(No Model.)

W. BURNLEY.

GALVANIC BATTERY.

No. 419,633. Patented Jan. 21, 1890.

Fig. 1.

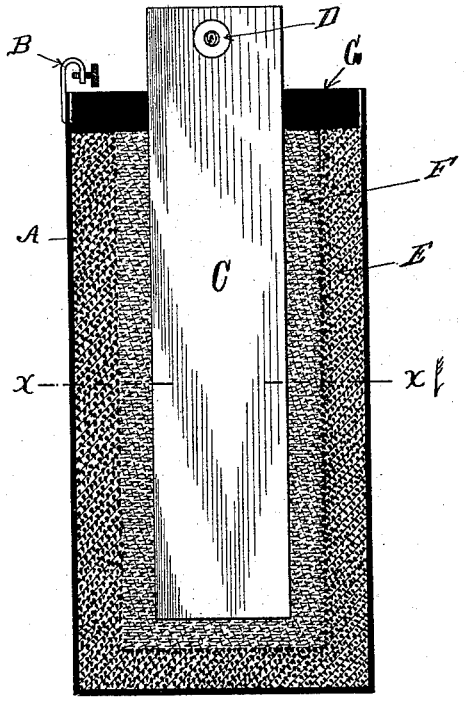
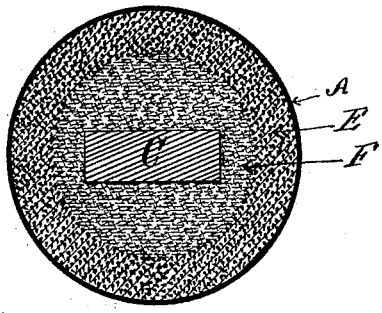


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM BURNLEY, OF NORTH EAST, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO CHARLES A. HITCHCOCK, OF SAME PLACE, AND SAMUEL A. DAVENPORT, OF ERIE, PENNSYLVANIA.

GALVANIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 419,633, dated January 21, 1890.

Application filed May 25, 1889. Serial No. 312,150. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BURNLEY, a citizen of the United States, residing at North East, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Galvanic Batteries; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention consists in the improvements in galvanic batteries hereinafter set forth and explained, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical central section of my improved battery, the carbon electrode thereof being shown in elevation. Fig. 2 is a transverse section of the same on the line *x x* in Fig. 1.

In the construction of my improved battery shown, A is a zinc cylinder or cup provided with a clamping-screw B, for connecting an electrical conductor therewith, and C a carbon electrode provided with a binding-screw D, for connecting an electrical conductor therewith, the zinc cylinder or cup A forming one battery-electrode and the carbon C the other. The zinc cylinder or cup A, I line with an exciting agent E, consisting, preferably, of the following ingredients, viz: sal-ammoniac, one part; chloride of zinc, one part; plaster, three parts, and water, two parts, to which I add one part of an oxide, sulphuret, or other suitable compound of antimony; or, in lieu of an oxide, sulphuret, or other compound of antimony, I use seven-eighths of one part of a comminuted vegetable material, (preferably flour.)

In preparing the exciting agent E, I mix the materials described together, they then forming a semi-liquid, which is poured into the cup or cylinder A around a plunger temporarily inserted centrally in the cup A, where the exciting agent rapidly becomes a semi-solid. The temporary plunger being then removed, a carbon C is inserted centrally in the opening left by the withdrawal of the plunger, and the space around the carbon is filled with a compound F, consisting, preferably, of the following ingredients: sal-ammoniac, one part; chloride of zinc, one part; peroxide of manganese, one part; granulated carbon, one part; plaster, three parts, and water two parts, to which I add either one part of an oxide, sulphuret, or other compound of antimony, or, in lieu thereof, seven-eighths of one part of comminuted vegetable material, (preferably flour.) I mix these materials together so as to form a semi-liquid, which is poured in around the carbon C until the space between it and the inside shell of the exciting agent E is filled, where the compound F soon becomes a semi-solid. I then seal the top of the zinc cylinder or cup A around the carbon C with bitumen or other suitable material G, so that it is substantially air and fluid tight.

I have described certain materials herein as used by me as exciting and depolarizing agents in my battery. However, I do not confine myself to the particular materials named nor to the exact proportions thereof used; nor do I limit myself to any particular kinds of zinc or positive and carbon or negative electrodes, as the important feature of my invention is that of interposing between the positive and negative electrodes of a galvanic battery two distinct layers of exciting composition in a semi-solid or plastic state, the one next to and contacting with the carbon or negative electrode having intermixed therewith depolarizing agents, and the one next to and contacting with the zinc or positive electrode not embodying depolarizing agents in its composition, my invention relating rather to the particular construction of the battery than to the particular compounds constituting or embodied in the exciting and depolarizing agents or the kinds of electrodes used, as I can utilize any of the known galvanic exciting and depolarizing agents and electrodes in my construction; therefore

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a galvanic battery,

of a positive electrode and a negative electrode, with a semi-solid or plastic exciting agent arranged in two layers and filling the space between the positive and negative electrodes, the layer thereof next to and contacting with the negative electrode having depolarizing agents intermixed therewith, and the layer next to and contacting with the positive electrode not having any depolarizing agents intermixed therewith, substantially as set forth.

2. The combination, in a galvanic battery, of a zinc electrode and a carbon electrode, with a semi-solid exciting agent arranged in two layers and filling the space between the zinc and carbon electrodes, the layer next to and contacting with the carbon electrode being provided with depolarizing agents, and the layer next to and contacting with the zinc electrode being without such depolarizing agents, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM BURNLEY.

Witnesses:
L. JACKSON,
J. C. STURGEON.