

No. 710,953.

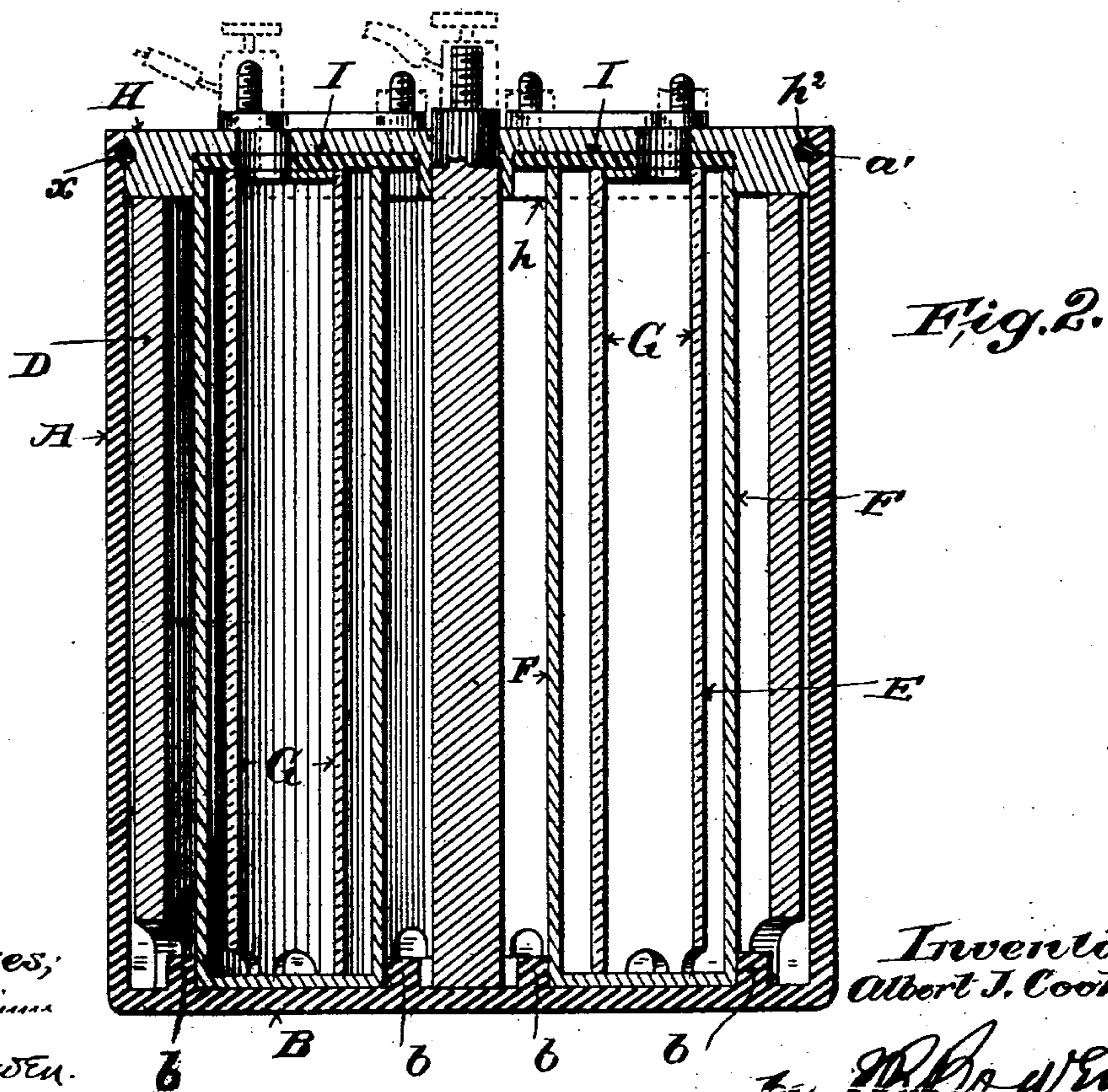
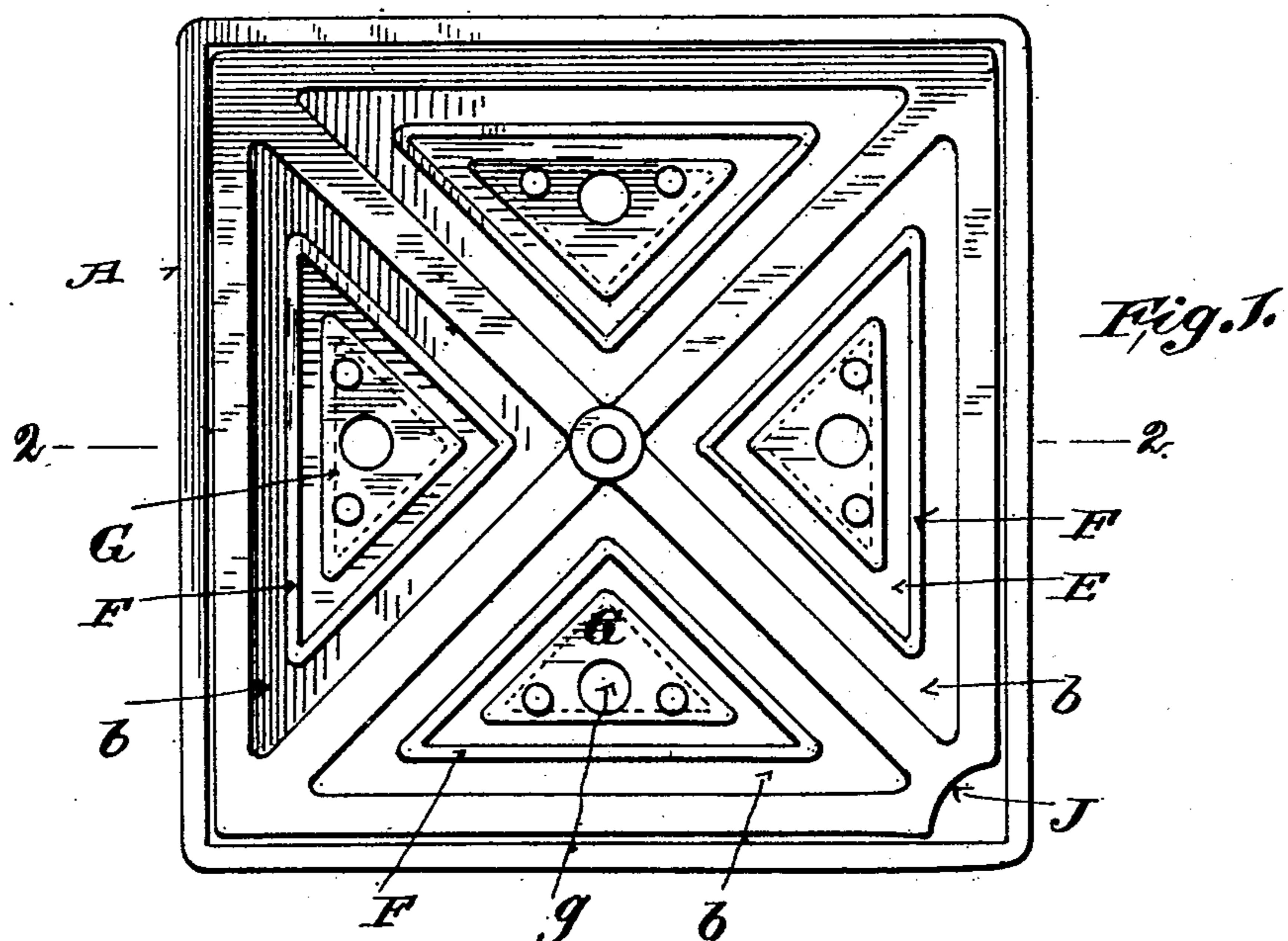
Patented Oct. 14, 1902.

A. J. COOK.
ELECTRIC BATTERY.

(Application filed July 20, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses;
C. W. Benjamin
Matthew Lowen.

Inventor;
Albert J. Cook.

by *M. B. Owen*
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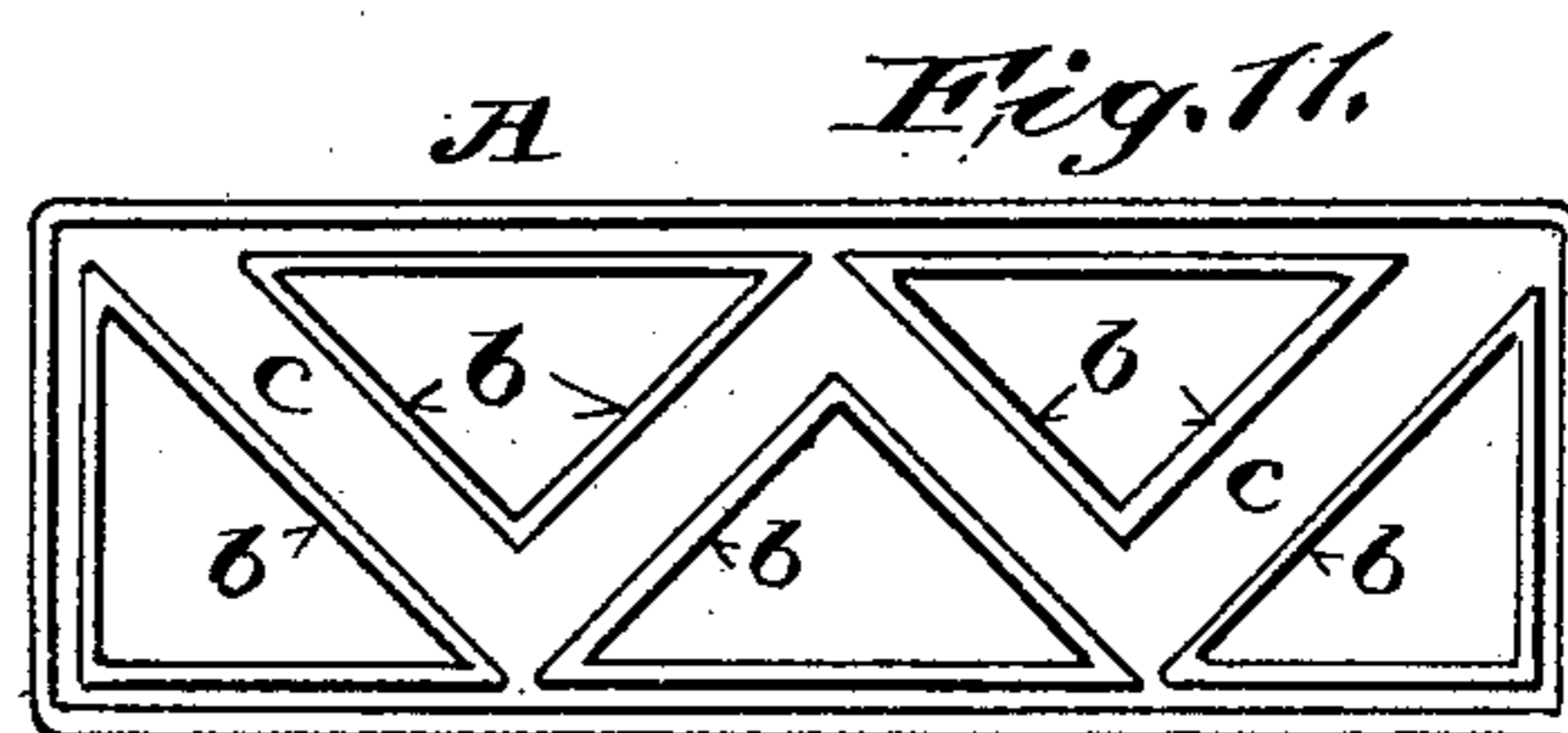
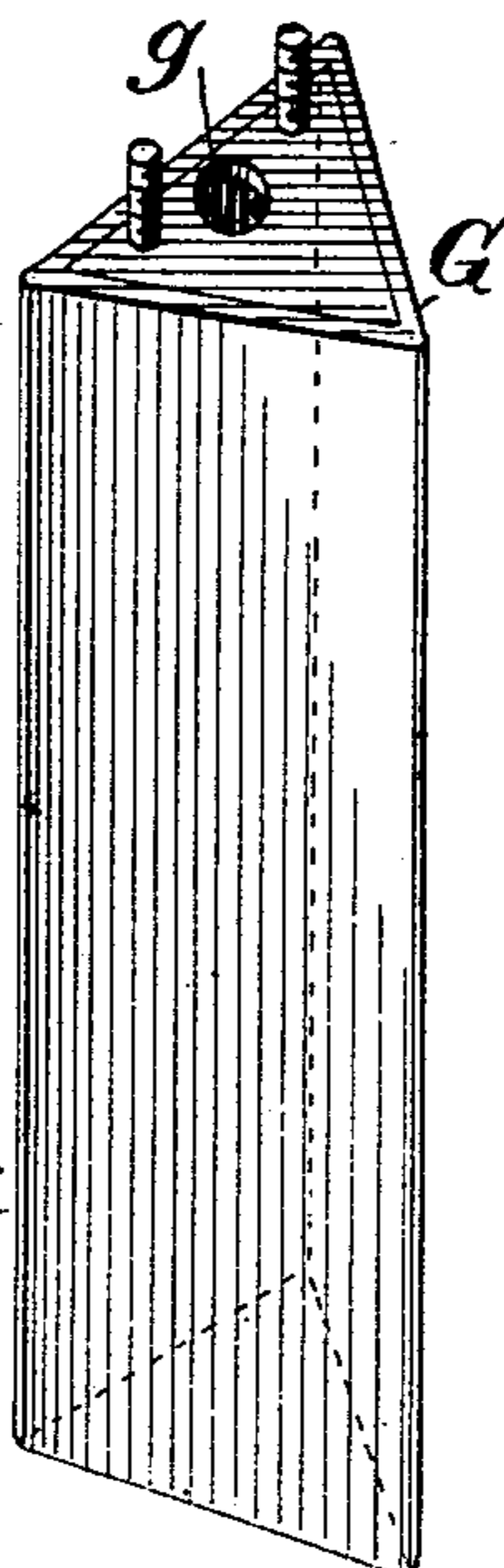
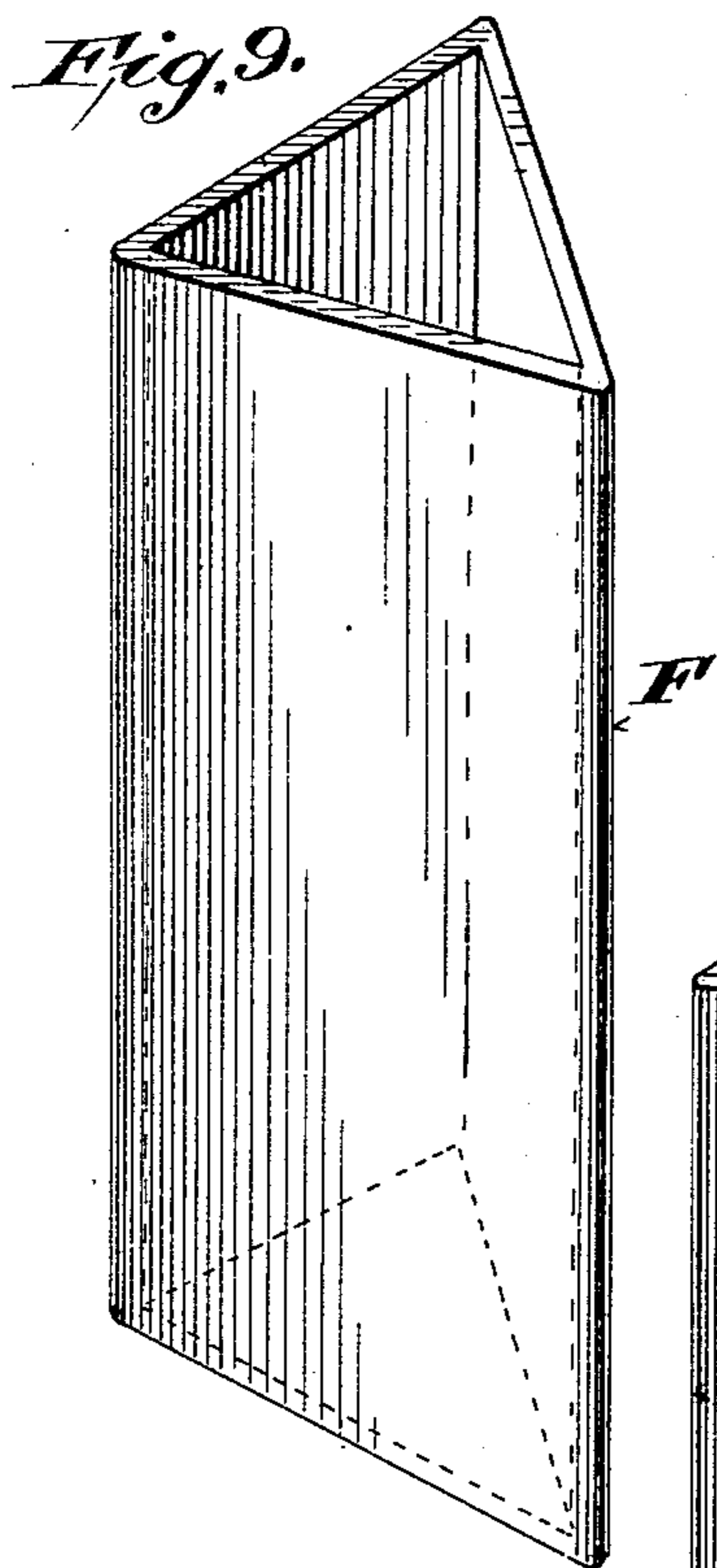
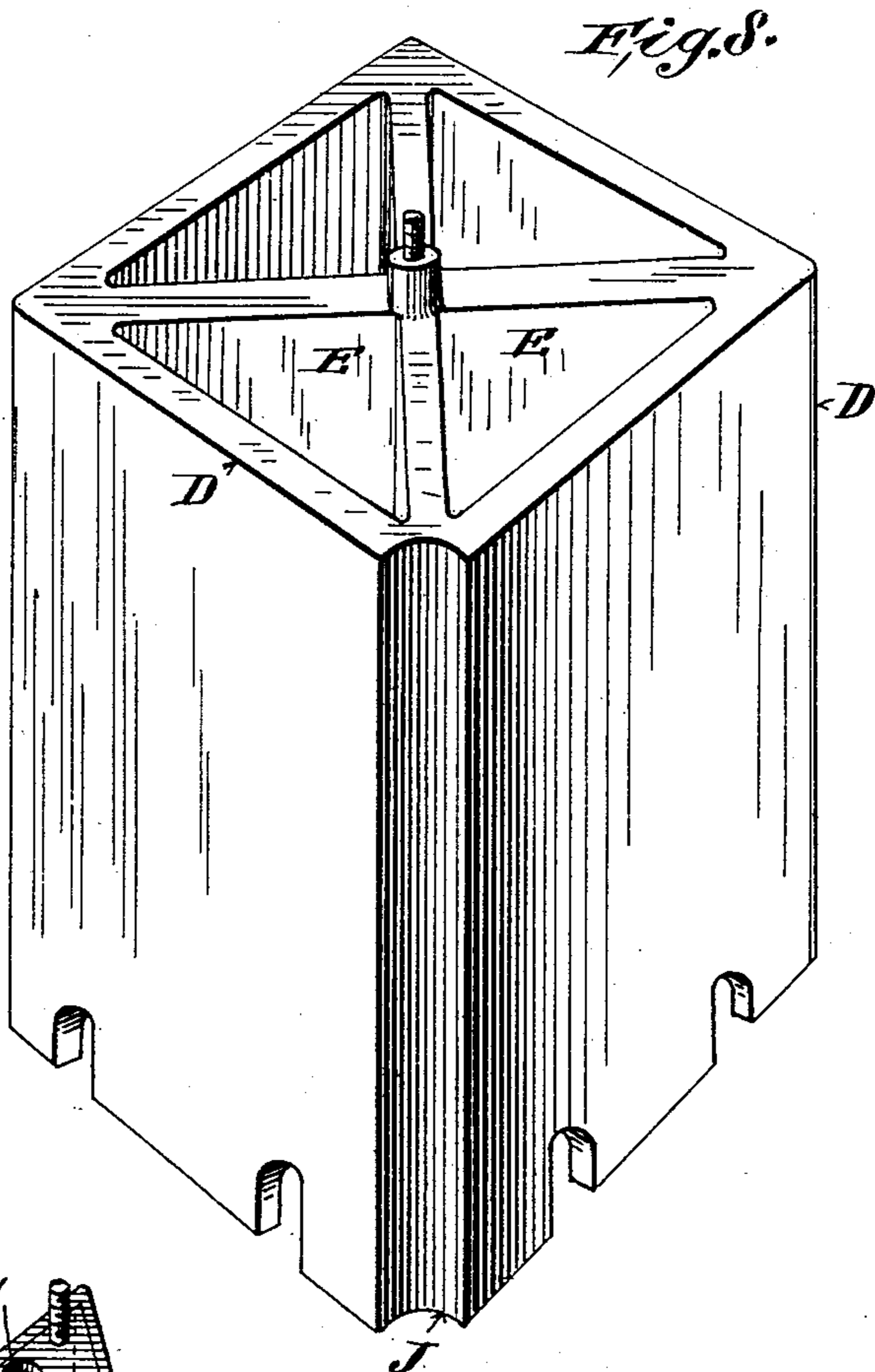
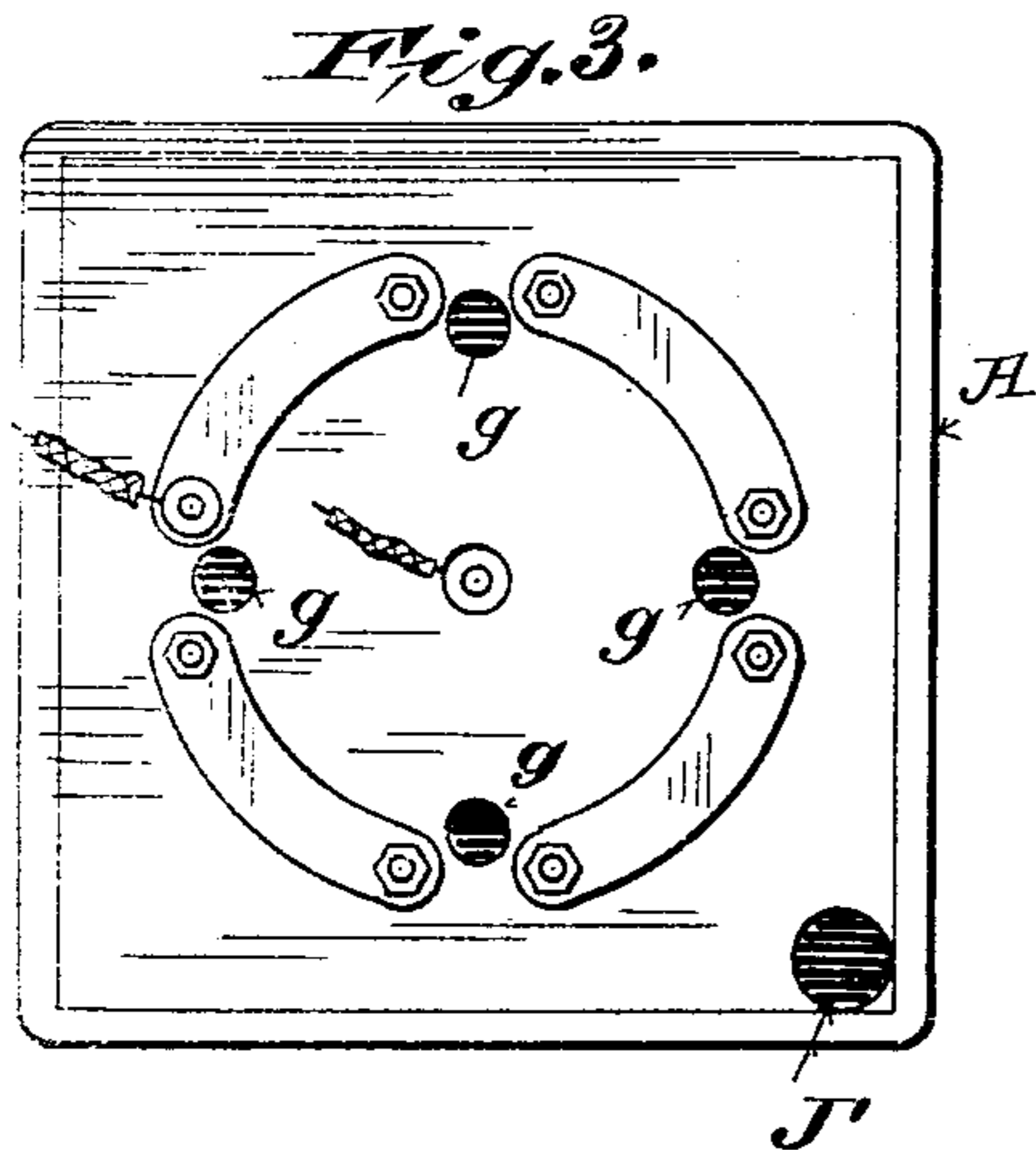
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3 Sheets—Sheet 2.



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(No Model.)

3 Sheets—Sheet 3.

Fig. 4.

5—

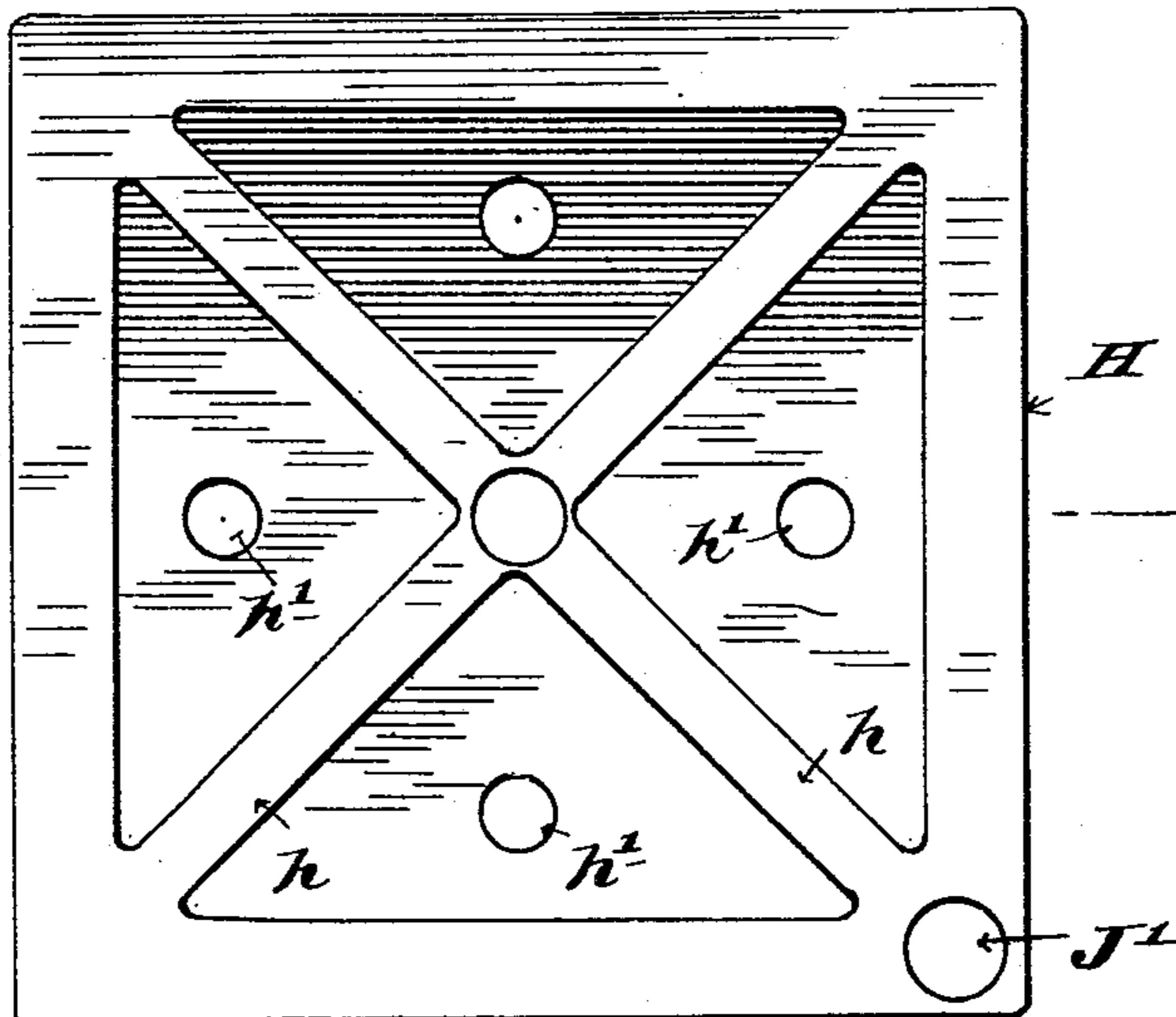


Fig. 5.



Fig. 6.

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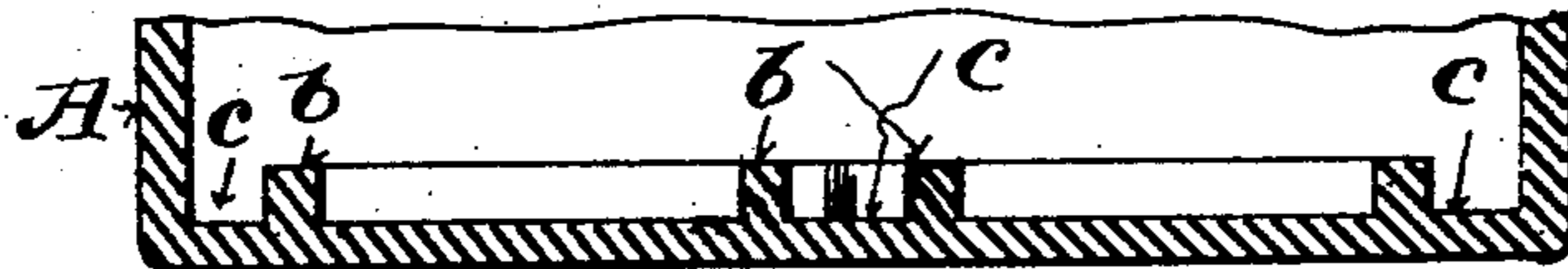
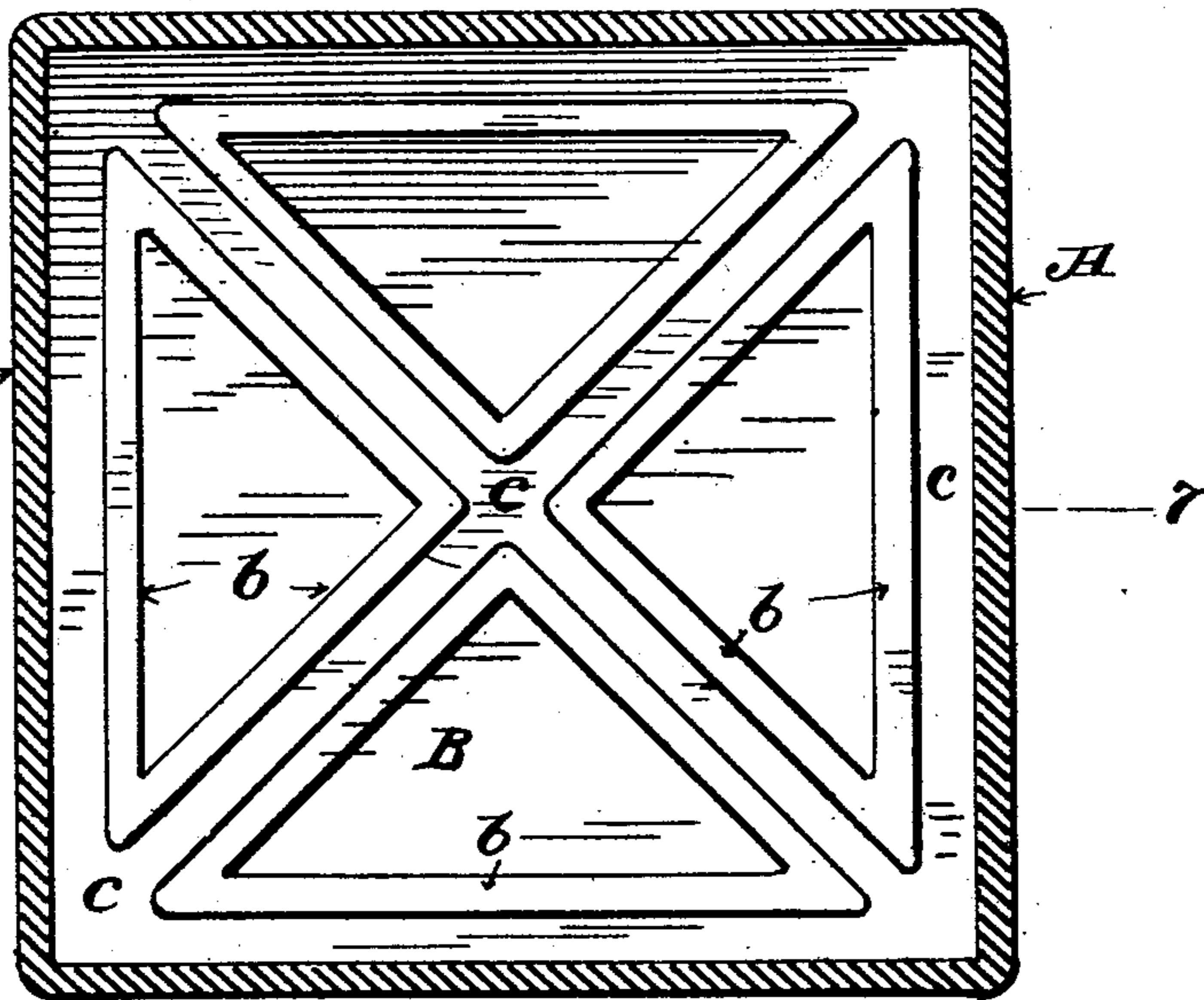


Fig. 7.

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UNITED STATES PATENT OFFICE.

ALBERT J. COOK, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE
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ELECTRIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 710,953, dated October 14, 1902.

Application filed July 20, 1901. Serial No. 69,026. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. COOK, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented a certain new and useful Improvement in Electric Batteries, of which the following is a specification.

I will first describe the improvement in detail and then point out the novel features thereof in the claims.

In the accompanying drawings, Figure 1 is a plan view of a battery embodying my improvement, the cover being removed. Fig. 2 is a sectional view of the same, taken through the lines 2 2, Fig. 1, the cover being in place. Fig. 3 is a reduced plan view complete of a battery embodying my improvement. Fig. 4 is an under side plan view of the cover of a battery embodying my improvement. Fig. 5 is a sectional view of said cover, taken on the lines 5 5, Fig. 4. Fig. 6 is a sectional plan view of the bottom of the jar. Fig. 7 is a sectional view taken on the lines 7 7, Fig. 6. Fig. 8 is a perspective view showing the formation of an electrode which surrounds the porous cups. Fig. 9 is a perspective view of a cup which fits within one of the compartments of the electrode shown in Fig. 8. Fig. 10 is a perspective view of an electrode which fits within the cup shown in Fig. 9, and Fig. 11 is a view showing a modification of the arrangement of the cups as used in a rectangular jar.

Similar letters of reference designate corresponding parts in all the figures.

A designates a jar or containing vessel. This vessel may be made of any desired material; but I prefer to make it of vulcanized rubber. It may be of any desired form or shape; but I prefer that it be square or rectangular.

B designates the bottom of the jar, shown as provided with ribs or projections *b b*, having a space between them to form channels *cc*. The ribs or projections *b b* may be made integral with the jar or containing vessel, or a bottom having such projections may be inserted in the jar or containing vessel.

The bottom of the electrode D fits into the space formed by the projections *b b*.

In Figs. 1 and 8 the electrode D is shown as made in one piece divided into four compartments E, each compartment being of triangular shape. Within these triangularly-shaped compartments are porous cups F, the outer sides of which correspond in shape with the compartments into which they are intended to be inserted. The lower ends of these porous cups are intended to fit against the sides of the ribs or projections *b b* opposite those sides thereof against which the electrode D fits. A space corresponding to the width of the ribs or projections *b b* will thereby be left between the sides of each compartment and the porous cup contained within such compartment.

G G designate electrodes intended to be inserted into the cups F F. Each electrode will have its sides so shaped as to conform to the inner sides of the cup F into which it is intended to be inserted. These electrodes will be of such size that when inserted within the cups a space will be left between the electrode and the sides of the cup into which such electrode is inserted.

H designates the cover of the jar or containing vessel. This cover H is provided with ribs or projections *h h*, intended to fit against the outsides of the cups F F. These ribs or projections form compartments of a shape corresponding to said cups F F. In the compartments formed by the ribs or projections *h h* are pads I, of india-rubber or other resilient material.

The electrodes G G are shown as removably fastened to the under side of the cover H by screws passing through the cover and the top of the electrode G. The electrodes G are hollow and open at the bottom, while in the upper end of each of said electrodes is a hole *g*, which when said electrode is fastened to the cover H is in line with the holes *h' h'*, which extend through the cover and the pad under the cover.

The rim of the cover H is shown as provided with a semicircular groove *h²*, and the portion of the jar or retaining vessel into which said cover is intended to be fitted is provided with a corresponding groove *a'*. A band of india-rubber or other resilient mate-

rial x will fit into the groove a' , and when the groove h^2 of the cover comes opposite the groove a' the band x will expand and fit into the groove h^2 . This will lock the cover securely in place and permit of the easy removal of the cover when desired.

J designates a groove made in one corner of the electrode D. The cover is provided with a hole J' to permit of the insertion of a tube into the space formed by the groove J between the electrode D and the retaining-wall.

In Fig. 11 I have shown a modification of the arrangement of cups and electrodes, so as to produce a battery rectangular in shape. In this case the electrode D may be provided with any desired number of triangular compartments.

I will now describe the operation of a battery embodying my improvement. The electrode D being inserted into the jar or retaining vessel will fit snugly against the ribs or projections $b\ b$ and will thereby be held securely in place. The cups F F being inserted into the compartments E E will be held securely in place at the bottom by the said ribs or projections $b\ b$. The electrodes G G being properly fastened to the inside of the cover H the cover H will be inserted into the top of the jar or retaining vessel and locked in place, as before described. The ribs or projections $h\ h$ will hold the upper ends of the cups F securely in place, while the pads I will form liquid-tight joints at the tops of the cups and around the screws by which the electrodes G are fastened to the cover. The battery is now in condition to be charged. The liquid to be held by the cups F F is poured into the cups through the holes $h' h'$, and the liquid to surround the electrode D is poured through the hole J'. When it is desired to withdraw the fluids from the battery, tubes may be inserted through the holes and the liquid withdrawn by suction.

By my improvement I produce a primary battery giving in the most compact space the highest amperage and largest quantity of current for the greatest length of time without recharging. My battery is lighter than any other cell-battery in proportion to the power derived. It can be more quickly and conveniently charged, discharged, and recharged, and the parts can be disassembled and reassembled by a person not skilled in the art.

While I have shown the cups and the spaces within and outside the cups triangular in form, it is evident that I might, if desired, have the cups and the spaces within and outside the cups form two sides of a triangle, while the third side might be made round or of any other desired shape.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A battery comprising an outer cell provided on its bottom with a plurality of spaced-apart sets of ribs, the outer ribs of each set being spaced from the wall of said cell and com-

binning therewith to produce an intermediate channel, an outer electrode located in said channel and partitioned into compartments agreeing in number and shape with said sets of ribs, said partitions being seated between the sets of ribs, and electrode-containing cups fitting and conforming to said compartments and sets of ribs.

2. A battery comprising an outer cell provided on its bottom with a plurality of spaced-apart sets of ribs the outer ribs of each set being spaced from the wall of said cell and combining therewith to produce an intermediate channel, an outer electrode located in said channel and partitioned into compartments agreeing in number and shape with said sets of ribs, said partitions being seated between the sets of ribs, porous cups fitting within and conforming to said compartments and sets of ribs, and inner electrodes fitting within said cups and conforming thereto.

3. A battery comprising an outer cell provided on its bottom with a plurality of spaced-apart sets of ribs the outer ribs of each set being spaced from the wall of said cell and combining therewith to produce an intermediate channel, an outer electrode located in said channel and partitioned into compartments agreeing in number and shape with said sets of ribs and said partitions being seated between said sets of ribs, cups within the compartments, inner electrodes fitting within said cups and conforming thereto, and a cover for the outer cell, said cover being connected to and supporting the inner electrodes.

4. A battery comprising an outer cell provided on its bottom with a plurality of spaced-apart sets of ribs, the outer ribs of each set being spaced from the wall of said cell and combining therewith to produce an intermediate channel, an outer electrode located in said channel and partitioned into compartments agreeing in number and shape with said sets of ribs, cups within the compartments, inner electrodes fitting within said cups and conforming thereto, a cover for the outer cell and connected to and supporting the inner electrodes, said cover bearing on its under side against the upper edge of the outer electrode, and means for securing the cover in position.

5. A battery, comprising an outer cell, the bottom of which is provided adjacent to the vertical walls thereof with a rib combining with the said walls to form an intermediate channel, an outer electrode fitting said channel and provided with a vertical groove in its wall, said rib serving to position said electrode with reference to the outer cell, and a cover for the outer cell provided with an aperture in line with the groove in said electrode.

6. A battery, comprising an outer rectangular cell, the bottom of which is provided adjacent and substantially parallel to the vertical walls thereof with a rib combining with said walls to form an intermediate channel, an outer electrode rectangular in cross-section

and fitting said intermediate channel and provided at one corner with a vertical groove, and a cover rectangular in shape for said outer cell and provided at one corner with an aperture in line with said groove of the electrode.

7. A battery, comprising an outer rectangular cell the bottom of which is provided with sets of triangularly-disposed ribs combining to form a rectangle and spaced apart from said cell and from each other to form surrounding and intermediate channels, a cover for the cell provided within its edges with a rectangular depending rib in accordance with the rectangular channel within the cell, an outer electrode rectangular in cross-section and seated in said outer channel within the cell and provided with a series of triangular compartments conforming to the sets of triangularly-disposed ribs of the cell, a set of porous cups triangular in cross-section and fitting within the triangularly-disposed ribs,

a rubber packing within the rectangular channel of the cover as formed by the ribs thereof, which packing bears against the upper edges of the porous cups, and inner triangular electrodes corresponding to and smaller than the porous cups and secured to and depending from the said cover into the cups.

8. A battery, comprising an outer cell, a cover for the same, an external electrode divided into a plurality of compartments, means for positioning the said electrode with relation to the cell whereby the two are spaced apart, a series of porous cups arranged within the compartments and spaced from the wall thereof, and inner electrodes depending from said cover into said cups and positioned by the cover out of contact with said cups.

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Witnesses:

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