March 29, 1949. D. B. HARTMAN 2,465,588

COLLAPSIBLE BOX

Filed Sept. 30, 1947

Fig. 3

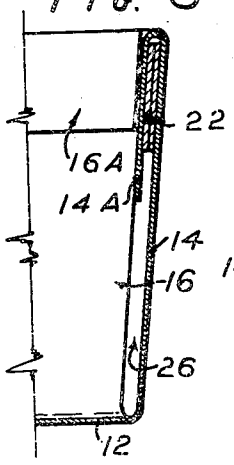


Fig. 1

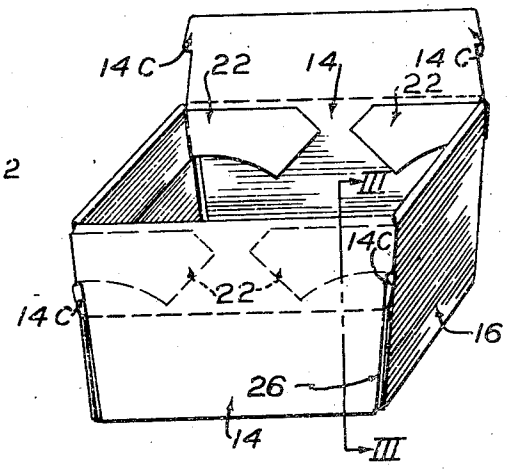
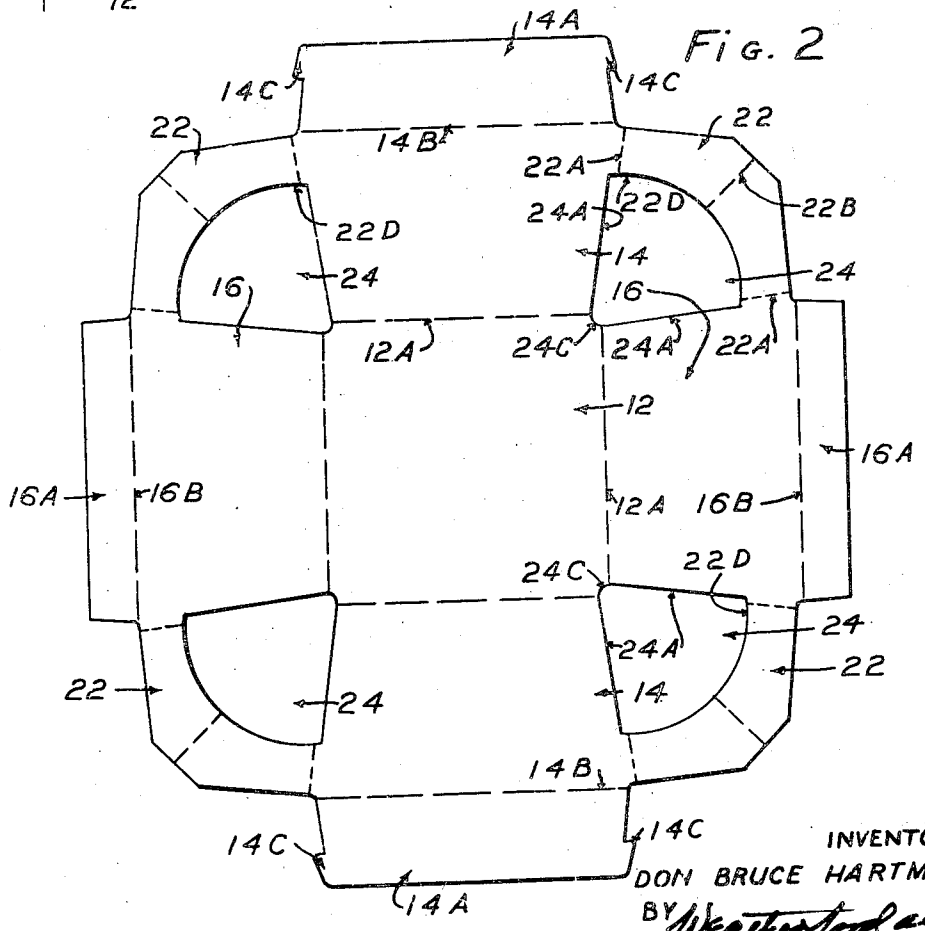


Fig. 2



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COLLAPSIBLE BOX

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8 Claims. (Cl. 229—34)

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This invention relates to collapsible boxes of that type in which a blank is cut out and folded and interlocked to form the box,

It particularly relates to small open top boxes such as are used for the packaging of berries and small fruits.

The objects of the invention are:

To provide a simple and efficient box formed from a single flat blank folded and interlocked;

To provide a blank which may be readily folded to accomplish such a box;

To provide a box blank which may be stored or shipped flat, which includes interlocking parts and which may readily be folded into a box, in which the interlocking parts may form the sole means for securely holding the box in shape;

To provide a box blank which may be die cut from a single sheet of cardboard or other flexible sheet material and scored to promote accurate folding into box shape.

The means by which the foregoing and other objects are accomplished and the manner of their accomplishment will readily be understood from the following specification on reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of the box with one flap unfolded.

Fig. 2 is an outline view of the box blank before folding; and

Fig. 3 an enlarged sectional view of the line III—III of Fig. 1.

Referring now to the drawings in which the various parts are indicated by numerals:

The box comprises a rectangular bottom 12, opposite pairs of respectively similar sides 14 and 16 integral with the bottom and extending therefrom, and relatively shallow members 22 integrally connecting the sides adjacent their upper edges, the junction of the sides and bottom being creased to establish a fold line 12A, the junction of the connecting members with the sides being creased to establish fold lines 22A and the members being centrally creased or perforated to form additional fold lines 22B.

One pair of opposite sides 14 have extending flap portions 14A, which are creased along their junctions with the top of the sides to form fold lines 14B. The flaps have portions conforming in length to the width of the sides adjacent their junctions therewith, the depth of these conforming portions being substantially equal to the depth of the member 22 at their junctions 22A with the sides. The flaps extend beyond said portions and therebeyond form ear portions 14C, adapted to

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interlock beneath the members 22 when the blank is folded into a box.

The sides 16 may also have flap portions 16A creased to form fold lines 16B along their junctions with the sides, these flap portions, if provided, forming top edge finishes and stiffeners for the sides 16.

In forming the blank, substantially triangular openings 24 are cut out with their apices against the corners of the bottom 12, the sides 24A of the openings forming the lateral edges of the sides 14 and 16, and the bases of the openings forming the inner or under edges 22D of the connecting members 22 with which the ears 14C are to be engaged. Preferably the apices 24C of the opening are rounded. Exteriorly the blank is cut away along the outer sides of the members 22 along lines extending substantially at right angles to their junction with the sides 14 and 16.

Preferably the fold lines 12A along the bottom lie outward slightly beyond the true apices of the corner cut outs 24, and the member creases 22A are similarly spaced laterally beyond the sides to establish slot like openings 26 at the corners of the box.

In forming boxes from the blanks, the sides 14 and 16 are folded upward from the bottom with the corner members 22 inward and against the sides 14. The flap portions of the sides are folded inward and downward, with the flap portions 14A of the sides 14 overlying and holding the corner members 22 against the sides 14 and the ear portions 14B of these flaps are engaged in the corner slots 26 of the box beneath the lower edges of the corner members 22, to hold the flap portions 14B in position and effect completion of the box. Preferably the flaps 14A are of depth to fully cover and hide the corner members in the finished box.

It will be understood that while the box is shown as square it may as readily have one pair of sides longer than the other pair.

It will be further understood that the box sides may be rectangular as distinguished from the flaring sides shown and may vary in depth relatively to their width or length as desired, and depending perhaps on the thickness and stiffness of the material used that the boxes may be of such size as is desired.

Obviously also the flap portions of the sides 16 may be extended and used to form a cover for the box.

I claim:

1. A box, formed of a single sheet of flexible material, said box including a rectangular bot-

tom, sides extending upward therefrom, and corner members adjacent the upper edges of said sides connecting the lateral edges of said sides, said lateral edges being free below said corner members, one pair of said sides oppositely disposed, having flaps substantially co-extensive in length with said sides, said flaps being of greater depth than said corner members, and having ear portions spaced the depth of said corner members from the tops of said sides and extending laterally and oppositely therebeyond, said corner members being inwardly folded against said flap carrying sides, and said flaps being folded inwardly and downwardly over said corner members, with said ear portions extended between the free edge portions of adjacent sides below said corner members.

2. A box, formed of a single sheet of flexible material, said box including a rectangular bottom, sides extending upward therefrom, and corner members adjacent the upper edges of said sides connecting the lateral edges of said sides, said lateral edges being free below said corner members, one pair of said sides oppositely disposed, having flaps substantially co-extensive in length with said sides, said flaps being of greater depth than said corner members, and each having ear portions spaced the depth of said corner members from the tops of said sides, and extending laterally and oppositely beyond said sides, said corner members being centrally scored and the junction edges of said flaps, sides, bottom and corner members with adjacent parts, being scored to define fold lines, said sides being upwardly folded, said corner members being inwardly folded against the flap carrying said sides, and said flaps being folded inwardly and downwardly over said corner members, with said ear portions extended between the free edge portions of adjacent sides below said corner members.

3. A box, formed of a single sheet of flexible material, said box including a square bottom, sides extending upward therefrom, and inwardly folded corner members adjacent the upper edges of said sides connecting the upper portions only of the lateral edges of said sides, one pair of said sides oppositely disposed, having beyond their upper edges flaps substantially co-extensive in length with said sides, each said flap having ear portions extending laterally and oppositely beyond said sides, said corner members being cut out below said upper portions to establish free edge portions along said lateral edges, said corner members being inwardly folded against said flap carrying sides, and said flaps being folded inwardly and downwardly over said corner members, with said ear portions engaged through said cut outs and between free edge portions of adjacent sides in locking relation with said corner members.

4. A box, formed of a single sheet of flexible material, and including a bottom, sides, and corner members connecting the lateral edges of said sides adjacent their upper edges only, said lateral edges being otherwise free, said corner members being of less depth than said sides, said sides having along their upper edges co-extensive flaps, one pair of said flaps oppositely disposed being of greater depth than said corner members, and having ear portions extending laterally and oppositely therefrom, said ear portions being spaced the depth of said corner members from the tops of said sides, the junction edges of said flaps, sides, bottom and corner members with adjacent parts being scored to form fold lines,

said corner members being centrally scored, and the scored lines at the junction of said sides and corner members being spaced outward from the lateral edges of said sides to establish, below said members, corner slots between the free portions of the lateral edges of said sides, said sides being upwardly folded, said corner members being inwardly folded against said flap carrying sides, said flaps being folded inwardly and downwardly over said corner members, and said ears engaged through said slots beneath said corner members.

5. A box, formed of a single sheet of flexible material, said box including a rectangular bottom, and relatively foldable sides respectively integral with the four edges of said bottom, foldable corner members of less depth than said sides connecting the lateral edges of said sides adjacent their upper edges, said lateral edges being free below said corner members, said sides having along their upper edges co-extensive foldable flap portions, one pair of said sides oppositely disposed, having flaps of greater depth than said corner members, each having ear portions extending laterally beyond said flaps and sides and with their side proximate edges spaced the depth of said corner members from said sides, said corner members being centrally scored and the junction edges of said flaps, sides, bottom and corner members with adjacent parts being scored to establish fold lines, said sides being upwardly folded, said corner members being inwardly folded against said flap carrying sides, said flaps being folded inwardly and downwardly over said corner members, with said ears extended between the free edge portions of proximate side edges below said corner members.

6. A foldable box, formed from a single sheet of flexible material and comprising a bottom, side walls and corner members joining the upper portions of adjacent lateral edges of the side walls, said lateral edges being otherwise free, two opposite said side walls being provided along their respective upper edges, each with a flap portion, said corner members extending downward from the upper edges of said side walls a lesser distance than the width of said flaps, and being inwardly foldable against said flap carrying walls, said flap portion being inwardly and downwardly foldable over inwardly folded said corner members and, below said corner members, having ear portions extending beyond the lateral edges of adjacent said sides between the free portions thereof and into interlocking engagement with said corner members.

7. A container blank, adapted to be folded to form a container, which comprises a bottom portion, a plurality of side portions hingedly connected respectively along one edge to the edges of said bottom, a like plurality of flap portions hingedly connected respectively to the opposite edges of said side portions, corner members, each corner member being hingedly connected at its opposite ends to the portions of adjacent lateral edges of said side portions remote from said bottom, said corner members extending along said lateral edges, toward said bottom, a minor portion of the length of said lateral edges, said lateral edges being free throughout the major portion of their lengths between said corner members and said bottom, to establish at each corner of said blank a substantially triangular opening bounded by two of said free edge portions and the proximate edge of a said corner member, and means for retaining said blank in container form when folded.

8. A container blank, adapted to be folded to form a container, which comprises a quadrilateral bottom portion, a plurality of side portions hingedly connected respectively along one edge to the edges of said bottom, a like plurality of flap portions hingedly connected respectively to the opposite edges of said side portions, corner members, each corner member being hingedly connected at its opposite ends to the portions of adjacent lateral edges of said side portions remote from said bottom, said corner members extending a minor portion of the length of said lateral edges along said lateral edges toward said bottom, said lateral edges being free throughout the major portion of their lengths between said corner members and said bottom, to establish at each corner of said blank a substantially triangular opening bounded by two of said free edge portions and the proximate edge of a said corner member, two of said flap portions oppositely disposed being provided with ears spaced from the

connection of said flaps to the related sides and laterally extending beyond the lateral edges of the side portions to which the ear carrying flaps are connected, the said ear carrying flaps being of a depth in excess of the depth of said corner members, folding of said blank compressing said openings to form thereof substantially vertically disposed slots between adjacent free edge portions, said ears being inserted therein to retain said blank in folded form.

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