

No. 696,924.

Patented Apr. 8, 1902.

W. C. BANKS.
BATTERY.

(Application filed Sept. 5, 1900.)

(No Model.)

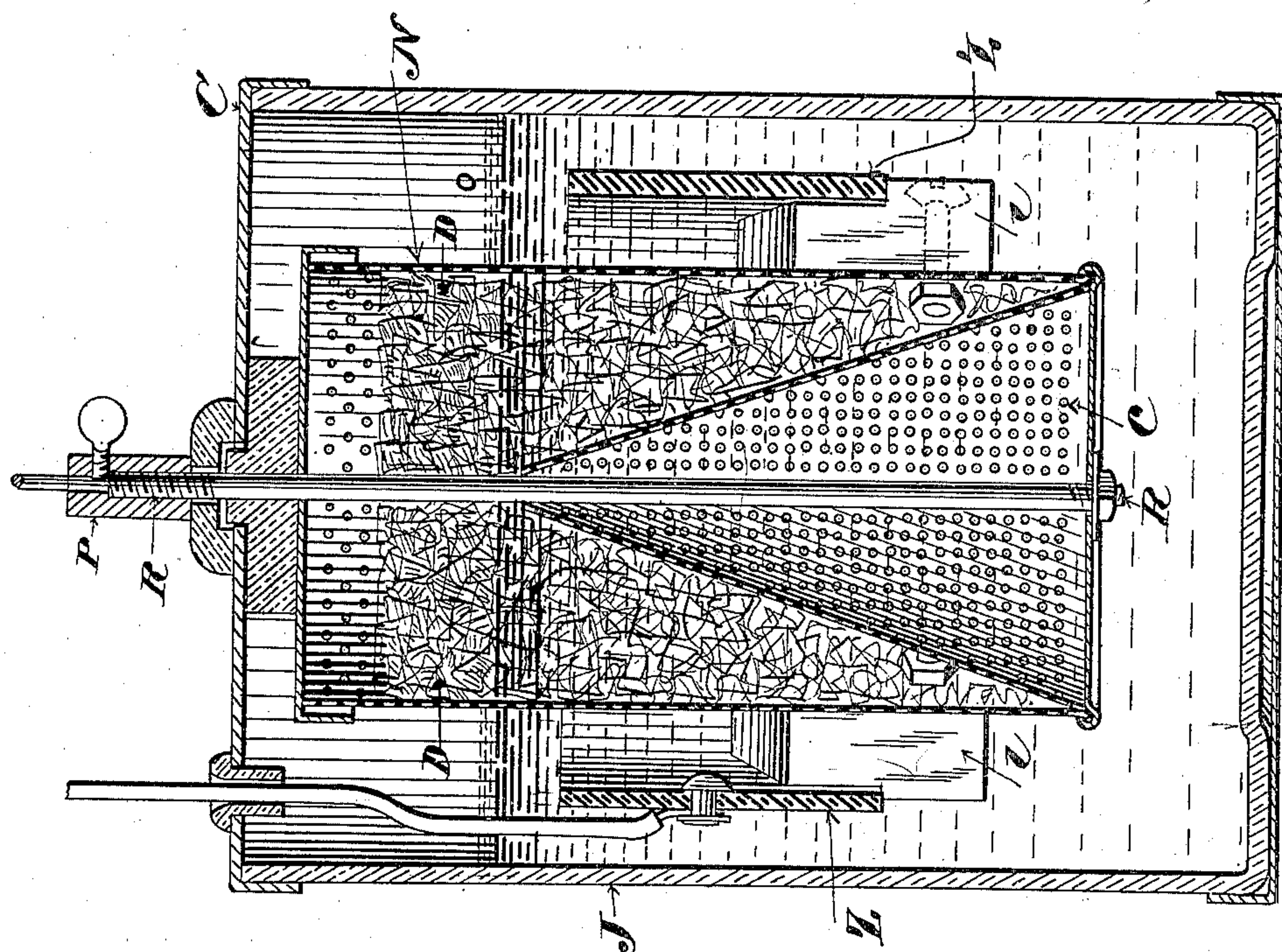


Fig. 2.

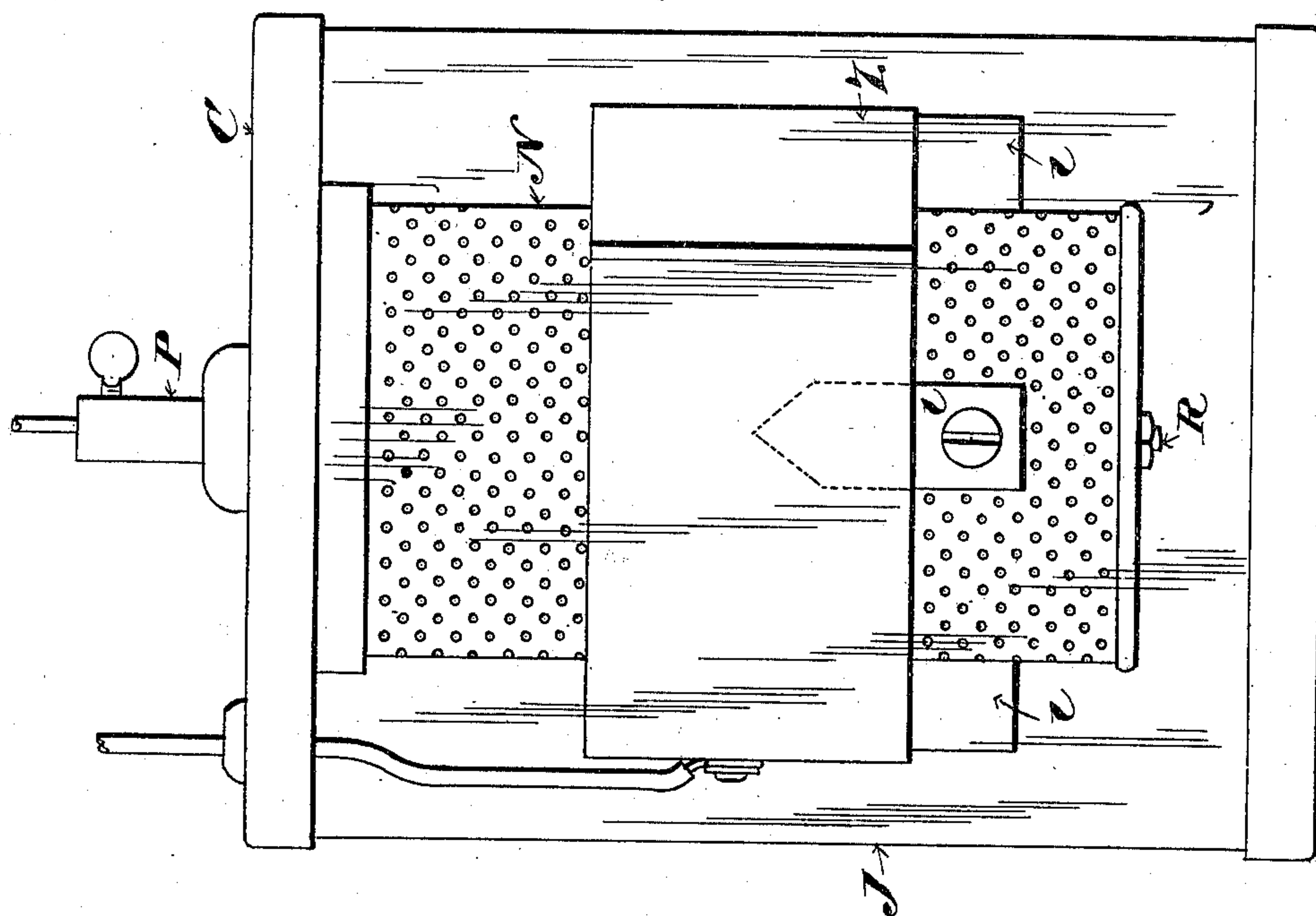


Fig. 1.

WITNESSES
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INVENTOR
William C. Banks
by *A. G. Merrill*
his ATTY

UNITED STATES PATENT OFFICE.

WILLIAM C. BANKS, OF BROOKLYN, NEW YORK.

BATTERY.

SPECIFICATION forming part of Letters Patent No. 696,924, dated April 8, 1902.

Application filed September 5, 1900. Serial No. 29,032. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. BANKS, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Batteries, of which the following is a specification, reference being had to the accompanying drawings, forming part of the same, in which—

10 Figure 1 is a side elevation of a battery embodying my invention. Fig. 2 is a central vertical sectional view of said battery, with some parts, however, shown in full lines.

Batteries of this class have been made before and the elements both submerged in the exciting fluid used, which fluid is sealed by pouring a thin layer of oil *o* upon the fluid to exclude the air. This renders it impossible for the elements to absorb oxygen from the air; but I find that if the device is so constructed that the copper used may absorb such oxygen, while the zinc is at the same time protected by submergence, the result is not only greater amperage, but also greater voltage, and therefore very much more current from the battery than with other combinations, and I have therefore devised a form of battery which secures the advantage mentioned, though I do not limit myself to the form shown.

30 J is the glass jar or cell, as shown about eight inches deep by six inches in diameter. It is provided with a cover C, which may be of tin. Through the cover a rod or terminal R is inserted, and it passes through and supports the negative element N, shown in the form of a metallic basket with perforated sides, it being customary to hold this basket tightly against the cover by the conjoint action of the rod R and a nut P, also constituting a binding-post. This basket I prefer to fill to within about an inch of the top—that is, an inch from the lower side of the cover when the parts are in place—with a depolarizing agent D, such as black oxid of copper, and to do this without using so much copper I sometimes place a perforated cone *c* in the bottom of the basket. It permits the copper to lie against the whole of the basket-wall except the bottom, and as it lies against the cone on that side it exposes even more surface to the exciting fluid than if it lay upon

the bottom, and yet a smaller quantity will reach the desired upper level than if no cone were used. I might make the bottom of the basket in cone shape or omit any cone, if desired.

To the outer walls of the basket a number of porcelain lugs *l* are secured, rabbeted to form a shelf for the zinc, and on the shelf thus formed the zinc Z is suspended. A terminal, preferably insulated, extends from zinc Z to and through the cover, and the rod R is also insulated therefrom.

The liquid is poured in until it reaches the solution-line *s*, (a level about two inches below the bottom of the cover, though the location of that line may vary slightly without destroying the useful results attained,) a coating of oil is poured thereon, and the battery is complete.

It will be noticed that the oxid of copper is exposed about an inch above the surface of the fluid, thus permitting the action which I desire to take place, and at the same time the zinc is entirely submerged, preventing the undesirable action, and it will be found that the exposed mass of the oxid bears the proportion to the submerged of from one to three or five, which are about the limits of proportion I have found desirable.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a battery, the combination of a liquid-holding jar, a positive element located entirely below the solution-line of said jar, a negative element, a depolarizer located partly above and partly below said solution-line, and a pair of terminals, all substantially as set forth.

2. In a battery, the combination of a liquid-holding jar, a positive element, a negative element, a pair of terminals and a depolarizer, substantially as set forth, the positive element being located entirely below the solution-line and from one-fourth to one-sixth of the depolarizer located above said solution-line.

3. In a battery the combination of a liquid-holding jar, a zinc element, a negative element, a pair of terminals and a body of oxid of copper, substantially as set forth, the positive element being located entirely below the solution-line and from one-fourth to one-sixth

of the body of oxid of copper located above said solution-line.

4. In a battery, the combination of a liquid-holding jar, an exciting fluid, a positive element located entirely below the surface of said fluid, a negative element, a depolarizer located partly above and partly below the surface of said fluid and a pair of terminals, all substantially as set forth.

10 5. In a battery, the combination of a liquid-holding jar, a body of zinc, a negative element, a body of copper oxid, and a pair of terminals, said zinc and copper oxid being arranged in such positions relative to each

other and to the solution-line of the jar that at least one-sixth of said oxid shall be a distance above the upper level of the zinc and above the solution-line, while said zinc shall be entirely below said solution-line, all substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 21st day of August, A. D. 1900.

WILLIAM C. BANKS.

Witnesses:

CHARLES E. LOCKWOOD,
A. G. N. VERMILYA.