

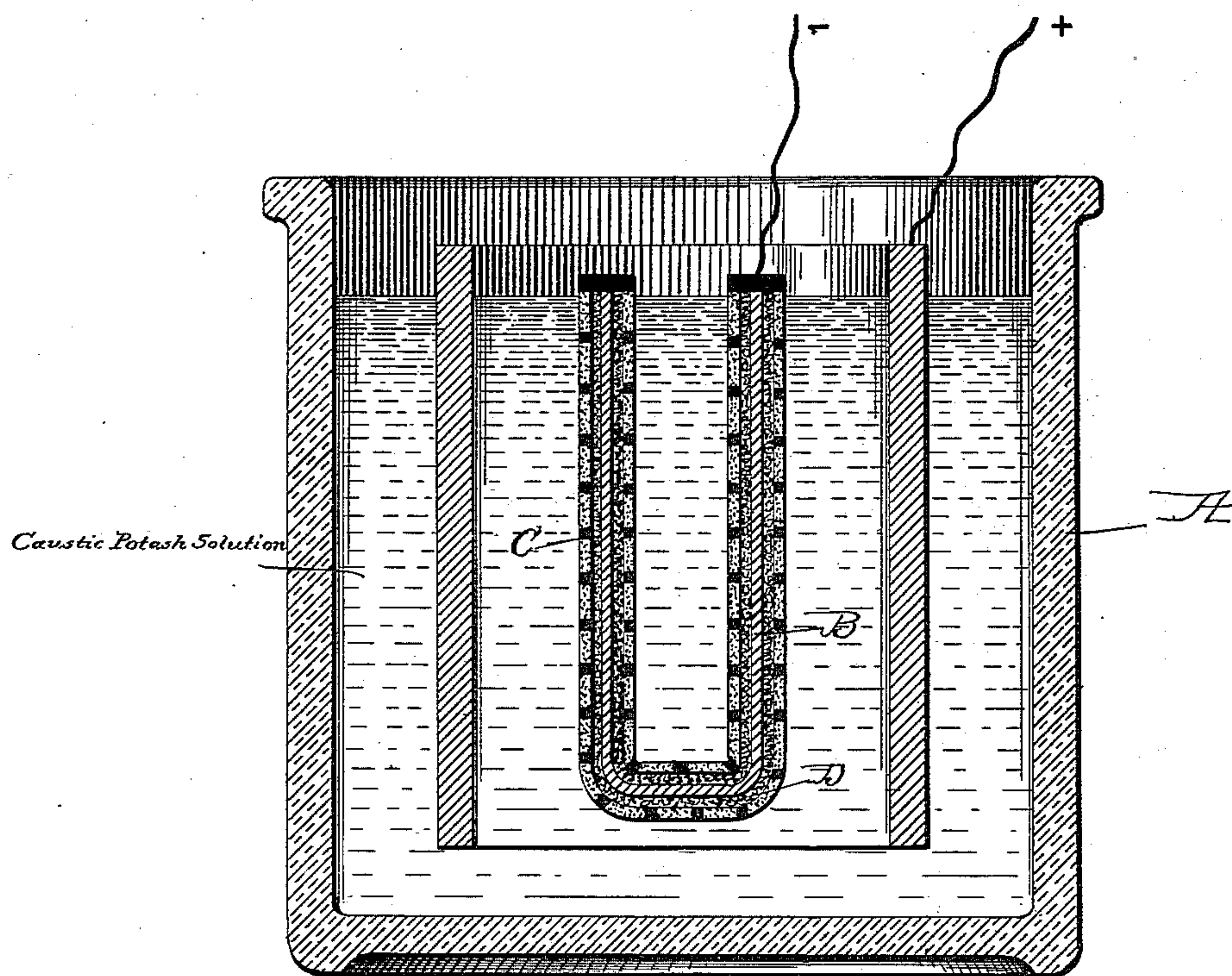
(No Model.)

H. WOODWARD.

PRIMARY ELECTRIC BATTERY.

No. 379,551.

Patented Mar. 13, 1888.



Witnesses:

H. W. Montimer
R. M. Elliott

Inventor :

by *Henry Woodward,*
R. S. Dyrenforth,
his Attorney.

UNITED STATES PATENT OFFICE.

HENRY WOODWARD, OF DETROIT, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE WOODWARD ELECTRICAL COMPANY, OF SAME PLACE.

PRIMARY ELECTRIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 379,551, dated March 13, 1888.

Application filed October 7, 1887. Serial No. 251,696. (No model.)

To all whom it may concern:

Be it known that I, HENRY WOODWARD, a subject of the Queen of Great Britain, residing at Detroit, in the county of Wayne and State of Michigan, but at present in the city of Toronto, Province of Ontario, Canada, have invented certain new and useful Improvements in Primary Electric Batteries; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to primary electric batteries.

The object is to produce a battery of as nearly constant electro-motive force as possible and of long durability.

The invention consists in an electro-negative electrode of peculiar construction. Furthermore, in the combination, with such electro-negative electrode, of a zinc electrode, preferably of a sponge-zinc electrode.

In the accompanying drawing, forming a part of this specification, is illustrated a vertical sectional view of a primary electric battery constructed in accordance with and embodying the invention.

Referring to the drawing, A designates the jar, constructed of glass, porcelain, or other suitable material. Within this jar is placed the negative element or plate B, which is made by taking a piece of iron of requisite size and shape, placing around it a jacket, C, of perforated iron, and filling the space between the casing and the piece of iron with oxide of cop-

per and iron filings, parings, or turnings D, in substantially equal parts. By this construction a large and good conducting surface is secured, while rapid polarization is prevented. The electrode is placed in a caustic-potash solution in a cell with a proper electro-positive electrode—such as zinc—and in connection therewith. The electro-positive electrode is also in the caustic-potash solution.

It is preferred to employ as an electro-positive electrode sponge zinc such as described in the specification of my Patent No. 347,754, granted August 17, 1886.

Having thus fully described the invention, what is claimed as new, and desired to have secured by Letters Patent, is—

1. The herein-described negative electrode, consisting of a piece of iron placed in a perforated iron jacket and surrounded by oxide of copper and iron filings, parings, or turnings, substantially as described.

2. A negative electrode composed of a piece of iron placed in a perforated iron jacket and surrounded by oxide of copper and iron filings, parings, or turnings, in combination with a positive electrode composed, preferably, of sponge zinc, both electrodes being immersed in a solution of caustic potash, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY WOODWARD.

Witnesses:

JNO. S. ANDERSON,
ADAM H. MEYERS.