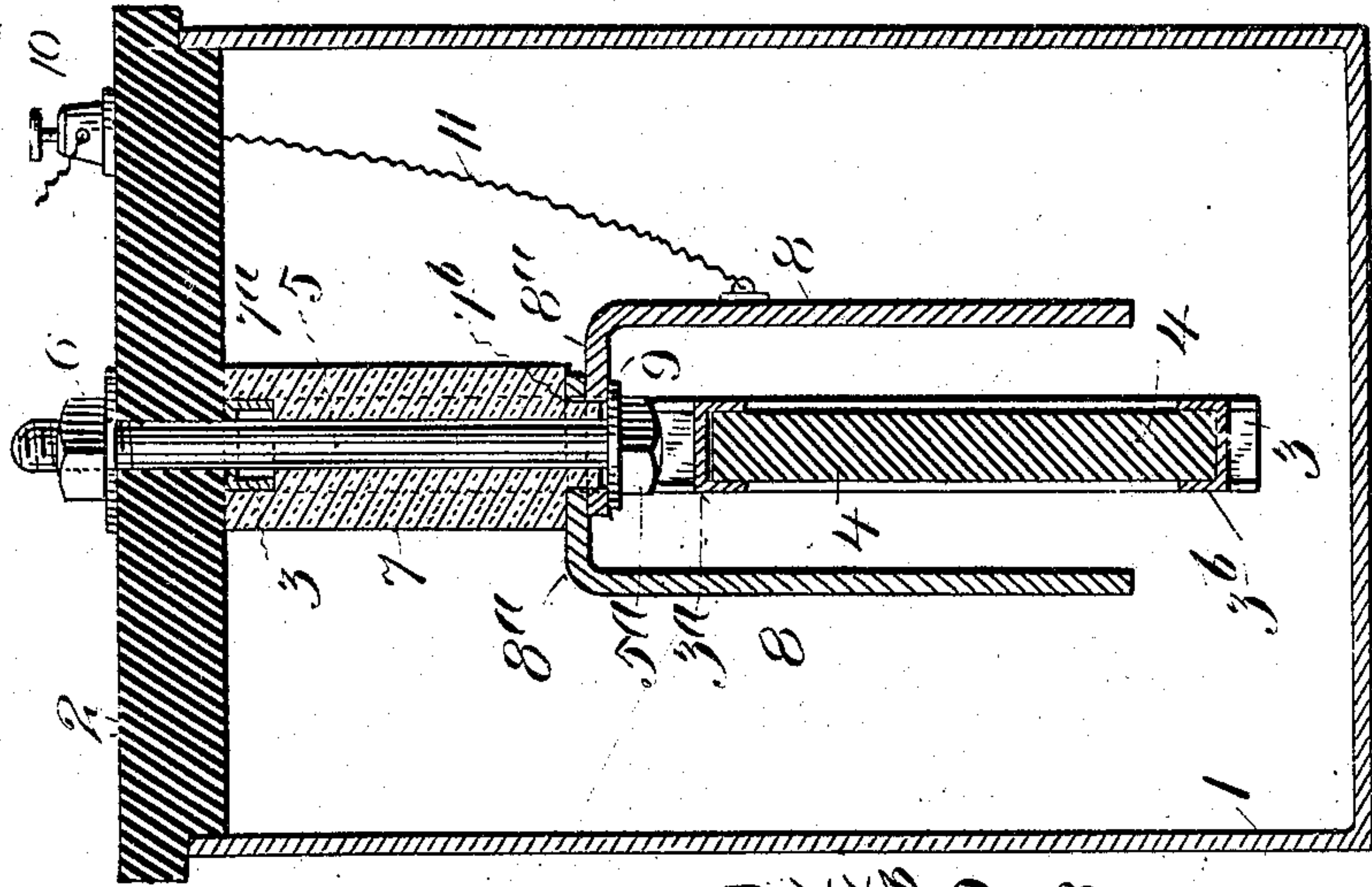


Fig. 4.

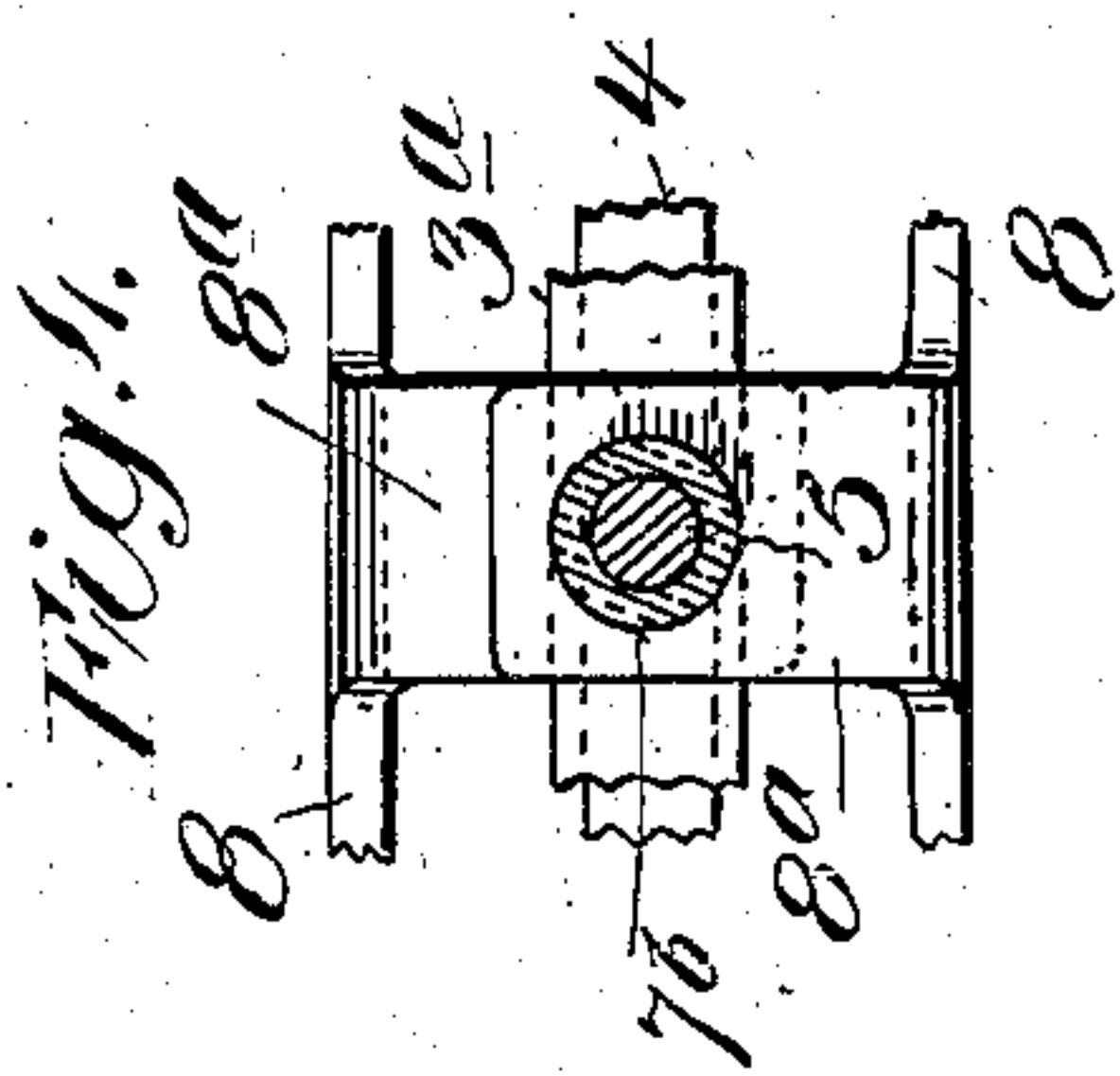


Fig. 3.

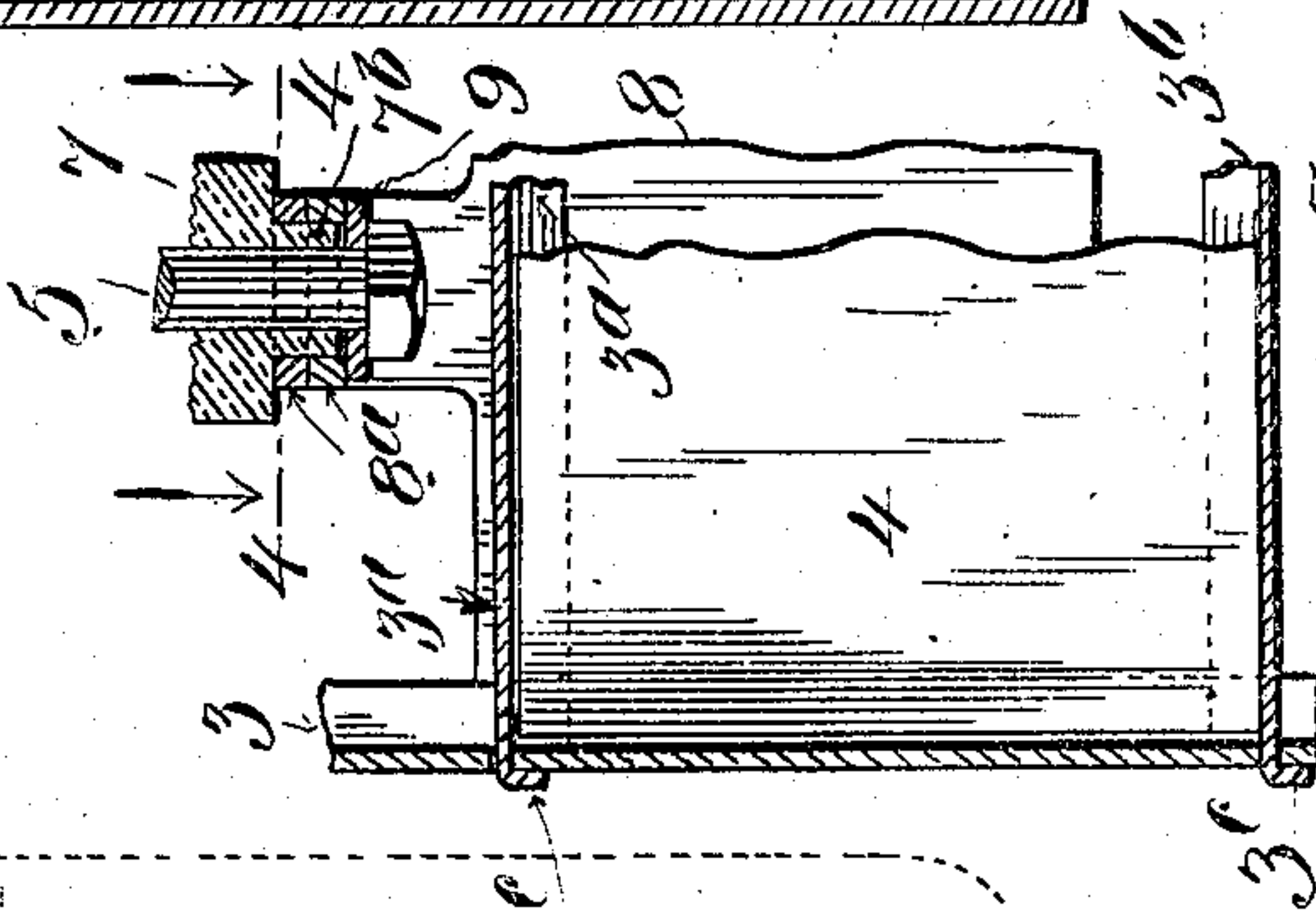
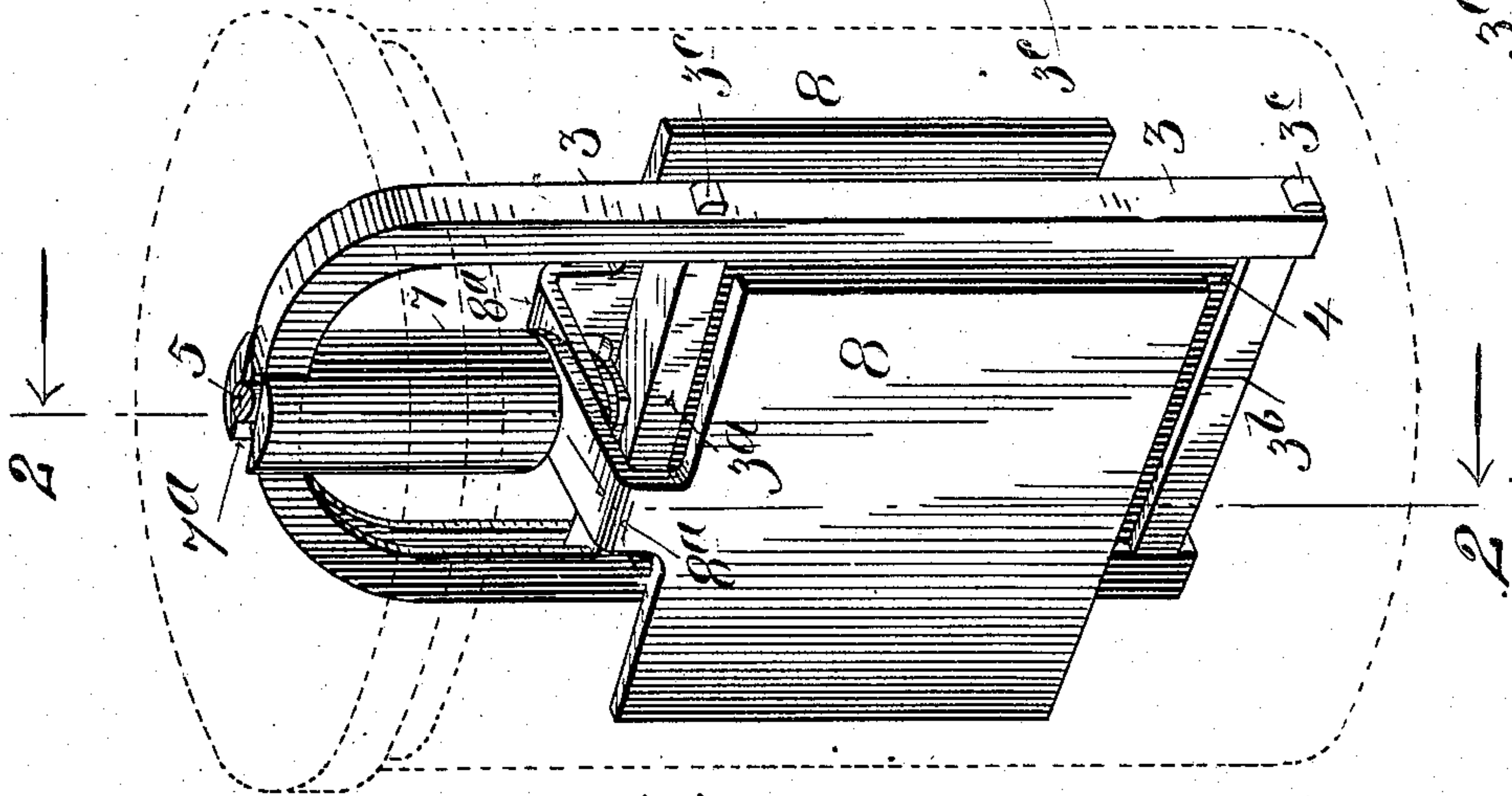


Fig. 1.



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# UNITED STATES PATENT OFFICE.

GEORGE A. LUTZ, OF PLAINFIELD, NEW JERSEY.

## PRIMARY ELECTRIC BATTERY.

No. 919,900

Specification of Letters Patent.

Patented April 27, 1909.

Application filed December 12, 1908. Serial No. 467,244.

*To all whom it may concern:*

Be it known that I, GEORGE A. LUTZ, a citizen of the United States, and resident of Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Primary Electric Batteries, of which the following is a specification.

My invention relates to improvements in primary electric batteries of the class in which the depolarizer comprises a plate of oxid, such as cupric oxid, and a positive electrode comprising zinc.

The object of my invention is to provide improved means for supporting the electrodes from the cover of the jar in proper correlation, to thoroughly insulate the various parts, and to provide simple and convenient means for permitting replacement of the elements as required.

In carrying out my invention I provide an insulator that is supported by the cover of the jar and from which the frame of the oxid plate is suspended a supporting rod passing through the insulator suspending the latter and the zincs.

My invention also comprises the novel details of improvement and combinations of parts 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 perspective view illustrating my improvements in position; Fig. 2 is a section on the line 2, 2, in Fig. 1, showing the jar and cover; Fig. 3 is a detail sectional view, and Fig. 4 is a section on the line 4, 4, in Fig. 3.

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

Any suitable jar or receptacle 1 is provided with a cover 2, preferably of insulating material; and from the cover the electrodes are hung.

At 3 is a frame which may be of channel metal, and which supports the plate 4 of depolarizing material, such as a compressed plate comprising cupric oxid. Frame 3 is shown provided with cross bars 3<sup>a</sup>, 3<sup>b</sup>, respectively above and below plate 4, the cross bars 3<sup>a</sup>, 3<sup>b</sup> being shown provided with lugs 3<sup>c</sup> passing through holes in frame 3, and bent down to secure the cross bars in the frame and assist in holding plate 4. The upper part of frame 3 is provided with a suitable hole through which a metal rod 5 passes,

which rod also passes through cover 2 and is detachably supported thereon as by nut 6 on the threaded end of the rod.

At 7 is an insulating block having an opening through which rod 5 passes, which block is shown provided with a recess 7<sup>a</sup> at its upper end receiving frame 3, and said frame is thus supported and is in circuit with rod 5, as by contact therewith. The positive electrode or zinc plate 8 is suspended by rod 5 and is shown provided at its upper end with an inwardly bent portion or lug 8<sup>a</sup> having a hole receiving a reduced end or hub 7<sup>b</sup> on insulating block 7, an insulating washer 9 being interposed between the inwardly bent portion or lug 8<sup>a</sup> of zinc 8 and the head or projection 5<sup>a</sup> of rod 5. I have shown two positive electrodes or zincs 8 each provided with an apertured lug 8<sup>a</sup> receiving hub 7<sup>b</sup>, said zincs being located on opposite sides of plate 4 whereby said zincs are in contact with each other, are properly supported and held in position, and are insulated from frame 3 and plate 4. Zinc 8 is connected with a suitable binding post 10 on cover 2, as by a wire 11.

By means of my improvements the elements of the battery may be readily replaced, as it is merely necessary to remove rod 5 from the cover to permit detachment and replacement of the negative and positive electrodes as required. The electrodes all being suspended from the cover by rod 5, the zincs being supported independently of frame 3 and the positive and negative elements thoroughly insulated from each other, affords an efficient construction, without danger of short-circuiting of the elements, and a cheap and convenient battery may be produced.

Having now described my invention what I claim is:—

1. A primary electric battery comprising a cover, a supporting rod depending from the cover, an insulating block supported by the rod below the cover, a frame supported by the block and carrying a depolarizing plate, and a positive electrode supported by and insulated from the said rod.

2. A primary electric battery comprising a supporting rod, an insulating block thereon, a frame supported by the block and carrying a depolarizing plate, and a positive electrode provided with an opening receiving a portion of said insulating block and supported by said rod.



3. A primary electric battery provided with a cover, a rod depending from the cover, an insulating block upon the rod provided with a recess, a frame supported in said recess and in circuit with said rod, said frame carrying a depolarizing plate, and a positive electrode supported by said rod and insulated therefrom by said block.

4. A primary electric battery provided with a cover, a rod depending from the cover, an insulating block upon the rod provided with a recess, a frame supported in said recess and in circuit with said rod, said frame carrying a depolarizing plate, a positive electrode supported by said rod and insulated therefrom by said block, said block having a hub projecting through an opening in the positive electrode, and an insulating piece

between said electrode and an extension on said rod.

5. In a primary electric battery, a rod having a head at one end, an insulating block provided with an opening mounted upon said rod, a frame carried at the upper end of said block and in circuit with said rod, a positive electrode supported by the rod at the lower end of said block and insulated by the block from the rod, and means for insulating the positive electrode from said head.

Signed at New York city, in the county of New York, and State of New York, this 11th day of December, A. D. 1908.

GEORGE A. LUTZ.

Witnesses:

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MARIE F. WAINWRIGHT.