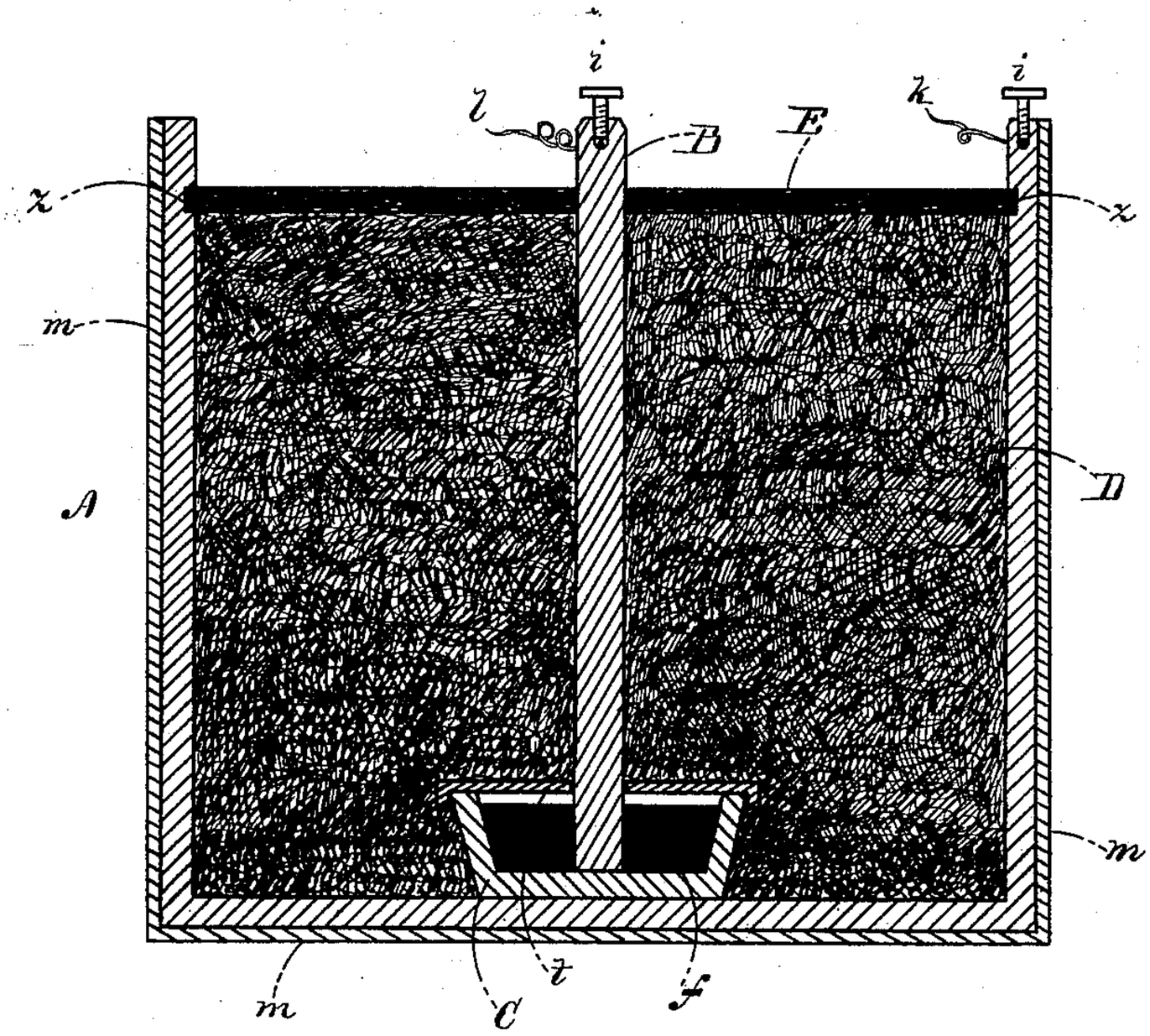
(No Model.)

E. M. HEWETT.

GALVANIC BATTERY.

No. 387,643. Patented Aug. 14, 1888.



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GALVANIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 387,643, dated August 14, 1888.

Application filed November 21, 1887. Serial No. 255,758. (No model.)

To all whom it may concern:

Be it known that I, ERNEST M. HEWETT, of Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Galvanic Batteries, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which the figure is a vertical transverse section of my improved battery charged and in readiness for use.

My invention relates to that class of galvanic batteries known as "dry batteries;" and it consists in the novel features hereinafter fully set forth and claimed, the object being to produce a simpler, cheaper, and more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawing, A represents the jar, and B the zinc plate. The jar is composed of carbon, and is covered on its outer side with a coating of paraffine, *m*, to prevent the exudation of the acidulated solution contained therein; but instead of the paraffine a coating of paint or any other suitable material may be employed, which is adapted to serve the same purpose.

The zinc B is preferably disposed near the center of the jar A, and stands in a shallow glass dish, C, which rests on the bottom of said jar and serves as an insulator for the zinc. The dish C is provided with a cover, *t*, through which there is an opening for receiving the zinc, and disposed in said dish there is a quantity of free mercury, *f*, for keeping the zinc properly amalgamated. The body of the jar around the zinc is filled or partially filled with a paste, D, composed of fine infusorial earth, moistened or wet with an acidulated solution made as follows, to wit:

Formula for solution.—Sulphuric acid, one part; water, eight parts; mix and add sufficient bisulphate of mercury to saturate the solution.

A sufficient quantity of the solution should be used to render the earth plastic or reduce it to the consistency of thick paste.

Disposed on the paste D in the jar A around the zinc B there is a cover, E, composed of coal-tar, by which the jar is tightly sealed and the solution in the paste prevented from evaporating. Instead of the tar, paraffine, pitch, asphaltum, or any other suitable substance may be employed for the same purpose.

An annular groove, *z*, is formed in the interior of the jar near its top, into which the cover E extends, and which aids in keeping it in place and securely sealing the jar. The groove may, however, be omitted, if desired. A cover of glass, wood, porcelain, or other suitable material may also be used in place of the cover E, if preferred, said cover being placed on top of the jar A in the usual manner.

Conducting-wires *l k* are respectively connected to the zinc B and carbon jar A by means of screws *i*.

Instead of the solution described, a saturated solution of sal-ammoniac, bicarbonate of potash, or chromic acid may be employed, if preferred, and in place of the infusorial earth fuller's-earth or any similar substance may be employed. The proportions of the ingredients in the solution may also be varied considerably without materially changing its nature.

The paste composed of the earth and acidulated solution, as described, acts as a filter, which permits the acid to pass freely to the zinc plate, but prevents the salts (sulphate of zinc) formed by the action of the acid on the plate from circulating in the jar, thus enabling all of the acid to be used up gradually and with the best results.

The dish C may be composed of rubber or any other suitable non-conductor, and, if desired, its cover may be omitted.

It will be obvious that the jar A serves the double purpose of a jar for containing the galvanic elements (acid, water, and earth) and as a carbon pole for the battery.

As I have made the galvanic elements described (the earth and acidulated solution) the subject-matter of another application for Letters Patent, filed November 17, 1887, Serial No. 255,379, I do not claim the same broadly herein.

Having thus explained my invention, what I claim is—

1. The improved galvanic battery herein described, the same consisting of the carbon jar A, provided with the coating *m*, the dish C, disposed in said jar and containing the mercury *f*, the zinc plate B, resting in said dish, the paste D, composed of infusorial earth or similar substance, moistened or wet with a solution of sulphuric acid, water, and bisulphate of mercury, the cover E, and conducting-wires *l k*, combined and arranged to operate substantially as set forth.

2. In a galvanic battery, a coated carbon jar containing infusorial earth or similar substance, saturated with an acidulated solution, in combination with a zinc plate in contact with said earth, substantially as described.

3. In a galvanic battery, a coated carbon jar containing infusorial earth or similar substance, saturated with an acidulated solution, in combination with a zinc plate in contact with said earth, and an insulator interposed between said plate and jar, substantially as set forth.

4. In a galvanic battery, a coated carbon jar containing infusorial earth or similar substance, saturated with an acidulated solution, in combination with a zinc plate in contact with said earth, and a dish containing free mercury for amalgamating said plate, substantially as described.

5. In a galvanic battery, a carbon jar containing infusorial earth or similar substance, saturated with an acidulated solution, a coating for preventing the exudation of acid through said jar, a zinc plate in contact with said earth, a dish containing free mercury for amalgamating said plate, and a cover adapted to tightly close said jar, substantially as set forth.

6. In a galvanic battery, the carbon jar A, provided with the coating *m*, the zinc plate B, disposed in said jar, the paste D, composed of infusorial earth or similar substance, moistened or wet with a solution of acid, bisulphate of mercury, and water, said paste being in contact with said plate, and an insulator for said plate, all combined and arranged to operate substantially as described.

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Witnesses:
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