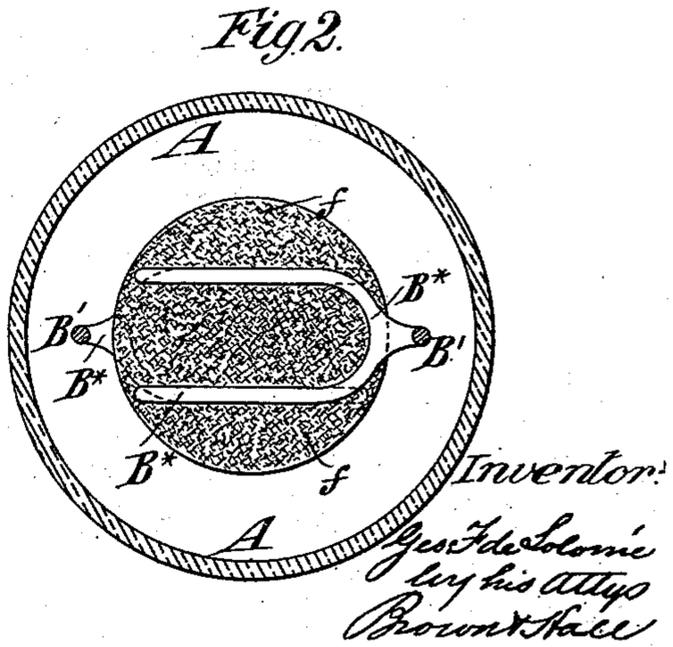
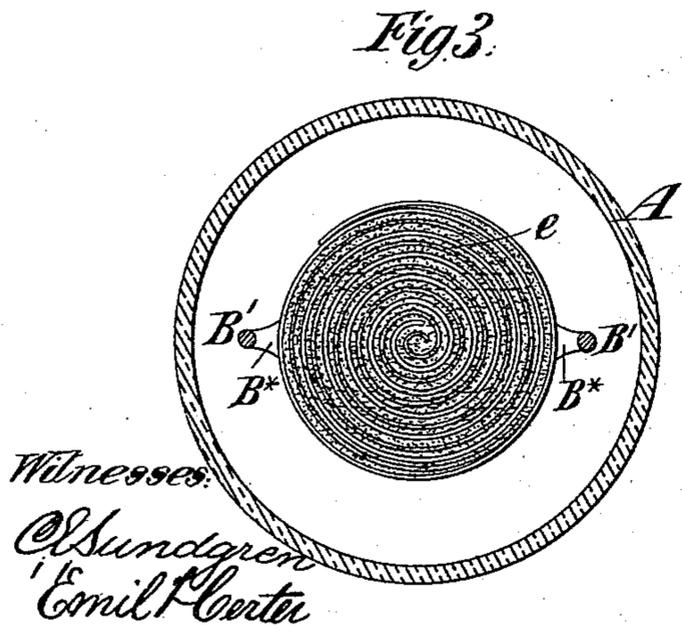
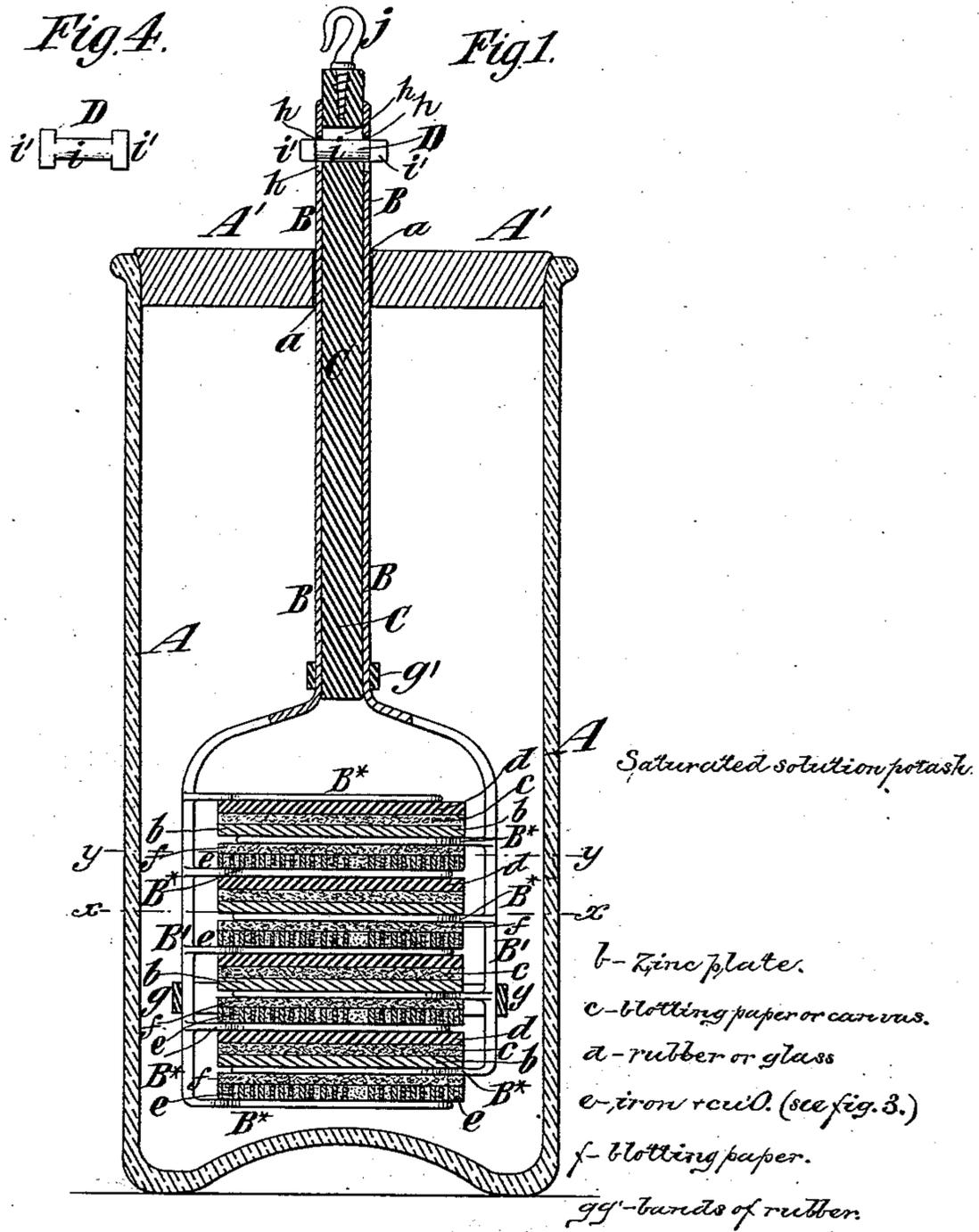


(No Model.)

G. F. DE SOLOMÉ. GALVANIC BATTERY.

No. 344,946.

Patented July 6, 1886.



UNITED STATES PATENT OFFICE.

GEORGE F. DE SOLOMÉ, OF NEW YORK, N. Y., ASSIGNOR TO J. SEAVER
PAGE, OF SAME PLACE.

GALVANIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 344,946, dated July 6, 1886.

Application filed November 21, 1885. Serial No. 183,471. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. DE SOLOMÉ, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Galvanic Batteries, of which the following is a specification.

An important object of my invention is to provide a battery in which the elements are all confined in their proper order and held in place and connected with the pole-pieces without the employment of any screws or other devices, which are apt to become corroded by the influence of the battery-liquid; and the invention consists in a novel construction of the pole-pieces and in their novel combination with the elements of the battery, and with the parts from which they are suspended and with which they are connected, as more fully hereinafter described.

In the accompanying drawings, Figure 1 is a vertical section of a battery embodying my invention. Fig. 2 is a horizontal section upon the plane of the dotted line $x x$, Fig. 1. Fig. 3 is a similar section upon the plane of the dotted line $y y$, Fig. 1; and Fig. 4 is a detail view of a key employed to connect the pole-pieces with the insulating rod or bar which is interposed between them.

Similar letters of reference designate corresponding parts in all the figures.

A designates the battery-jar, and A' the lid or cover thereof, in which is a central aperture, a .

B B designate two pole-pieces, which consist of parallel flat strips arranged upon and secured to the opposite sides of the interposed rod or bar C, which is of wood, vulcanite, or other insulating material. Below the rod or bar C the pole-pieces B B are offset laterally in opposite directions or away from each other, and such offset portions B' are made more in the form of round rods than flat strips, as shown in Figs. 2 and 3.

The portions B' of the pole-pieces which are offset from each other, as described, are provided with inwardly laterally-extending arms B*, which I prefer to make bifurcated or in the form of forks, as shown best in Fig. 2. These arms B* overlap each other—that is to say, the arms projecting from each pole-piece

extend nearly to the opposite pole-piece, and they are arranged at different heights on the offset portions of the pole-pieces, so that the arms of one pole-piece project between the arms of the other pole-piece. These horizontally or laterally projecting arms B* of the pole-pieces serve to hold and properly support the elements of the battery, which are arranged in alternate positions and horizontally, as shown in Fig. 1, and which rest upon the said arms. This method of supporting the elements of the battery is desirable with elements of many different kinds.

As here represented, there are supported on the arms B* of one pole-piece zinc plates b , above which are sheets of blotting-paper, canvas, or other absorbent material, c , and over the blotting-paper and absorbent material are pieces of rubber or other insulating material, d . The purpose of the paper, canvas, or other absorbent material, c , is simply to insure the action of the solution on the upper surface of the zinc elements b . If the india-rubber d were in close contact with the upper surfaces of the zinc plates b , the solution might not have access to such surfaces, but, as the absorbent material d is always saturated with solution, the activity of the whole surface of the zinc is insured. The opposite elements, which are supported on the arms B* of the other pole-pieces, consist, as here shown, of plates e , of iron and oxide of copper, and sheets f , of blotting-paper or other absorbent material placed thereon. The insulating-plates d may be of glass, paraffined card, rubber, or other suitable material, and the pole-pieces, with their arms B B' B*, may be of brass.

In preparing the disks of iron e , I prefer to make them each of a spirally-wound strip or strips of iron, which may be of about one-quarter of an inch in width, and which have agglomerated between their convolutions oxide of copper, as best shown in Fig. 3. In this way a large surface is exposed to the action of the battery-liquid.

In order to prevent the spreading of the pole-pieces, and consequent release or derangement of the battery elements, I have shown the offset portions B' of the pole-pieces sur-

rounded by a band, *g*, which may be of hard rubber, and I have shown a similar but smaller band, *g'*, surrounding the pole-pieces and interposed rod or bar C, which is above the offset portions in the pole-pieces. The offset portions B' of the pole-pieces B and their branches or arms B*, if of brass, should be amalgamated with mercury to prevent local action between them and the zincs; but I prefer to make the pole-piece for supporting the iron plates of iron, and the one for supporting the zinc plates of brass and amalgamated.

In order to connect the upper ends of the pole-pieces B with the rod or bar C, I have shown both the pole-pieces and rod or bar as slotted at *h*, such slots being of considerable depth vertically, and receiving a key, D, the form of which is shown in Figs. 1 and 4. This key D has a body portion, *i*, between its ends, of a sufficient width to enter the slot, and its ends *i'* are T-shaped, so that when the key is placed in the position shown in Fig. 4 and the slots *h* are brought into coincidence, the key may be thrust through them; but when the key is turned, as shown in Fig. 1, its heads *i'* will overlap the sides of the slots *h* and prevent the accidental displacement of the key.

In the operation of this battery I may employ a nearly-saturated solution of ordinary potash.

At the upper end of the bar or rod C is a hook, *j*, or equivalent eye, to which a cord or other connection may be attached for raising the elements out of the battery-liquid and into the upper portion of the jar, so as to render the battery inoperative.

When it is desired to renew the battery elements or clean them, all that is necessary is to slip off the bands *g g'* and take out the key D, and the elements will thus be left free, and may be reassembled in the same manner when assembling the battery for use.

It will be observed that by my invention the elements are all held in their proper order, and sustained by the peculiar construction and combination with them of the pole-pieces,

and that all these parts are secured together without any screws or other devices which would be liable to become fixed by corrosion.

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

1. The combination, with alternately-arranged battery elements, of two pole-pieces having laterally-projecting arms for supporting the elements, arranged at different heights, the arms of one pole-piece overlapping those of the other, and a connection between the pole-pieces to prevent their spreading, substantially as herein described.

2. The combination of two pole-pieces consisting of strips of metal and an interposed bar or rod of insulating material to which the strips are secured, the portions of the pole-pieces below the bar or rod being offset from each other to afford a wider space between them, and such offset portions being provided with laterally projecting and overlapping arms, and alternately-arranged battery elements supported by said arms, substantially as herein described.

3. The combination, with the pole-pieces B, having offset portions B', provided with laterally-projecting arms B*, and the interposed rod or bar C, of the battery elements supported by the arms B*, and bands *g g'*, for preventing the spreading of the pole-pieces, substantially as herein described.

4. The combination, with the rod or bar C, and pole-pieces B, secured to opposite sides thereof, and all provided with slots *h*, the lower portions, B', of the pole-pieces being offset from each other and provided with laterally-projecting arms, of the key D and band *g'*, for connecting the pole-pieces, and interposed rod or bar, and battery elements supported by the arms of the pole-pieces, substantially as herein described.

GEORGE F. DE SOLOMÉ.

Witnesses:

FREDK. HAYNES,
HENRY MCBRIDE.