

No. 896,555.

PATENTED AUG. 18, 1908.

G. C. LANDIS.  
ELECTROLYTIC CELL.

APPLICATION FILED SEPT. 17, 1907.

Fig. 1.

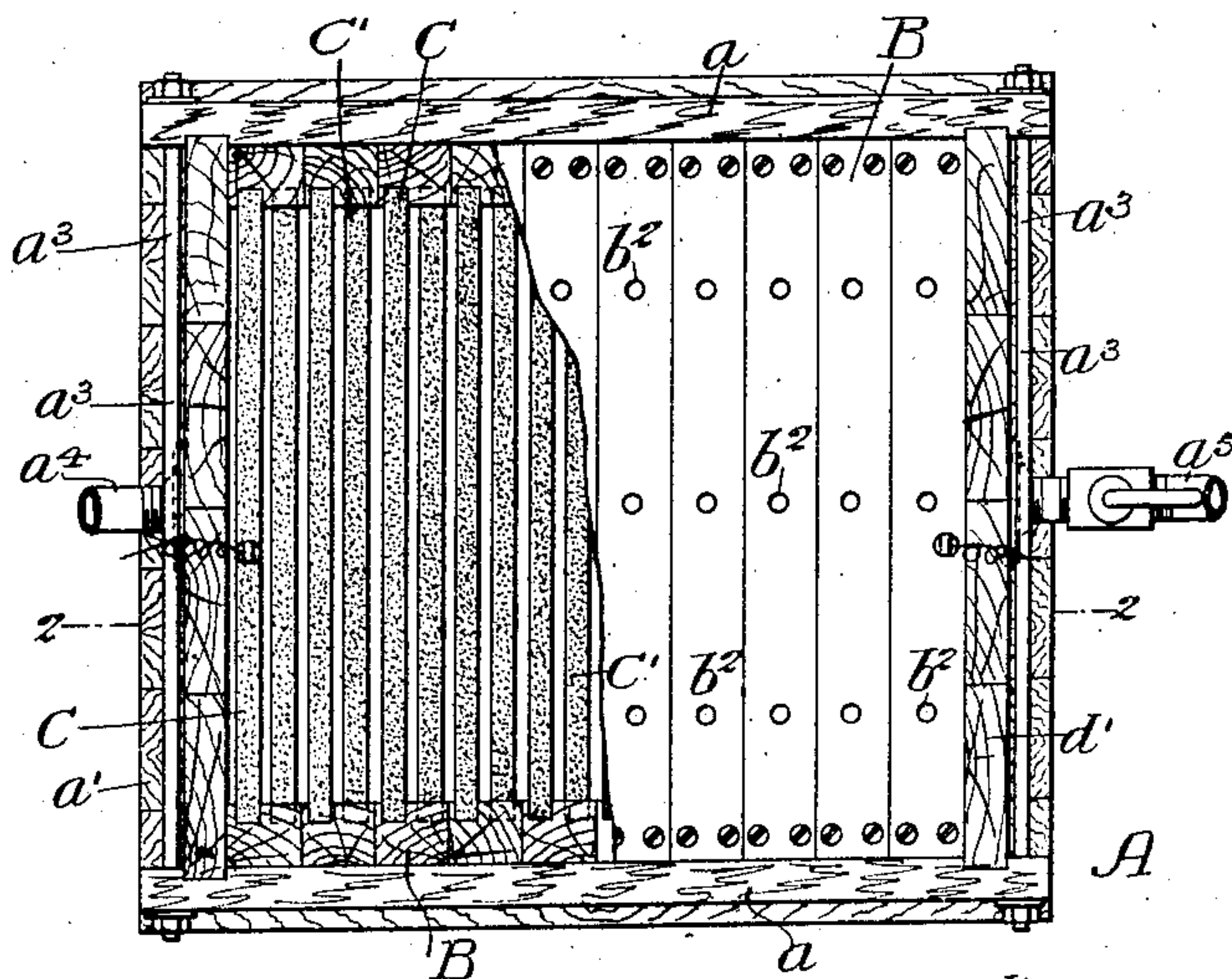


Fig. 2.

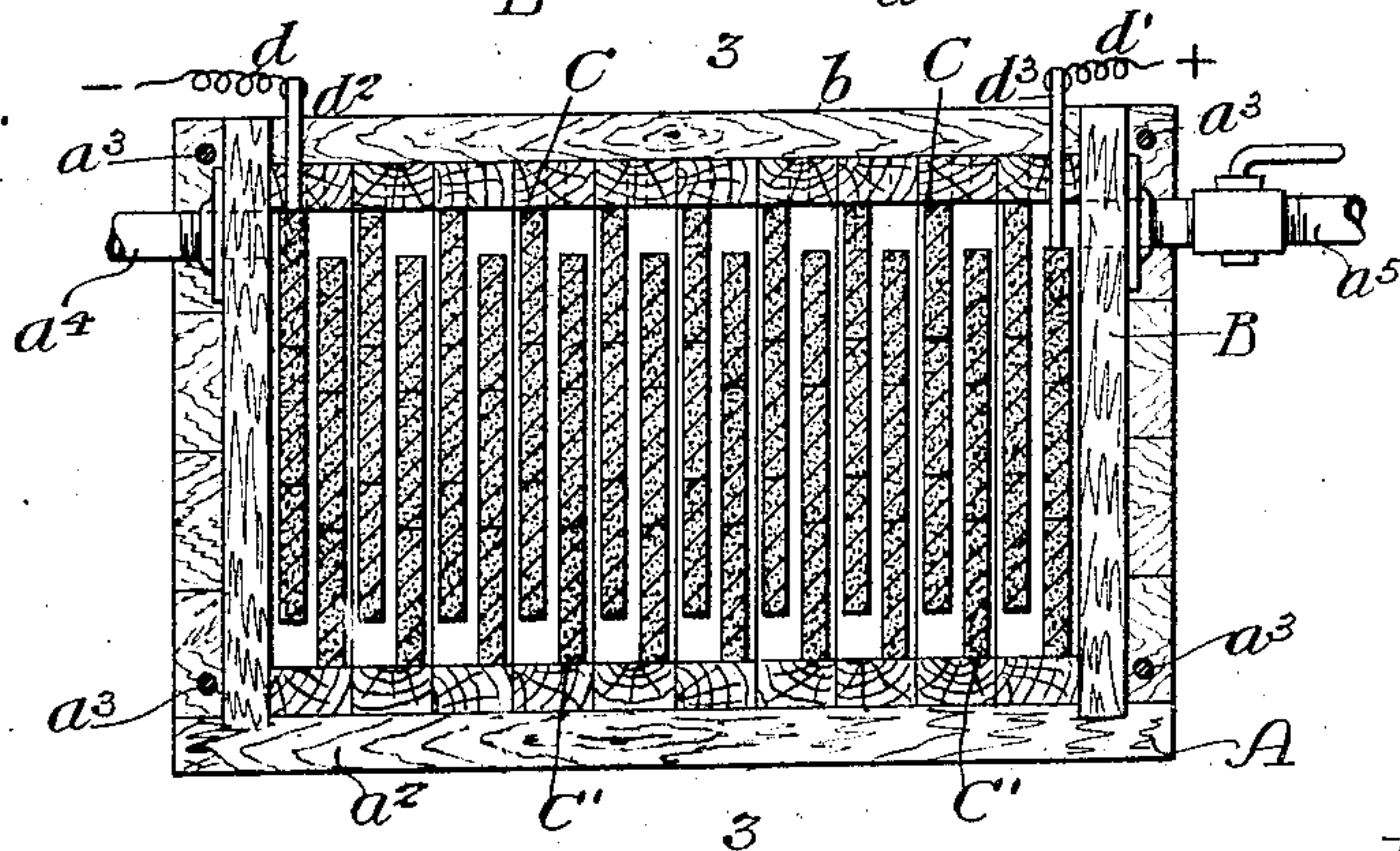


Fig. 3.

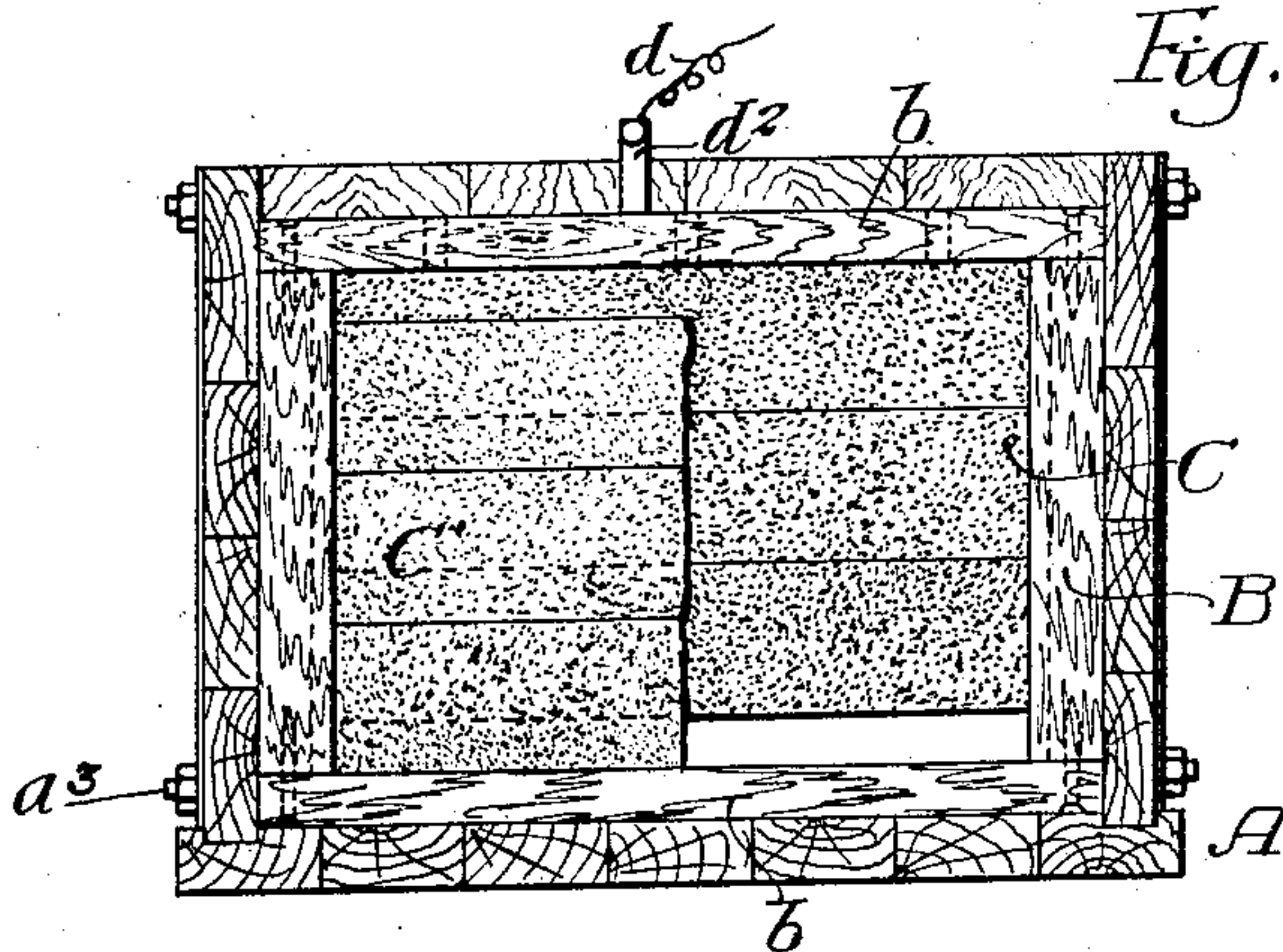
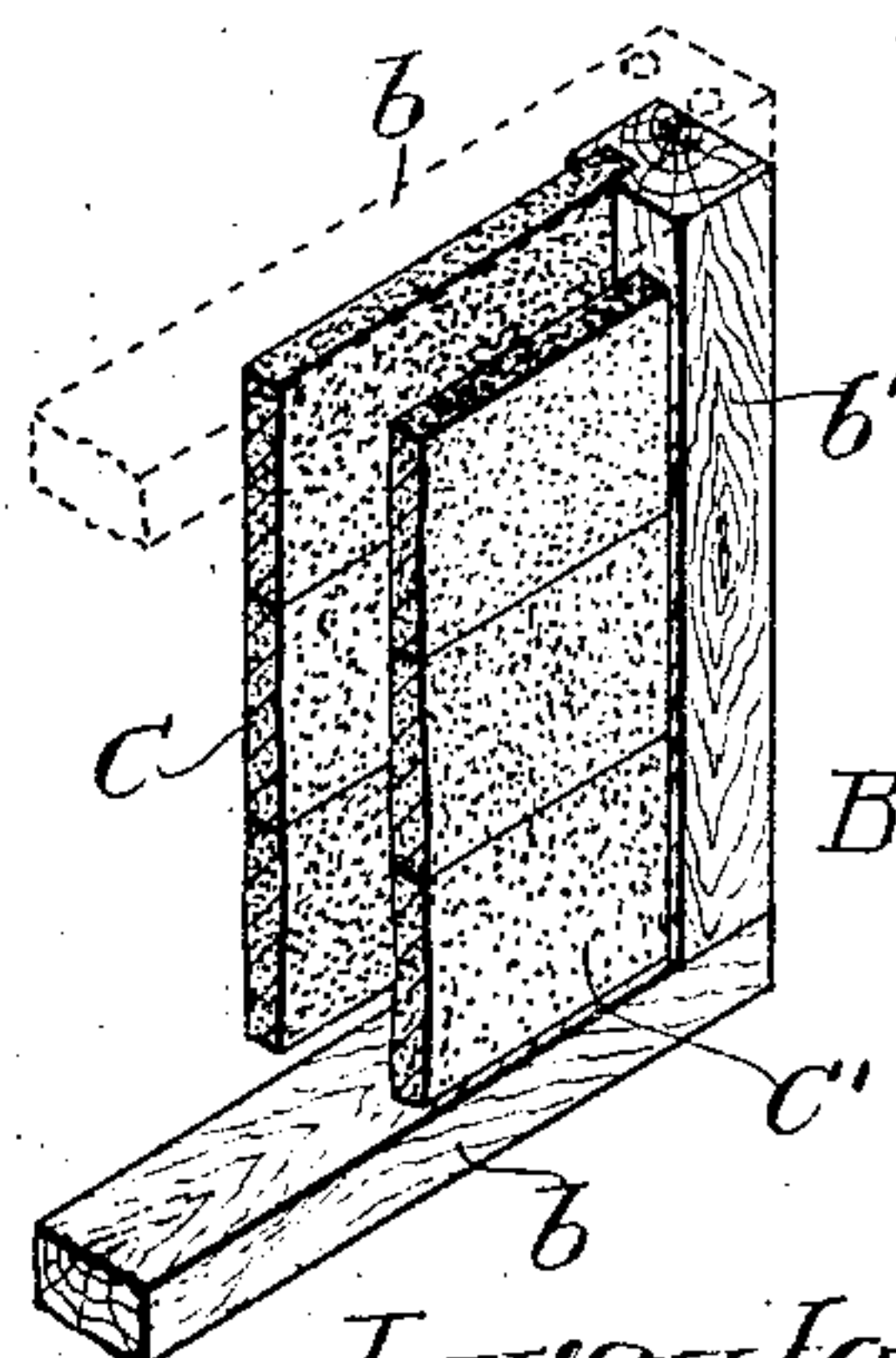


Fig. 4.



Witnesses:-  
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# UNITED STATES PATENT OFFICE.

GILBERT C. LANDIS, OF YORK, PENNSYLVANIA.

## ELECTROLYTIC CELL.

No. 896,555.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed September 17, 1907. Serial No. 393,359.

*To all whom it may concern:*

Be it known that I, GILBERT C. LANDIS, a citizen of the United States, residing in York, Pennsylvania, have invented certain Improvements in Electrolytic Cells, of which the following is a specification.

One object of my invention is to so construct and arrange the elements of a cell particularly designed for the electrolytic manufacture of chlorates as will permit their ready assembling or removal and also permit of the capacity of a cell being conveniently increased or diminished as desired.

It is further wished to provide an electrolytic cell which, while being efficient in action, shall be relatively inexpensive to construct and maintain, as well as simple and durable.

These objects and other advantageous ends I attain as hereinafter set forth, reference being had to the accompanying drawings, in which

Figure 1, is a plan of my improved cell, illustrating the top portions of certain of the elements as broken away to show their detail construction; Fig. 2, is a vertical section taken on the line 2—2, Fig. 1; Fig. 3, is a vertical section taken on the line 3—3, Fig. 2, and Fig. 4, is a fragmentary perspective view illustrating the detail construction of one of the elements.

In the above drawings, A represents the containing tank for the cell, having sides  $a$ , ends  $a'$ , and a bottom section  $a''$ ; the sides and ends being held together by transverse bolts  $a^3$  extending across said ends. The tank is provided with an inlet  $a^4$  and an outlet  $a^5$ , and while preferably made as shown, may have its construction varied as desired, inasmuch as these detail features constitute no part of my present invention. Within the container or tank A are placed a number of sets of elements, each set being constructed as a unit, complete in itself and interchangeable with any of the others. It will be seen that in the present instance each unit consists of a rectangular frame B having top members  $b$  and side members  $b'$ . Each side member has two longitudinally extending grooves formed in one of its faces and projecting from opposite ends parallel with each other to points adjacent to the other ends of said member.

Plates C and C', preferably of electrolytic graphite, are mounted in the grooves of the side members, as illustrated in Fig. 4, so as

extend between said side members and be clamped in position by the top members  $b$ .

By reason of the construction of the grooves above mentioned, it is possible to support in each one of the units B two plates or groups of plates C, of which one comes in contact with one of the members  $b$  and projects to within a short distance of the second member  $b$ , while the second plate or group of plates C' extends from contact with this second member  $b$  to within a short distance of the member  $b$  with which the first plate or group of plates C contacts. As a result, when a number of units B are mounted side by side in the tank A, as shown in Fig. 2, there is provided a cell having a number of electrodes alternately projecting from the top and bottom of the structure so as to form a series of baffle plates arranged to cause the current of liquid flowing from the inlet  $a^4$  to the outlet  $a^5$  to take a circuitous course through the tank.

Conductors  $b$  and  $b'$  are connected to any desired form of terminals, respectively attached to the endmost plates within the container, and as is well known in the art, under operating conditions the intermediate plates C and C', though not electrically connected with the terminals  $d^2$  and  $d^3$  by solid conductors, none the less serve as electrodes. It will further be noted that when a number of the units B are assembled within the container, their top members  $b$  form a complete cover for the cell, and in order to permit the escape of any gas which may be formed during the operation of the cell, I provide these top members with one or more openings  $b^2$ .

It is obvious that with this arrangement of parts, it is a comparatively simple matter to remove or replace any of the units when this is desirable for any reason, and it is also possible to provide cells having any desired capacity merely by varying the length of the tank and the number of units employed therein.

I claim:—

1. The combination in an electrolytic cell of a container having a number of removable frames, each frame being provided with a plurality of plates extending parallel to each other, and each having one end and its sides in engagement with the frame, while having its other end spaced away from the frame.

2. An electrolytic cell consisting of a container having a number of interchangeable



and removable frames each provided with an electrode and arranged within the container so that said electrodes together cause a body of liquid to take a circuitous course through the container, with conductors for connecting the end electrodes of the series with an electric circuit.

3. An electrolytic cell consisting of a container having an inlet and an outlet, and a plurality of rectangular frames within said container, each of said frames having its side members longitudinally grooved, with elec-

trodes of carbonaceous material mounted in said grooves, each of said electrodes being embraced on three sides by the members of the frame but having its fourth side terminated some distance from the frame. 15

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

GILBERT C. LANDIS.

Witnesses:

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