

[54] **SHIPPING TRAY**

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[51] Int. Cl. **B65d 5/24**

[58] Field of Search.... **229/31 R, 31 FS, 32, 34 HW**

[56] **References Cited**

UNITED STATES PATENTS

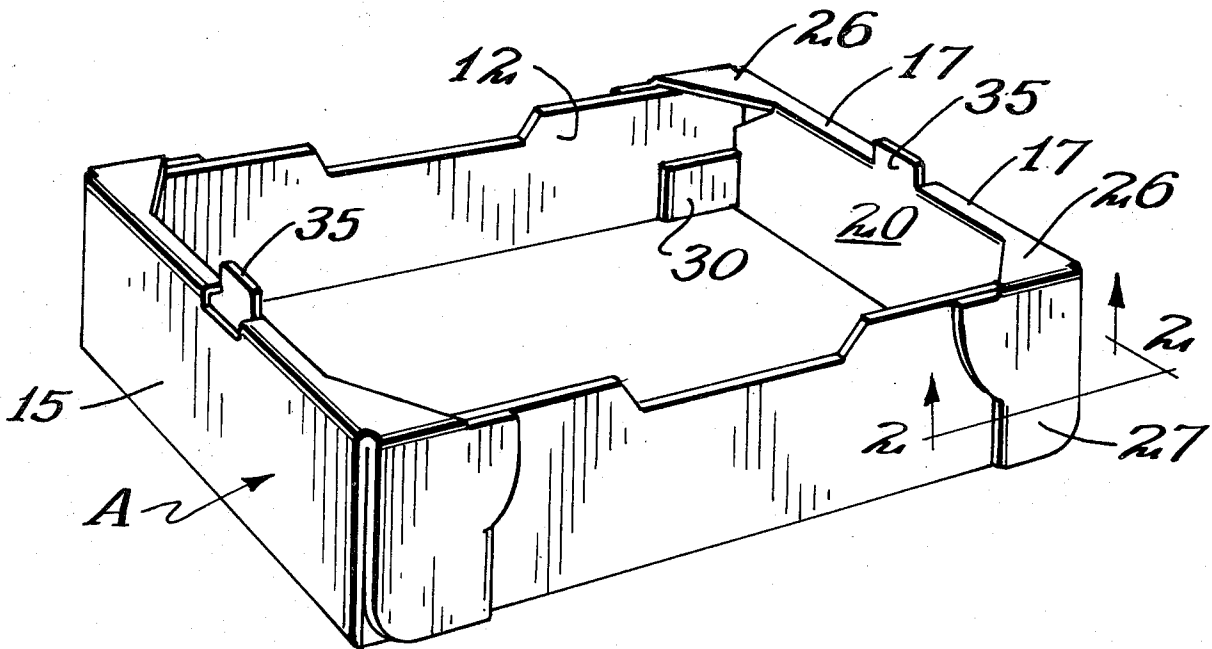
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[57] **ABSTRACT**

A tray is provided having corners possessed of unusual stacking strength. Gusset flaps connect the sides of the end wall panels with the adjoining ends of the side wall panels, the gusset flaps being folded flat against the end walls. Top flanges connect the upper ends of the end walls to the end wall liner panels. Corner flaps are hinged to the sides of the top flanges and overlie end portions of the side wall panel. These corner flaps are locked in place by locking tongues.

8 Claims, 4 Drawing Figures



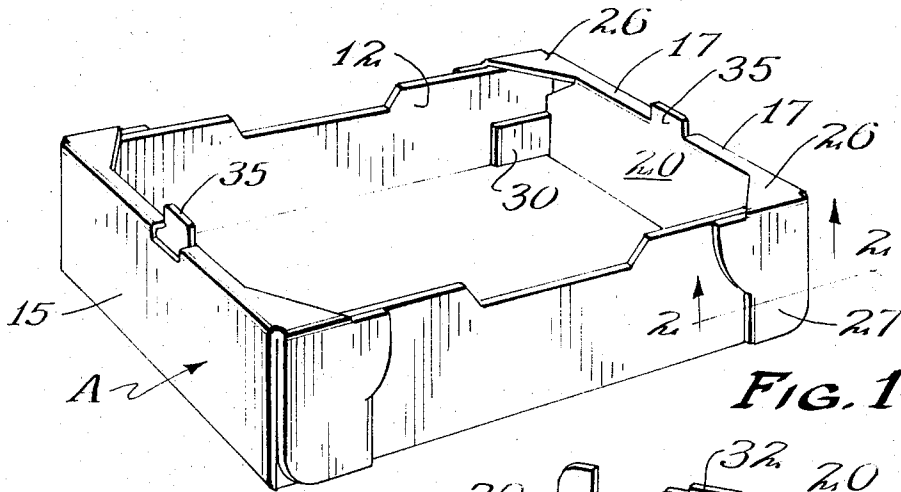


FIG. 1

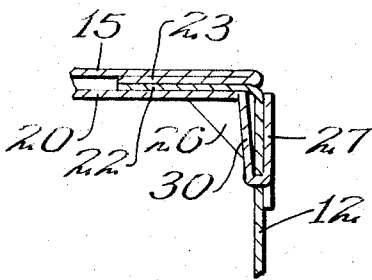


FIG. 2

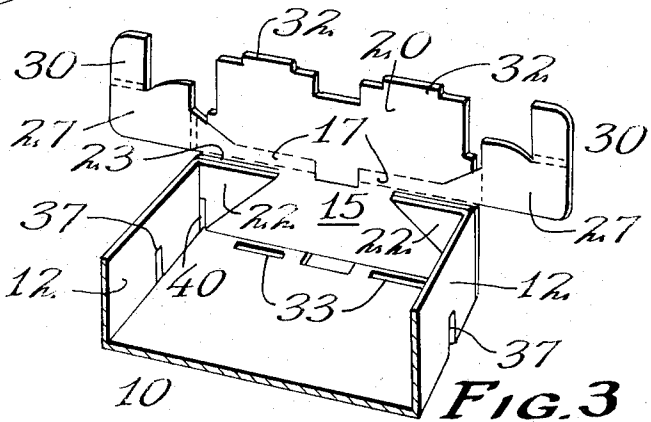


FIG. 3

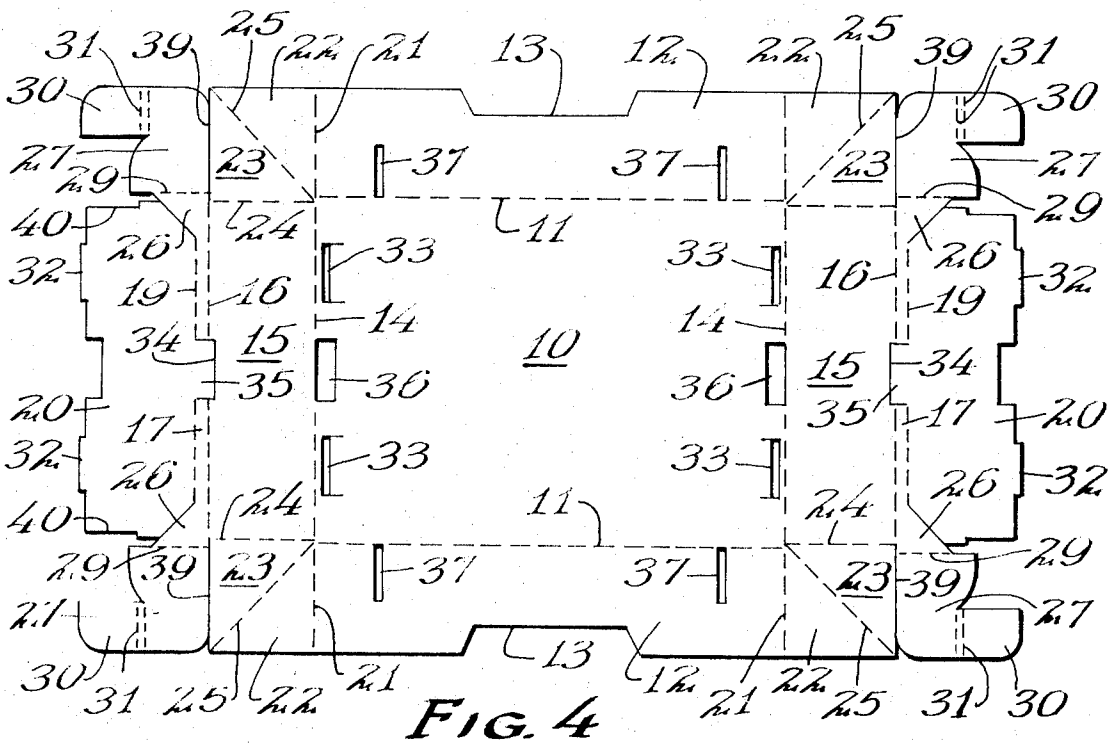


FIG. 4

1

SHIPPING TRAY

This invention relates to an improvement in shipping trays and deals particularly with a container structure for the packaging of fruit and the like.

BACKGROUND OF THE INVENTION

Fruits and vegetables such as strawberries, cherry tomatoes, cranberries, cauliflower, mushrooms and the like have been packaged in bulk in various types of containers. Some years ago most of these packages were formed of wood or wood veneer in view of the fact that this material withstood the effects of moisture better than paperboard. However, in more recent years corrugated paperboard containers have been provided which are impregnated with wax or a similar coating, and accordingly such paperboard has been used to package the product. Obviously, such containers are less expensive than the previously used containers, and are more readily capable of containing larger amounts of the product.

For the most part, the paperboard containers were set up prior to use and delivered to the field in set up form, so as to avoid the necessity of providing portable stitchers in the fields. A container of this type must possess considerable stacking strength in view of the fact that a number of similar containers are stacked one upon the other after they are filled. While it is recognized that containers have been produced which may be set up without the use of stitching or gluing apparatus, most such containers, unless they were particularly complicated in form, were not of sufficient strength to support the weight.

SUMMARY OF THE INVENTION

The present invention resides in a container for fruits and vegetables of the type described which may be easily and quickly set up by one person, and which has been found to possess considerably higher stacking strength than most simple containers formed for this purpose. The corner portions of the end walls of the container include four thicknesses of corrugated paperboard which are overlaid by flat corner portions which are parallel to the bottom panels of the container. The corners are further reinforced by corner flaps which extend downwardly over the side walls of the container and are secured thereto.

A feature of the present invention resides in the provision of top flanges which hingedly connected the outer end walls to end wall liner panels. These flanges form narrow flat surfaces for supporting the ends of a similar container. The ends of these top flanges which are at the corners of the tray are increased in width or so that the corner flaps may be attached thereto.

A further feature of the present invention resides in the provision of locking tongues hingedly connected to the corner flaps and extending through apertures in the walls of the container. These locking tongues are folded back along the inner surface of the side walls to engage between the side walls and the sides of the end wall liner panels.

A further feature of the present invention resides in the provision of gusset panels which connect the side walls and the end walls, and which are the same height as the end wall so as to support the top flanges.

2

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a shipping tray, showing the general arrangement thereof.

FIG. 2 is a detailed section through a corner of the tray, the position of the section being indicated by the line 2—2 of FIG. 1.

FIG. 3 is a perspective view of an end of the tray in partially folded position.

FIG. 4 is a diagrammatic view of the blank from which the tray is formed.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The shipping tray is indicated in general by the letter A, and is shown in its completed form in FIG. 1 of the drawings. As indicated in FIG. 4, the tray includes a bottom panel 10 which is foldably connected along parallel fold lines 11 to side walls 12. The center portions of the edges of the side walls 12 may be provided with shallow notches 13 if so desired which provide ventilation when similar trays are stacked one upon another, and also provide a finger access to permit the lifting of a superimposed tray when they are stacked.

The ends of the bottom panel 10 are connected along parallel fold lines 14 to end walls 15. The edges of the end walls 15 which will become the upper edges thereof in set up form of the trays are connected along fold lines 16 to narrow top flanges 17. The top flanges 17 are hingedly connected along fold lines 19 to end wall liner panels 20.

The ends of the side walls 12 are connected along fold lines 21 which are substantially extensions of the fold lines 14 to triangular gusset flaps 22. Similar triangular gusset flaps 23 are foldably connected to the sides of the end panels 15 along fold lines 24 which are essentially aligned with the fold lines 11 but are usually offset therefrom to the extent necessary to permit the gusset flaps to fold within the side walls. The triangular flaps 22 and 23 are folded along diagonal fold lines 25.

The side end portions of the top flanges 17 which are at the corners of the tray are enlarged in area to provide integral side portions 26 which are normally of generally triangular form. Corner flaps 27 are foldably connected to the sides of the enlarged top flange ends 26 along fold lines 29. The corner flaps 27 are substantially the height of the side walls. Locking tongues 30 are foldably connected to the corner flaps 27 along double fold lines 31. The tongues 30 are secured to what will become the lower edges of the corner flaps 27 and extend only a portion of the height of the corner flaps 27.

Short locking lugs 32 are provided on what will be the lower edge of the end wall liner panels 20, and the bottom panel 10 is provided with locking slots 33 into which the locking lugs 32 may extend. The top flanges 17 are interrupted by U-shaped cut lines 34 which provide tabs 35 coplanar with the end wall liner panels and which extend upwardly therefrom above the level of the top flanges 17 when the carton is set up. The bottom panel 10 is provided with centrally located apertures 36 adjoining each fold line 14 which are designed to accommodate the tabs of a similar carton when placed on top thereof.

The side wall panels 12 are provided with slots 37 which are in right angular relation to, and which adjoin, the fold lines 11. These slots 37 are spaced from the end fold lines 21 of the side walls 12 a distance substantially equal to the distance between the double fold lines 21 and the edges 39 of the locking tabs 27 which are in alignment with the fold lines 16 hingedly connecting the top flanges 17 to the end walls 15.

The case is set up in the manner illustrated in FIG. 3 of the drawings. As the side and end walls 12 and 14 are erected, the gusset flaps 22 and 23 are folded into face contact, and the gusset flaps 23 are folded into face contact with the end walls 15. The top flanges 17 are folded down to overlie the folded gusset flaps, and the end wall liner panels may be folded down inwardly of the gusset flaps 22, the locking lugs 32 engaging in the slots 33 in the bottom panel 10.

The corner flaps 27 are then secured in place by folding the locking tongues 30 into right angular relation to the corner flaps, and folding the corner flaps 27 downwardly until the locking tongues 30 extend through the slots 37. The locking tongues are then reversely folded inwardly of the side walls 12 until the ends of these locking tongues flex into notches 40 in the side edges of the end wall liner panels 20. Thus the end wall liner panels 20 not only hold the gusset flaps 22 and 23 folded in face contact against the end walls 15, but also hold the locking tongues 30 engaged in place.

When the shipping tray is set up as indicated in FIG. 1 of the drawings, the top flanges 17 are supported at the corners of the tray by the end walls 15, the upper edges of the gusset flaps 22 and 23, and by the end wall liner panels 20. Thus there are four thicknesses of corrugated paperboard support the enlarged ends 26 of the top flanges 17. These triangular corner portions 26 are also supported by the corner flaps 27 which are locked in position by the locking tongues 30. Thus an extremely strong corner structure is provided on each tray, and the superimposed trays may be held in place by engagement of the tabs 35 in the apertures 36 of a similar tray.

In accordance with the Patent Statutes, I have described the principles of construction and operation of my improvement in SHIPPING TRAY; and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A tray including:

a rectangular bottom panel,
side panels foldably connected to opposite sides of said bottom panel,
end panels foldably secured to opposite ends of said

bottom panel,
top flanges hingedly connected to said end panels,
end wall liner panels foldably connected to said top flanges,
corner flaps hingedly connected to opposite sides of said top flanges,
locking tongues hingedly connected to said corner flaps,
said side walls including slots through which said locking tongues extend,
said end wall liner panels having locking lugs thereon, and
said bottom panel having apertures therein in which said locking lugs are engageable.

2. The structure of claim 1 and including pairs of triangular flaps connecting the sides of said end panels to the ends of said side panels.

3. The structure of claim 1 and in which said top flanges include generally triangular portions at opposite ends thereof to which said corner flaps are hinged.

4. The structure of claim 1 and in which said locking tongues are foldable against the inner surfaces of said side walls.

5. A tray including:

a rectangular bottom panel;
side wall panels hingedly connected to opposite sides of said bottom panel and extending upwardly therefrom, end walls hingedly connected to opposite ends of said bottom panel and extending upwardly therefrom,
top flanges hingedly connected to the upper edges of said end walls and extending parallel to said bottom panel,

end wall liner panels hingedly connected to said top flanges and extending inwardly of said end walls,
corner flaps hingedly connected to the ends of said top flanges and extending outwardly of said side walls,

locking tongues hinged to said corner flaps and extending through vertical apertures in said side walls, and

said locking tongues extending between notches in the side edges of said end wall liner panels and said vertical apertures in said side walls.

6. The structure of claim 5 and in which said top flanges include generally triangular portions at opposite ends thereof to which said corner flaps are hinged.

7. The structure of claim 5 and including pairs of triangular gusset flaps connecting the sides of said end panels to the ends of said side panels.

8. The structure of claim 7 and in which said triangular gusset flaps are between said end walls and said end wall liner panels.

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