

No. 617,696.

Patented Jan. 10, 1899.

C. H. BOECK.  
PORTABLE KNOCKDOWN OVEN.

(Application filed Aug. 19, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

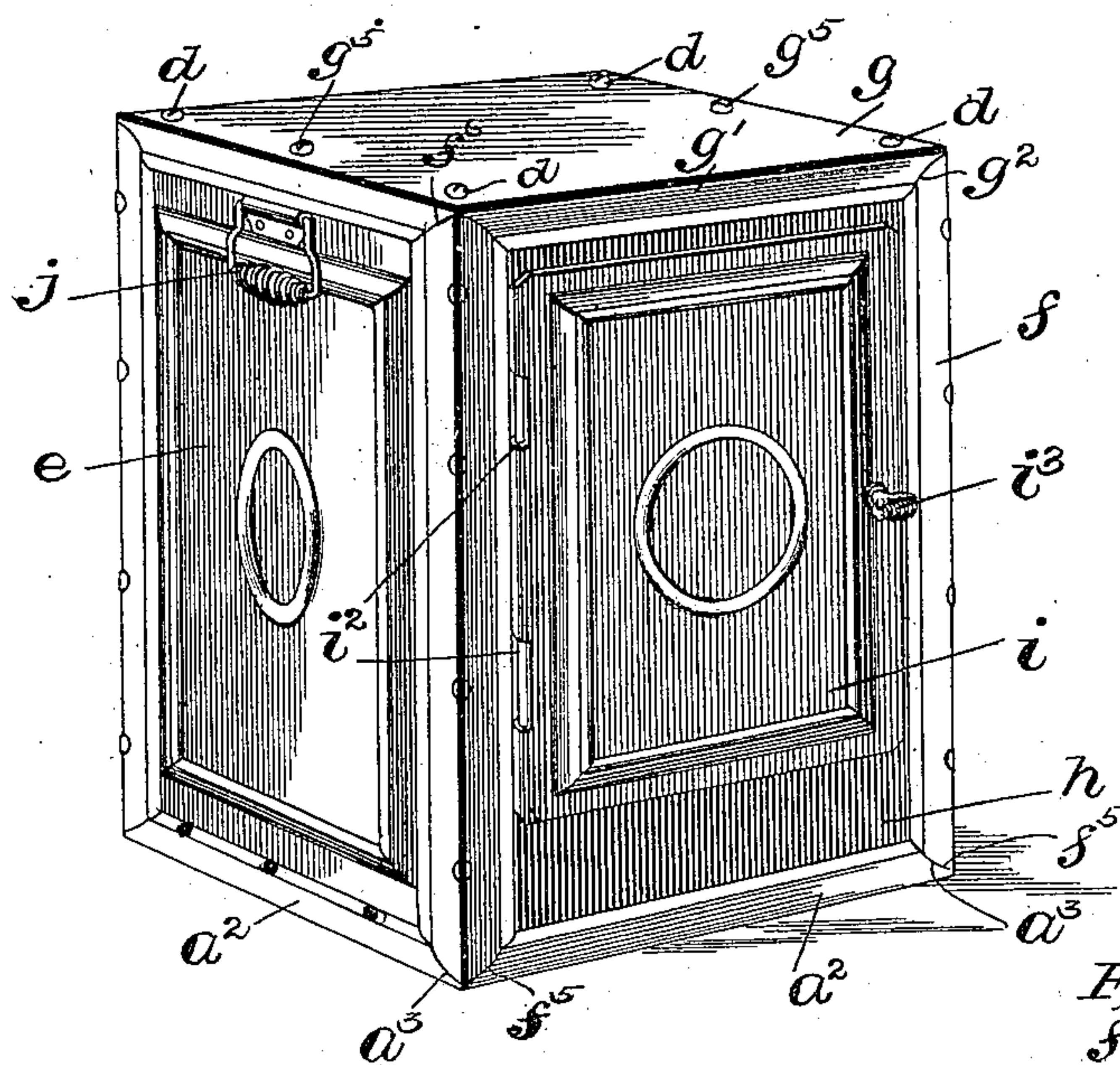
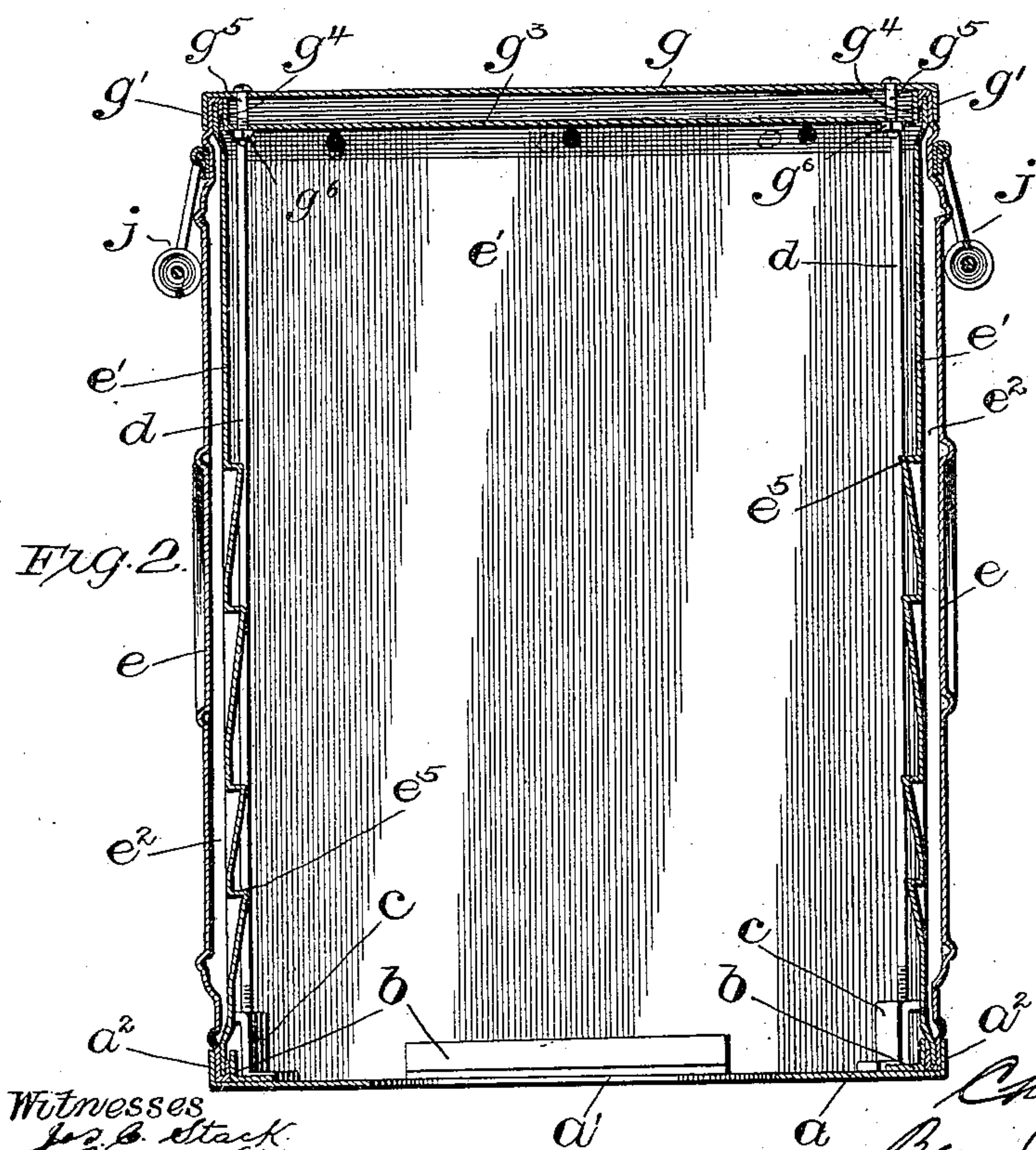
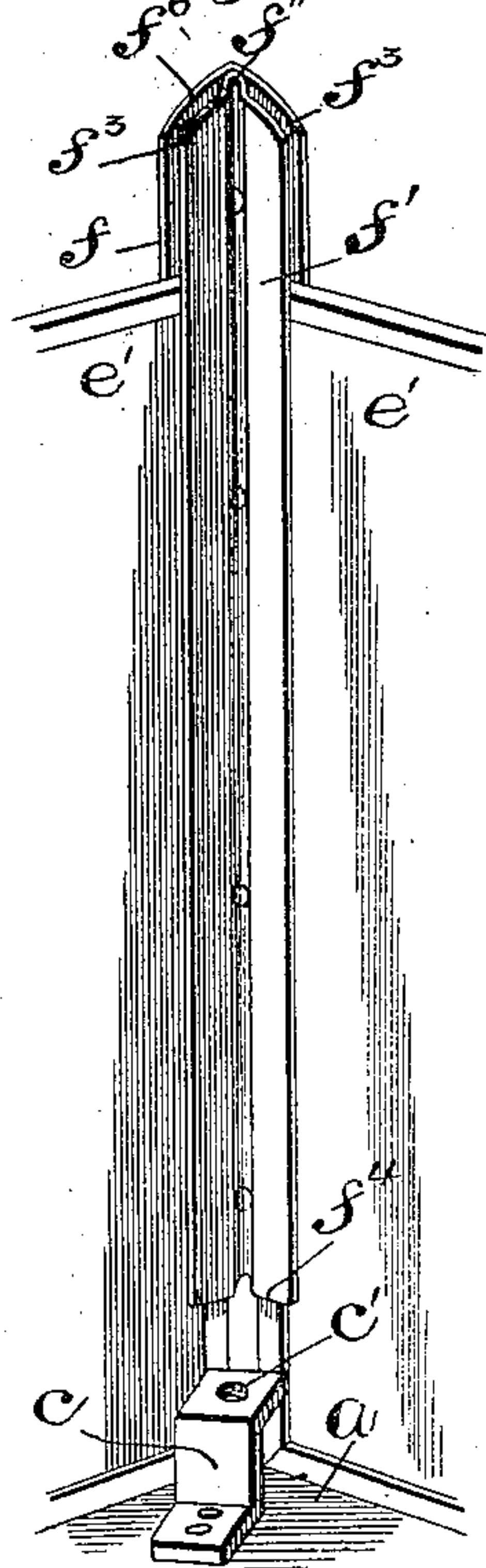


Fig. 2.



Witnesses  
Jas. B. attack.  
Chas. H. Downer

Fig. 3.



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2 Sheets—Sheet 2.

Fig. 4.

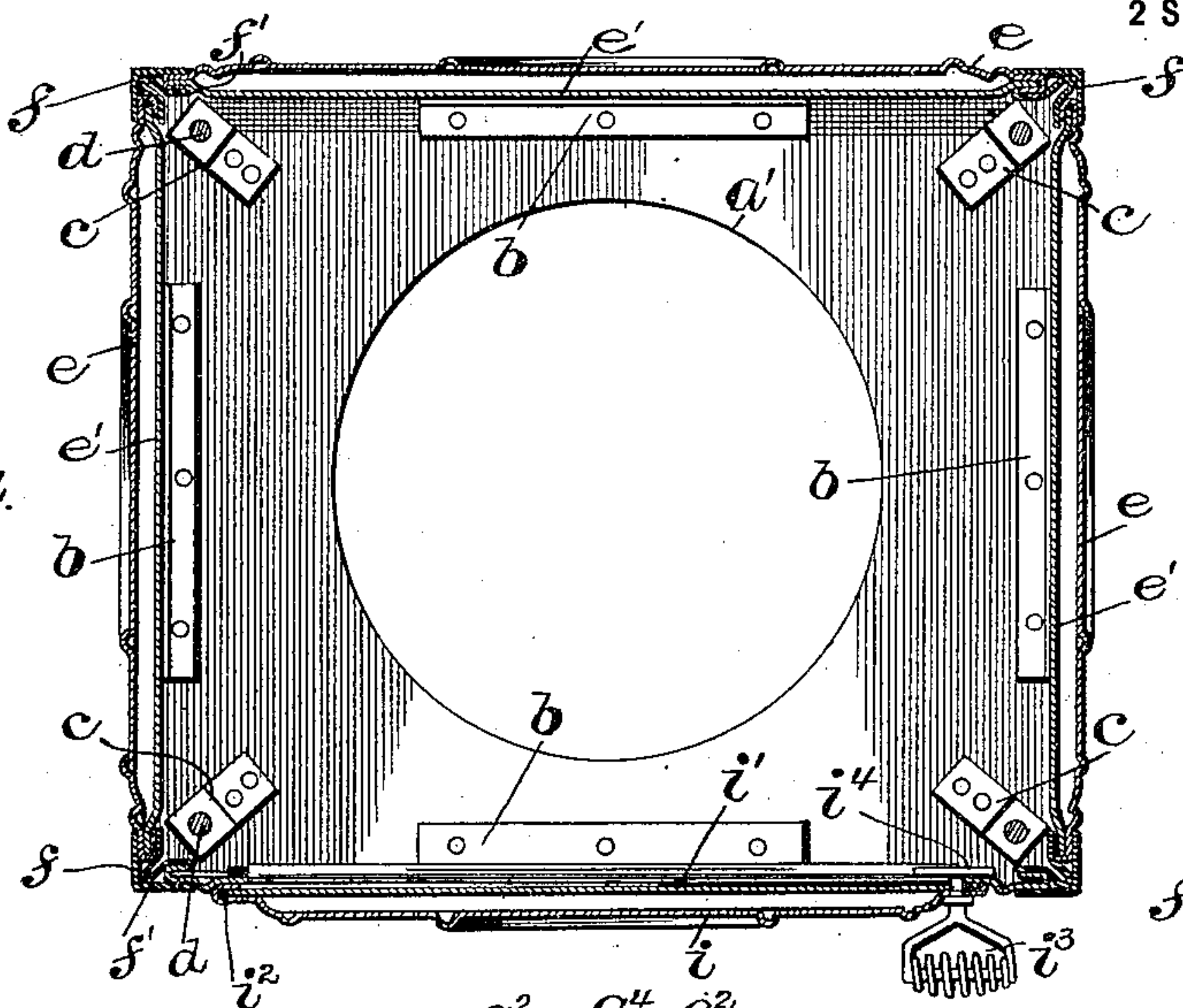


Fig. 5.

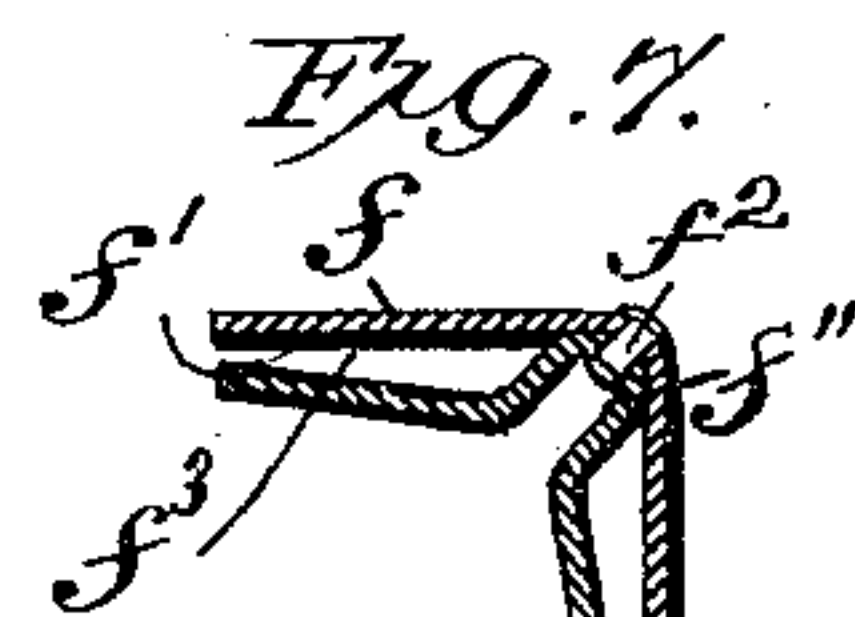
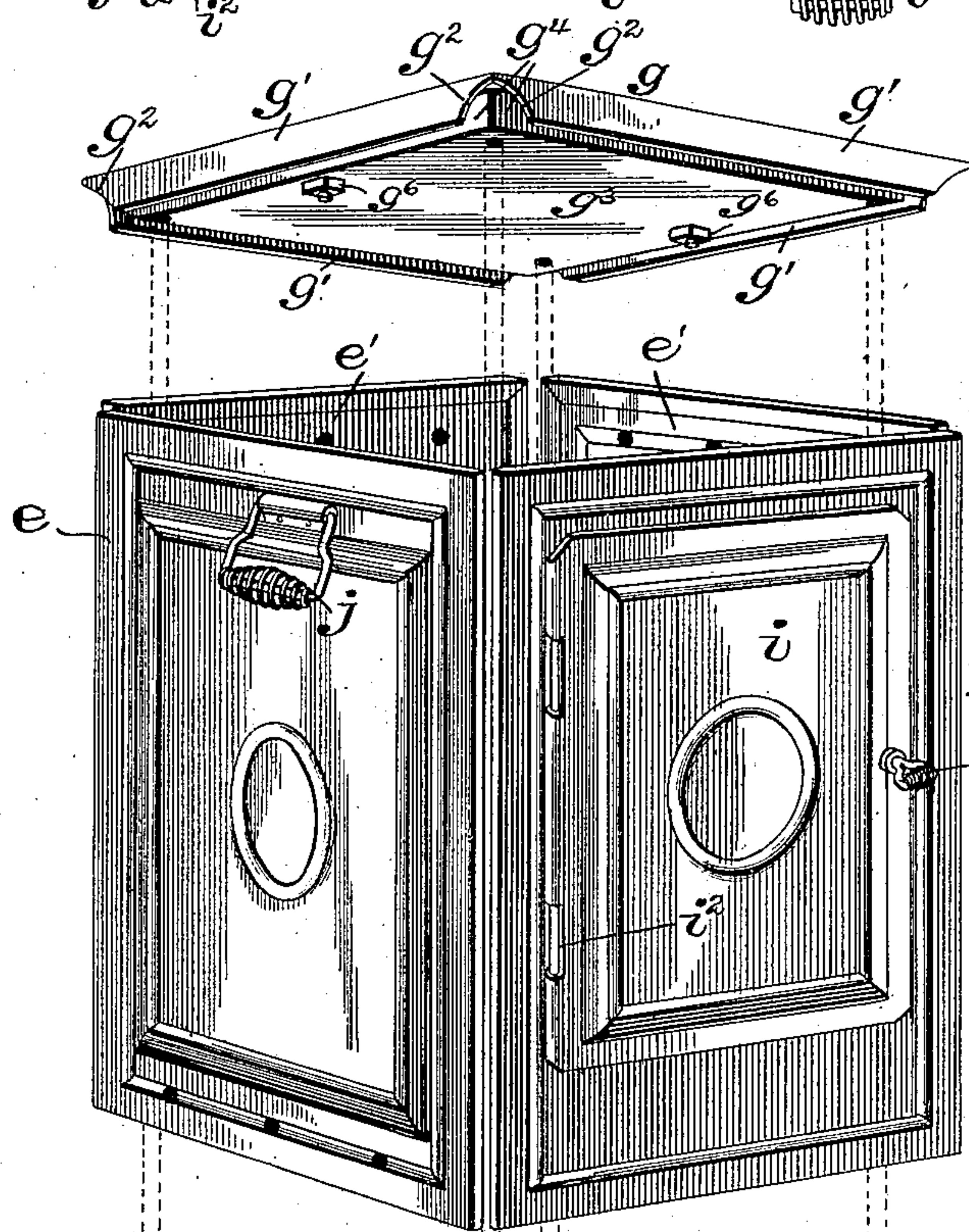


Fig. 6.



Witnesses

Jos. L. Stack

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Inventor

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By John A. Somell

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# UNITED STATES PATENT OFFICE.

CHARLES H. BOECK, OF JACKSON, MICHIGAN, ASSIGNOR TO THE NOVELTY MANUFACTURING COMPANY, OF SAME PLACE.

## PORTABLE KNOCKDOWN OVEN.

SPECIFICATION forming part of Letters Patent No. 617,696, dated January 10, 1899.

Application filed August 19, 1898. Serial No. 688,950. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. BOECK, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Portable Knockdown Ovens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to portable ovens such as are employed in connection with gas or vapor stoves; and the principal object is to provide a practical "knockdown" construction, so that ovens of this kind can be shipped more economically than heretofore possible. Ovens of this type as generally constructed at present are not of the knockdown variety, and it is not possible to make up even the minimum weight allowed in a given compass, as that afforded by a freight-car, and hence shipment of ovens economically has been impossible. It is true there are instances in the prior art of knockdown constructions of ovens; but they have not been generally recognized as practicable, and hence have not been universally adopted.

My invention provides a thoroughly practical knockdown construction, so that when the parts of the oven are put together a perfectly stable structure results and one equally as efficient as when not constructed on the knockdown principle. Moreover, the parts of the oven are capable of being compacted in a very small compass, making it possible to ship and store economically.

With the above-stated object in view the invention consists in a number of novel features of construction and combinations of parts, which are recited in the appended claims, a preferred form of embodiment of the invention being illustrated in the accompanying drawings, which form part of this specification, and whereof—

Figure 1 represents the oven in perspective as it appears when ready for use. Fig. 2 represents the same in cross-section. Fig. 3 represents some of the parts of the oven in perspective as they appear when fitted together. Fig. 4 represents the oven in horizontal cross-

section. Fig. 5 shows the various plates of the oven in perspective in their proper relative planes, but separated from each other. Fig. 6 represents one of the corner-strips in perspective, and Fig. 7 is a cross-section of the latter.

The reference-letter *a* designates the bottom plate of the oven, which is centrally apertured, as shown at *a'*, for the admission of the products of combustion, and is formed with upstanding flanges *a*<sup>2</sup> on its four edges, which flanges are cut out on a curve or concaved at their ends, as shown at *a*<sup>3</sup>. Inner flanges *b* extend parallel with the flanges *a*<sup>2</sup>, forming therewith four grooves, and these inner flanges are riveted to the plate *a*, they being of angular form and made of comparatively thin sheet metal, the same as said plate.

At the corners of the base-plate brackets *c* are located, these brackets being riveted to the plate and provided with screw-threaded openings *c'* in their outstanding portions. The said brackets are preferably of considerably heavier material than the plate, being preferably cast in the double-L form shown, so as to provide feet for riveting to the plate, upstanding portions rising above the flanges *a*<sup>2</sup>, and outstanding upper portions. These brackets are set diagonally of the plate, so that their apertured outstanding portions are over the corner portions of the latter in position to receive the lower ends of tie-bolts *d*, which are screw-threaded for engagement with the openings *c'*.

Each of the two sides, as also the back, of the oven comprises a pair of sheet-metal plates *e* and *e'*, marginally united by crimping or bending the edges of the plate *e* over the edges of the plate *e'*, but sufficiently separated to provide an air-space *e*<sup>2</sup>, and openings in the plate *e'* near the top admit hot air, which escapes through openings in the plate *e* near the bottom.

The front of the oven differs in construction from the sides and the back in that it consists of a single plate *h*, having a beaded edge, and this front plate is formed with a rectangular opening, which is closed by a door consisting of plates *i* and *i'*, marginally united and having an air-space between them, said door being hinged to the front plate at



one side of the opening therein, as shown at  $i^2$ , and having a handle  $i^3$  at the opposite side, with a turn-button  $i^4$ , adapted to take over the inner side of the front plate, and thereby

5 hold the door closed.

The lower edges of the sides, back, and front fit into the grooves provided between the flanges of the base-plate, their side edges being in close proximity, as shown in Fig. 5, and adapted to be united by means of corner-pieces of special construction, as follows: Each corner-piece comprises a pair of sheet-metal strips  $f$  and  $f'$ , angular in cross-section, and the inner strip  $f'$  grooved or crimped at its angle, as shown at  $f''$ , so as to enter the angle of the outer strip, to which it is connected by rivets  $f^2$ , passing through the crimped portion of the inner strip. The portions of the latter on opposite sides of the groove  $f''$  normally extend toward corresponding portions of the outer strip, but are separated therefrom, so as to form grooves  $f^3$ , (see Fig. 7,) and the strips being of substantially right-angle formation these grooves necessarily are substantially at right angles to each other, so that they are adapted to receive the adjacent edges of the sides of the oven in the manner illustrated in Fig. 3. The convergence of the side portions of the strips provides for their more closely hugging the side plates of the oven and making an airtight closure, as well as insuring rigidity and a finished appearance. The inner strip  $f$  of the corner-piece is preferably left square at the lower end, as shown at  $f^4$ , so as to extend beyond the outer strips and assist the operator in putting the parts together, while the outer strip is rounded or convexed, as shown at  $f^5$ , so as to fit the rounded edges  $a^3$  of the flanges  $a^2$  and give a finished exterior appearance to the oven, removing any indication of a knockdown construction when the parts of the oven are fitted together. Both the inner and outer strips of the corner-piece are similarly rounded at their upper ends, as shown at  $f^6$ , for a like purpose, and the top plate  $g$  of the oven is formed with downturned flanges  $g'$  on all sides, which are cut out on a curve or concaved at their ends, as shown at  $g^2$ , to fit the curved upper edges of the corner-strips.

The top of the oven comprises also a plate  $g^3$ , formed with upturned flanges  $g^4$ , between which and the flanges  $g'$  grooves are provided to receive the upper edges of the sides of the oven, the said plate  $g^3$  being secured to the plate  $g$  by bolts  $g^5$  and nuts  $g^6$ . The tie-bolts  $d$  extend up through apertures in the plates  $g^3$  and  $g$ , their heads overlying the latter, so that when the bolts are screwed down they will clamp all the plates of the oven together.

Opposite side plates of the oven may be fluted, if desired, to add strength and increase the heating-surface, and are preferably stamped out with ledges  $e^5$  to accommodate

shelves such as ordinarily employed in ovens of this type. The arrangement of such shelves will be understood without requiring illustration, and it will also be understood that a suitable deflector will be arranged over the opening in the base-plate.

Handles  $j$ , hinged to the outer plates of the sides of the oven, afford means for moving the oven about.

It will be seen that a construction such as above described and illustrated in the accompanying drawings is well adapted to fulfil the objects primarily stated. At the same time it will be understood that modifications in the details of construction can be made without departing from the spirit and scope of the invention.

The special form of corner-piece shown and described is not here claimed *per se*, as it has been made the subject-matter of a separate application filed December 7, 1898, Serial No. 698,567.

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

1. In a knockdown oven, the combination of top and bottom plates having marginal grooves, side plates whose top and bottom edges occupy said grooves, corner-strips each of angular cross-section, their wings being formed double with an outward-opening groove or space between the members of each wing to receive a side edge of one of the side plates, the inner wing members as well as the outer wing members standing at an angle to each other, and means for holding all the plates together.

2. In a knockdown oven, the combination of top and bottom plates having marginal grooves, side plates whose top and bottom edges occupy said grooves, corner-pieces composed of angular sheet-metal strips secured together and separated to form grooves to receive the side edges of the side plates, and means for holding all the plates together.

3. In a knockdown oven, the combination of top and bottom plates marginally flanged to form grooves, the ends of the flanges being curved, side plates whose top and bottom edges occupy said grooves, corner-pieces composed of angular strips secured together in pairs with grooves to receive the side edges of the side plates, said strips being curved at the ends to conform with the curvature of the flanges of the top and bottom plates, and means for holding all the plates together, substantially as described.

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

CHARLES H. BOECK.

Witnesses:

D. R. TARBELL,  
N. P. BEEBE.