

No. 880,425.

PATENTED FEB. 25, 1908.

A. O. TATE.
STORAGE BATTERY PLATE.
APPLICATION FILED OCT. 29, 1907.

Fig. 1.

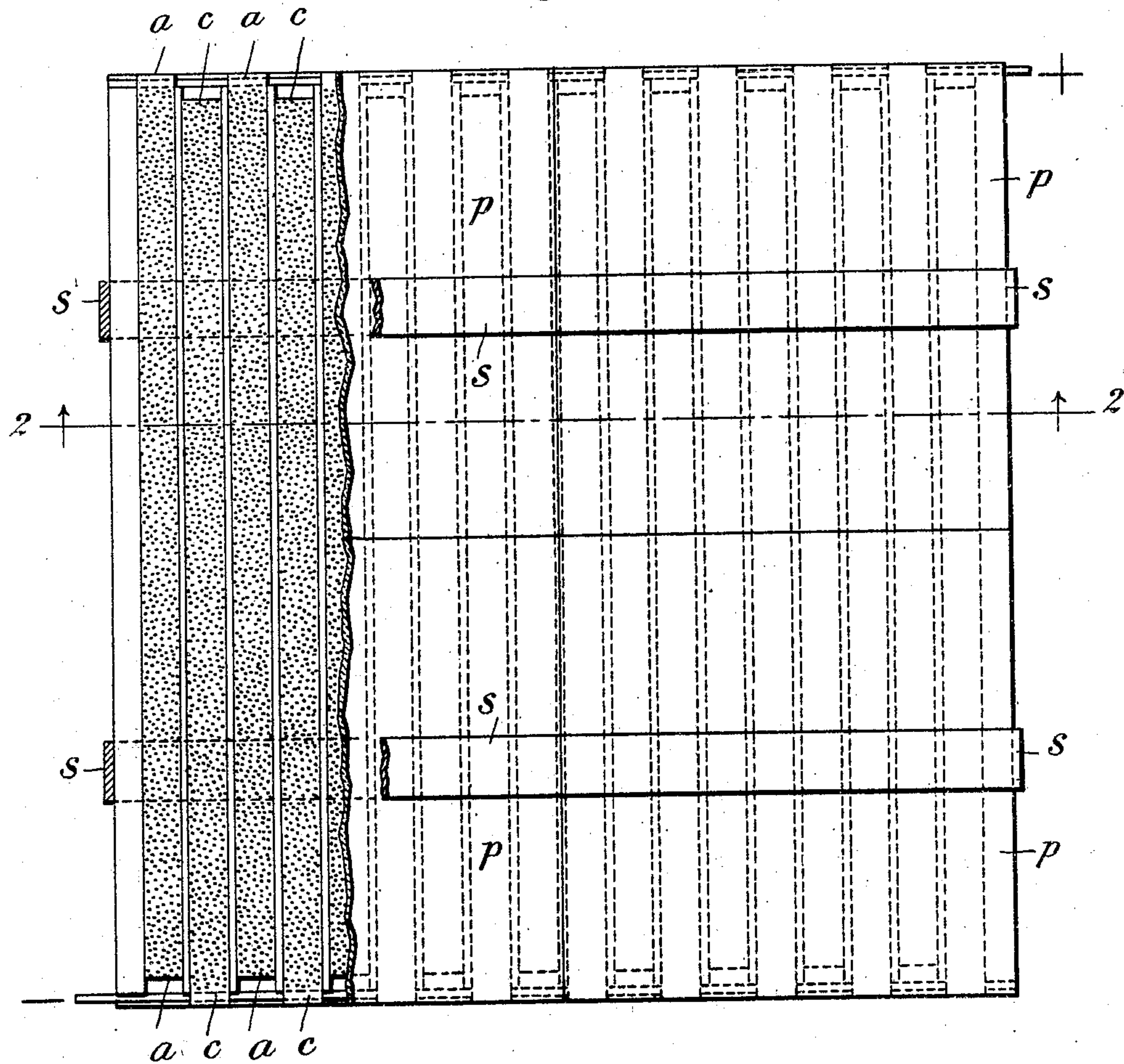
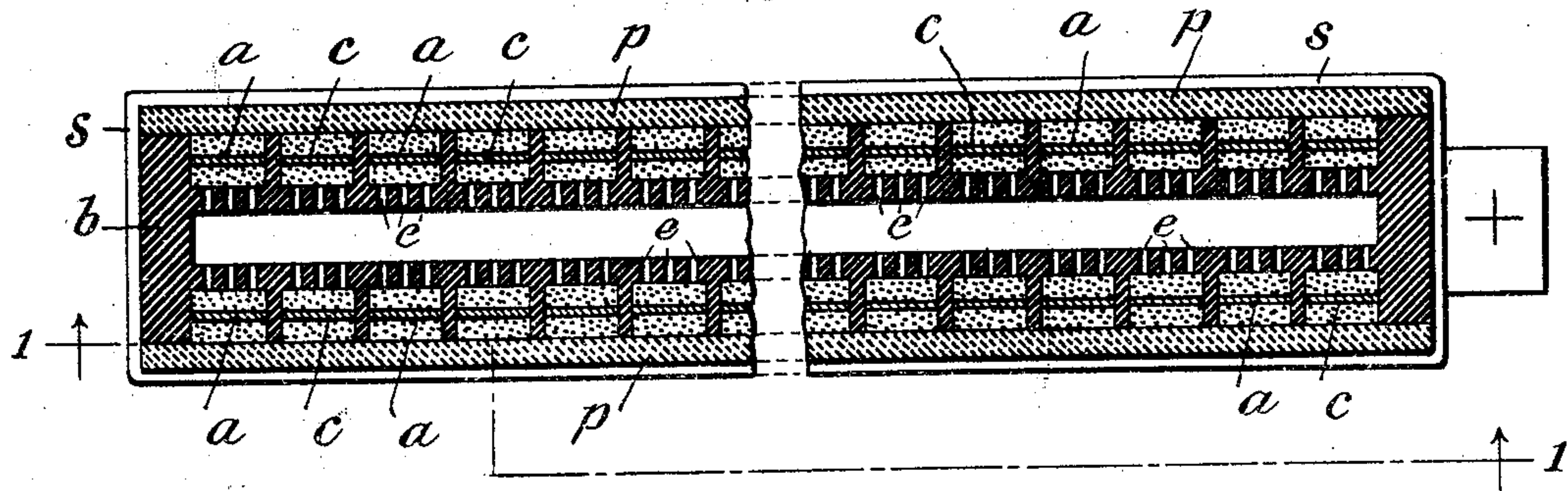


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALFRED O. TATE, OF TORONTO, ONTARIO, CANADA, ASSIGNOR TO TATE ELECTROLYTIC COMPANY OF AMERICA, A CORPORATION OF NEW YORK.

STORAGE-BATTERY PLATE.

No. 880,425.

Specification of Letters Patent.

Patented Feb. 25, 1908.

Application filed October 29, 1907. Serial No. 399,644.

To all whom it may concern:

Be it known that I, ALFRED O. TATE, a subject of the King of Great Britain, residing in the city of Toronto, Province of Ontario, county of York, and Dominion of Canada, have made a new and useful Invention in Storage-Battery Plates, of which the following is a specification.

My invention is directed to improvements in storage battery plates of the bifunctional type, such as are disclosed in a number of prior applications filed by me in the U. S. Patent Office, but particularly a storage battery plate of this type in which the anode and cathode strips are sustained by a rigid base or support, disclosed in a companion application bearing Serial No. 399,643 filed of even date herewith.

In the application just referred to the anode and cathode strips are sustained directly in the bottoms of grooves or channels located on the opposite faces of a rigid base or support of insulating material, said anode and cathode strips being alternated in pairs in such grooves and one set (the anode strips) connected in multiple to a common conductor at the top; while the other set thereof (the cathode strips) are similarly connected in multiple at the bottom. With such a structural plate, however the electrolyte has access only to the outer face of the active material, and with a view of decreasing the resistance and increasing the efficiency of a plate of this type the present improvement was devised, as will be fully understood by referring to the accompanying drawings, in which,

Figure 1 is a part sectional, part side elevational view of my improved plate, the section being taken on the broken line 1—1, Fig. 2 and as seen looking thereat from the bottom toward the top of the drawings in the direction of the arrows; and Fig. 2 is a transverse sectional view taken through Fig. 1 on the line 2—2 and as seen looking thereat from the bottom toward the top of the drawings, in the direction of the arrows.

Referring now to the drawings in detail, *b* represents the base or support for the entire plate, the same being constructed of rigid insulating material, such as hard rubber, treated vegetable fiber, marble or the like, said base or support in this instance being provided throughout its entire length with a central opening, as shown in Fig. 2, of sufficient

width to admit of the free circulation of the electrolyte in a vertical direction. This base or support is grooved or channeled as before on its outer lateral faces at definite distances apart and the bottoms of these grooves are connected throughout their lengths with the internal opening by a series of holes or openings *e* having sufficient liquid carrying capacity to offer a free communication between said internal opening and the grooves. The anode strips *a*, *a*, are located in pairs in alternate grooves or channels of the base and are connected together in multiple at the top to a common conductor illustrated by the plus mark on the right of Fig. 1; while the cathode strips *c*, *c*, are similarly located in alternate pairs of grooves or channels and secured at the bottom of the base in multiple to a similar common conductor, illustrated by the minus mark on the left of Fig. 1, the active material, in the nature of red lead, being securely packed about said strips during the process of building, after which both faces of the plate are covered by protecting plates *p*, *p*, *p* to any desired number and secured thereto by any preferred means, such as flexible strips *s*, *s*, in the same manner as disclosed in the prior application referred to.

I do not limit my invention to the specific structural form of bifunctional storage battery plate disclosed in the accompanying drawings, as a number of the features thereof might be departed from and still come within the scope of my claims hereinafter, the essence of the improvement lying in the provision of a rigid hollow support for interrelated anode and cathode strips sustained thereby in grooves or channels, the structure being such that a free circulation of the electrolyte is had to all of said anode and cathode strips from both sides, so as to thereby give materially improved results, and my claims are generic as to such features.

Having thus described my invention what I claim and desire to secure by Letters Patent of the United States is—

1. A bifunctional storage battery plate embracing anode and cathode strips sustained in grooves on the exterior faces of a hollow base plate provided with liquid conveying openings from the central opening of the base plate, substantially as described.

2. A bifunctional storage battery plate, embracing a rigid base plate with a central opening, said base plate being provided with

grooves on its exterior faces in which the anodes and cathodes are sustained, and liquid conveying openings between the central opening and the grooves, substantially as described.

3. A bifunctional storage battery plate, embracing a hollow base plate grooved exteriorly on both faces; anodes and cathodes and active material located in said grooves, and liquid conveying openings from the central opening of the plate to the grooves or channels, substantially as described.

4. A bifunctional storage battery plate, embracing a hollow plate grooved on its exterior faces and provided with liquid conveying openings between the central opening and the grooves; anode and cathode strips and active material located in the grooves, and means secured to the faces of the plate for preventing the active material from falling out, substantially as described.

5. A hollow base or support for a bifunctional storage battery plate provided with

grooves on its exterior faces for supporting the anode and cathode strips, and with liquid conveying channels between said grooves and the central opening of the plate, substantially as described.

6. A bifunctional storage battery plate, embracing a hollow base or support grooved on its exterior faces and provided with liquid conveying channels between the grooves and the interior or central opening; anode and cathode strips located in alternate pairs of said grooves; active material surrounding said strips, and porous protecting plates secured to the faces of the plate in such manner as to prevent the active material from falling out, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED O. TATE.

Witnesses:

WM. G. CHITTICK, Jr.,
C. J. KINTNER.