May 3, 1966 J. J. AUST 3,249,214

BANANA SHIPPING CONTAINER AND BLANK THEREFOR

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FIG. 1

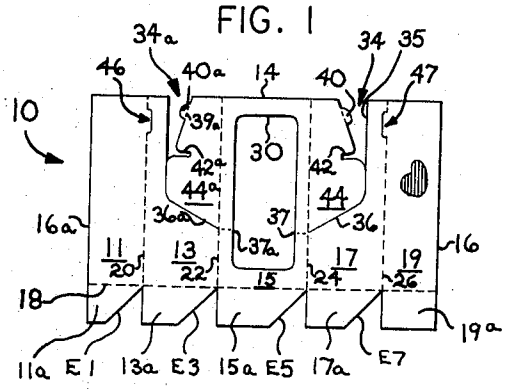


FIG. 2

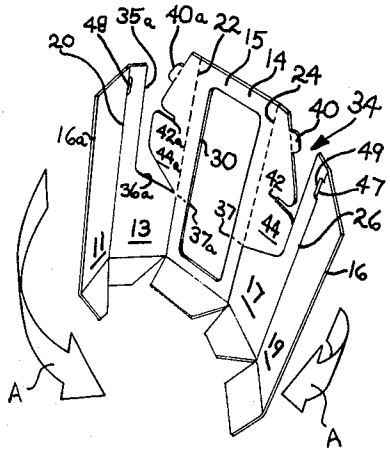


FIG. 3

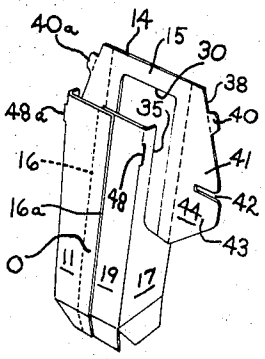


FIG. 4

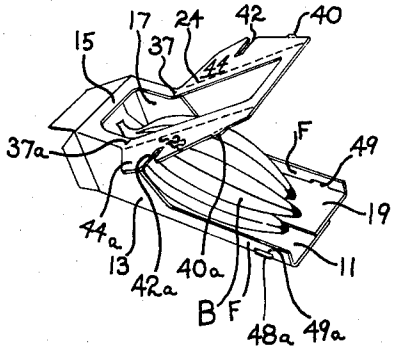
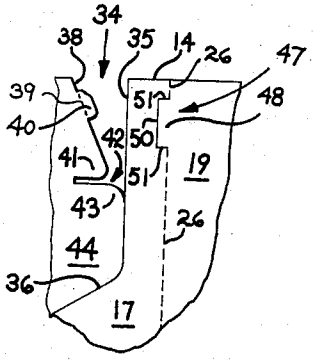


FIG 1a



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FIG. 5

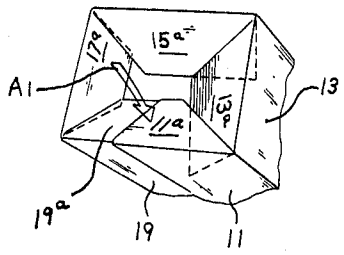


FIG. 6

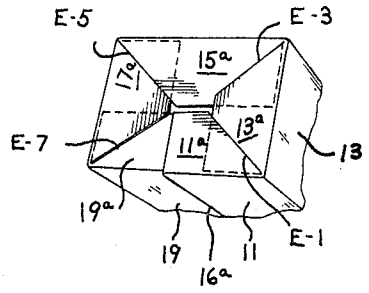


FIG. 7

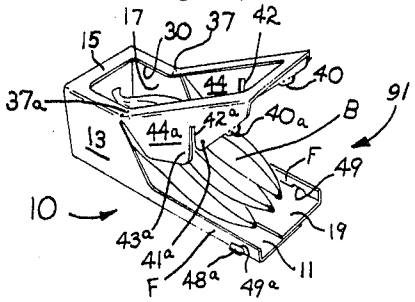


FIG. 8

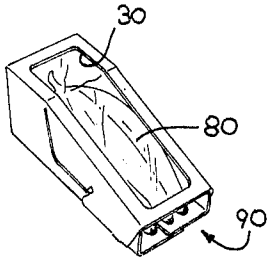
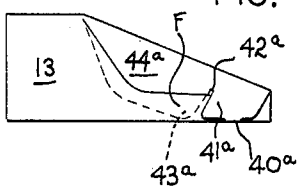


FIG. 9



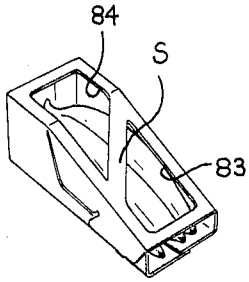


FIG. 10

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BANANA SHIPPING CONTAINER AND BLANK THEREFOR

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Filed Nov. 18, 1963, Ser. No. 324,558
10 Claims. (Cl. 206—45.31)

The present invention relates generally to cartons. More particularly, the invention relates to a carton designed for a specific purpose; that is, the reception and containment of a cluster of bananas in such fashion that shifting or movement thereof is substantially precluded.

Bananas grown in South America and other countries of tropical climate are generally shipped north attached to their native stalk or gourd. This has the double advantage of savings in space and allowing time for ripening of the fruit to its marketable condition. It has been found, however, in the handling of the bananas in their gourd form comprising a plurality of stalks and clusters of bananas, that frequently some of the clusters of from 3 to 10 bananas will become separated from the main gourd. In the past, these clusters broken off from the main gourd have constituted waste material; that is, they have been thrown away. The reason for this is that bananas, like other fruits, cannot stand being tightly packaged in contact with like fruit since circulation of air is necessary to their freshness. Furthermore, the mere physical contact tends to cause spoilage. In contrast, bananas on the guord in their natural environs are provided by nature with sufficient spacing and positioning as to provide circulation of air under normal shipping circumstances.

It is an object of the present invention to provide a carton construction which is adapted to receive a cluster of bananas or like fruit providing a safe contact-free receptacle for the fruit, while at the same time providing circulation of air whereby spoilage is at a minimum.

It is additionally an object of the present invention to provide a specifically designed "blank" of novel contour and design which is adapted for ready erection and assembly into a container adapted to receive a cluster (that is, from 3 to 10 bananas).

It is also an object of the present invention to provide such a package designed so as to yield a low cost container for fruits such as banana clusters inadvertently removed from the main stalk.

The foregoing as well as other objects of the present invention will become apparent to those skilled in the art from the following detailed description taken in conjunction with the annexed sheets of drawings on which there is presented, for purpose of illustration only, several embodiments of the present invention.

In the drawings:

FIG. 1 is a partially broken, plan view of a knocked down "blank" in accordance with this invention which is erectable into a carton construction as shown in other figures.

FIG. 1*a* is a broken away but somewhat enlarged view of a portion of the "blank" of FIG. 1.

FIG. 2 is a perspective view of the "blank" shown in FIG. 1 in an intermediate stage of its erection into a carton.

FIG. 3 is a somewhat different angle perspective view of the carton of the "blank" shown in FIGS. 1 and 2 and representing a further stage in its erection into a carton for containing a cluster of bananas.

FIG. 4 is a perspective view similar to that shown in FIG. 3, but from another angle showing the carton in an open position and having received a cluster of bananas.

FIGS. 5 and 6 are perspective views illustrating one type of a closure arrangement for the carton shown in FIGS. 1–4.

FIG. 7 is a perspective view similar to FIG. 4, but showing the carton with its closure flaps in place and about to have the principal closure arrangement secured.

FIG. 8 is a perspective view like FIG. 7 with the package shown in its fully closed position enveloping a cluster of bananas ready for shipping.

FIG. 9 is a side elevation view of the package shown in FIG. 8, but with part of the structure shown in dotted line to disclose the relationship of the wall elements constituting a portion of the principal closure arrangement for the package.

FIG. 10 is a perspective view much like FIG. 8 and serving to show a variation in construction constituting another embodiment of the present invention.

In its simplest form, the present invention envisions a carton formed of a plurality of foldably connected panels adapted to form an enclosure of generally rectangular and cross sectional configuration, one of the walls of the container being provided with a large window-like cutout permitting viewing and circulation of air to the contents, adjoining wall panels being provided with a slit and score arrangement defining wing flaps connected to the windowed panel, which flaps include a slit engageable with the adjoining wall panels. In a preferred construction, the wing flaps include a lock tab, while the adjoining wall panels include reduced height flanges and a combination stop and slit opening for said lock tab. The just preceding elements will be more clearly understood from the following detailed description of the knocked down, plan view of the "bank" and the description of the erection thereof into the finished carton.

The blank is formed of a relatively stiff, sheet-like material, usually corrugated board formed of spaced facing sheets adhesively embracing a fluted or convoluted corrugating medium. This material is a well-known article of commerce and no further description will be or need be given.

The blank **10** formed of corrugated board having corrugation **12** is generally rectangular as shown in FIG. 1. The blank is composed of foldably connected panels **11**, **13**, **15**, **17** and **19** separated respectively by fold score lines **20**, **22**, **24** and **26**. The panels **11**, **13**, **15**, **17** and **19** each have connected thereto bottom closure flaps **11***a*, **13***a*, **15***a*, **17***a* and **19***a* separated from the panels by fold score lines **18**. The rightmost edge E of the flaps just enumerated is cut on an angle for reasons to be explained hereinafter. The blank also is defined by an upper edge **14** and parallel spaced side edges **16** and **16***a*. Panel **15**, which is centrally located with respect to the other panels, is provided with a large rectangular cutout **30**; the sides of which generally parallel the sides of the panel **15** to define a large window. The panels **17** and **13** are cut and slotted in a special manner, proceeding inwardly from the edge **14**, and are identified with reference numerals **34** and **34***a*, respectively. The notches or cut outs **34** and **34***a* are generally of mirror-like or reversed hand configuration.

The notch **34** in panel **17** is, in part, defined by a cut **35** which proceeds from the upper edge **14** vertically downwardly as viewed in FIG. 1 and thence angles smoothly inwardly as at **36** to terminate at the fold line **24**. A horizontal fold line **37** in panel **15** connects the intersection of the cut line **36** and fold line **24** with the cutaway portion **30**. The notch **34** in panel **17** is further defined by cut edge **38** which proceeds in irregular fashion downwardly from the upper edge **14** of the blank **10** to define a foldable lock tab **40** and a generally horizontal slit **42** before terminating at the cut **35**. The lock tab **40** is foldable about score fold line **39**. The slit **42** separates curved portions **41** and **43** of a wing flap **44** outlined by the edge **38**, the cut **36**, the fold line **24** and top edge **14**.

The notch **34***a* in panel **13** is, in part, defined by a cut **35***a* which proceeds from upper edge **14** vertically down-

ardly and thence smoothly inwardly as at 36*a* to termiate in fold line 22. A horizontal fold line 37*a* in panel 5 connects the intersection of the cut line 36*a* and fold ne 22 with cutaway portion 30. The notch 34*a* in panel 3 is further defined by cut edge 38*a* which proceeds in regular fashion downwardly from the upper edge 14 to efine a foldable lock tab 40*a* and a generally horizontal it 42*a* before terminating at the cut 35*a*. The lock tab 0*a* is foldable about score fold line 39*a*. The slit 47*a* parates curved portions 41*a* and 43*a* of a wing flap 44*a* utlined by the edge 38*a*, the cut 36*a*, the fold line 22 and p edge 14.

Wing flaps 44 and 44*a*, as can be seen, are foldably onnected to top wall panel 15 and these three elements re together foldable about fold lines 37 and 37*a* to proide a novel final closure feature of utility to the packer ser.

The blank is provided with two cut scores, generally esignated as 46 and 47, proximate the fold lines 20 and 6 and also laterally proximate the lock tabs 40*a* and 40. he cut score 47 is shown together with continguous lank elements somewhat enlarged in FIG. 1*a*. The cut 7 is actually composed of a slit 50 slightly spaced from nd parallel to fold line 26 and two connecting slits 51 and 2 which proceed from the opposite ends of slit 50 to the old line 26. The fold line does not extend between the arallel slits 51 and 52. By reason of this construction, hen the blank is folded about fold line 26, the area within he cuts 50, 51 and 52 will remain in the same plane as anel 19 and will define a stop projection 48 and a tab eceiving opening 49 in side panel 17 (see FIG. 4). The ut score 46 is identical to cut 47 but of reverse hand. ts individual components are, therefore, where necessary n the drawings, identified by the same numerals but vith a subscript "*a*."

The erection of the blank 10 into the ultimate carton s best illustrated by reference to FIGS. 2 and 3, wherein t is seen that panels 11 and 19 are folded in the direction hown by the arrows A into overlapping relationship as hown in FIG. 3 wherein they are glued or stitched toether. The overlap is identified as O in FIG. 3. In IG. 3, the carton is shown folded with the panels 11 and 9 in overlapping relationship defining one wall, the side anels 17 and 13 in spaced parallel relationship defining econd and third walls and the panels 15 defining a fourth vall normal to the panels 13 and 17 thereby defining a enerally closed tube.

In FIG. 4, we see the tube as viewed in FIG. 3 turned bout with the panels 11 and 19 underneath defining a ottom wall. The top wall panel 15 together with the associated wing flaps 44 and 44*a* is folded upwardly about the fold lines 37 and 37'. In this position, a cluster of bananas B can be located within the carton as illustrated, whereupon the bottom closure of flaps 11*a*, 13*a*, 15*a*, 17*a* and 19*a* may be closed in the manner shown in FIGS. 5 and 6. The contour of the bottom closure flaps permits them to be closed in expedient fashion by simply pushing them inwardly in concert. More specifically, the angled cut edge E of the bottom closure flaps (11*a*, 13*a*, 15*a* and 17*a*) as shown in FIG. 1 allows them to be pushed inwardly at the same time with one's fingers as shown by the arrow A–1 in FIG. 5 whereupon, after the finger pressure is removed, the flaps will snap back into a generally locked co-planar relationship as shown in FIG. 6 normal to the wall panels. It is frequently more desirable to effect closure of the one end as just described before the cluster of bananas has been located therein. In any event, with the closure flaps closed and the cluster of bananas within the carton, the next step is to effect final closing and locking of the carton. This is accomplished by manipulation of the window-containing top panel 15 and the associated wing flaps 44 and 44*a* on either side. The latter are first folded over in generally perpendicular fashion and in planar relationship with the flange F portion of the side walls 13 and 17. Then the panel 15 is

folded downwardly about fold lines 37 and 37'. At the same time, the wing flap 44*a* is bent slightly so that the flanges F will be received by the slits 42*a* with the irregularly shaped portion 43*a* of flap 44*a* fitting inside of the flange F while the portion 41*a* fits outside (FIG. 7). At the same time, the tab 40*a* foldably connected to the flap 44*a* hits the projecting stop element, identified by the reference numeral 48*a*, and is thence directed inwardly into the opening 49*a*, thereby locking top cover panel 15 and associated wing flaps with respect to the remainder of the carton. It will be appreciated that wing flaps 44 and its components are similarly manipulated as just described. The carton is shown in its finally packed condition in FIGS. 9 and 10, for example.

In a preferred construction of the present invention (FIG. 8), the cutout or window 30 in the panel 15 is provided with a transparent covering 80 secured to the underside with adhesive, for example. One can still see the condition of the bananas or other products inside the carton 10, but removal, accidental or purposeful, of bananas is precluded.

In another embodiment of the present invention, the cutout 30 is replaced by two cutouts 83 and 84 defining therebetween a restraining strip S which prevents removal of single bananas. The cutouts 83 and 84 may also be provided with a transparent plastic sheet, of course, if desired. In any case, the final carton is of a contour to ideally contain a cluster of bananas safely and particularly allowing circulation of air through the end opening 90 defined by the edge 14 of the blank.

The carton construction in accordance with the present invention is thusly defined in terms of a novel slitting and slotting, by reason of which it can be very efficaciously erected with a single manufacturing stitched joint into a complete carton. By reason of the design of the blank, the bottom flaps are hand manipulatable into a secured, locked safety end wall which will not be opened accidentally. Furthermore, the carton construction provides a rather large variable sized opening 91 (FIG. 7) for insertion of the clump or cluster of bananas, whereupon the opening is conveniently closed by the foldable top panel 15 with its associated wing flap portions 44 and 44*a*. The wing flap feature permits, by reason of its novel design, a frictional engagement with the flanges F which, coupled with the locking arrangement of tabs 40 and 40*a* with openings 49 and 49*a*, provides a completely interlocked box construction ideally adapted for containing the product as described herein for shipment from the origin to the market place.

Modifications may be resorted to without departing from the spirit and scope of the present invention.

I claim:

1. A "blank" for forming a tube-like container receptive of a cluster of bananas, said blank being formed of relatively stiff, sheet-like material and being of generally rectangular configuration, said blank being cut and scored to define at least four panels in side-by-side relationship separated by fold lines, said blank including closure flap means foldably connected to certain of said panels, two of said panels of said blank separated by an intermediate panel constituting spaced side walls of the container when erected, said intermediate panel constituting the top wall of the container when erected, said side wall panels being cut and notched at the end opposite the closure flaps to define spaced reduced height side wall segments in the erected container at the end opposite said closure means, said top wall panel having opposed wing flap members foldably connected thereto and defined in part by said cut and notch in the adjoining side wall panels, said flaps having oppositely contoured edges defined by said notches, said edges each including a slot generally normal to said fold lines, said slots being respectively engageable with said reduced height wall segments of the side wall panels of the erected container.

2. A one-piece "blank" for forming a tube-like container receptive of a cluster of bananas, said blank being formed of relatively stiff, sheet-like material and being of generally rectangular configuration, said blank being cut and scored to define at least four panels in side-by-side relationship separated by fold lines, said blank including at one end closure flap means foldably connected to certain of said panels, two of said panels of said blank separated by an intermediate panel constituting spaced side walls of the container when erected, said intermediate panel constituting the top wall of the container when erected, said side wall panels being cut and notched at the end opposite the closure flaps to leave spaced reduced height side wall segments in the erected container, said side wall segments each including an offset slit opening proximate the fold line spaced from the fold line common to the intermediate panel, said top wall panel having opposed wing flap members foldably connected thereto and defined in part by said cut and notch in the adjoining side wall panels, said flaps having oppositely contoured edges defined by said notches, said edges each including a slot generally normal to said fold lines and a foldable lock tab, said slots being respectively engageable with said reduced height wall segments of the side wall panels of the erected container and said lock tabs being simultaneously received in said offset slits in said side wall segments.

3. A one-piece "blank" which is formable into a tube-like container receptive of a cluster of bananas or the like, said blank being formed of relatively stiff, sheet-like material, said blank being cut and scored into generally rectangular configuration and including four foldably connected panels separated by fold lines, each panel having a free edge constituting one side of the rectangle, closure flap means foldably connected to certain of the panels at the end opposite the free edge, one of said panels not on the end including a window-like aperture, two adjoining panels being cut and notched in the free edge, said cut extending away from the free edge and thence to the fold line of the window-containing panel to thereby define wing flaps foldably connected to the windowed panel, said windowed panel including score fold lines extending from the window edge to the cut-fold line intersection whereby said windowed panel and associated flaps are foldable together thereabout, said wing flaps each being provided by the notches with a slot in the edge facing the adjoining panel, said slots being generally normal to the cuts proceeding from the free edge.

4. A one-piece "blank" as claimed in claim 3, wherein said adjoining panels are each provided with an offset slit proximate the fold line, separating them from the next outermost panel and spaced just inwardly of the free edges, and said wing flaps are each provided with a foldable lock tab located to be received in said slits, when the erected container is closed, by folding said wing flaps normal to said windowed panel and thence the latter folded to engage said slots and the cut edges of said adjoining panels.

5. A tube-like container "blank" formed of a generally rectangular piece of relatively stiff, sheet-like material, said blank being cut and scored to include four to five side-by-side panels separated by fold lines, two of said panels on either side of an intermediate panel including a cut proceeding inwardly from a free edge and symmetrically curvilinearly to the fold line separating said panels from said intermediate panel, said cuts defining thereby flap members foldably attached to said intermediate panel, said flaps having opposite but symmetrically contoured edges defining in each a slot, said slots in said flaps being engageable with the edge created in said two panels by said cut as said flaps and intermediate panel are folded first into perpendicular relationship and thence as a unit with respect to the remainder of the blank.

6. A one-piece shipping container "blank," said blank being formed of relatively stiff, sheet-like material and of such configuration that the container erected therefrom will be a generally elongate tube having one end of diminished cross sectional area, said blank constituting a generally rectangular outline cut and scored to define at least four side-by-side panels separated from adjacent panels by fold lines, said panels forming respectively, when erected, top, side, bottom and side walls of said container, end closure flaps foldably connected to said panels at one end, said side wall panels being cut on a line starting on the free edge opposite said closure flap end, continuing parallel to said fold lines, then curving sharply and angularly to the fold line separating said side wall panels from the top wall panel, said cuts defining, when the container is erected, side wall segments of reduced height at the end opposite said closure flaps, said cluts also defining lateral wing flaps foldably connected to said top wall panel, said wing flaps having opposed edges defining a slot frictionally engageable with said side wall segments, permitting one end of the top wall panel of the container to slope downwardly toward the end opposite said closure flaps.

7. A shipping carton for a cluster of bananas, said carton including:

a generally rectangular bottom wall,

connected upstanding side walls of L-shaped contour, the vertical leg defining the greatest height of the carton and the horizontal leg defining spaced flange-like walls of reduced height, said flange-like walls being cut to define tab deflectors and contiguous slit openings,

a top wall connecting the vertical leg segments of the side wall,

a top closure panel foldably connected to said top wall and extending coextensively with said bottom wall and the horizontal leg portion of the L-shaped side walls,

closure flaps foldably connected to said walls at the end of the greatest height, and

wing flaps foldably connected to said top closure panel, said flaps each having a slot formed in opposite side edges and a foldable lock tab formed on said opposite side edges, said slots being adapted to receive said flange-like walls whereby said top closure panel slopes downward in the direction of said bottom wall and said lock tabs contact said tab deflectors and are directed into said slit openings.

8. The carton as claimed in claim 7 in which said top wall and top panel together include a major cutout defining a window.

9. The carton as claimed in claim 7, wherein said slots formed on opposite side edges of said wing flaps permit portions of the flap on either side thereof to bend relatively to the other and frictionally assume face-to-face contact with opposite faces of said flange-like walls as the top panel and flaps are folded to bring said slots and the upper edges of said flange-like walls into mating engagement.

10. A carton as claimed in claim 7, wherein the end opposite the closure flaps-bearing-end is open and unobstructed for passage of air to the interior of the carton.

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