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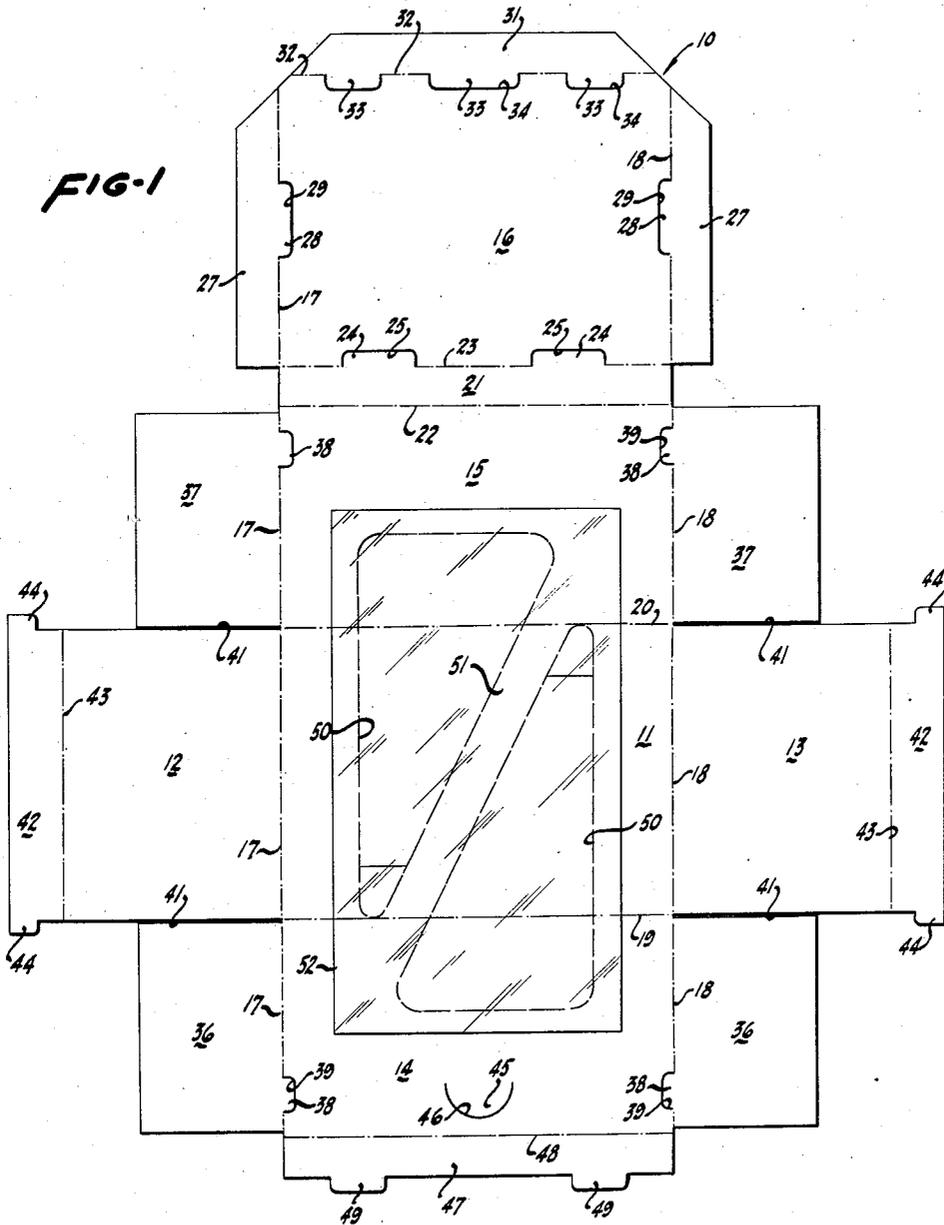
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2,902,200

GRAPE BOX

Filed Oct. 2, 1956

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

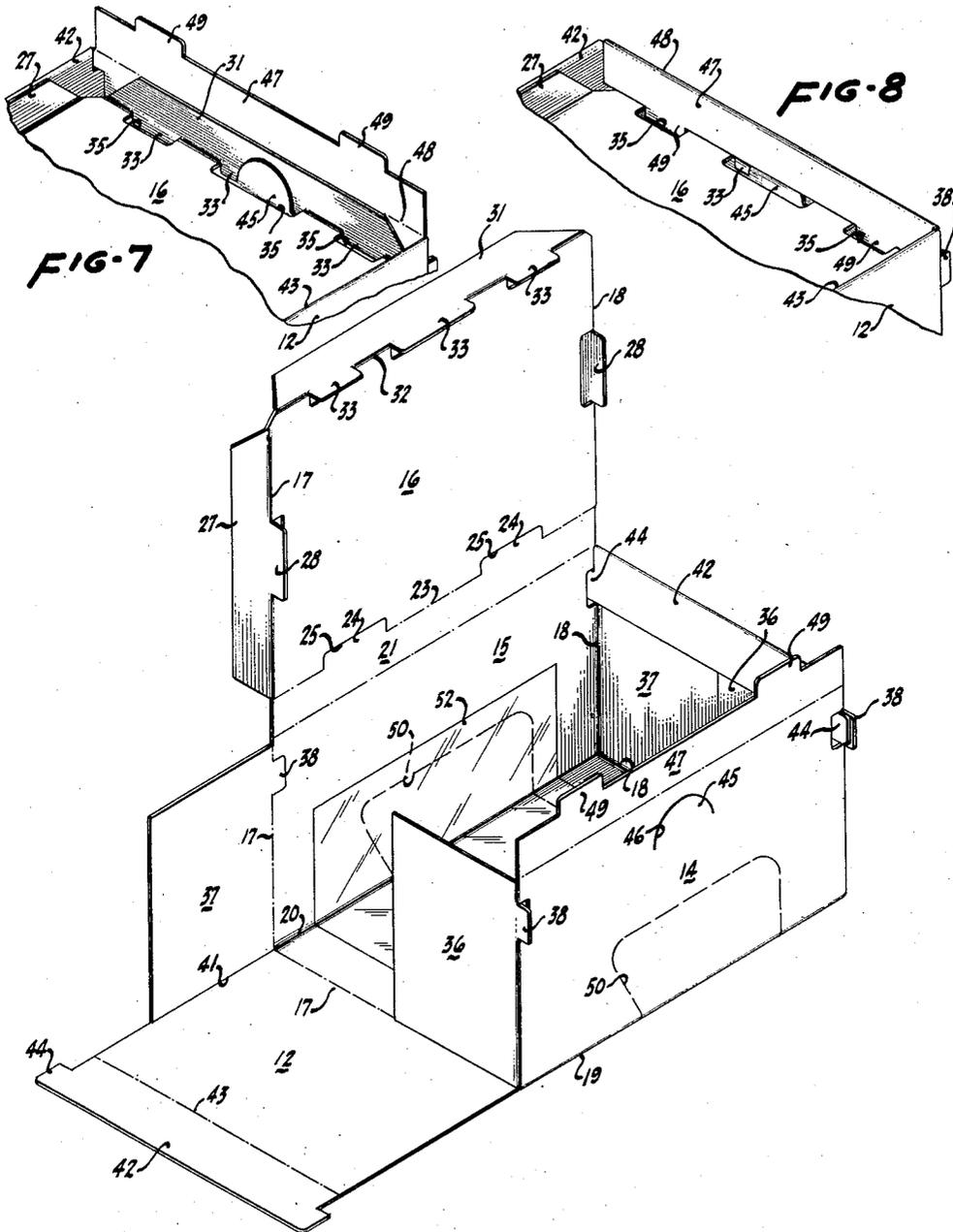


FIG-2

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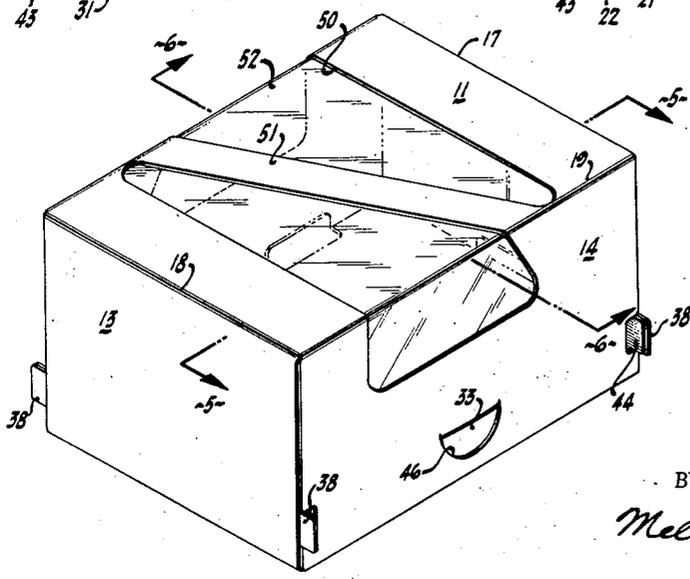
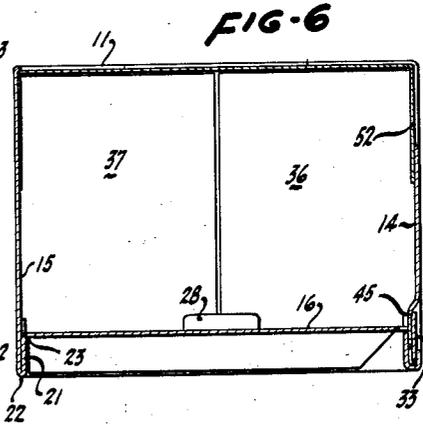
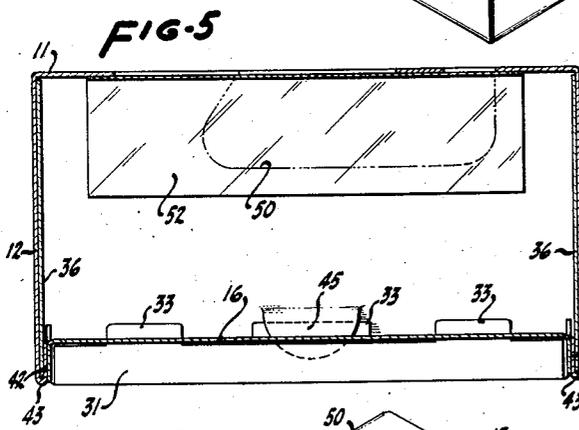
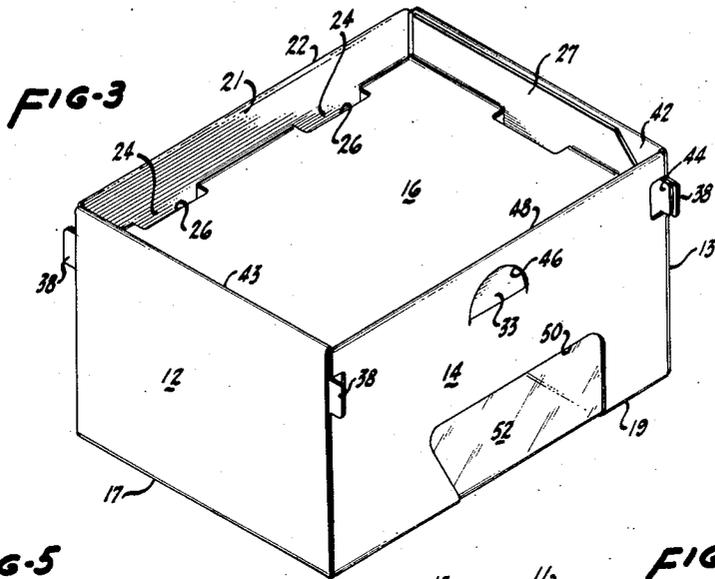
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2,902,200

**GRAPE BOX**

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Application October 2, 1956, Serial No. 613,428

1 Claim. (Cl. 229—16)

This invention relates to cardboard box construction, and particularly to a set-up box especially suitable for packaging grapes and similar products.

It is among the objects of this invention to provide a box structure which may be readily set up from a blank cut from sheet material, to effectively package grapes and similar products for display and sale, and to guard the product from tampering and unnecessary handling.

It is also an object of the invention to provide a box which may be readily set up mechanically or by hand with a closure that may be effectively locked in closed position after the box is packed.

Another object is to provide a box in which the closure of the box forms the bottom of the package to permit display of the contents in attractive arrangement through a windowed top.

A further object is to provide a box structure in which interfolded flaps and edge strips stably support a bottom closure in a recessed position relative to bottom edges of the side and end walls of the box.

A further object is to provide a box structure in which tabs struck from the body portion of central and selected wall panels of the box, when folded to set-up relation, are interengageable with apertures formed by the displacement of other tabs from other panels, displacement of the tabs from the plane of the panels from which they are cut serving the double purpose of providing locking means and ventilating openings along the fold lines of the box.

A still further object is to provide a box structure in which locking strips along the edges of wall panels strongly reinforce and stabilize the set-up box, while effectively locking the wall panels in set-up relation.

Other objects include the minimizing of cost, the increasing of ruggedness and stability, and the facilitation of packaging and sealing-in of products for display.

These and other objects, some of which will be more fully explained hereinafter, are accomplished by means of the device disclosed in the accompanying drawings forming a part of the present specification. It is understood that the invention is not limited to the details of the illustrative embodiment selected for illustration in the drawings as the details may be varied and the invention otherwise embodied within the scope of the appended claim.

In the drawings:

Fig. 1 is a plan view of a blank cut from sheet material for forming the box of the present invention;

Fig. 2 is a perspective view showing some of the parts moved to their set-up relation, and illustrating the manner in which other parts are movable to set-up relation;

Fig. 3 is a perspective view of the set-up box, showing the closure seated in inwardly offset position to provide a recessed bottom;

Fig. 4 is a perspective view of the set-up box, showing the provision of windowed top and side panels;

Fig. 5 is a longitudinal sectional view of the box, the plane of the section being indicated by the line 5—5 of

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Fig. 4 and viewed in the direction indicated by the arrows;

Fig. 6 is a transverse sectional view of the box as viewed upon the plane indicated by the line 6—6 of Fig. 4 in the direction indicated;

Fig. 7 is a fragmental detail showing the manner in which the closure is seated in recessed closing relation to the side and front walls of the box; and

Fig. 8 is a similar fragmental detail showing the parts locked in final closed relation.

In terms of broad inclusion, the box of the present invention comprises a blank cut from cardboard or other suitable sheet material shaped and creased to define panels, flaps, tabs, and hinge and locking strips arranged to be set up mechanically or by hand to form a box having a panel inset inwardly from the plane of the adjacent edges of the side and end walls to provide a recessed closure which, as illustrated, preferably forms the bottom of the set-up box. The end and one of the side walls are provided with locking strips inwardly foldable over out-turned reinforcing strips formed upon the corresponding edges of the closure panel. Tabs attached to the locking strips engage openings along the lines of fold of adjacent portions of the blank, the openings serving the double purpose of providing a locking means and a ventilating means. Means, as, for example, a tab struck inwardly from a wall panel forms a seat, engageable by a portion of the closure, to support the unattached edge of the closure panel in its inset recessed position, when locked in its closed relation. The invention also contemplates the provision of window openings in the central top panel and selected wall panels for displaying products packed in the set-up box. The windows may be covered by transparent sheet material to protect the contents from tampering by prospective purchasers, and a reinforcing stay may be provided to strengthen the box over the windowed areas thereof.

In terms of greater detail, the box of the present invention comprises a blank, designated in general by the numeral 10, cut and creased from sheet material, such as cardboard or its equivalent, in accordance with conventional practice. As illustrated in Fig. 1, the blank is cut and creased to provide a central panel 11, a pair of end panels 12 and 13, a pair of side panels 14 and 15 for forming the front and back walls of the box respectively, and a closure panel 16 of a size and shape substantially matching the central panel 11.

The central panel 11 is defined by crease lines 17 and 18 which extend longitudinally substantially from one end of the blank to the other, and which also define the inner ends of the end panels 12 and 13, and the outer ends of the front, back and closure panels 14, 15 and 16, respectively. The front and back panels 14 and 15 are joined to the central panel 11 along crease lines 19 and 20, respectively.

The closure panel 16 is joined to the back panel 15 by a hinge strip 21, which is connected to the back panel along a line of fold 22 and to the closure panel along a line of fold 23. Tabs 24 are formed along the fold line 23, said tabs being severed from the adjacent edge portion of the closure panel by cuts 25. The tabs 24 are joined to the hinge strip along uncreased areas interrupting the fold line 23. When folded to set-up position, the tabs 24 remain in the same plane with the hinge strip 21; and, as they are displaced from the edges of the closure, they form openings 26 along the line of fold, as best shown in Fig. 3 of the drawings.

Edge strips 27 are formed upon the ends of the closure panel 16, and are joined thereto by continuations of the lines of fold 17 and 18. Tabs 28, similar to the tabs 25, are severed from the adjacent edges of the closure panel 16 by cuts 29, and are displaceable therefrom to form

openings 30 in the set-up carton. Also, a similar edge strip 31 is joined to the outer edge of the closure panel 16 along a fold line 32, which is interrupted at intervals along its length to permit the formation of tabs 33, severed from the adjacent edge of the panel by cuts 34, and displaceable therefrom to provide locking and ventilating openings 35. The edge strips 27 and 31 are of a width conforming to that of the hinge strip 21, and are outwardly foldable to lie in proximate relation to the inner surfaces of the end and front wall panels in the set-up box.

Flaps 36 and 37 are formed upon the ends of the front and back panels 14 and 15, respectively, and are attached thereto along continuations of the crease lines 17 and 18. Tabs 38 are severed from the front and back panels by cuts 39, the tabs being displaceable by movement of the flaps about the crease lines 17 and 18 to provide locking openings 40. The flaps 36 and 37 are severed from the adjacent edges of the end panels 12 and 13 by lines of severance 41 cut through the thickness of the blank so that the flaps may be infolded to lie against the inside faces of the end panels when they, in turn, are swung about the crease lines 17 and 18 to set-up position.

Locking strips 42 are attached to the outer ends of the end panels 12 and 13 along lines of fold 43. Tabs 44 are formed upon the ends of the strips 42 for locking engagement with the openings 40. The strips 42 are arranged to be doubled inwardly over the edges of the flaps 36 and 37, when they are returned across the ends of the box as it is set up. The tabs 44 spring into the openings 40 and effectively lock the side and end panels in their erected positions normal to the central panel 11.

The front panel 14 is provided with a tab 45 struck inwardly therefrom by a cut 46. A locking strip 47 is formed upon the outer edge of the front panel 14, to which it is attached, along a line of fold 48. Locking tabs 49 are formed upon the outer edge of the strip 47 at points corresponding to openings 35 which are formed in the edge of the closure panel by displacement of the tabs 33.

If desired, for the purpose of displaying products packaged in the box of the present invention, window openings 50 may be cut in the central panel 11, and if desired, the window openings may be extended into the front and back panels 14 and 15. As illustrated, a pair of window openings 50, of more or less triangular shape, are separated by a diagonal band 51 which serves to strengthen the box. The band 51 also provides central anchorage for a sheet of transparent material 52, attached to the inner face of the blank to cover and protect products packaged in the box, while effectively displaying a substantial portion thereof.

The box is set up, mechanically or by hand, by swinging the front and back side wall panels 14 and 15 upwardly to substantially right angular relation to the central panel 11. The flaps 36 and 37 are then swung inwardly about the crease lines 17 and 18, and the end panels 12 and 13 are swung to their normal upright positions. The edge strips 42 are then infolded over the upper edges of the flaps 36 and 37, and the tabs 44 are sprung into locking engagement with the openings 40, as best shown in Fig. 2 of the drawings. The edge strips 42, when doubled inwardly to locking position, hold the wall panels firmly in their set-up relationship, and effectively reinforce and strengthen the box along its then open face.

The closure panel 16 is swung to its closing position about the fold lines 22 and 23, the hinge strip being infolded to lie against the back wall 15 and support the attached edge of the closure in an inwardly offset position. As the closure panel is moved to its closed position, the edge strips 27 and 31 are folded to extend outwardly and lie against the inner surfaces of the end and front

wall panels. The free edge of the closure is supported by the tab 45, which is sprung inwardly to admit the central tab 33 of the edge strip 31, as the closure is moved to its closed position. While the tab 45 is shown at the center of the front panel, it may of course be otherwise positioned; or one or more similar tabs may be otherwise positioned in the front and/or in the end wall panels if desired.

The closure is finally locked in its closed position by infolding the locking strip 47 over the edge strip 31 and springing the tabs 49 into the openings 35 formed by displacement of tabs 33 from the plane of the closure panel, as shown in Figs. 7 and 8 of the drawings.

To facilitate the infolding of the hinge strip 21 and the edge strips 27 and 31, the lines of fold on which they are bent to set up the box may be perforated. Also, the fold lines 43 along which the locking strips 42 are infolded are preferably perforated so that the strips will lie flat against the adjacent wall panels with a minimum of bowing or distortion.

As illustrated, the box of this invention is designed to permit it to be filled from the bottom, with the product, such as grapes, arranged to provide an attractive display through the window openings 50. When locked in its closed position, the closure provides a recessed bottom which facilitates the stacking of boxes, and gives stability to stacks of substantial height. The windows 50, of course, may be omitted, or they may be otherwise positioned, to meet the requirements of different packers.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

A box for packaging products, such as grapes, comprising a blank cut from sheet material and creased for folding into a set-up box form, said blank including a central panel, side and end wall panels foldably joined to the central panel, a closure panel matching the central panel, a hinge strip connecting the closure panel to a wall panel, said hinge strip being foldable inwardly to position the closure panel in inwardly offset relation to the edge of said wall panel, an edge strip on the closure panel on the side thereof opposite said hinge strip, said edge strip being of a width conforming to said hinge strip and being outwardly foldable along a crease line joining said edge strip to said closure panel, said edge strip having inturning tab portions cut from the body portion of the closure panel and arranged to be displaced inwardly as the edge strip is folded outwardly to form apertures in said closure panel along said crease line, a seating tab inwardly struck from the wall opposite the wall to which the closure panel is hinged, said seating tab being engageable by an intumed tab portion on said closure panel edge strip and extending outwardly through the aperture formed thereby to limit movement of said closure panel towards said central panel, and a locking strip foldably attached to the wall opposite said hinge strip and of a width substantially equal to the width of said hinge strip, said locking strip being provided with lugs interlockingly engageable with said apertures in said closure panel when said closure panel edge strip seats on said seating tab, to prevent movement of said closure panel away from said central panel.

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