

No. 749,199.

PATENTED JAN. 12, 1904.

D. F. JONES.

SKELETON FRAME FOR TANKS OR CELLS OF ELECTRIC BATTERIES.

APPLICATION FILED OCT. 17, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1

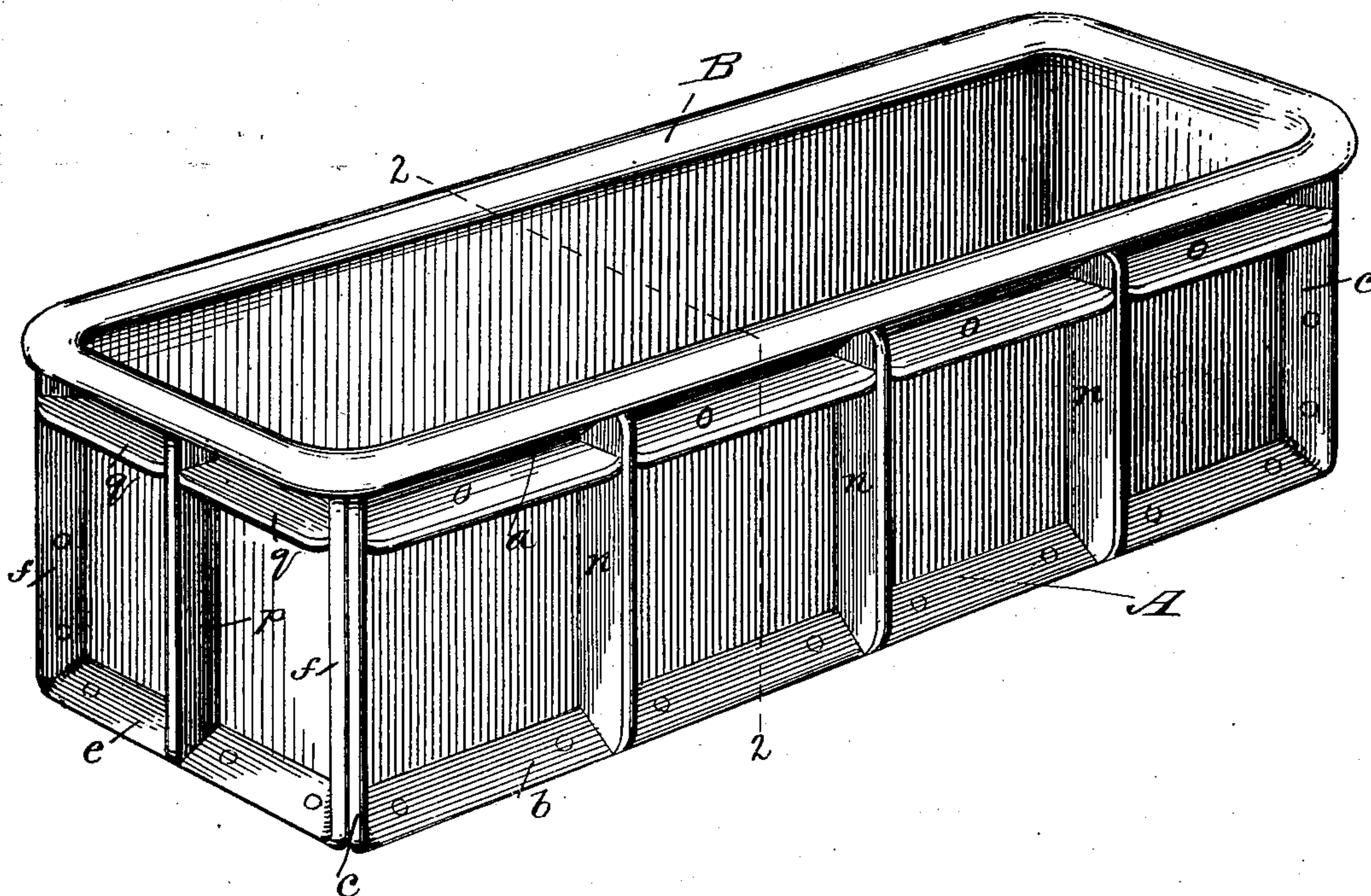
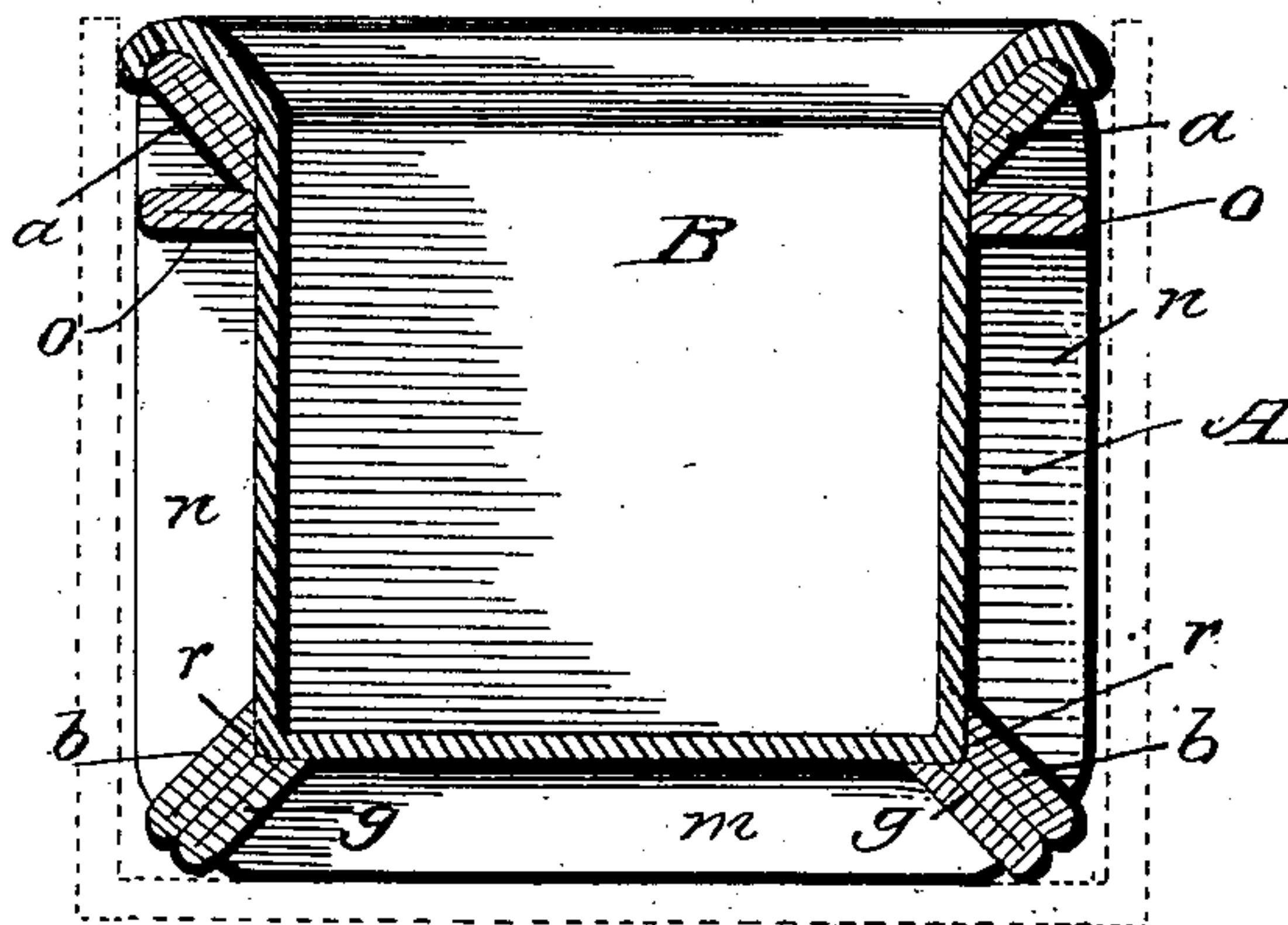


Fig. 2



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Witnesses

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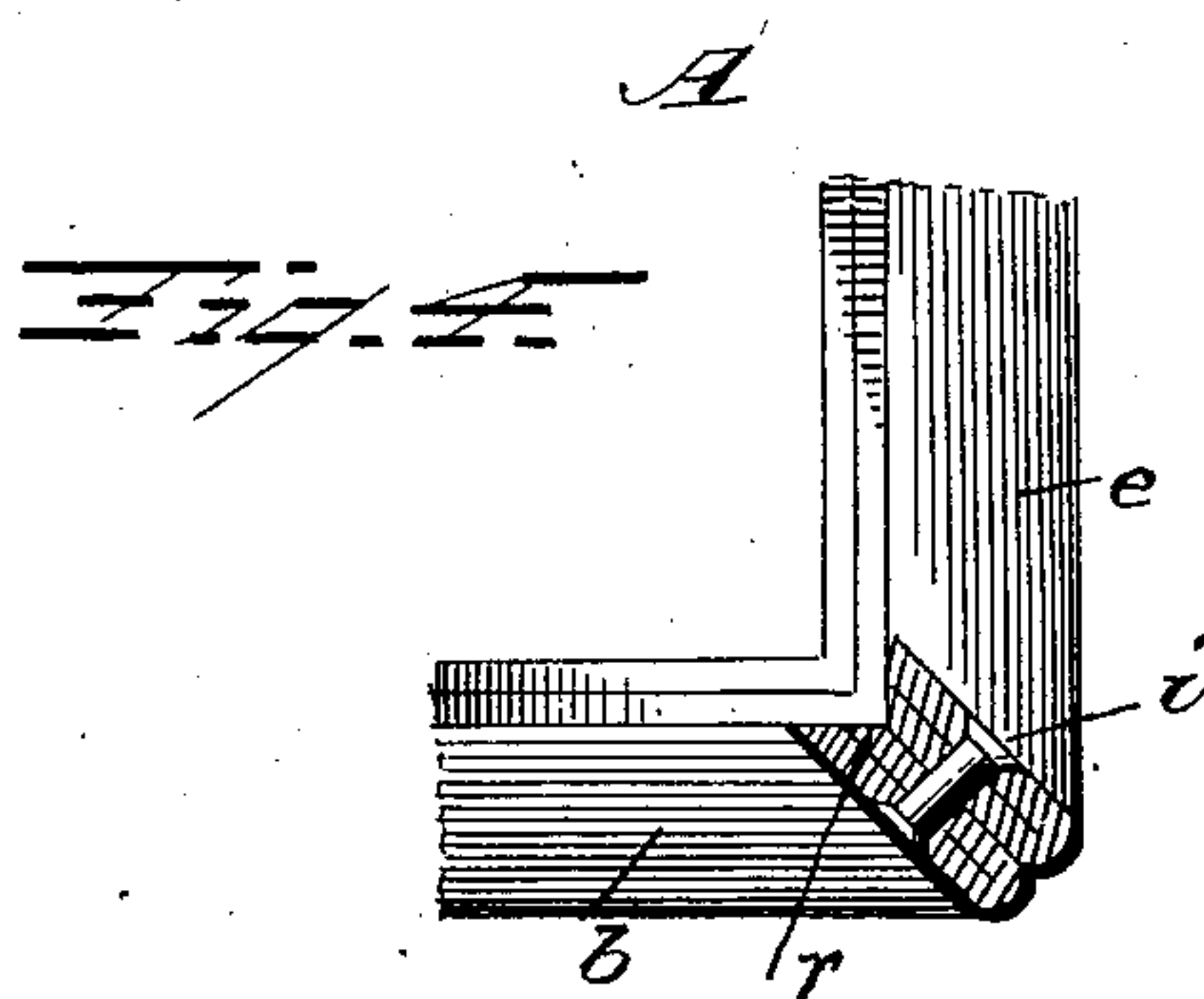
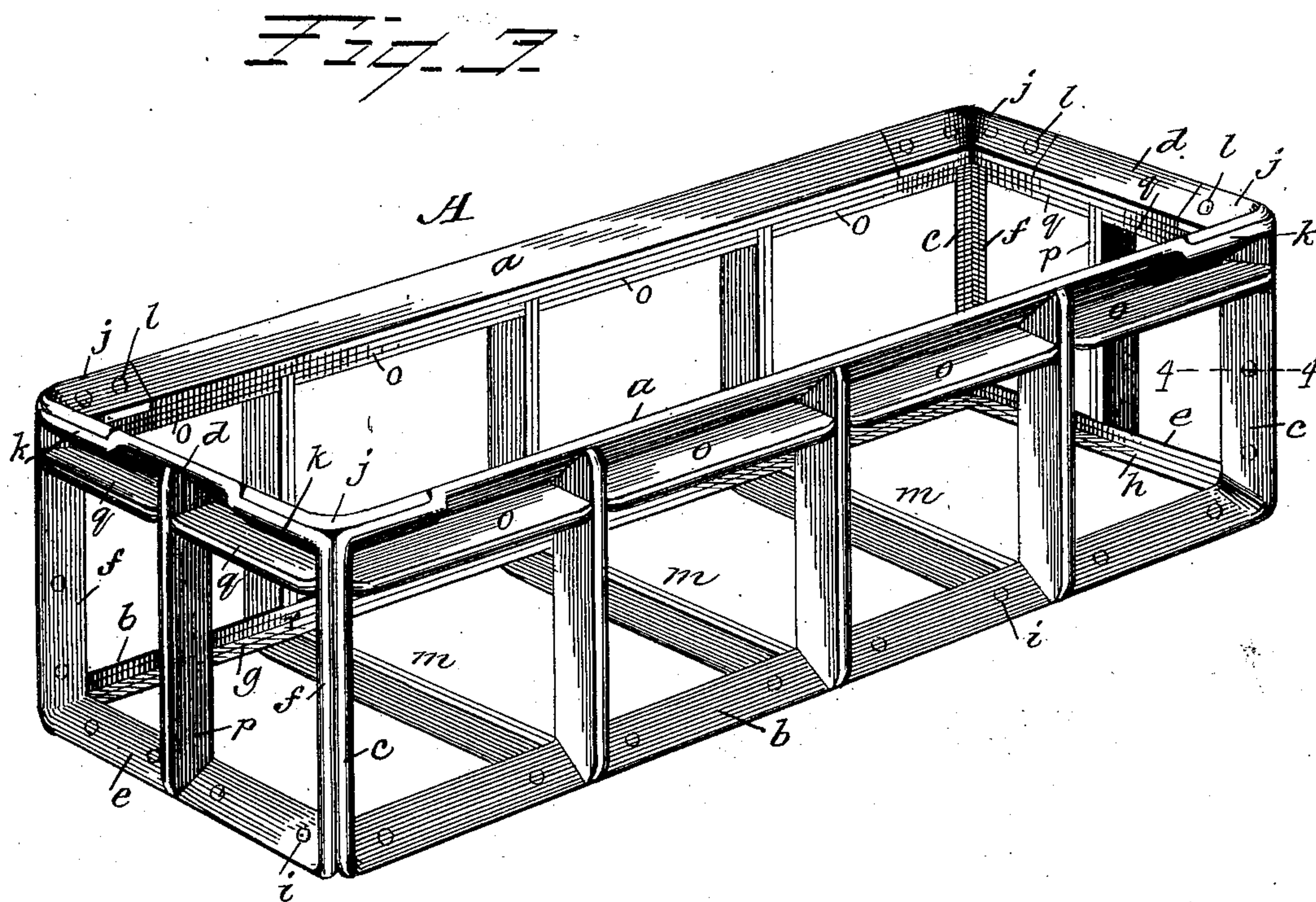
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UNITED STATES PATENT OFFICE.

DANIEL F. JONES, OF PROVIDENCE, RHODE ISLAND.

SKELETON FRAME FOR TANKS OR CELLS OF ELECTRIC BATTERIES.

SPECIFICATION forming part of Letters Patent No. 749,199, dated January 12, 1904.

Application filed October 17, 1903. Serial No. 177,379. (No model.)

To all whom it may concern:

Be it known that I, DANIEL F. JONES, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Skeleton Frames for the Tanks or Cells of Electric Batteries; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has for its object to provide a skeleton frame of lead which is designed to hold the tank or cell of a secondary, storage, or other electric battery; and the purpose thereof is to construct such a frame as will possess the required strength, durability, and firmness necessary to overcome the gravity of the battery tank or cell and its elements and also to prolong the life and effectiveness of said tank or cell, as the lead frame contains no foreign matter to form destructive salts, and therefore it will retard the decomposition of the tank or cell contained therein.

The invention consists in a skeleton frame of lead for containing and holding the tank or cell of an electric battery, said frame being constructed substantially as shown in the drawings and hereinafter described and claimed.

Figure 1 of the drawings is a perspective view of a skeleton frame embodying my invention and showing the tank in position therein; Fig. 2, a cross-section taken on line 2 2 of Fig. 1; Fig. 3, a perspective view of the skeleton frame with the tank removed; Fig. 4, a detail sectional view taken on line 4 4 of Fig. 3.

The skeleton frame may be of any suitable size and dimensions and may be either cast solid of hardened lead, or sheet-lead may be used of the desired length and width and folded double to form the various rails and braces, as shown in the drawings, this being left discretionary with the manufacturer. I shall describe the frame as shown in the drawings, as when constructed of sheets of lead it may conveniently be found in stock and avoid the necessity of casting the various sections comprising the frame, which frame is represented at A, and B designates the usual tank of ordinary

construction, and, if desired, the lead frame may be held in a wooden box, as indicated by dotted lines in Fig. 2 of the drawings.

The invention, which consists wholly of the frame A, is necessary to be formed of lead, so that it will not be affected by the chemicals, the lead containing no foreign matter to form destructive salts, and therefore it will retard the decomposition of the lead battery tank or cell, and when using lead in order to harden it to increase its strength and make it capable of holding the tank or cell in position antimony is used with the lead, which will give it the necessary strength and firmness.

The frame A comprises in the present instance two side sections and two end sections in addition to a bottom section, which sections are in the form of supplemental frames. The horizontal bars *a b* of each side section are constructed from a sheet of lead of the desired width, thickness, and length, as are also the end bars *c* of the side sections, which sheet is bent double to form a double thickness to increase its strength, as shown in Figs. 2 and 4 of the drawings.

The end sections of the frame consist of the horizontal bars *d e* and the vertical bars *f*, which vertical bars, together with the vertical bars of the side sections, as indicated at *c*, form when brought together the corners of the skeleton frame, said bars of the end sections being also constructed of sheets of lead doubled upon themselves similar to the side sections.

The horizontal bars *g* and the end bars *h*, forming the bottom section of the frame, are constructed of sheets of lead, each doubled upon itself in a similar manner to the side and end sections of the frame.

The side, end, and bottom sections of the frame are secured together by lead rivets, as shown at *i*, and in addition solder may be used, if found desirable, and the corners of the frame may be reinforced by strengthening-brackets *j*, which are seated in offsets *k* at the corners of the frame and secured thereto by lead rivets *l*.

The bottom section of the frame has suitable cross-ties *m*, connected to the side bars *g* by soldering or by lead rivets, and the bars

a b of the side sections of the frame are strengthened by vertical braces *n*, connected thereto and by horizontal braces *o*, as are also the end sections by vertical braces *p* and horizontal braces *q*.

The horizontal cross-ties of the bottom section of the frame and the vertical braces and horizontal braces of the side and end sections may be of any suitable number, and both cross-ties and vertical and horizontal braces are constructed of sheets of lead doubled similar to the construction of the bars of the sections of the frame hereinbefore described, thereby giving increased strength to the frame and enabling the frame to be constructed from sheets of lead found in stock without the necessity of casting the frame, although I do not desire to confine my invention to such construction, as the frame may be made in various ways found best adapted to the purpose.

The side bars *b g* and the end bars *e h* are disposed at an acute angle to a horizontal to increase the strength of the frame and have rabbeted seats *r* around the four sides of the frame to support the tank or cell when placed within the frame.

The skeleton frame being wholly of lead, with lead rivets and solder used when the frame is constructed of folded sheet-lead, all danger to corrosion and rotting away by the action of the acids is entirely avoided, and the corner-brackets, the several vertical and horizontal braces, together with the cross-ties, provide a frame of sufficient strength to support the heavy tank or cell of the electric battery.

When the skeleton frame is cast of the lead with the several cross-ties and vertical and horizontal braces, the corner-brackets are the only parts of the frame that are secured by lead rivets, and as the essential features of the invention reside in the skeleton frame constructed wholly of lead with cross-ties and

braces to reinforce and strengthen the frame it would be immaterial as to the general form and shape of the frame or the number of cross-ties or braces used. It is evident, therefore, that the skeleton frame may be subject to many changes and modifications without in any manner departing from the essential feature of the invention, and any such changes as would come within the ordinary judgment of the mechanic may be resorted to and still come within the scope of the invention.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A skeleton frame for the tanks or cells of electric batteries, said frame having offsets at its corners and brackets seated therein and secured thereto to strengthen the corners of the frame, the frame and brackets being wholly of lead, substantially as and for the purpose specified.

2. A skeleton frame for the tanks or cells of electric batteries, said frame constructed wholly of lead and the side and end bars thereof which form the bottom of the frame being disposed at an acute angle to a horizontal to increase the strength of the frame, and having rabbeted seats around its four sides to form a support for the tank or cell, substantially as and for the purpose set forth.

3. A skeleton frame for the tanks or cells of electric batteries, vertical and horizontal bars upon the sides of the frame and cross-ties on the bottom thereof, the top corners of the frame having offsets and brackets seated therein and secured thereto, the frame and its several parts constructed wholly of lead, substantially as and for the purpose specified.

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

DANIEL F. JONES.

Witnesses:

ALFRED S. JOHNSON,
BRADFORD CAMPBELL.