

No. 664,006.

Patented Dec. 18, 1900.

C. B. SCHOENMEHL.
GALVANIC BATTERY.

(Application filed Mar. 22, 1900.)

(No Model.)

Fig. 1.

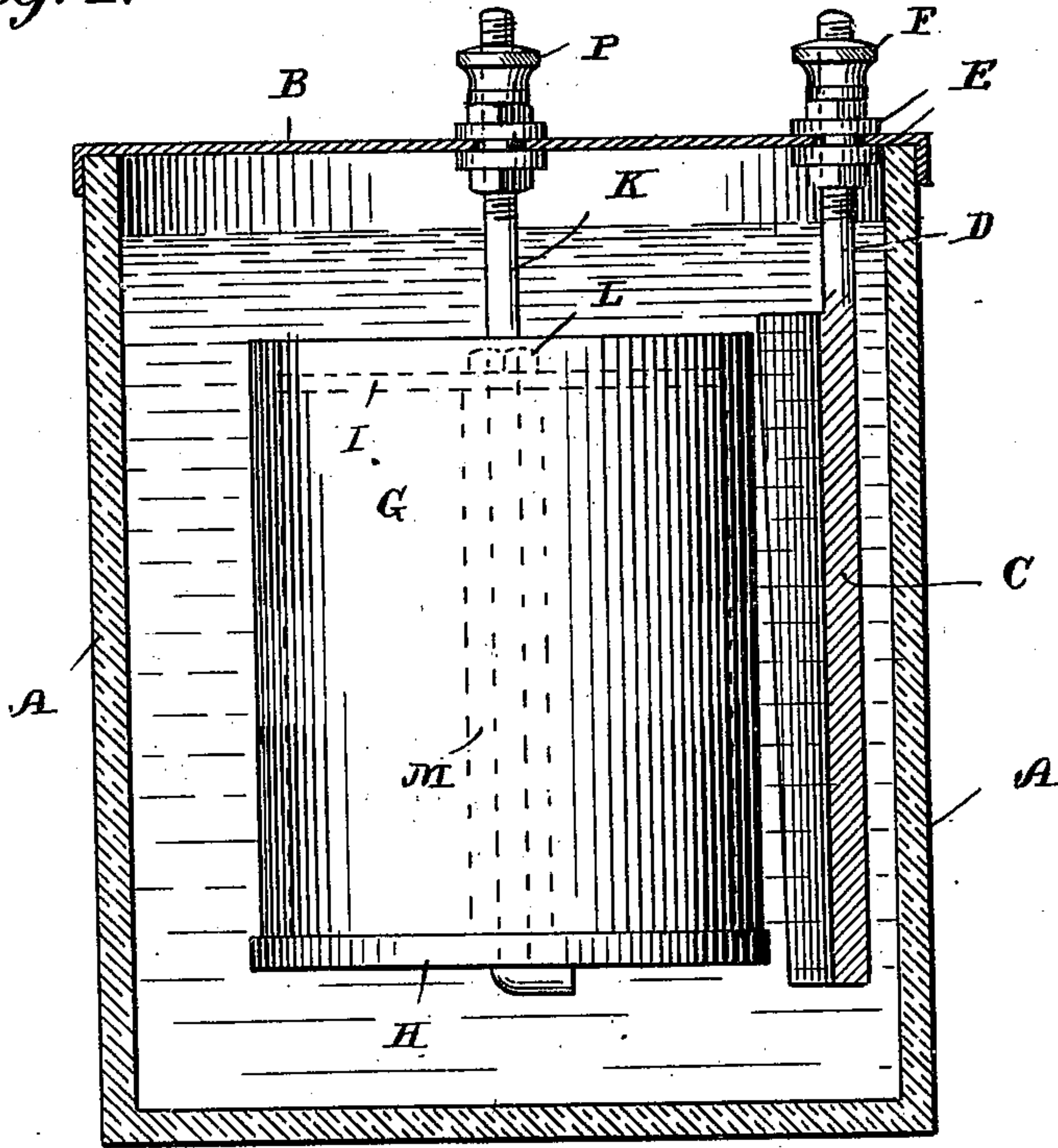
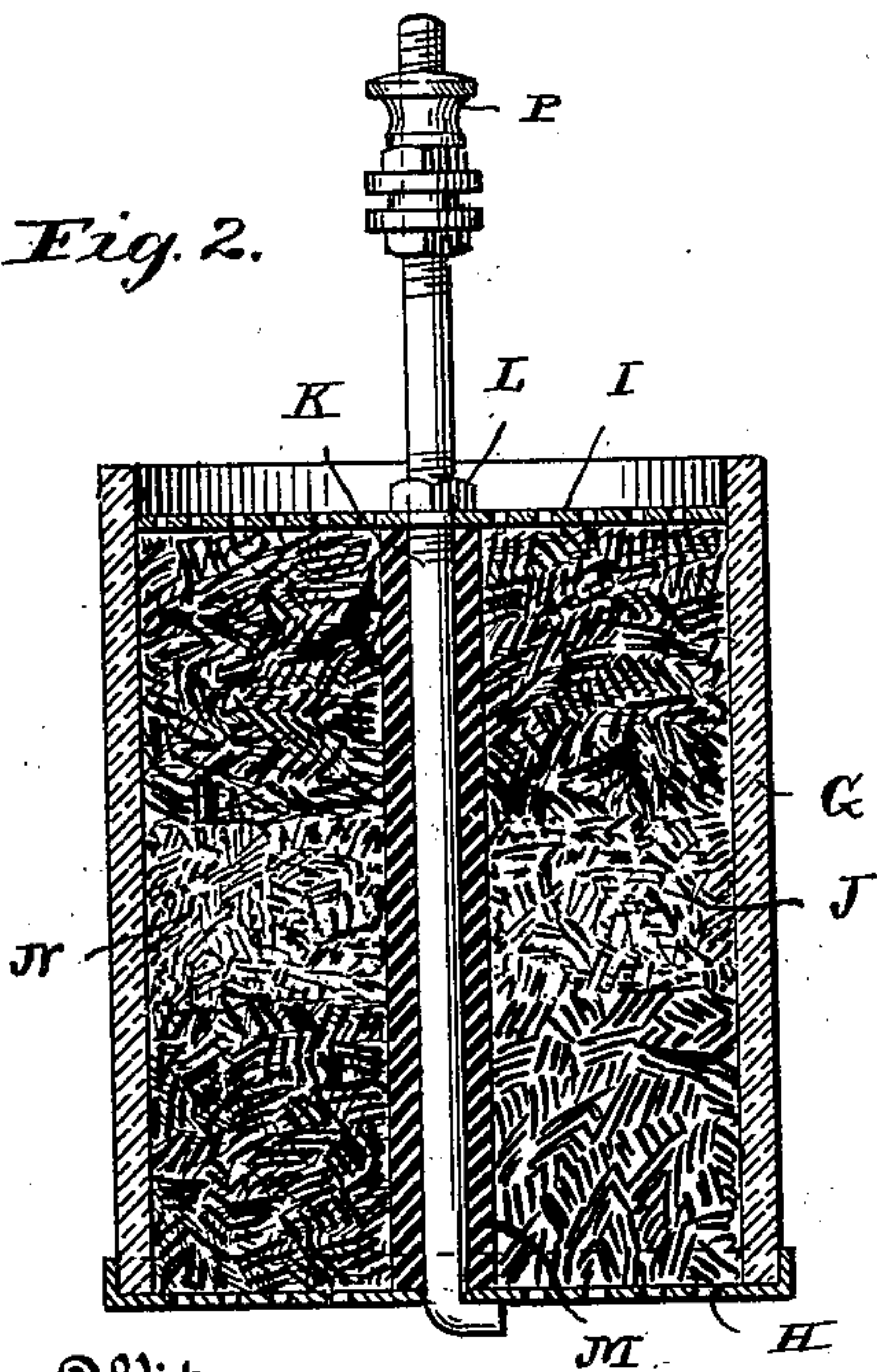


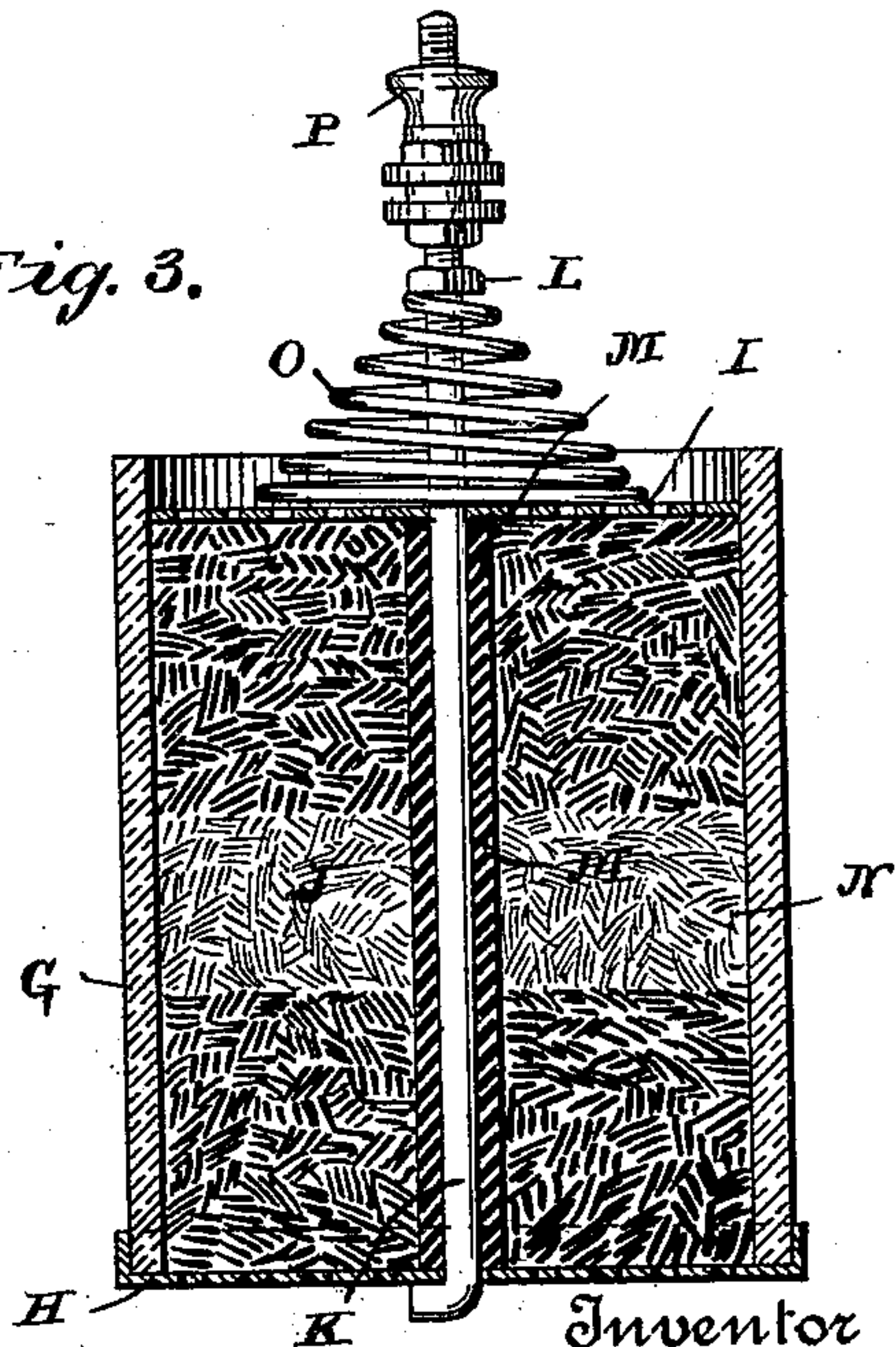
Fig. 2.



Witnesses

R. H. Newman
Edward H. Nicholson

Fig. 3.



Inventor
Charles B. Schoenmehl

By
Chamberlain & Newman
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES B. SCHOENMEHL, OF WATERBURY, CONNECTICUT, ASSIGNOR TO
THE WATERBURY BATTERY COMPANY, OF SAME PLACE.

GALVANIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 664,006, dated December 18, 1900.

Application filed March 22, 1900. Serial No. 9,680. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. SCHOENMEHL, a citizen of the United States, and a resident of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Galvanic Batteries, of which the following is a specification.

My invention relates to improvements in galvanic batteries, and especially to that type wherein oxid of copper, zinc, and a suitable exciting fluid constitute the essential elements.

Heretofore in batteries of the above class it has been difficult to detect their true condition after they have been in use for a little while without the employment of a gage or other instrument, owing to the fact that the oxid of copper has been retained within a non-transparent cup, and, furthermore, that the binding-wire connection thereto has been so attached as to permit of a uniform action or coloration of the copper within said cup.

It is therefore the object of my invention to particularly improve upon the negative element of batteries of this class by producing it in such a manner as to permit of the convenient detection of its condition, and especially so after the battery has been in use.

With the above objects in view my invention resides and consists in the novel construction and combination of parts illustrated upon the accompanying sheet of drawings, forming a part of this specification, upon which similar characters of reference denote like or corresponding parts throughout the several figures, and of which—

Figure 1 shows a vertical cross-sectional view through a transparent battery-jar and showing in side elevation my improved negative pole attached thereto. Fig. 2 is a central vertical cross-section of the construction of the negative pole shown in Fig. 1. Fig. 3 is a similar sectional view to Fig. 1, but illustrating a modified form of construction of the connection for the binding-wire.

Referring in detail to the characters of reference marked upon the drawings, A indicates a battery-jar which may be of any desired shape and preferably formed of transparent material, such as glass. B indicates

a metallic cover to said jar, and to this cover a zinc element C is suspended through the medium of its wire-binding posts D, the same being insulated from the cover by rubber washers E. The clamp-nut F is adjustably attached to the upper threaded end of the post in a manner to permit of the ready attachment of one of the field-wires for operation.

The negative element, as will be apparent, consists of a transparent cylindrical body G, which when formed contains two open ends. In practice these ends are suitably closed by perforated sheet-tin disks, as indicated, the lower one, H, being provided with a flange to receive the end of the glass tube, as clearly appears in the drawings. The upper end piece I is also perforated and in practice is adapted to fit inside of the tube and be adjusted against the oxid. The two end pieces when assembled together with the tube form an inclosure in which the oxid-of-copper element J is retained. These two metallic end disks are retained in place through the medium of a central rod K, the head of which engages the lower one, while the nut L serves to bind against the upper end piece and clamp it down firmly against the copper element before referred to. The central rod J between the two plates is insulated, as shown, by means of a rubber tube M, which encircles said rod and protects it from engagement with the copper scale. It will thus be apparent that the electrical contact between the rod and pole J can only be made through the medium of the metal end plates before mentioned. This fact, as will be apparent, insures the double action upon the copper, beginning at the opposite ends of the tube and gradually working inward as the ingredient is consumed. This oxid of copper in practice undergoes a transformation of color when acted upon, turning from black to a dull red. This coloration is obviously visible through the transparent cylindrical body G and in practice discloses two outer reddish-colored sections of decomposed copper and a central black belt N of greater or less width, thus showing the amount of copper consumed and also the proportion yet available for action, it being understood that the black belt of cop-

per gradually narrows up with use until it diminishes entirely, whereupon the battery will become inactive.

In Fig. 3 of the drawings there is shown a spiral spring O, interposed between the end disk I and the nut L, which forms a desirable electrical connection between the rod and said disk, it being obvious that by making the contact with the disk well out toward the edge a more uniform action upon the copper is probable.

The pole of the negative element is preferably suspended from the cover through the wire J, which is provided with suitable insulating-washers, nuts, and a thumb-nut P.

From the above description it will be noted that the condition of my battery may readily be detected by a single glance from the exterior, since the condition of the negative pole is obviously visible through the outer jar, as well as the solution contained therein. If for any reason a more minute observation of the negative pole may be desired, it can readily be removed and inspected by simply lifting off the cover, thus obviating the necessity of applying registering-gages or like instruments.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A negative pole for a battery the same comprising a tubular body, perforated conducting-disks to inclose the ends thereof, a binding-rod forming a metallic connection with the two disks, a suitable insulation around the periphery of said rod between said disks, an oxid-of-copper element within said tube and means for attaching said negative element to a battery-jar.

2. In a negative element for a battery, the combination with a transparent receptacle

having perforated metal plates situated at the top and bottom thereof, a binding-rod connecting said plates, and provided with an insulating-cover, and an oxid-of-copper element within said jar, located between said plates, substantially as shown and described.

3. A negative element for a battery the same comprising a transparent tube, perforated metallic plates inclosing the ends of said tube, a metal binding-rod in metallic connection with said plates and provided with means for attachment to the cover of a jar, an oxid-of-copper element within said tube, and an insulating-covering between the copper oxid and rod, substantially as and for the purpose set forth.

4. A negative element for a battery, the same comprising a transparent jar open at two ends, perforated metal plates for inclosing said ends, an oxid-of-copper element within said jar, a rod connecting said ends and an adjustable spring for retaining the end covers down firmly upon the oxid of copper.

5. A negative element for a battery comprising a transparent jar having two open ends, an oxid-of-copper element in said jar, perforated metal end covers for said jar, one adapted to cover the lower end while the other is adapted to adjustably fit into the opposite end of the jar, a rod connecting the two, and an adjustable nut for clamping the cover down upon the oxid-of-copper element, substantially as described.

In testimony whereof I have signed this specification, this 19th day of March, A. D. 1900, in the presence of two witnesses.

CHARLES B. SCHOENMEHL.

Witnesses:

C. M. NEWMAN,

EDWARD K. NICHOLSON.