E. L. WALKER.

KNOCKDOWN BOX.

APPLICATION FILED MAR. 20, 1908.

973,827.

Patented Oct. 25, 1910.

2 SHEETS—SHEET 1.

Fig 1.

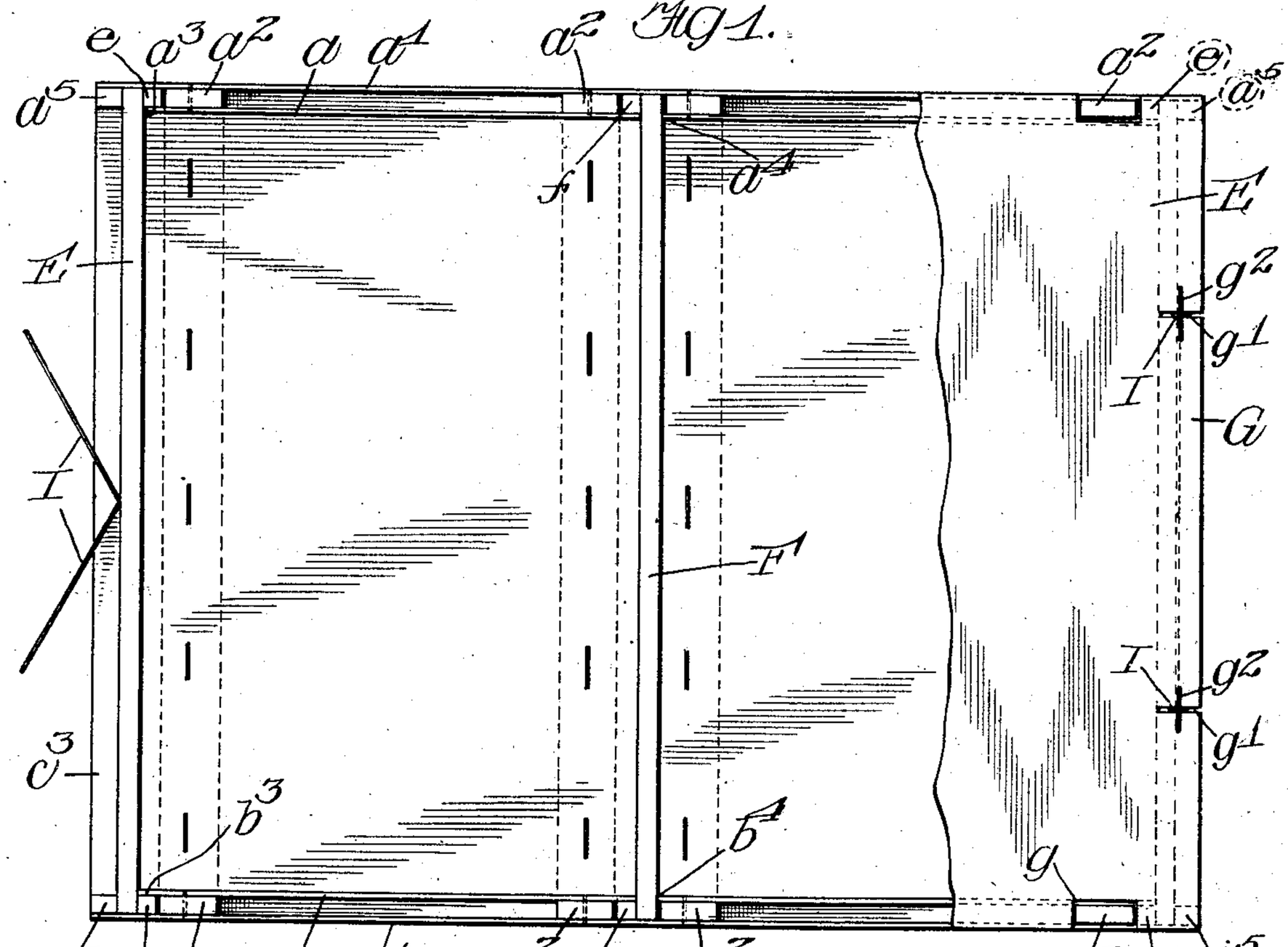
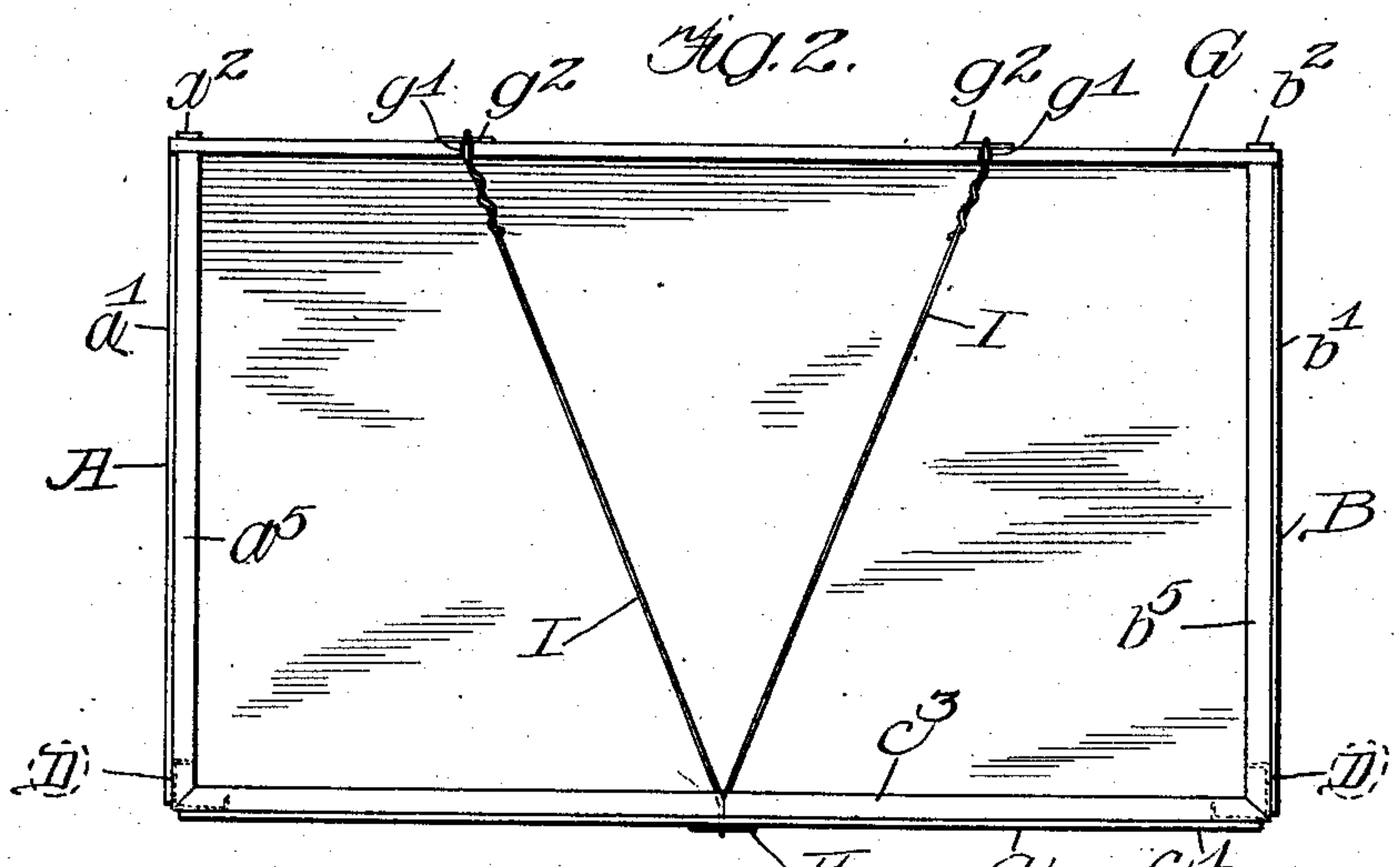


Fig. 2.



Witnesses:

Ira D. Perry

Robert F. Weir

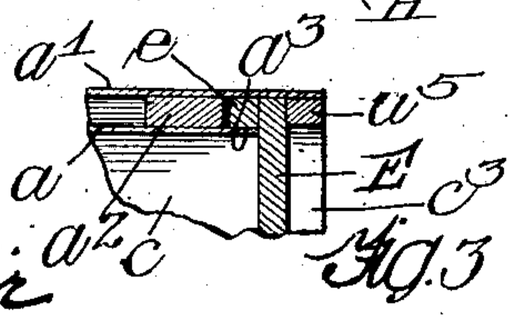


Fig. 3

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2 SHEETS—SHEET 2.

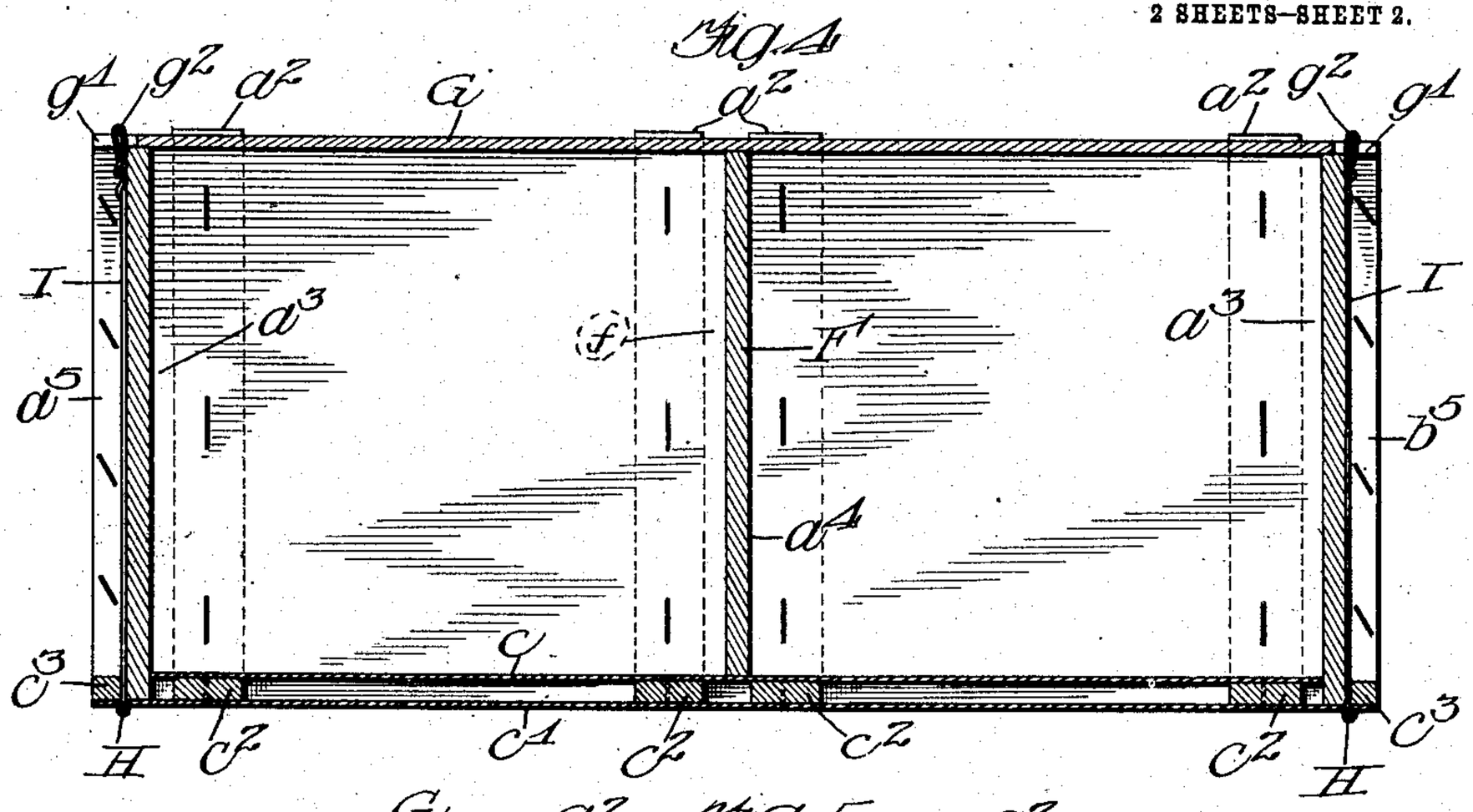

Fig. 5.

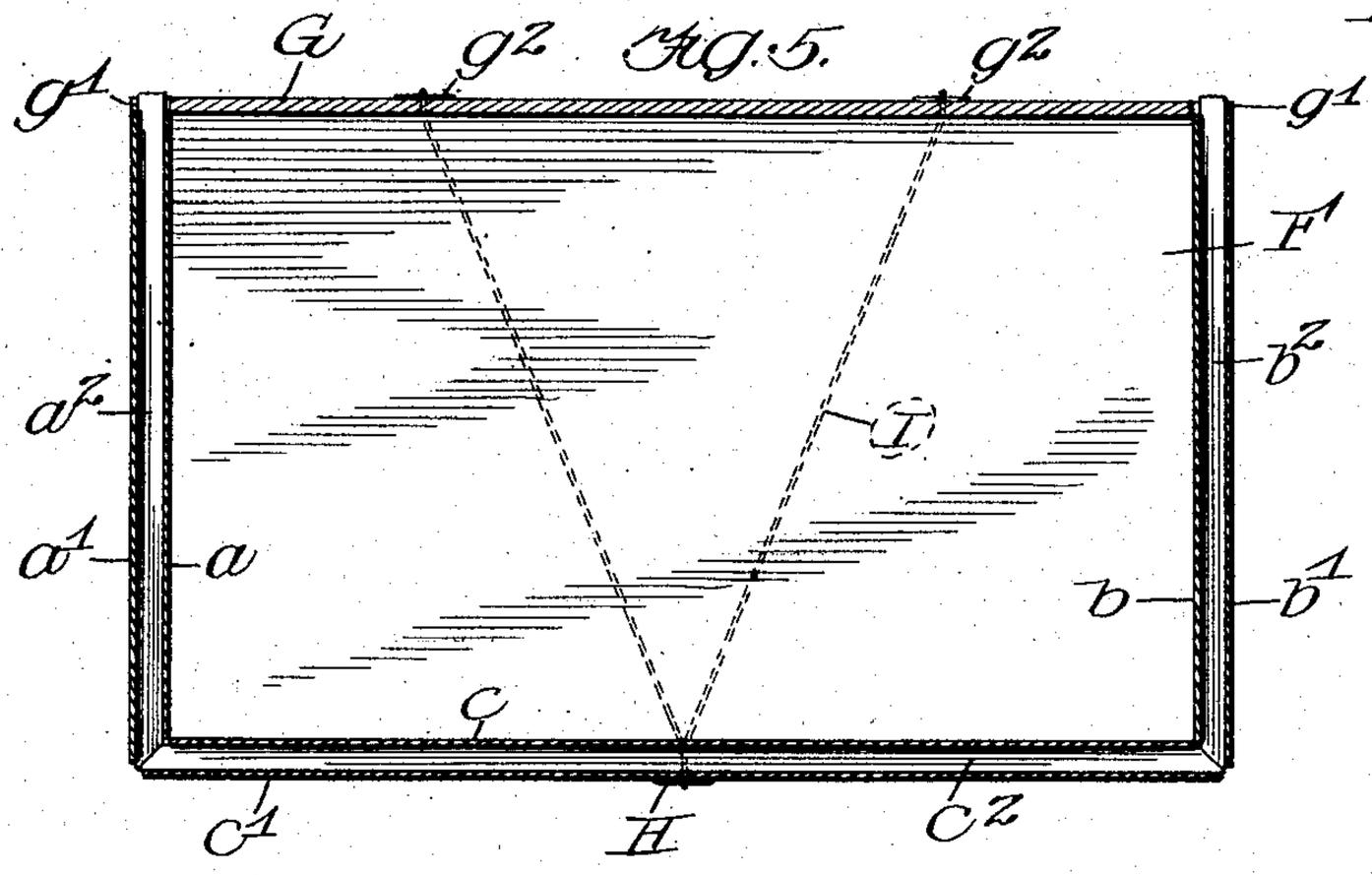

Fig. 6.

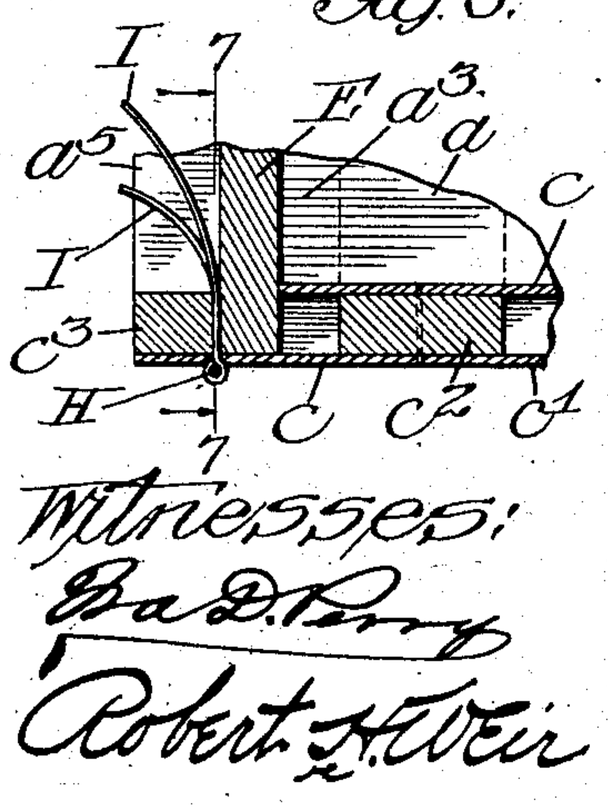

Fig. 7.

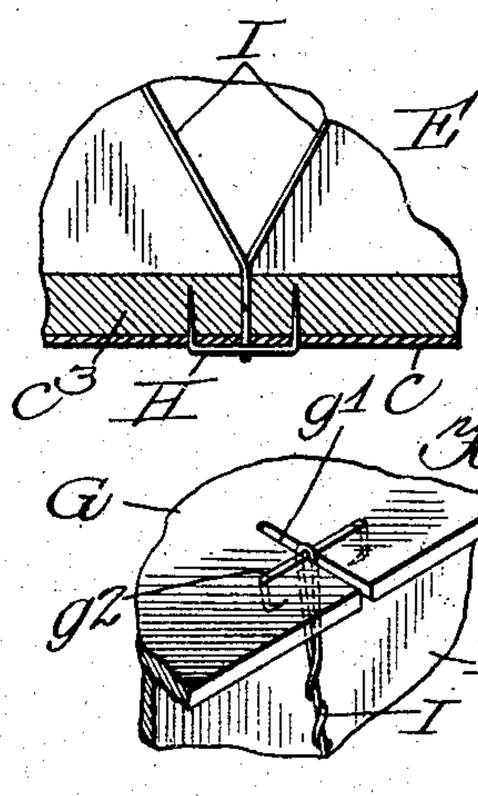

Fig. 8.

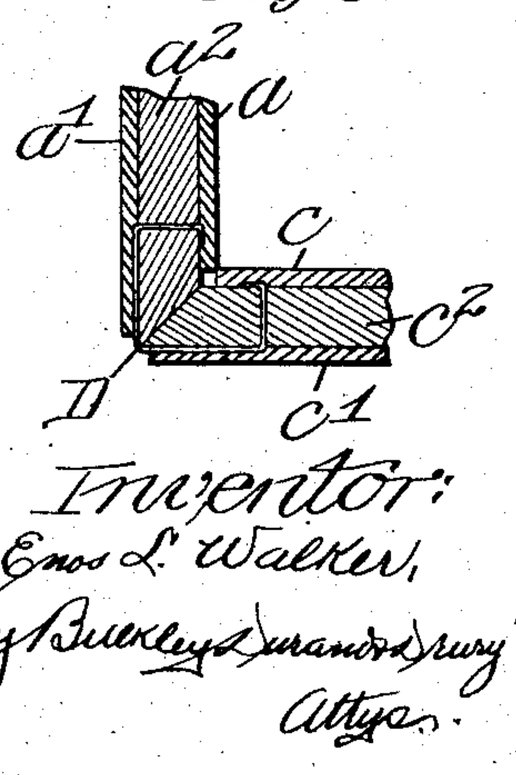

Fig. 9.

Witnesses:

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UNITED STATES PATENT OFFICE.

ENOS L. WALKER, OF CAPE GIRARDEAU, MISSOURI.

KNOCKDOWN BOX.

973,827. Specification of Letters Patent. **Patented Oct. 25, 1910.**

Application filed March 20, 1908. Serial No. 422,266.

To all whom it may concern:

Be it known that I, ENOS L. WALKER, a citizen of the United States of America, and resident of Cape Girardeau, Cape Girardeau county, Missouri, have invented a certain new and useful Improvement in Knock-down Boxes, of which the following is a specification.

My invention relates to knock-down or folding boxes of the general type described in my prior application Number 322,508, and is in the nature of an improvement thereon, being adapted more particularly for use as an egg crate, as will hereinafter more fully appear.

The object of my present invention is the provision of an improved construction whereby the cost of production may be reduced, and still a good and serviceable box or crate supplied to the user; the provision of an improved box or crate having a double or springy bottom, as well as certain simplified and improved devices for securing the transverse walls and cover in place; and the provision of a construction tending to reduce the weight and amount of material necessary for a box or crate of this particular character.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a plan of a box or crate embodying the principles of my invention, showing the cover thereof partially broken away. Fig. 2 is an end elevation of the said box. Fig. 3 is a detail sectional view of one of the connections for holding the transverse walls in place. Fig. 4 is a longitudinal section of the said box. Fig. 5 is a transverse section of the same. Fig. 6 is an enlarged detail sectional view of one end of the box at the bottom thereof. Fig. 7 is a section on line 7—7 in Fig. 6. Fig. 8 is an enlarged detail sectional view of one of the flexible connections between the sides and the bottom. Fig. 9 is a fragmentary perspective of one of the portions of the cover to which the fastening wires are secured.

As thus illustrated, my invention comprises a flexible blank composed of the sides A and B, and the bottom C. It will be seen that the sides are hollow, being provided with inner and outer thicknesses a—a' and b—b', the same being spaced apart and rigidly connected together by transverse spacing strips a^2—b^2. Likewise, in a similar manner the bottom is composed of inner and outer thicknesses c—c', which are spaced apart by the transverse strips c^2. The said transverse strips of the bottom are flexibly connected with the transverse spacing strips of the sides by means of staples D, which latter provide flexible hinges, as shown more clearly in Fig. 8. The outer thicknesses of the sides are longer than the inner thicknesses thereof, and the end strips a^2 are disposed at a slight distance back from the edges of the thicknesses a, thus providing ribs a^3—b^3, as shown. This is also true of the two thicknesses at the bottom, as the inner is shorter than the outer. Furthermore, the sides are slotted near the center thereof, and at the inside thereof, thus providing vertical slots a^4—b^4 communicating with the air spaces in the said side walls. The flexible blank thus provided is provided at its end edges with cleats a^5—b^5, the bottom having similar cleats c^3. The end walls E are provided with side cleats or ribs e adapted to engage between the inner and outer thicknesses of the side walls and in contact with the ribs or overlapping portions a^3—b^3, in the manner illustrated. When these end walls are inserted, they are held in place by the cleats a^5—b^5—c^3, but are readily removable in an upward direction. The transverse middle wall F is exactly like one of the said end walls, and extends through the slots a^4—b^4. The side cleats f of said middle wall engage between the inner and outer thicknesses of the sides of the box, but the lower edge of the said middle wall rests upon the inner thickness c of the bottom. The lower edges of the end wall, it will be seen, rest upon the outer thickness of the bottom, thus providing a tight closure at each end of the box. The cover G can consist of a single thickness having notches g at the side edges thereof. These notches are adapted to engage the upper ends of the transverse spacing strips a^2—b^2, thus preventing displacement of the cover. The bottom of the box is provided at each end thereof with staples H, and the cover of the box is provided at each end thereof with slots g', each slot being bridged or spanned by a staple g^2. The fastening wires I are looped around the staples H, then brought upwardly and passed through the slots g'

and then looped around the staples g^2, as shown in the drawings. In this way, the said fastening wires serve to hold the cover tightly in place, each cover being removable by the untwisting of the upper ends of the fastening wires.

It will be understood that the material for the box is preferably wood veneer, with the grain running lengthwise of the box, and that the wood spacing strips can be stapled to the same to form a rigid structure. The bottom of the box being hollow, it follows that the same is of a more springy nature, thereby providing a slight cushion for the contents of the box to rest upon. The box is well ventilated by the air spaces in the sides and bottom thereof. As many transverse walls can be employed as is necessary or desirable, said walls being uniform or alike. The knock-down box thus constructed is light and simple in construction, and economical to manufacture. The flexible blank composed of the sides and bottom can be made by stapling the parts together on a suitable stapling machine, and the transverse walls can be made in a similar manner. The box can be knocked down and shipped in a perfectly flat condition, and then is easily assembled and put together by the user.

I do not, of course, limit myself to the exact construction shown and described, as various ways may be employed for using the L-shaped engaging portions on the sides of the end walls, whereby the said end walls are readily inserted and removed, as well as other ways of using the cover and fasteners therefor, as heretofore explained, in a box or crate of this kind without in any way departing from the spirit of my invention.

What I claim as my invention is:

1. A knockdown or foldable box comprising hollow sides, transverse walls, means rigid with the transverse walls for engaging between the inner and outer thicknesses of the sides to hold the box together, each transverse wall extending beyond the inner thickness and engaging the outer thickness of each side wall, and means for holding the said end walls in place.

2. A knockdown or foldable box comprising flexibly connected hollow sides forming a blank that can be flattened out for shipment, transverse walls, ribs fixed on the vertical edges of said walls to engage between the inner and outer thicknesses of the sides, as set forth, and means for holding the said end walls in place.

3. A knockdown or foldable box comprising hollow sides, a hollow bottom flexibly connected therewith, removable transverse walls resting upon and supported by the bottom, and means on said walls for engaging between the inner and outer thicknesses of the sides, to hold the box together, and means for holding the said end walls in place.

4. A knockdown or foldable box comprising a side having inner and outer thicknesses, one longer than the other, means for spacing the same apart, an end wall bearing against the edge of the shorter thickness, the edge of the end wall engaging the inner surface of the outer thickness, said wall provided with a fixed rib engaging between said thickness, and means carried by the side and engaging the outside of the wall to hold the latter in place.

5. A knockdown or foldable box comprising a double side wall, a vertical slot in the inner thickness thereof, a transverse wall engaging in said slot, bearing against the outer thickness and means rigidly fixed on the vertical edge of said transverse wall for engaging between the inner and outer thicknesses of said side wall.

6. A knockdown or foldable box comprising a bottom, a staple in said bottom, a flat cover having slots in the end thereof, staples crossing said slots, and a fastening wire looped around the staple on the bottom and having its diverging ends inserted upwardly through said slots and looped around the staples on the cover, said wire removable outwardly from the outer ends of said slots, as set forth.

7. A knockdown or foldable box comprising a blank having end cleats at the ends of the box, means flexibly connecting the sections of said blank, the sides of the box being hollow, and end walls disposed inside of said cleats, provided with means engaging between the inner and outer thicknesses of the sides of the box, to hold the latter together.

Signed by me at Chicago, Illinois, this 13th day of March, 1908.

ENOS L. WALKER.

Witnesses:
SARAH LEWIS,
ALBERT SAUSER.