(No Model.)

W. F. SMITH.

CONNECTING DEVICE FOR ELECTRIC BATTERIES.

No. 412,347. Patented Oct. 8, 1889.

Fig. 2.

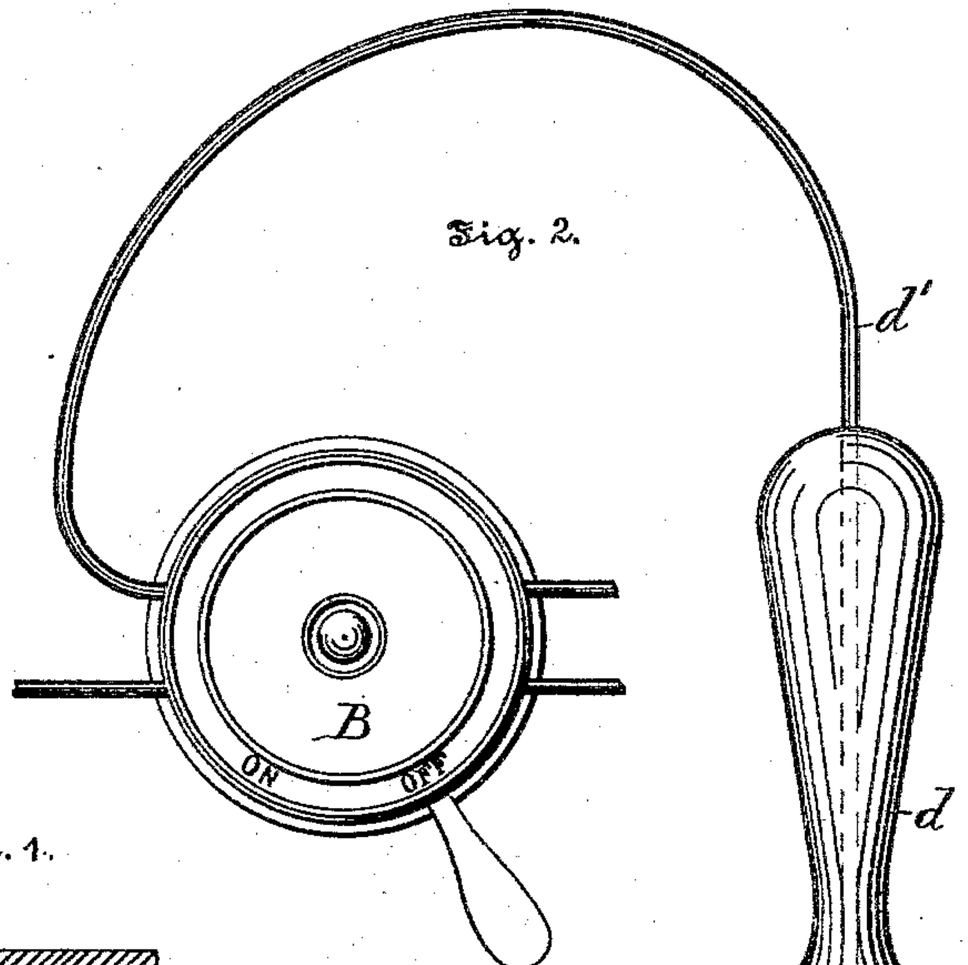
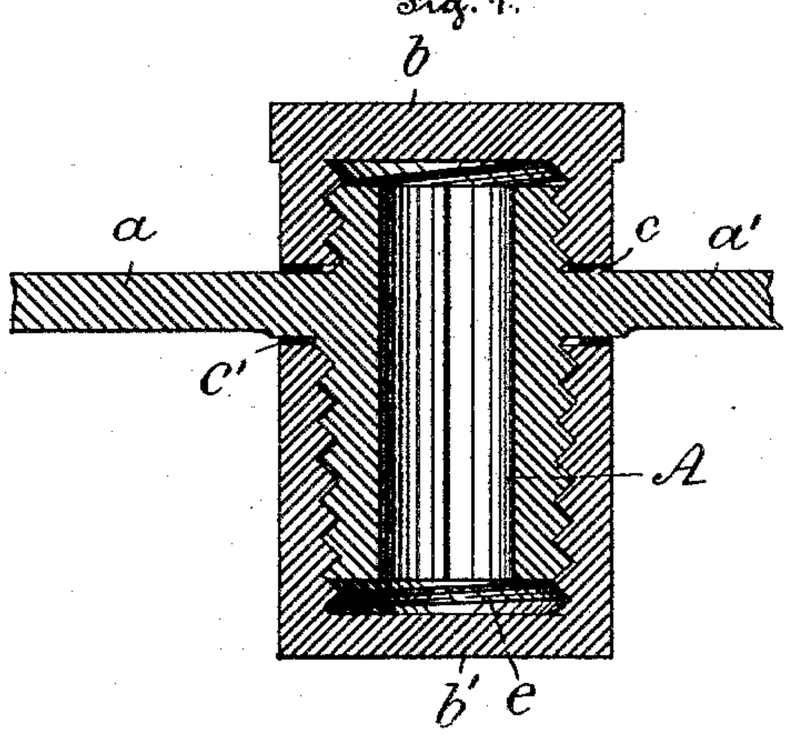
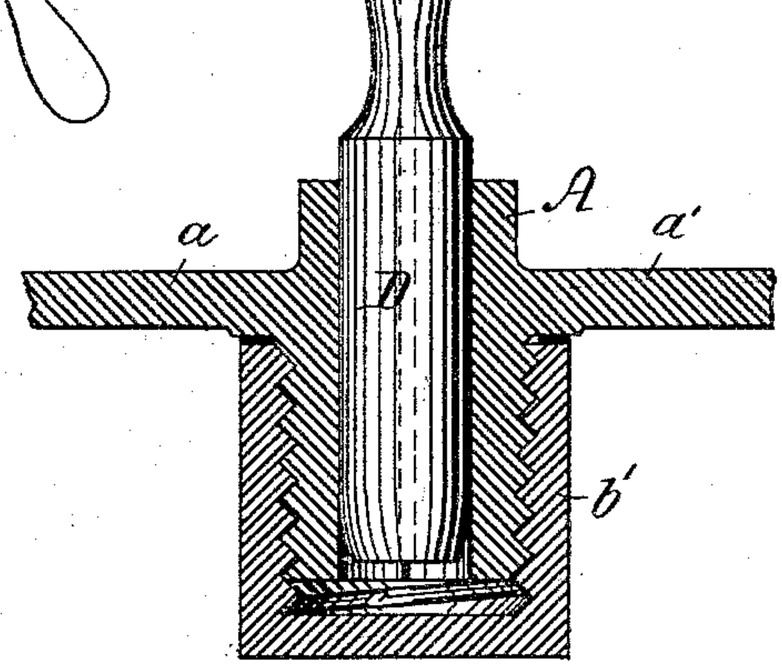


Fig. 1.





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UNITED STATES PATENT OFFICE.

WALTER F. SMITH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE UNITED ELECTRIC IMPROVEMENT COMPANY, OF GLOUCESTER CITY, NEW JERSEY.

CONNECTING DEVICE FOR ELECTRIC BATTERIES.

SPECIFICATION forming part of Letters Patent No. 412,347, dated October 8, 1889.

Application filed July 9, 1889. Serial No. 316,959. (No model.)

To all whom it may concern:

Be it known that I, WALTER F. SMITH, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Connecting Devices for Electric Batteries, of which improvement the following is a specification.

My invention relates to a certain improvement in connecting devices for electric batteries composed of a divided male thimble provided with strips or ribbons and a female thimble, the female thimble being secured to the male thimble, so as to leave a space between the two thimbles for the introduction of mercury or other suitable material to afford a continuous path for the passage of the electric current through the device to the battery or batteries, or having a plug with a flexible conductor mounted in the male thimble thereof, and connected with a suitable switch-board or transmitting device, and both types forming the subject-matter of an application for a patent filed by me under date of April 19, 1889, and serially numbered 307,780.

The principal object of my present invention is to deposit on the surface of the device a coating of conducting material—such as nickel—by electrolysis or otherwise to prevent the mercury or other preferred material contained therein from destroying the device by amalgamation, whereby the electrical conductivity of the device is materially enhanced.

A further object of my invention is to provide the connecting device between the female thimble and the strips or ribbons of the male thimble thereof with a gasket or gaskets composed of rubber or other material to prevent gases evolved during the operation of the battery from corroding the same.

The nature and characteristic features of my invention will be more fully understood by reference to the accompanying drawings, forming part hereof, and in which—

Figure 1 is a vertical central section of the connecting device, on an enlarged scale, arranged to connect the plates or elements of one battery with those of another battery, and showing also the internal space for the reception of mercury or other material and the gasket or gaskets interposed between the upper cap and the lower cup, and the ribbons or strips connected or formed integral with the divided male thimble; and Fig. 2 is a similar view of another form of device, showing the upper cap removed and a plug with a flexible conductor fitted into the male thimble and arranged to connect the plates or elements of one battery with a switch-board or other transmitting device.

In Fig. 1, A is a vertically-divided male thimble with lateral strips or ribbons *a* and *a'*, which are shown broken away in this view. To this male thimble A is fitted or secured a cap *b* and a female thimble or cup *b'*, made of metal or other suitable material. The interior surfaces of the cap *b* and the female thimble *b'* are threaded to correspond with the exterior surface of the male thimble A. Between the lateral strips or ribbons *a* and *a'* of the male thimble A and the cap *b*, or female thimble or cup *b'*, or both, are interposed gaskets *c* and *c'*, made of rubber or other preferred material, in order that a tight joint may be made between said cap or cup, or both, and the lateral ribbons or strips *a* and *a'*, to prevent gases evolved during the operation of the battery from corroding the device. In the space *e*, formed or left between the lower extremity of the male thimble A and the bottom of the cup *b'*, is introduced mercury or other material to increase the electrical conductivity of the device, as well as to afford a perfectly free passage for the current through the device to the batteries.

In Fig. 2 is shown another form of the device, consisting of a divided male thimble having lateral strips or ribbons *a* and *a'* for connecting a system of plates or elements of one battery, with a system of plates or elements of another battery or batteries. This divided male thimble A has its lower exterior surface threaded, and to which is applied a female thimble or cup *b'*. A chamber is formed between the base of the cup *b'* and the end of the male thimble A, to receive mercury or other suitable material.

Into the male thimble A is introduced a

metallic plug D, with a suitably-insulated handle *d* and a flexible conductor *d'*, connected with the metallic plug D, to permit of the passage of the current or currents from the battery or batteries to the switch-board or transmitting device B.

The lateral strips or ribbons *a* and *a'* of the divided male thimble A may be clamped to the lugs or terminals of the plates or elements of the batteries; but I prefer to burn the lateral strips or ribbons *a* and *a'* onto the respective lugs or terminals, because very good results are thereby obtained, and, moreover, in practice it is the more economical of the two methods.

On the surface of the parts of the connecting device a coating of nickel or other preferred conducting material is deposited by electrolysis or otherwise to prevent the mercury or other material contained in the space *e* between the male thimble A and the female thimble or cup *b'* from deteriorating or destroying the several parts of the device by amalgamation, whereby the electrical conductivity of the device is not only materially enhanced, but the free passage of the current or currents through the device is afforded to the plates or elements of the batteries.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The herein-described device for connecting electric batteries, consisting of a divided male thimble provided with a cap, a cup, and lateral ribbons or strips and the parts coated with a conducting material, substantially as and for the purposes set forth.

2. The herein-described device for connecting electric batteries, consisting of a divided male thimble with lateral ribbons or strips, a female thimble fitted thereto and adapted to contain mercury or other material, and said parts coated by electrolysis with nickel or other material, substantially as and for the purposes set forth.

3. The herein-described device for connecting electric batteries, consisting of a divided male thimble with strips or ribbons, a female thimble secured thereto, a gasket interposed between the strips or ribbons and the female thimble, and the parts of the device coated with a conducting material, and a plug with a flexible conductor mounted in said male thimble, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

WALTER F. SMITH.

Witnesses:
ANDREW ZANE,
J. WALTER DOUGLASS.