(No Model.)

J. I. SOLOMON.

DRY BATTERY.

No. 525,235. Patented Aug. 28, 1894.

Fig. 1.

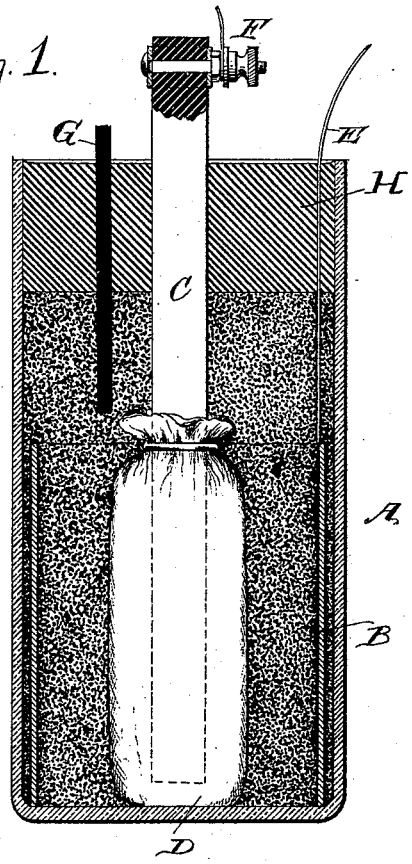
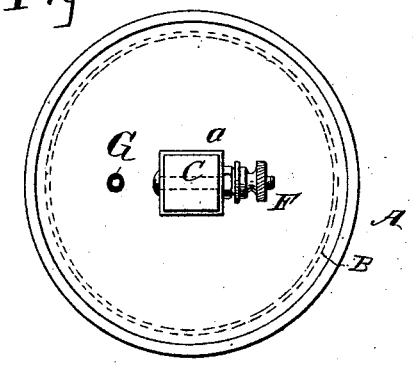


Fig. 2.



WITNESSES:

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DRY BATTERY.

SPECIFICATION forming part of Letters Patent No. 525,235, dated August 28, 1894.

Application filed April 11, 1894. Serial No. 507,128. (No model.)

To all whom it may concern:

Be it known that I, JOHN I. SOLOMON, of New York city, in the county and State of New York, have invented a new and Improved Dry Battery, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a vertical transverse section of my improved battery; and Fig. 2 is a plan view of the same.

Similar letters of reference indicate corresponding parts in both views.

The object of my invention is to construct a simple and efficient dry battery to be used where batteries of any kind are applicable.

My invention consists in the combination of a jar of glass or equivalent material, a curved plate of zinc, a carbon rod, a mixture of granulated black oxide of manganese and granulated carbon cemented together by chloride of zinc and surrounding the rod, a bag of textile material surrounding the carbon-manganese mixture, a filling of sawdust saturated with a solution of sal-ammoniac, and a seal filling the upper portion of the jar and surrounding the carbon and wire leading from the zinc; also in a vent tube extending from the sawdust filling through the seal, all as will be hereinafter more fully described.

The jar A, which is preferably made in cylindrical form, is made of glass, porcelain, or equivalent insulating material. Within the lower half of the jar A is placed a curved plate B of zinc, which forms nearly a complete hollow cylinder, there being a narrow space between the outer surface of the zinc and the inner surface of the jar. In the jar A, at or near the center thereof, is inserted a carbon rod C, which reaches nearly or quite to the bottom of the jar, and extends upwardly above the top of the jar. The lower half of the rod C is surrounded by a mass formed of a mixture of granulated black oxide of manganese and granulated carbon cemented together and to the rod C by chloride of zinc, and the enlargement thus formed upon the lower end of the carbon rod is inclosed in a bag D, of textile material, which is closed at its upper end around the carbon rod, and tied.

The space around the zinc between the zinc plate and the cell, and the space between the zinc and the bag D, is filled with fine sawdust moistened with a solution of sal-ammoniac, and the jar A is filled with the sawdust also moistened with a solution of sal-ammoniac, the sawdust being packed closely around the carbon rod C.

To the zinc plate B is attached a wire E, which extends upwardly above the top of the jar A. The space above the sawdust filling and around the carbon rod C and the wire E is filled with cement H, which fills the space above the sawdust to the top of the jar, and hermetically seals the jar, preventing evaporation and excluding the air from the interior of the battery. The cement used consists of rosin and a pigment, such as lampblack. The upper end of the carbon rod C is provided with the usual binding post F, the upper end of the carbon rod being surrounded by a square metallic ferrule *a*, to establish a good electrical contact with the carbon. A vent tube G, preferably of bamboo, extends through the cement seal and projects downwardly into the sawdust filling. Any gas that may be generated in the battery escapes through this tube, and when necessary, water is introduced through this tube.

The mixture formed of granulated black oxide of manganese, granulated carbon, and chloride of zinc, is prepared by placing all the ingredients in a suitable receptacle, moistening them with water and thoroughly mixing them together. This mixture is applied to the carbon in an approximately cylindrical form. The cement used for closing the cell consists of coal tar pitch, or any analogous material having acid and moisture-resisting qualities.

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

1. In a dry battery, the combination of a cell made of glass, a curved plate of zinc placed within the cell, a carbon rod inserted in the cell within the curved zinc plate and provided with a thick coating formed of a mixture of black oxide of manganese, granulated carbon and chloride of zinc, a granular porous filling placed within and around the zinc plate and around the carbon rod, a seal

closing the top of the jar and surrounding the carbon rod, a wire leading through the seal to the zinc plate, and a ventilating tube passing through the seal to the porous filling, substantially as shown and described.

2. The combination, with the carbon element of a dry battery, of a mixture formed of black oxide of manganese, granulated carbon and chloride of zinc, a granular porous filling placed within and around the zinc plate and around the carbon rod, a seal closing the top of the jar and surrounding the carbon rod, a wire leading through the seal to the zinc plate, and a ventilating tube passing through the seal to the porous filling, substantially as specified.

3. The combination, with the carbon element of a dry battery, of a mixture formed of black oxide of manganese, granulated carbon and chloride of zinc, a granular porous filling placed within and around the zinc plate and around the carbon rod, a seal closing the top of the jar and surrounding the carbon rod, a wire leading through the seal to the zinc plate, a ventilating tube passing through the seal to the porous filling, and a bag of textile material inclosing the mixture and the carbon, substantially as specified.

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Witnesses:
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