

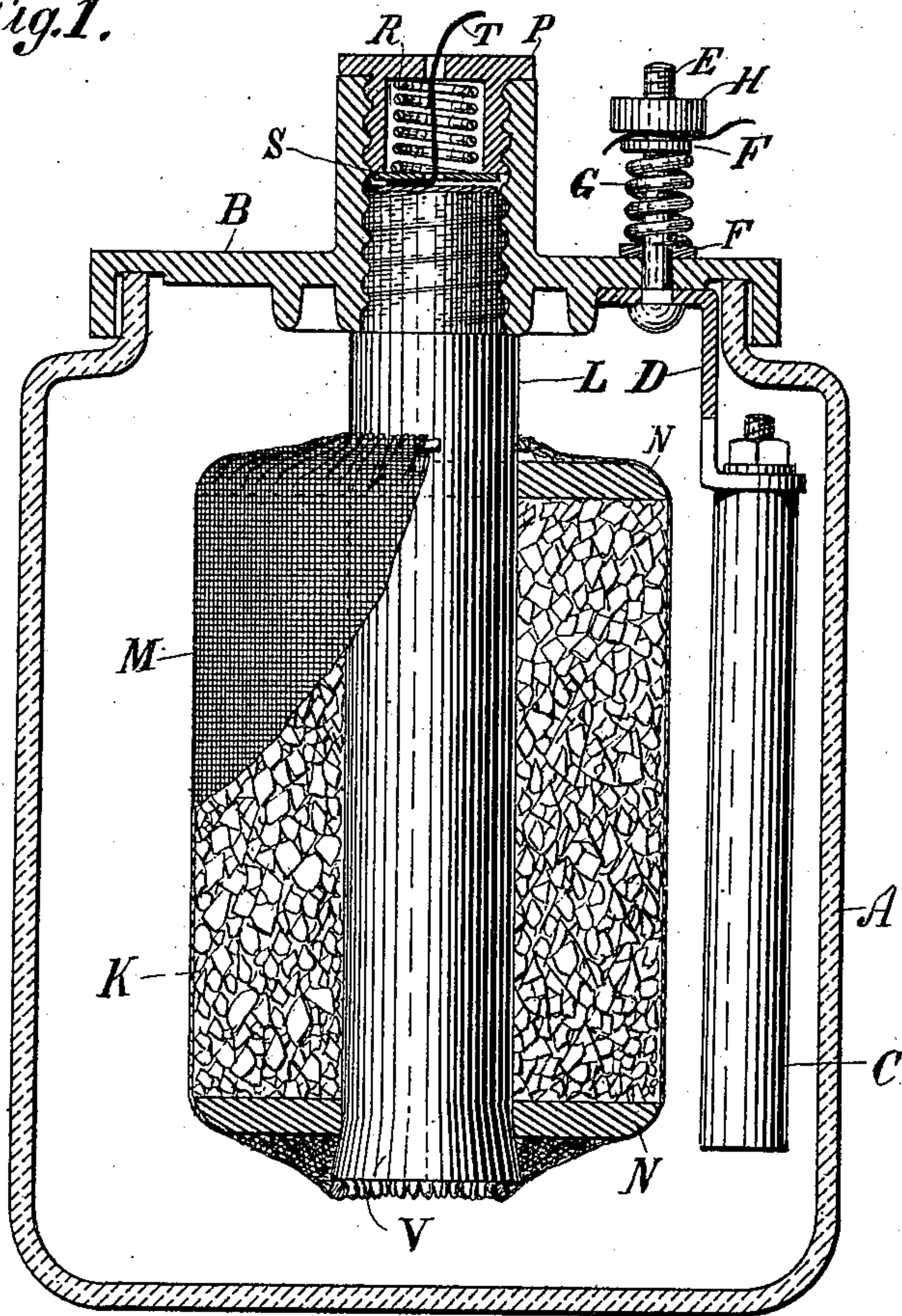
(No Model.)

H. J. BREWER.  
GALVANIC BATTERY.

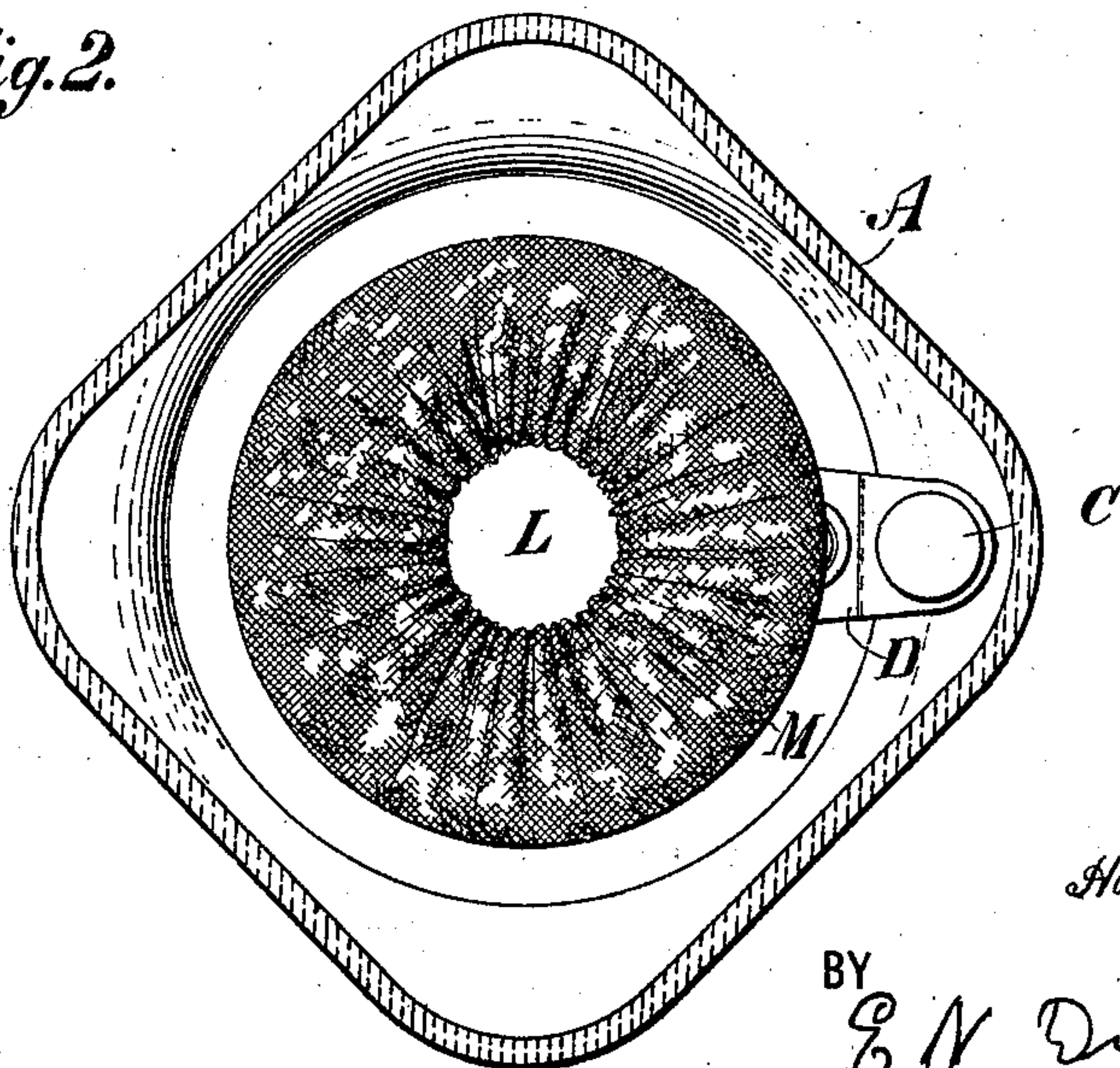
No. 576,720.

Patented Feb. 9, 1897.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HORATIO J. BREWER, OF NEW YORK, N. Y.

## GALVANIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 576,720, dated February 9, 1897.

Application filed May 18, 1894. Serial No. 511,671. (No model.)

*To all whom it may concern:*

Be it known that I, HORATIO J. BREWER, of the city, county, and State of New York, have invented a new and useful Improvement in Galvanic Batteries, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

This invention relates to an improvement in galvanic batteries, especially of that kind in which a body of electronegative material is caused to surround and be in electrical contact with a central conducting-carbon, though part of the invention is equally applicable to other forms of battery.

My invention also consists in a separate zinc clamp within the battery itself, making it unnecessary to renew the entire pencil of zinc whenever it is desired to change such zinc.

My invention will be readily understood from the accompanying drawings, in which—

Figure 1 represents a vertical view, partly in section; and Fig. 2, a plan view looking upward with the bottom of the jar removed.

A represents the battery-jar, preferably of glass and generally rectangular in section, provided with cover B, of vulcanite or other suitable material. The zinc element or pencil C is supported, as shown, upon the zinc connector D, which is itself supported upon the screw E, having a square head to engage in the square opening in the upper end of the zinc connector D. The zinc plates F surrounding the screw or bolt E bear against the spring G, the said spring being compressed against the wire by nut H. All of these parts except the spring are preferably made of zinc, as above explained.

The electronegative material K surrounding the carbon rod L is retained by a sack M, provided with draw-strings at its upper and lower ends. Carbon plates N, the upper one free, surround this pencil L, and when the draw-strings are drawn tight the carbon material is compressed between the plates M and against the carbon pencil L. The upper end of this pencil L is screw-threaded and fits a corresponding screw-tread in the cover B. This cover is provided with a cap P, engaging by screw-threads with a flange provided on the cover and pressing the spring R against the metallic plate S, thereby cramping the

wire T. The flange may be internally threaded, as shown.

The lower carbon plate N is conveniently supported by the taper V at the bottom of the carbon rod.

When completed, the whole structure is an economical readily-changeable galvanic battery, the pencil C being carried to one side in an angle of the square glass jar and being therein conveniently disposed by reason of the shape of the zinc support B.

All the connections are secure, and especially the connection between the carbon or electronegative body K and the central pencil.

It is apparent that, though I have shown the carbon element as generally cylindrical in shape, and that, though this shape is convenient, it is not essential. The pencil may be of any suitable cross-section, and the plates N N may also be of any convenient form, either of the same form as the pencil or of a different form therefrom, the special value of this arrangement consisting in the fact that a permanent and satisfactory contact is made by means of the combination between the loose carbon material and the conducting pencil or rod. These plates N N, though preferably of carbon, are not limited to that material, but may be of any material which will not be injurious in the practical operation of the battery, such, for instance, as vulcanite. I prefer, however, carbon, because in that case the carbon itself serves as an additional means of connecting electrically the carbon material with the rod.

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

1. The combination with a battery-cell of a carbon element therefor comprising a central carbon pencil, a body of material containing carbon closely surrounding the pencil, top and bottom plates between which the body of material is held, one of the plates being loose upon the pencil, a pervious sack inclosing the body of material and said plates, a draw-string at one end of the sack for closing the end of the sack around one of said plates, and a draw-string at the other end of the sack for closing the corresponding end of the sack around the movable plate and compressing the body of material substantially as specified.

2. The combination of a battery-cell, a cover therefor having a screw-thread, an element composed of a pencil engaging with the screw-thread, a flange B provided upon the cover, a  
5 cap engaging by screw-threads with the upturned portion of the flange B, a spring and a plate interposed between said cap and said pencil, for holding a conductor against the latter, substantially as described.
- 10 3. In a battery-cell, the combination of a cover for the cell, a zinc element, an angular connection between said cover and element, a bolt or pin extending upward from said connection through the cover, plates encircling

the shank of said bolt, a spring interposed be- 15  
tween said plates and holding the zinc in position, a central carbon pencil, loose carbon surrounding the same, a pervious sack for said loose carbon, and draw-strings at each  
20 end of said sack, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

IIORATIO J. BREWER.

Witnesses:

II. COUTANT,  
ANTHONY GREF.