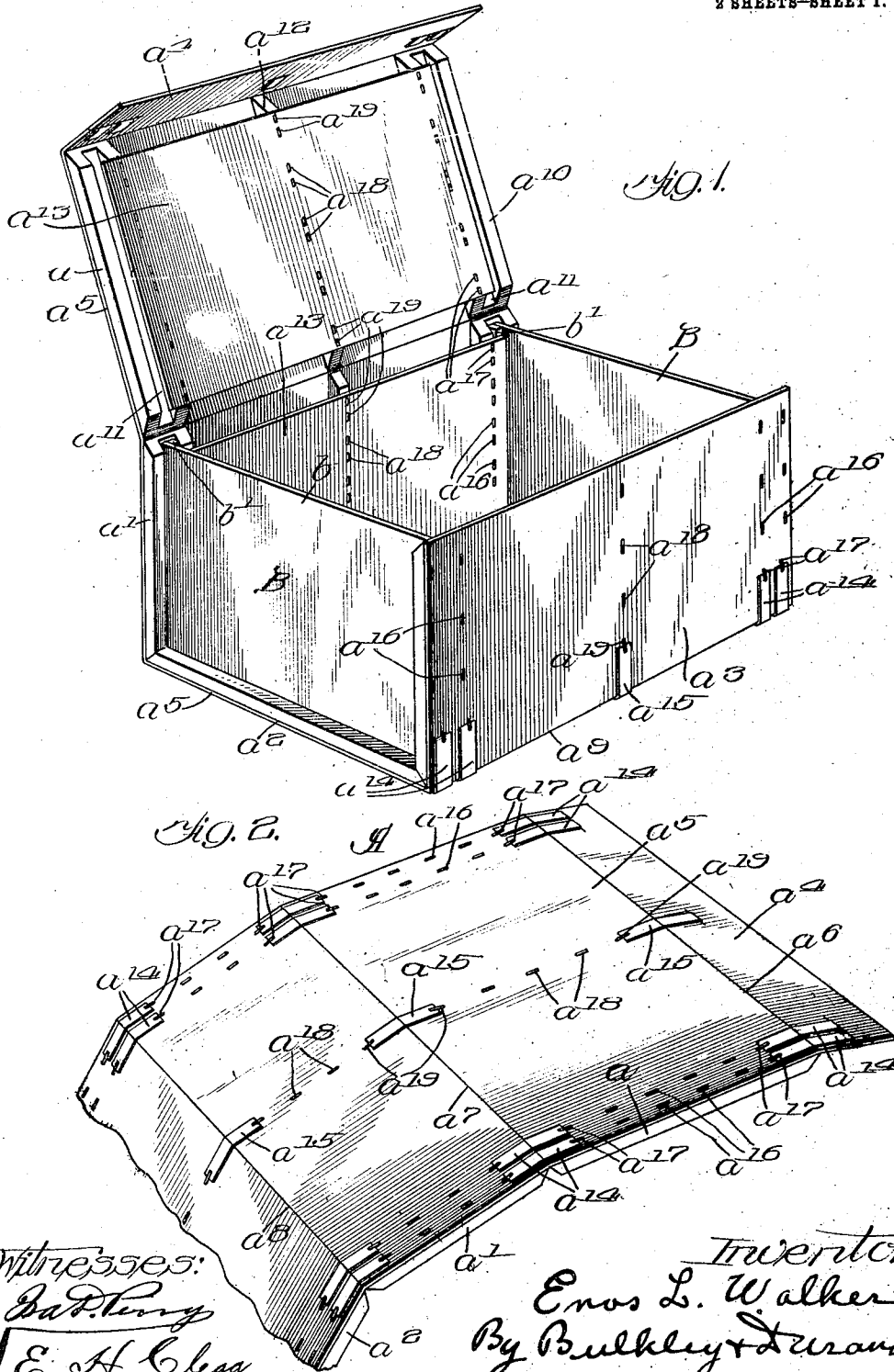


E. L. WALKER.
SHIPPING BOX.
APPLICATION FILED MAR. 15, 1911.

1,046,692.

Patented Dec. 10, 1912.

2 SHEETS—SHEET 1.



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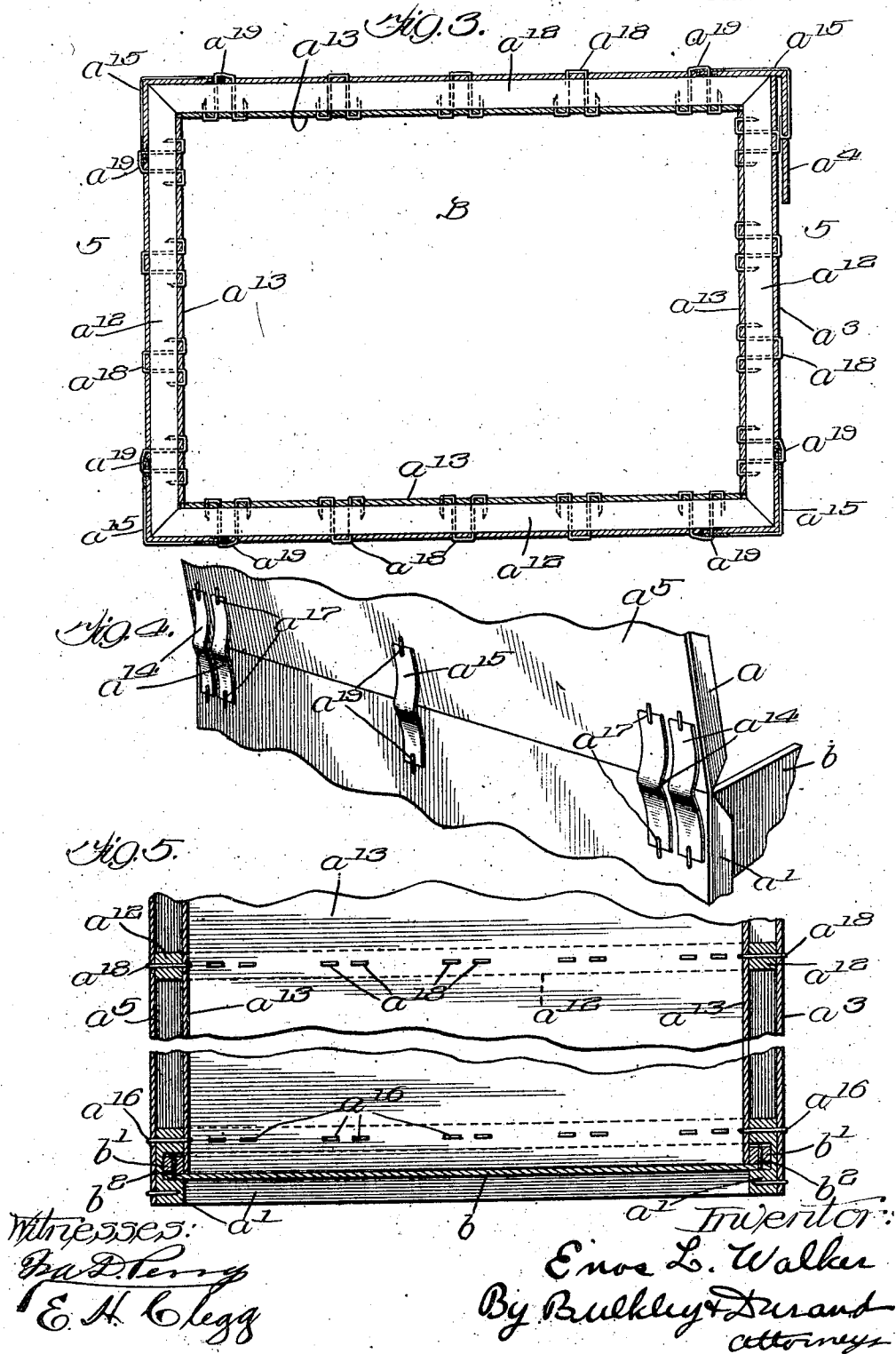
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UNITED STATES PATENT OFFICE.

ENOS L. WALKER, OF ST. LOUIS, MISSOURI.

SHIPPING-BOX.

1,046,692.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed March 15, 1911. Serial No. 614,541.

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 the city of St. Louis, Missouri, have invented a certain new and useful Improvement in Shipping-Boxes, of which the following is a specification.

My invention relates to boxes for shipping different kinds of goods or commodities in general, but more particularly to boxes of this kind which are adapted to be knocked down and shipped in a flat or spread out condition.

Generally stated, the object of my invention is to provide an improved and highly efficient shipping box of this general character.

Special objects are to provide an improved construction and arrangement which will tend to insure greater strength for the box; to provide an improved construction and arrangement which will permit the use of sheet material for the outside of the box which will not split or break easily; to provide an improved construction and arrangement whereby the corners of the box where the blank is folded are provided with flexible connections that serve as hinges between the different sections of the blank, and that serve to give the box practically the strength and effect of a metal bound box; to provide an improved construction and arrangement whereby a foldable box blank of double thickness, having air space between the two thicknesses, may be easily and cheaply made; and to provide certain details and features of improvement tending to increase the general efficiency of a box or receptacle 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 perspective of a knock-down box embodying the principles of my invention, showing the cover thereof in open position. Fig. 2 is a perspective of a portion of the blank from which the top and bottom and sides of the said box are made. Fig. 3 is a transverse section of the said box, on a larger scale, showing the cover closed. Fig. 4 is an enlarged fragmentary section of the adjoining portions of the box and cover of the box, showing the broad staples which serve as flexible hinges between the said parts. Fig. 5 is a horizontal section on line

5—5 in Fig. 3, showing one end of the box, an intermediate portion thereof broken away for convenience of illustration.

As thus illustrated, my invention comprises a foldable blank A composed of a cover section a^1 , a back section a^2 , a bottom section a^3 , a front section a^4 , and a flap or short section a^5 , which is secured to the free edge of the cover. The said blank is composed of an outer integral sheet of heavy pasteboard or pulp board a^6 , or other suitable sheet material of a non-splitting or non-breakable character, having transverse score lines a^7 , a^8 , a^9 and a^{10} , which score lines permit the sheet of material to be readily folded at the desired points in the length thereof. The said foldable sheet of material is reinforced at its side edges by cleats a^{11} , which latter are mitered or otherwise suitably formed at their ends and provided longitudinally on their faces or exposed surfaces with grooves or channels a^{12} , the said grooves or channels being so formed as to extend through the wood of the cleats for something over one half the thickness thereof. Intermediate of these grooved or channeled cleats the said sheet material is reinforced by narrow or single cleats a^{13} , which latter also have their ends mitered or suitably formed to permit the blank to be folded in the desired manner. Upon the faces or inner surfaces of these cleats separate sheets or strips of material a^{14} are secured, the end edges of these separate sheets of material being arranged to slightly overlap or overhang the channel a^{12} , and each sheet of material a^{14} being somewhat less in width than the width of the outer section of sheet material to which it is allotted, whereby the edges of the sheets or strips a^{14} are brought together when the blank is folded into the form of a box.

No reinforcing cleats are provided for the section a^4 , which latter serves as a flap for the cover.

The different sections of the outer sheet of material a^6 are first flexibly connected, and at the same time preliminarily secured to the cleats a^{11} and a^{13} , by the broad flat staples a^{15} which are inserted through the said sheet material and into the cleats a^{11} , in two closely arranged parallel rows, and by the smaller staples a^{16} which are inserted in a single row through the said material and clenched on the inner surface thereof, thus providing the back or outer surface of the

blank with two outside or double rows, and with an inside or single row of broad flat staples which are adapted to serve as flexible connections or hinges between the different sections of the blank. After this, the blank thus partially formed is completed by running it through a stapling machine along with the cleats and sheets or strips a^{13} , in any suitable manner, whereby the long wire staples a^{10} are driven through the sheet material and cleats a^{10} , and through the sheets or strips a^{13} , the ends of these staples then being clenched in a manner to cause them to turn around and pass back through the sheet material a^{13} and into the wood of the said cleats. See Fig. 3. Some of these staples, such as those at a^{17} , are driven in such manner that they extend crosswise of the end edges or leg portions of the flat staples a^{14} , whereby the latter are firmly secured in place at their ends. These staples a^{17} are also driven entirely through the blank, so that their points or ends are turned back and caused to pass through the material a^{13} and into the wood of the cleats. Thus there is a double row of wire staples for each double row of broad flat sheet metal staples at the sides or outer edges of the blank. At the center the single row of staples a^{18} is inserted in a similar manner, and some of these wire staples, such as those at a^{19} , are driven in a manner to hold the ends of the staples a^{15} in place, in the manner already described. In this way the wire staples thus inserted through the blank serve to secure both walls thereof to the cleats, so that these walls are spaced apart by the cleats to provide air spaces. This double construction not only makes a stronger blank, and not only renders the box much stronger when made, but also insures the air spaces which are desirable in certain cases.

The end walls B are each composed of a single sheet of material b having cleats b' secured to the ends thereof by staples b^2 inserted first through the said sheet material and then into the said cleats. The combined thickness of these cleats and the sheet material of the end walls is just enough to enable the end walls to fit the channels a^{11} in the cleats of the front and back walls of the box, when the blank is folded in the manner shown. When the end walls B are thus inserted, the cleats b' thereof are held in place by the overlapping edges of the sheet material a^{13} of the said front and back walls of the box, thus serving to lock the box in condition for use. In other words, it will be seen that the entrance to each groove or channel a^{11} is restricted or reduced by the overhanging end edges of the sheets or strips a^{13} , so that these end edges engage the inner surfaces of the sheets of material b when the said end walls are in place.

It follows, therefore, that the said end walls are necessarily inserted downward, as the cleats b' must enter the grooves or channels a^{11} endwise. The lower edges of the end walls B rest in grooves or channels in the cleats on the bottom of the box. When the box is closed, the upper edges of the end walls B enter the grooves or channels in the cleats of the cover of the box. To securely close the box, the flap a^4 is, when the cover is closed, preferably nailed or otherwise suitably fastened to the cleats of the front wall of the box.

The cleats and the other portions of the box are, with the single exception of the outer sheet a^5 of the blank, preferably made of wood. In this way thin veneer can be used for the inside walls of the box, and for the end walls thereof, whereas pasteboard or pulp board or other similar fibrous material can be used for the outer walls of the box. Pulp board or other similar fibrous material is, of course, of a non-splitting character, and being very tough and strong insures the provision of a box of practically maximum strength and lightness. It can be used for shipping various commodities and will last a long time, as it will stand considerable rough handling and hard usage. Its outer wall can be waterproofed in any suitable manner, as by using a waterproof pasteboard or pulp board. This still further increases the efficiency and desirability of the box.

Thin veneer in the form of superimposed sheets fastened together with the grain of one sheet running crosswise of the grain of another sheet makes a good non-splitting material for the outside of the box. The grain of the veneer of the inner walls of the box must, of course, run lengthwise thereof and crosswise of the cleats.

What I claim as my invention is:

1. In a box, a foldable blank composed of hollow sections having grooved reinforcing cleats and external flexible connections for said sections, and end walls for the box when the blank is folded, which end walls removably engage the grooves in the cleats, the edges of the end walls being separated from the sides of the box by a thin wall at the bottom of each groove, which thin wall is covered and reinforced by the outer wall of the blank, and means at each side of said groove for securing the cleats in place.
2. In a box, a foldable blank having reinforcing cleats and flexible connections for the sections thereof, and walls for the box when the blank is folded, said cleats having longitudinal grooves therein to receive said end walls, each cleat being secured at opposite sides of the groove therein, whereby the portion that serves as the bottom of the groove is relatively thin and unattached, and serves only to insure a groove of correct

width and facilitate the making of the blank, and said blank having inner walls secured to said cleats and overhanging said grooves to hold the end walls in place.

5 3. In a box, a foldable blank having reinforcing cleats and flexible connections for the sections thereof, end walls for the box when the blank is folded, said connections consisting of flat sheet metal staples inserted
10 in the blank to form corner stays for the box, and wire staples inserted through the ends of said flat staples and into the said cleats, whereby each corner stay is doubly secured in place at each end.

15 4. In a box, a foldable blank having reinforcing cleats and flexible connections for the sections thereof, end walls for the box when the blank is folded, said blank having an outer wall of fibrous but non-splitting
20 sheet material such as paper or pulp board, extending in one continuous sheet to provide closed corners for the box, which corners also serve as strong hinges, and inner walls of suitable sheet material, such as
25 veneer, which walls are secured to and spaced apart by said cleats, the inner walls being of less area than the outer walls.

5 5. In a box, a foldable blank having reinforcing cleats and flexible connections for the sections thereof, end walls for the box
30 when the blank is folded, said blank consisting of outer and inner walls spaced apart by said cleats and secured thereto by outer staples inserted through the outer wall and
35 cleats, and through the inner wall, the points of said staples being turned outward and then backward through the inner wall and into said cleats, whereby each point becomes an inner staple, there being two inner staples
40 integral with each outer staple.

6. In a box, a foldable blank having reinforcing cleats and flexible connections for the sections thereof, end walls for the box
45 when the blank is folded, said end walls having cleats secured to the edge portions there-

of, and said cleats on the blank having longitudinal grooves that secure said cleats on the end walls, each cleat of the blank being secured thereto by a double row of staples, one row at each side of the said groove, 50 whereby the bottom of each groove is formed by a relatively thin portion of sufficient thickness to preserve the cleat as a unit, and insure a groove of correct width, but of inadequate thickness to receive said 55 staples.

7. In a box, a foldable blank having reinforcing cleats and flexible connections for the sections thereof, end walls for the box when the blank is folded, said cleats having
60 longitudinal grooves for the edges of the end walls, and said connections consisting of flat sheet metal staples inserted in rows, one row at each side of said grooves, which staples form external corner stays and
65 hinges for the box, and other fastening means at opposite sides of each groove, whereby the bottom wall of each groove is necessarily only thick enough to make the cleat a unit before and while being attached
70 to the blank, and does not need to be thick enough to receive fastening means.

8. In a box, a foldable blank having reinforcing cleats and flexible connections for the sections thereof, end walls for the box
75 when the blank is folded, said connections consisting of flat staples spanning the corners of the box and inserted through the outer wall of the blank and clenched on the inner surface thereof against the said cleats, 80 and means for securing the clenched ends of said staples upon and to the said cleats, which staples form external corner stays and hinges for the box.

Signed by me at Chicago, Illinois, this 85
13th day of March, 1911.

ENOS L. WALKER.

Witnesses:

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J. NORBY.