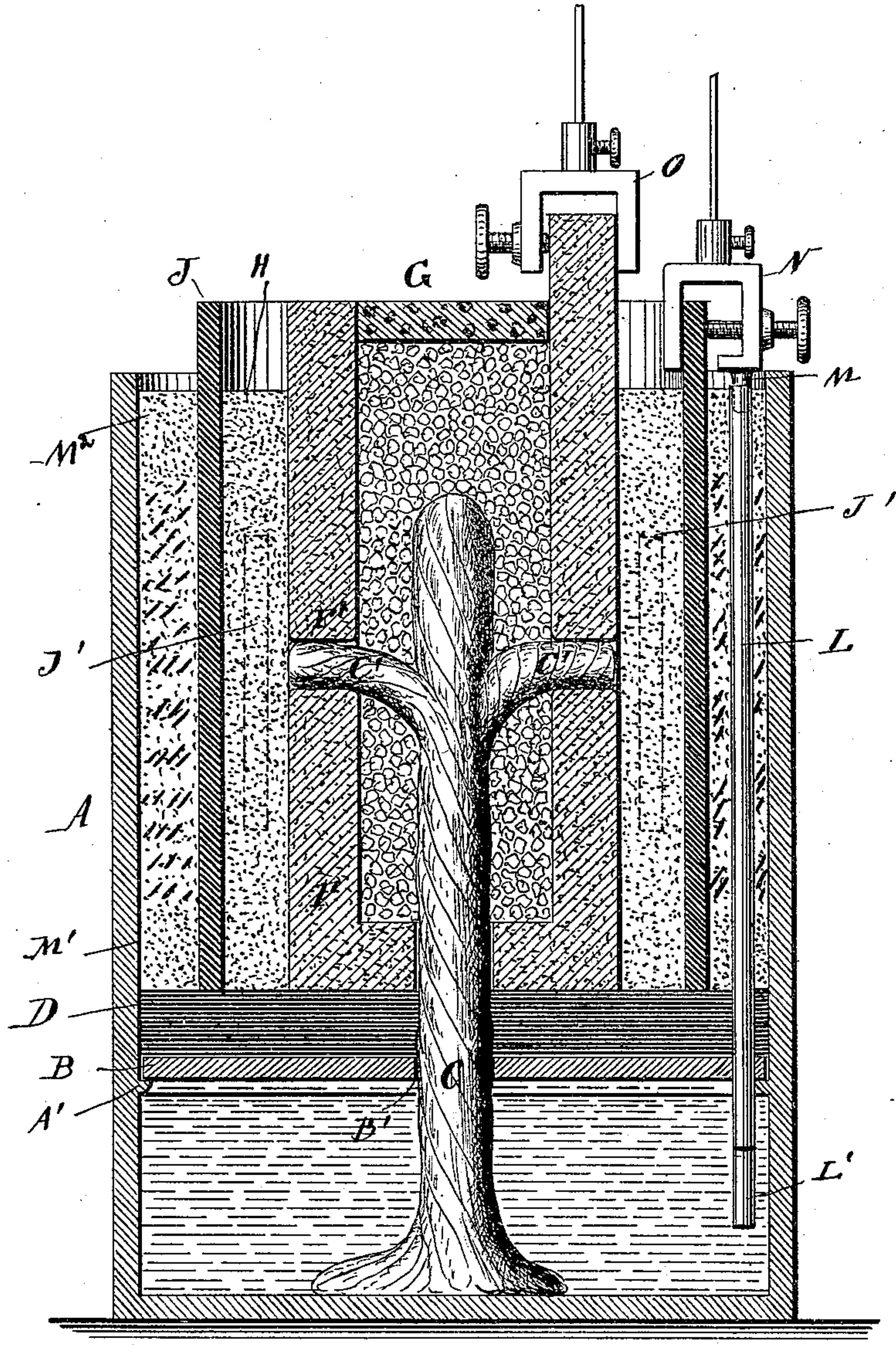


(No Model.)

P. HIERONYMUS.
GALVANIC BATTERY.

No. 461,262.

Patented Oct. 13, 1891.



WITNESSES:

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GALVANIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 461,262, dated October 13, 1891.

Application filed February 12, 1891. Serial No. 381,168. (No model.)

To all whom it may concern:

Be it known that I, PHILIPP HIERONYMUS, a citizen of the Empire of Germany, and a resident of New York city, in the county of New York, in the State of New York, have invented certain new and useful Improvements in Electric Batteries, of which the following is a specification.

The dry batteries used heretofore had the disadvantage that they did not last as long as the ordinary Leclanché or other wet batteries.

The object of my invention is to provide a dry battery in which the elements of the various kinds of Leclanché batteries can be utilized, and also to provide a battery in which the quantity of water and sal-ammoniac is not all used at the start, but is gradually utilized as the battery is being used.

The invention consists in a battery constructed with a jar having a partition a short distance above the bottom, a water-compartment being formed below said partition, the usual battery elements resting upon the partition, and a wick extending from the water-compartment up to said battery elements to supply them with moisture.

The invention also consists in the construction and combination of parts and details, which will be fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawing a vertical longitudinal sectional view of my improved dry battery is shown.

The glass jar A is provided about one-quarter of the length above its bottom with an interior ledge A' for supporting a disk B of wood, having a central aperture B', through which the heavy wick C passes, the lower end of the wick resting on the bottom of the jar. A number of layers of linen or cotton D are placed on the wooden disk B and are also provided with a central aperture for the wick. Upon said layers of cotton a carbon cylinder F is placed, which has an aperture in its bottom, through which aperture the wick can pass, said carbon cylinder being also provided with the side apertures F', through which the branches C' of the wick can pass. Said carbon cylinder is filled with manganese, and the top is closed by a stopper G of cork. The carbon cylinder is surrounded by a layer H, consisting of about one hundred parts of

gypsum, ten parts of sal-ammoniac, and sufficient water to form a paste. Said layer H is surrounded by a cylinder J of zinc, provided with a series of longitudinal slots J'. The annular space between the zinc cylinder J and the wall of the vessel or jar A is filled in part with pure sal-ammoniac, on top of which a covering or sealing-layer M², of gypsum and sal-ammoniac, is placed. A like layer M' of gypsum and sal-ammoniac is provided below the pure sal-ammoniac. Two glass tubes L L' pass through the said annular layer of sal-ammoniac and gypsum and sal-ammoniac through apertures in the cotton layers D and through apertures in the wooden disk B, so as to permit filling the bottom part of the glass jar with water and give a vent for the escape of the air. The upper ends of the glass tubes L L' are closed by rubber stoppers M, which are retained by a clamp N, fastened to the zinc cylinder and carrying one outgoing wire. A clamp O for the other wire is applied on the upper projecting part of the carbon cylinder.

The water is drawn by the wick C from the water-compartment into a carbon cylinder F and into the layer of gypsum, sal-ammoniac, and water surrounding said carbon-cylinder and in turn surrounded by the zinc cylinder. The water can only pass out of the water-compartment by capillary attraction through the wick. The pure sal-ammoniac surrounding partly the zinc cylinder can pass through the slots J' of said cylinder into the space between the zinc cylinder and the carbon cylinder. The paste between the zinc and carbon cylinders or at top and bottom of the pure sal-ammoniac between zinc cylinder or glass jar at all times remains soft on account of the formation of ammonium sulphate and calcium chloride. The gases that cause polarization can thus escape, and thus do not interfere with the proper action of the battery.

In case all the water has been consumed the water-compartment can easily be filled after the removal of the stoppers M with the clamp N.

This battery has all the advantages of an ordinary dry battery and none of the disadvantages of an ordinary wet battery, such as Leclanché.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. In an electric battery, the combination, with a jar, of a partition held a short distance above the bottom of the same, electric elements resting on said partition, a tube for filling the lower part of the jar with water, a vent-tube, and a wick for conducting the water from the lower part of the jar to the elements, substantially as set forth.

2. The combination, with a jar, of a partition a short distance above the bottom of the same, zinc and carbon cylinders resting on said partition, and a wick passing from the bottom part of the jar into the carbon cylinder and through apertures in the sides of the same, substantially as set forth.

3. The combination, with a jar, of a partition a short distance above the bottom of the same, zinc and carbon cylinders resting on said partition, a wick passing from the bottom part of the jar through the carbon cylinder and through apertures in the sides of the

same, a layer of pure sal-ammoniac, top and bottom layers of gypsum and sal-ammoniac, water surrounding the zinc cylinder, and a layer of sal-ammoniac and gypsum between the zinc and carbon cylinders, substantially as set forth.

4. The combination, with a jar, of a partition a short distance above the bottom of the same, zinc and carbon cylinders resting on said partition, a wick passing from the bottom part of the jar through said carbon cylinder and apertures in the sides of the same, and two tubes extending within the jar from the top of the same through the said partition to the water-compartment below said partition, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

PHILIPP HIERONYMUS.

Witnesses:

PAUL GOEPEL,
CHARLES BLES.