

No. 896,350.

PATENTED AUG. 18, 1908.

J. BIMELER.
STORAGE BATTERY ELEMENT.
APPLICATION FILED FEB. 13, 1908.

Fig. 1.

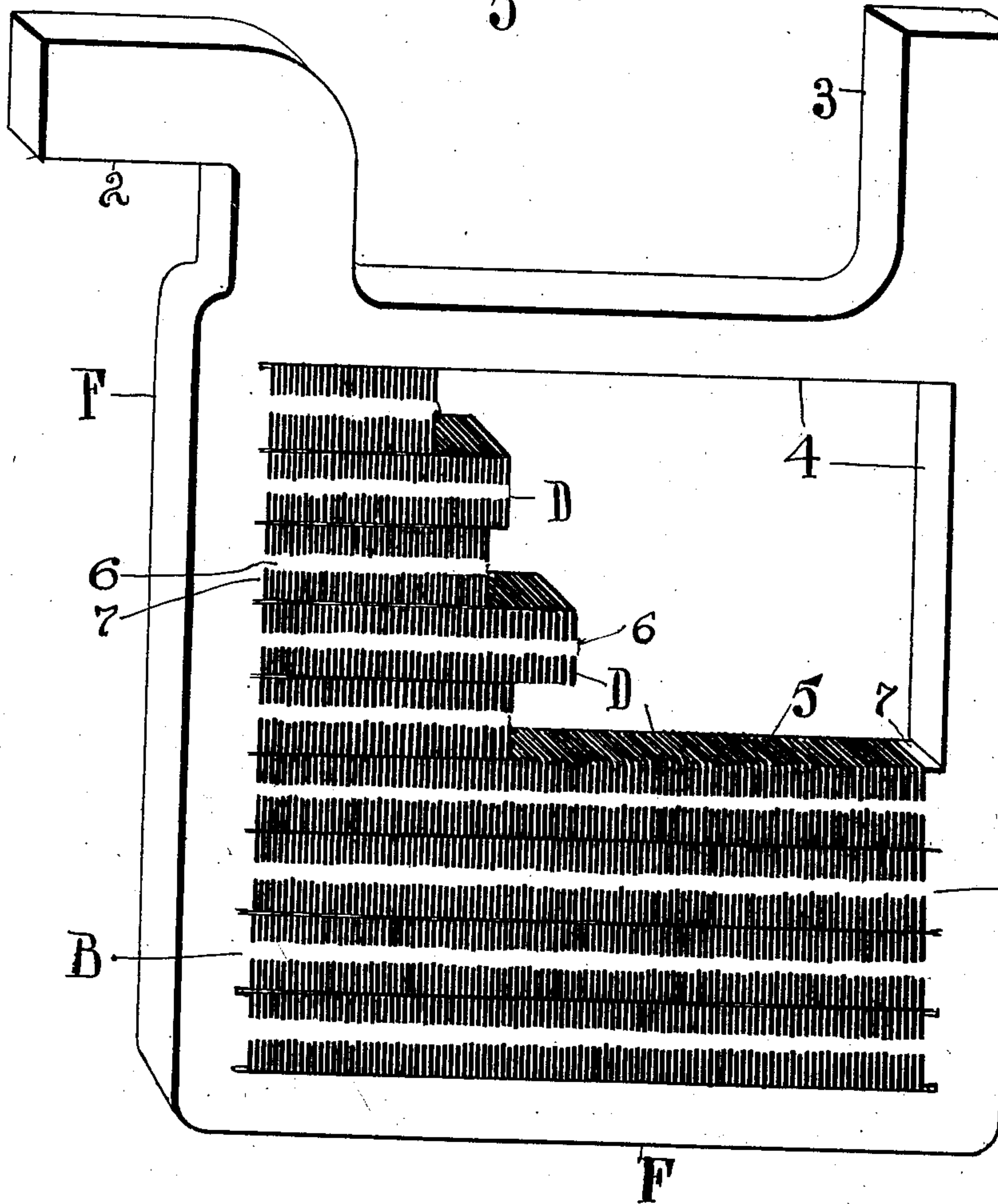


Fig. 2.

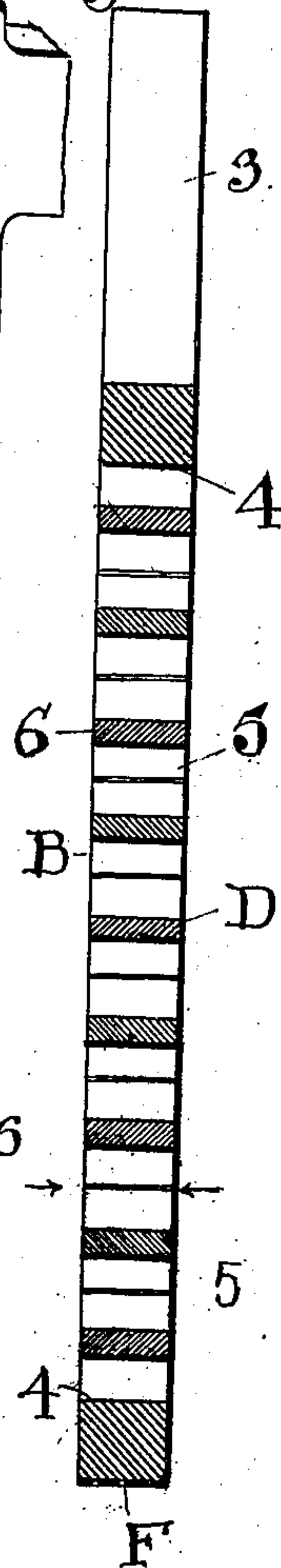
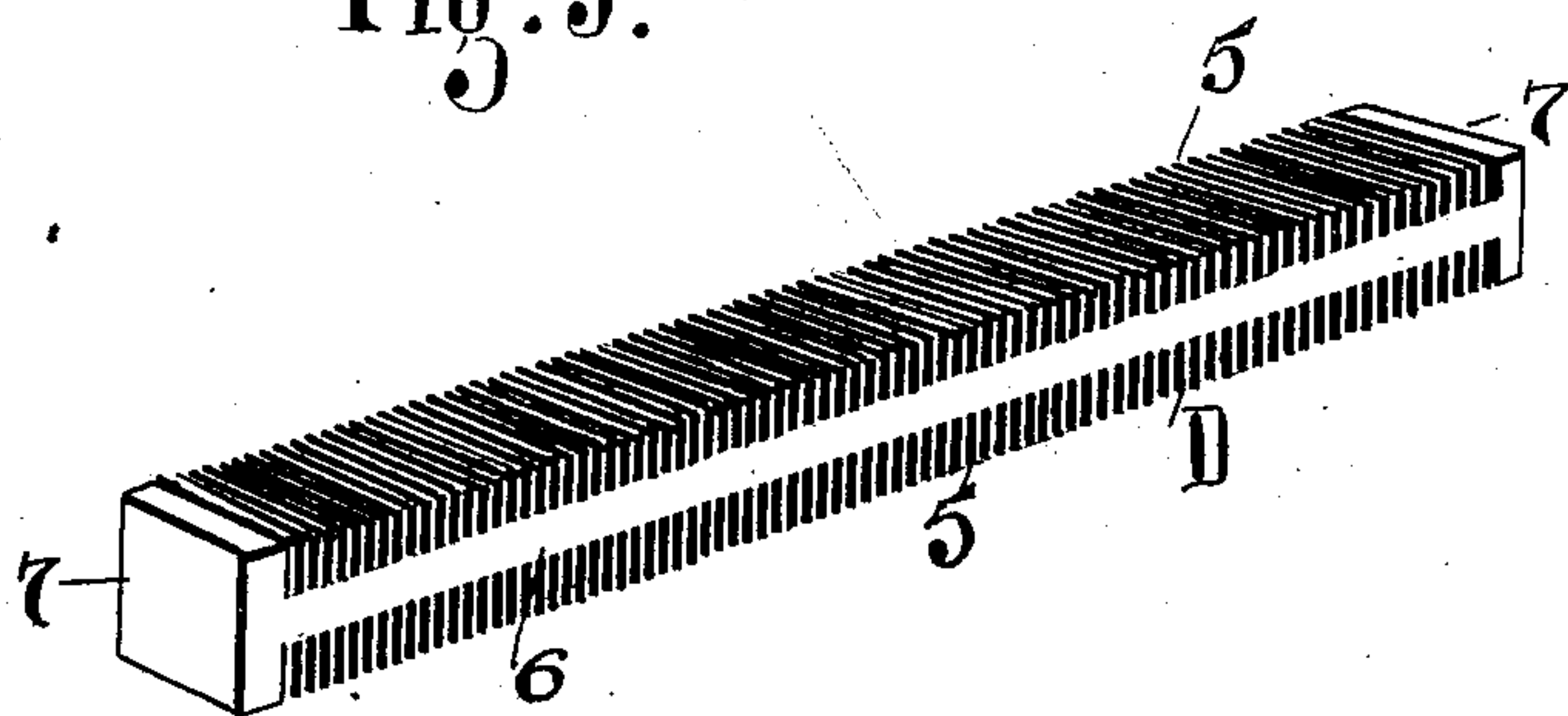


Fig. 3.



ATTEST.

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UNITED STATES PATENT OFFICE.

JOHN BIMELER, OF ZOAR, OHIO, ASSIGNOR OF ONE-TENTH TO THE ZOAR BATTERY COMPANY,
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STORAGE-BATTERY ELEMENT.

No. 896,350.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed February 13, 1908. Serial No. 416,159.

To all whom it may concern:

Be it known that I, JOHN BIMELER, a citizen of the United States, residing at Zoar, in the county of Tuscarawas and State of Ohio, have invented certain new and useful Improvements in Storage-Battery Elements, and do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to storage battery elements or plates, and the invention consists in a composite plate or element, substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective elevation of a plate or element partly broken out in the body thereof, and Fig. 2 is a vertical sectional elevation thereof. Fig. 3 is a perspective view of one of the constituent parts or integers which compose the body of the plate.

The said battery-plate, so-called for brevity and according to common acceptance, is in fact not a plate strictly speaking, but a composite battery or storage element or member comprising, first, a separately constructed frame of a suitable or preferred size and shape. The said frame is of lead, presumably, and may be made in any convenient or preferred way, say by casting in whole or in part, and with or without the lugs 2 and 3 cast thereon, or it may be stamped out of a sheet or plate by means of suitable dies, or be made up out of separate strips or pieces burned together or otherwise structurally connected into a unitary frame and having said lugs separately affixed thereto. The present form of frame has a rectangular opening with four square edges equal all around.

The active portion of the plate or element is comprised in a body denoted by B as a whole, but composed of a series of separate parts, pieces or composite units D, which are square in cross section and of a length to fit snugly within the said side walls or edges 4, to which said ends are burned or secured in such way as to make them homogeneous with the frame, the practical effect of such in setting of said members, sections or units being equivalent to having them as original portions of said frame and out of which they were developed. Actually the four sides of

said body units D are about equal, though in this instance they are shown as somewhat wider in the direction of the length of the leaves 5 than transversely, and the said unit or part comprises the opposite leaves or formed surfaces 5, a central web or core and square ends 7 integral with the core and extending in all directions on both sides coincidentally with said leaves and flat on their outer sides so as to be secured to or blended with the frame as above described. Now, in order to more clearly understand this peculiar construction of plate units in which the active portion consists it may be explained that I have been seeking to produce a battery plate or element of the highest possible efficiency coupled with the greatest possible serviceability. As to this latter characteristic I have endeavored to obtain longevity or duration of service, and to overcome both the shedding of active material and possible buckling. The superior efficiency of the plate sought for is obtained with its exceptionally large exposure of active surfaces as compared with the space occupied and in the free circulation of liquid and current afforded through the body of the plate as well as over its sides by reason of the separate and more or less separated members D. That is to say, said members or sections constituting the body are placed, preferably, one over or upon the other, and while there may be said to be such closeness between them as to avoid shedding, or to leave no room for shed material to lodge, there is still a certain measure or space intervening by reason of the parts having slightly varying surfaces and between which there is room for liquid. Thus each section or unit is exposed to liquid or electrolyte on all four sides, and by placing the said sections in the frame with the leaves disposed as shown, possible shedding is not only avoided but I obtain the advantage of having the web or core of the plate arranged horizontally and therefore in its strongest possible position to resist lateral buckling of the plate, if there were any tendency that way, while buckling vertically is resisted by the superimposed position of the said sections. All the said cores work together to resist such lateral tendency, and there is sufficient depth of the plate from side to side to make such resistance very considerable in the aggregate, say approximately three eighths of an inch in

each core, or more with the formed portions or leaves of the plate contributing more or less to such resistance. Thus both exceptional efficiency and strength are assured.

5 In the manufacture of the said body sections, blocks or units, I proceed very much as I would ordinarily in plowing or shaving up a lead plate to produce leafed sides, but in
10 this case I let a certain amount of stock remain standing at the sides of the plate to form the solid ends 7 of the block. When the plate has been thus developed with the leaves 5 on both sides, the plate is electrically formed according to the usual practice
15 and is then sawed transversely of the leaves into blocks, sections, or units, as shown. These are then placed in the supporting frame F and incorporated at their ends 7 with said frame as above described, the said
20 sections also completely filling the opening or interior of the frame between the upper and lower walls thereof. I might of course set said sections or units with their leaves running vertically instead of horizontally, or
25 even set the said sections vertically, or up and down, in the frame and preserve the feature of liquid and current circulation through the body of the plate between the said sections, and which is an important advantage,
30 but the greater advantages appear to be in the horizontal arrangement shown.

What I claim is:

1. In storage batteries, an element comprising a suitable open work frame and a plurality of pieces having leaf formed active
35 sides arranged one over the other in the same plane as said frame and unified with the frame at their ends, said active sides being superposed and at right angles to the sides of the
40 element as a whole.

2. A storage battery element consisting in

a supporting frame and a series of separate rectangular units having electrically active sides developed from the body of said units perpendicular thereto and substantially in
45 contact with each other and incorporated with the inner edge of the said frame at their ends.

3. As a new article of manufacture, a storage battery member having a solid frame shaped border with a rectangular interior
50 opening, and a series of rectangular active units of the same size throughout having adjacent sides provided with leaf formations turned up from the body of the unit and solid
55 ends on said units with flat faces, and said units structurally united with said frame in the wall of its opening.

4. As a new article of manufacture, a substantially block shaped storage battery part rectangular in cross section having a series of
60 leaves on opposite sides turned up from the body thereof and having a solid core between the said leaves and the ends of said part the full width thereof and having plain surfaces adapted to be incorporated with a suitable
65 support.

5. A storage battery element consisting of a solid frame and an active surface within said frame consisting of a series of separate
70 transversely arranged members having opposite sides electrically formed and a central core, and said members having space between their opposed active sides to allow liquid to flow from side to side of the element
75 and unified with said frame at their ends.

In testimony whereof I sign this specification in the presence of two witnesses.

JOHN BIMELER.

Witnesses:

LEVI BIMELER,
AUGUST BIMELER.