(No Model.)

C. H. CARTER.

ELECTRODE FOR SECONDARY BATTERIES.

No. 410,136. Patented Aug. 27 1889.

Fig. 1

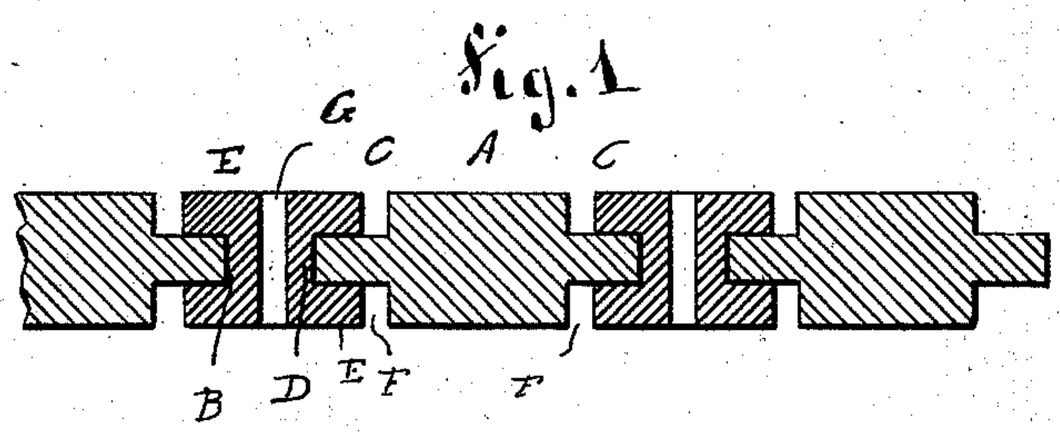
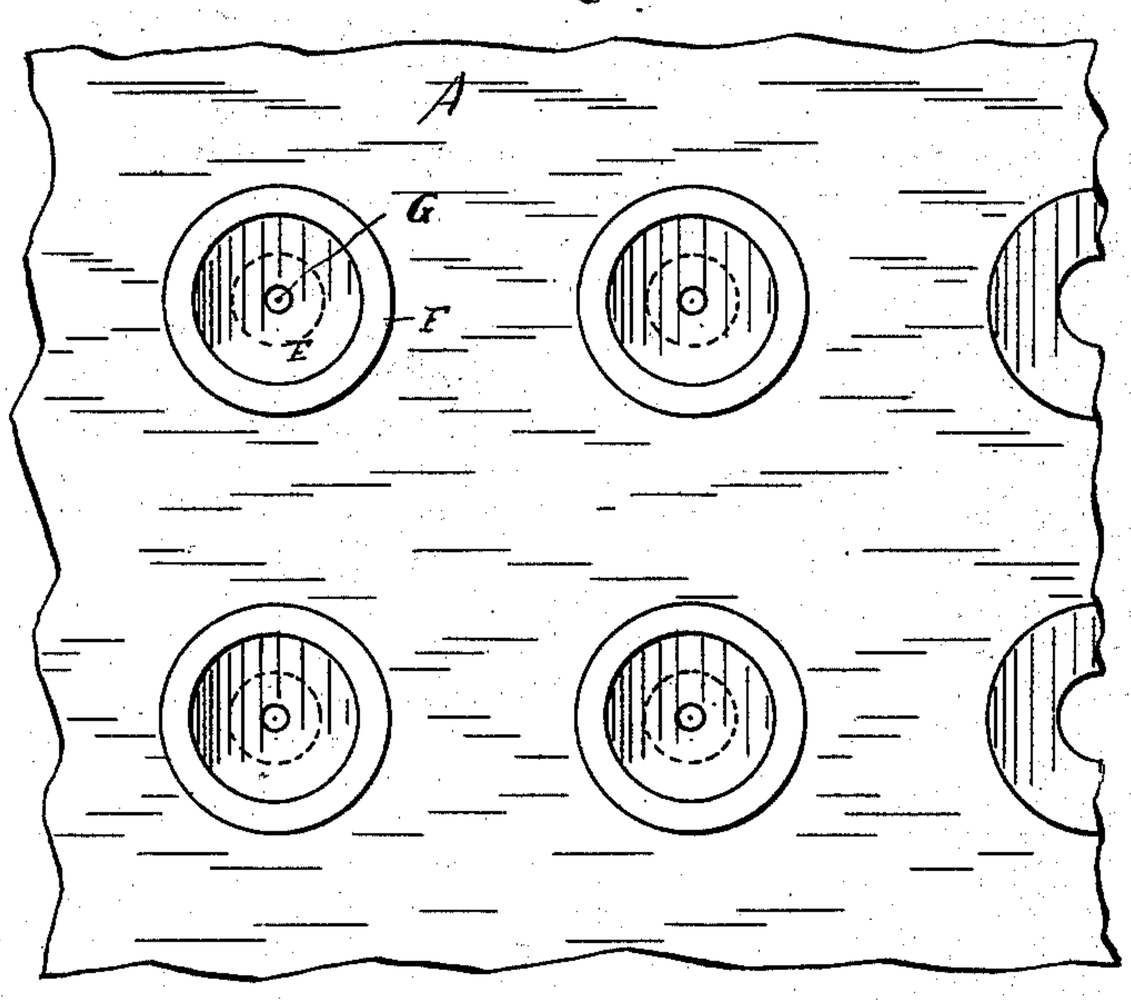


Fig. 2



WITNESSES:
Henry Huber
Martin Petry.

INVENTOR
Charles H. Carter
BY Goepel & Langner
ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES H. CARTER, OF BROOKLYN, NEW YORK.

ELECTRODE FOR SECONDARY BATTERIES.

SPECIFICATION forming part of Letters Patent No. 410,136, dated August 27, 1889.

Application filed July 3, 1889. Serial No. 316,383. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. CARTER, of the city of Brooklyn, county of Kings, and State of New York, a citizen of the United States, have invented certain new and useful Improvements in Secondary Batteries, of which the following is a specification.

This invention relates to improvements in secondary batteries; and the object of my invention is to provide a new and improved electrode or plate for such batteries, which electrode is strong, durable, and effective and will not corrode or buckle.

The invention consists in a plate made of a metal or alloy that is not attacked injuriously by the liquid of the battery, and is provided with numerous apertures into which plugs of pure metallic lead are riveted or cast.

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

In the accompanying drawings, Figure 1 is a cross-sectional view of my improved electrode for secondary batteries, as shown. Fig. 2 is a face view of part of the same.

Similar letters of reference indicate corresponding parts.

The plate or electrode A is made of any metal or alloy that is not affected injuriously by the exciting-liquid of the battery. Said plate is provided with a series of apertures B, at each end of which an annular recess C is formed in the faces of the plate A. Into said apertures lead plugs or buttons D are cast, which have end heads E, the outer faces of which are flush with the faces of the plate A. Said heads are not as large as the recesses C, as a narrow annular space F is left between the edge of each head E and the sides of the corresponding recess C to permit of expansion of said heads without causing buckling of the plate.

To allow the body of the button or plug to expand, I provide each button or plug with a longitudinal bore G.

In place of casting the leads, plugs, or buttons into the plate, they may be riveted in.

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

1. A plate or electrode for secondary batteries, composed of a plate of metal or alloy not affected injuriously by the exciting-liquid of the battery and lead plugs or buttons held in apertures of said plate and provided at each end with a head located in recesses in the faces of said plate, substantially as set forth.

2. In a plate or electrode for secondary batteries, the combination, with a metal or alloy plate having apertures and a recess in each face at the ends of said apertures, of lead plugs held in said apertures and provided at their ends with heads within the recesses in the plate, said heads being smaller than the recesses, whereby annular spaces are formed between the edges of the heads and sides of the recess, substantially as set forth.

3. In a plate or electrode for secondary batteries, the combination, with a metal or alloy plate having apertures and a recess in each face at the ends of said apertures, of lead plugs held in said apertures and provided at their ends with heads within the recesses in the plate, said heads being smaller than the recesses, whereby annular spaces are formed between the edges of the heads and sides of the recess, said plugs each having a longitudinal bore, 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.

CHARLES H. CARTER.

Witnesses:
OSCAR T. GUNZ,
W. REIMHERR.