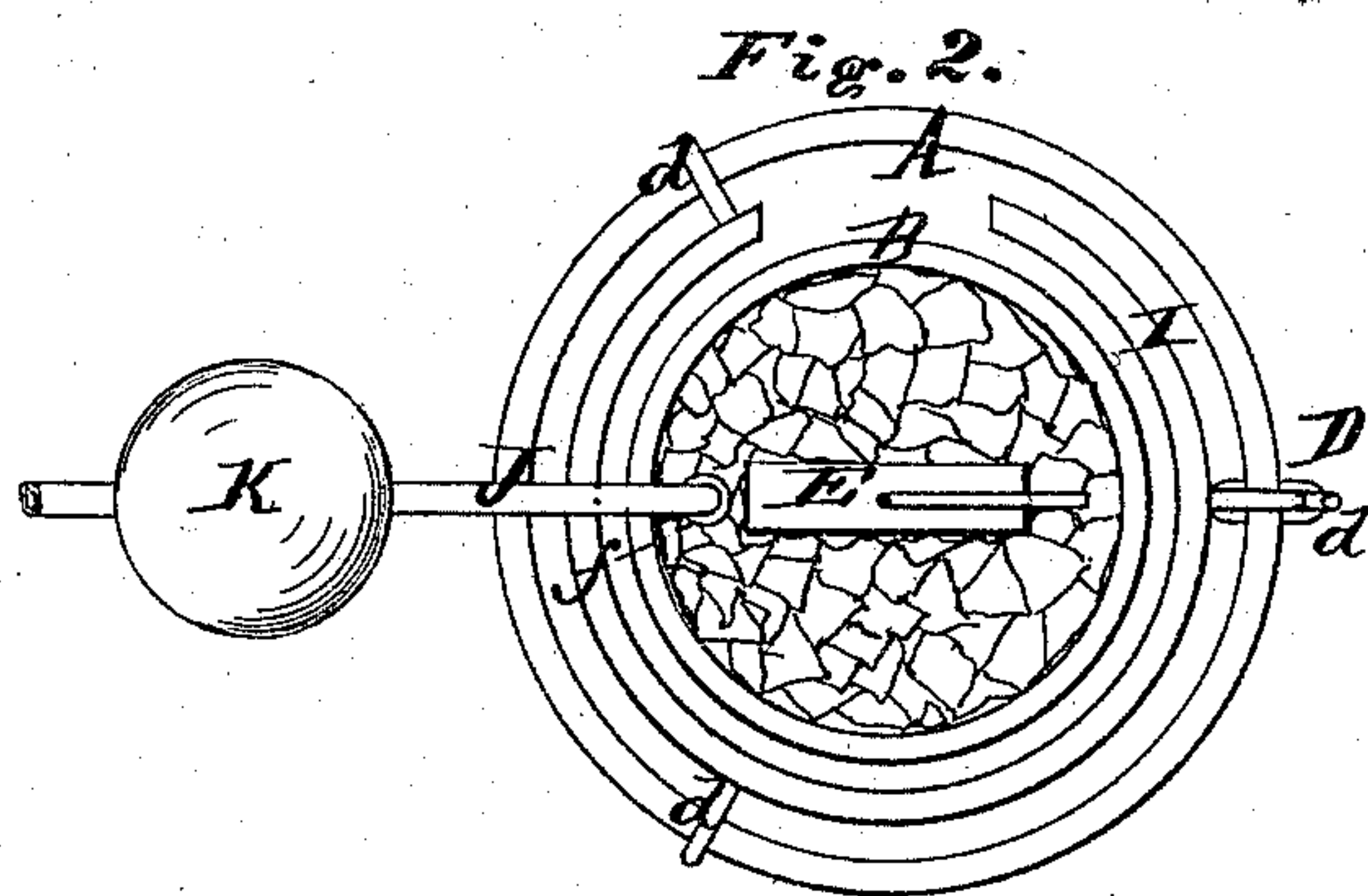
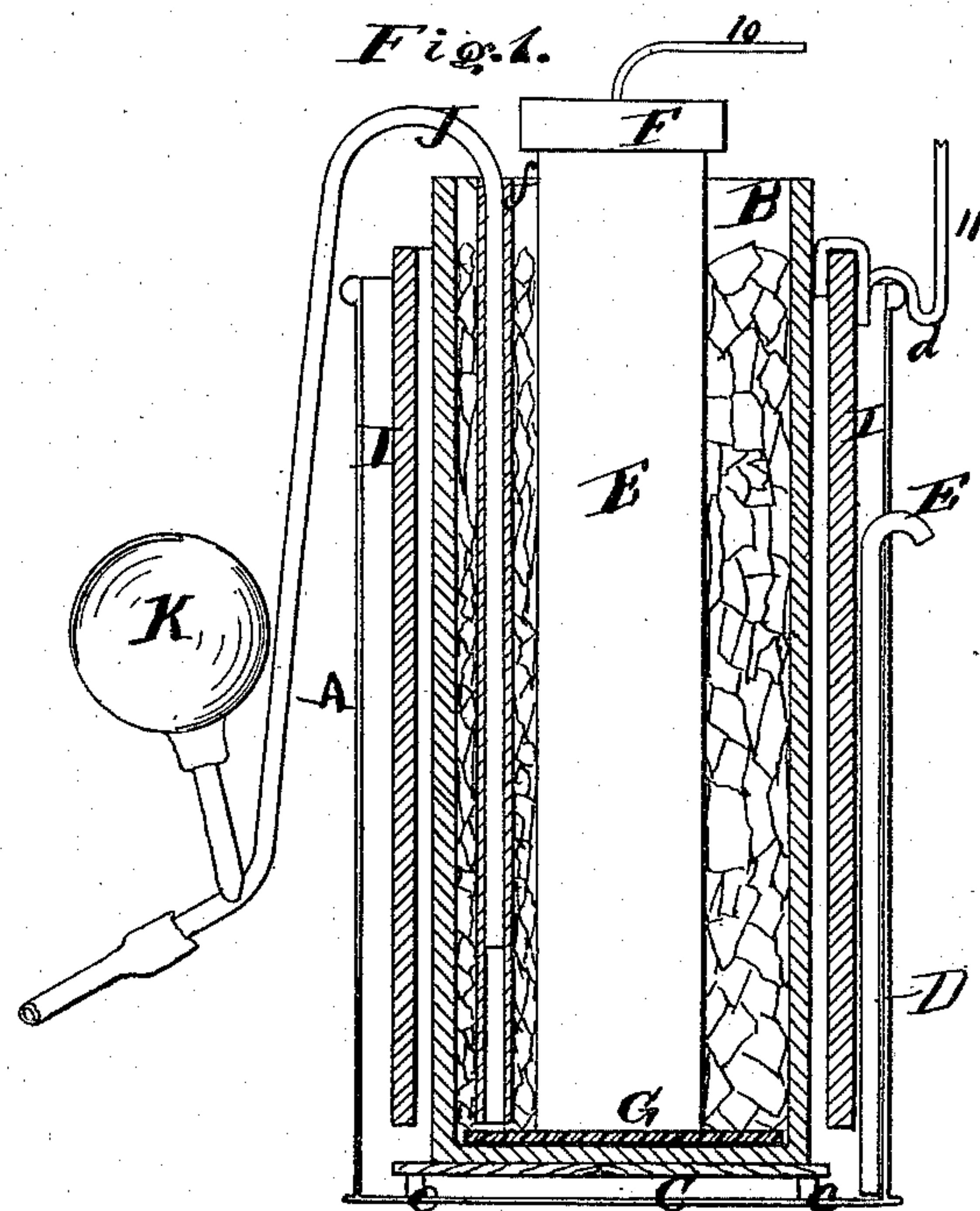


T. CHUTAUX.  
Galvanic-Battery.

No. 164,807.

Patented June 22, 1875.



*Witnesses.*  
Otto Shupland  
Chas Wahlen

*Inventor.*  
Theophile Chutaux  
for  
Van Santvoord & Hauff  
Attors



# UNITED STATES PATENT OFFICE.

THEOPHILE CHUTAUX, OF PARIS, FRANCE.

## IMPROVEMENT IN GALVANIC BATTERIES.

Specification forming part of Letters Patent No. **164,807**, dated June 22, 1875; application filed May 12, 1875.

*To all whom it may concern:*

Be it known that I, THEOPHILE CHUTAUX, of Paris, France, have invented a new and useful Improvement in Electric Batteries, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a vertical central section. Fig. 2 is a plan view.

Similar letters indicate corresponding parts.

My invention consists in the combination, with the porous cup of a Bunsen or other similar galvanic battery, of a bent tube, one end of which extends down through a tube affixed to the interior of said cup, terminating near the bottom thereof, the other end being provided with an exhaust-bulb, for the purpose of withdrawing the spent liquid from said cup, as hereinafter more fully described.

In the drawing, the letter A designates an earthenware jar, such as commonly used in electric batteries, within which is placed a cylindrical cup, B, of porous material. This cup B is preferably provided with a coating of non-porous material for a portion of its length. The porous cup has a greater height than the jar A, and, being intended to receive the acidulated liquid of the battery, it forms a constant feed device to the jar. Within the jar A is placed a false bottom, C, of wood or other suitable material, which is so made as to admit of the circulation of the liquid in the jar beneath it. The false bottom is supported by means of feet *c* on the bottom proper of the jar. The object of the false bottom is to cause the products of decomposition taking place within the jar, and which products have a tendency to fall to the bottom, to accumulate beneath it, and by this means the lower part of the porous cup B, which rests on the false bottom, remains unobstructed. From the space formed beneath the false bottom C extends a tube, D, upward and outward through the side of the jar, the tube being given a return-bend, E, so that it is adapted to discharge into a suitable vessel placed alongside of the jar. When the level of the liquid that oozes from the porous cup B rises to a higher level in the jar than the outlet of the tube D, the pressure of the atmosphere causes that portion of the liquid at or near the bottom of the jar

to discharge by the tube D, and the liquid carries with it any products of decomposition that may have accumulated. In the present example the tube D extends along the inner side of the wall of the jar A; but it may be made to extend along the outer side thereof, if seen fit. Within the porous cup B is placed a strip, E, of carbon, forming the positive pole of my battery, the outer end of the strip being provided with a lead cap, F, or with any other connection for a conducting-wire, 10. On the bottom of the porous cup is placed a disk, G, of carbon, forming the bearing of the strip E, and thus forming a contact with the strip. When the strip and the disk G have been placed in the porous cup B with proper relation to each other, the cup is filled with fragments of retort-coal or other carbonaceous matter, as well as with a suitable acidulated solution, and by this arrangement the points of contact may be multiplied, the surface of the positive pole increased, and the polarization rendered uniform and destroyed. I designates the zinc element of my battery, having the form of a cylinder, surrounding the porous cup B, and having the usual opening to admit of a circulation of the liquid. The cylinder is suspended from the edge of the jar A by means of wires *d* bent to the form of hooks. One of the wires *d* has a continuance, 11, forming a conductor and the negative pole of the battery. J designates a tube, which is bent over and into the porous cup B. This tube extends along the wall, and terminates at or near the bottom of the porous cup, while to the portion of the tube exterior of the cup is connected an elastic bulb, K. By the tube and the bulb K is formed a syringe, and by compressing the bulb the dilute acid may be extracted from the porous cup, or, on the other hand, may be replenished. The main object of the syringe J K is to admit of extracting from the porous cup any portion of weakened or wasted liquid that may accumulate in its lower part. The syringe-tube J is placed within a secondary tube, *f*, of glass or other non-conducting material.

It may be remarked that the discharge-tube D may also have the form of a syringe.

In connection with my battery I prefer to use an exciting agent composed of a salt of

potassium, containing a greater quantity of sulphuric acid than the sulphate or bisulphate of potassium of commerce. This salt is dissolved in water with the bichromate of potassium of commerce in pieces. Thus an exciting liquid is formed and acidulated to the required degree. This salt may be used with any other depolarizing product. The process used for obtaining this salt consists in dissolving sulphate of potassium of commerce in heated sulphuric acid, the product when cold constituting the salt.

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

The tube J, provided with an exhaust-globe, K, and extending down into and secured in a tube, f, which is secured in and extends to the bottom of the porous cup, and is made of non-conducting material, substantially as and for the purpose set forth.

T. CHUTAUX.

Witnesses:

H. BONNEVILLE,  
E. W. WATSON.