Oct. 15, 1968 G. A. MANIZZA 3,405,860

REUSABLE DISPLAY CARTON FOR RELATIVELY SMALL OBJECTS

Filed March 25, 1966 3 Sheets-Sheet 1

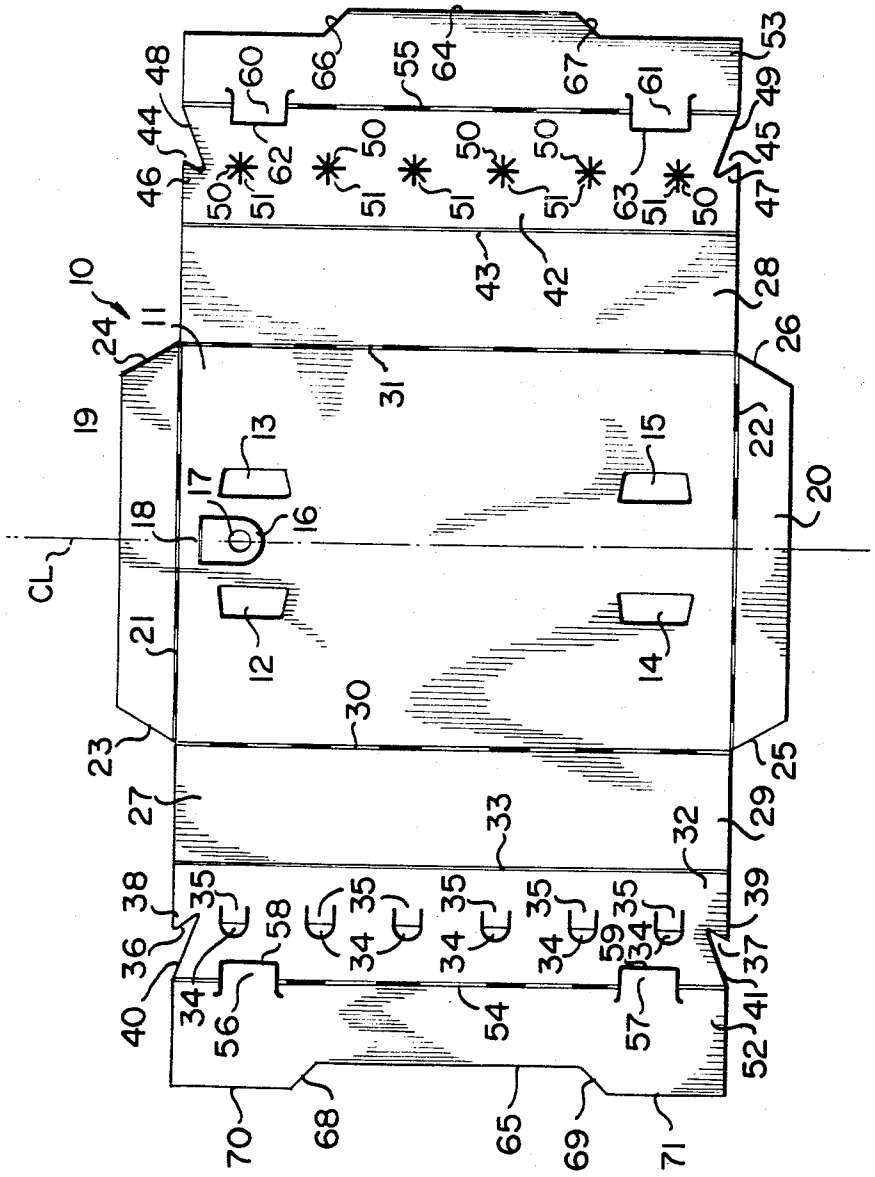


Fig. 1

INVENTOR
GUELFO A. MANIZZA

BY Mason, Porter, Miller & Brown
ATTORNEYS

Oct. 15, 1968 G. A. MANIZZA 3,405,860

REUSABLE DISPLAY CARTON FOR RELATIVELY SMALL OBJECTS

Filed March 25, 1966 3 Sheets-Sheet 2

FIG.2

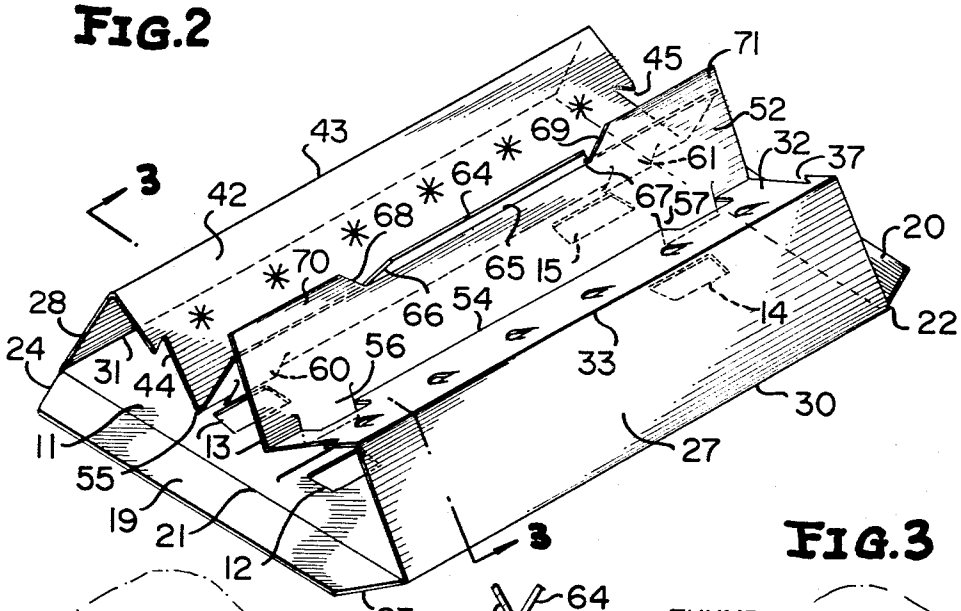


FIG.3

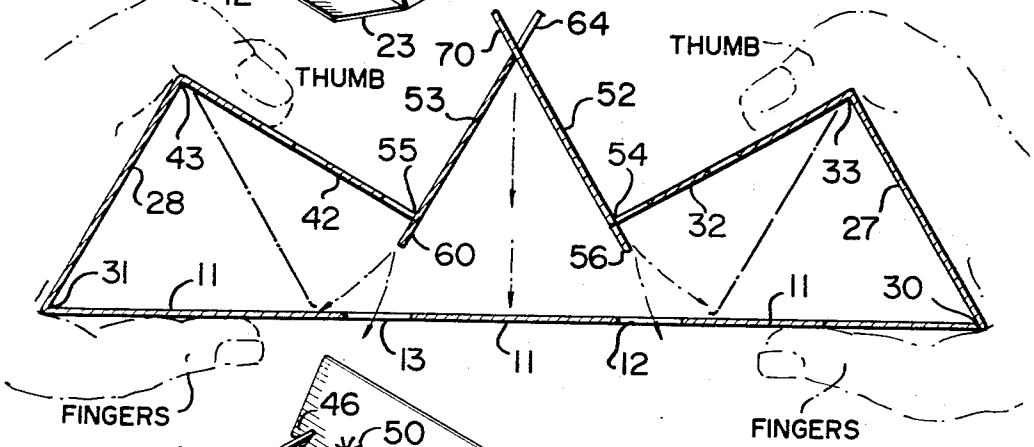
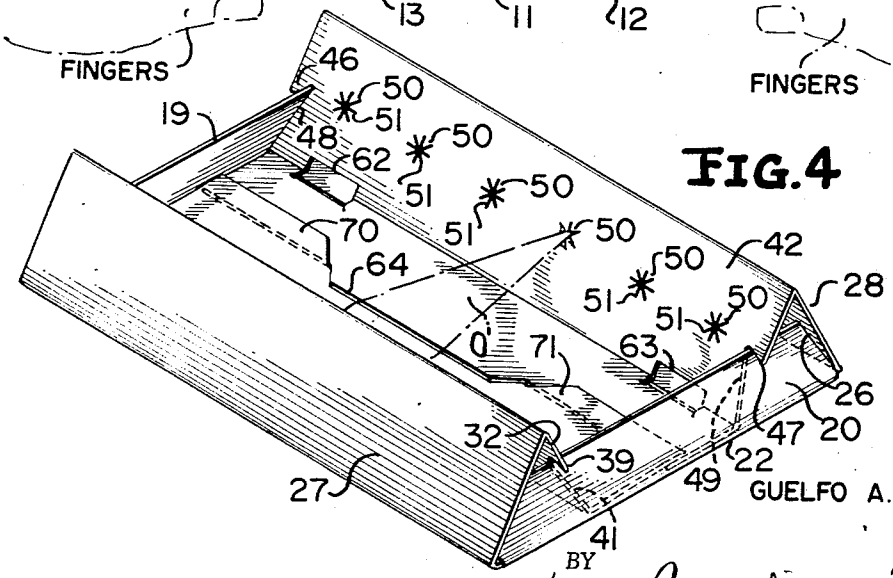


FIG.4



INVENTOR
GUELFO A. MANIZZA

BY
Mason, Porter, Miller & Brown
ATTORNEYS

Oct. 15, 1968 G. A. MANIZZA 3,405,860

REUSABLE DISPLAY CARTON FOR RELATIVELY SMALL OBJECTS

Filed March 25, 1966 3 Sheets-Sheet 3

FIG.5

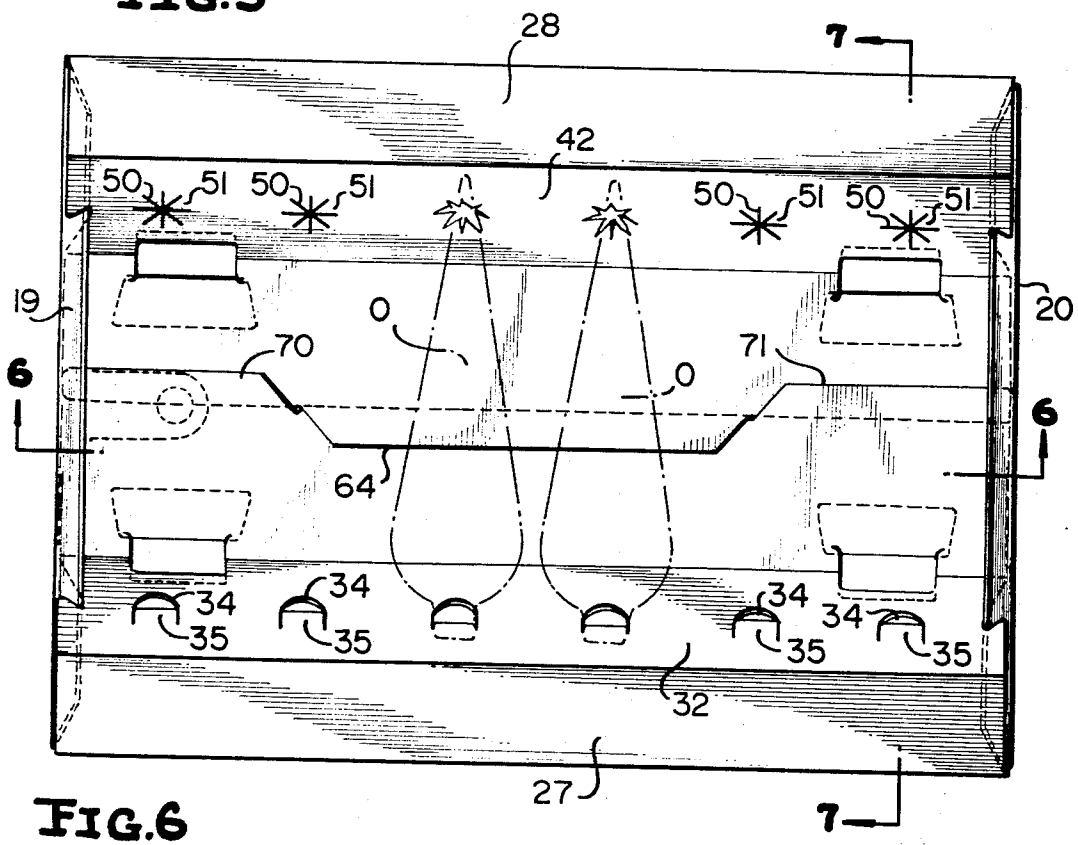


FIG.6

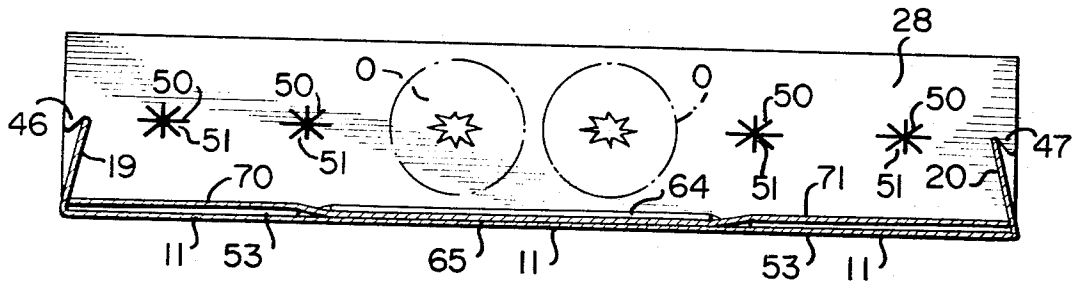
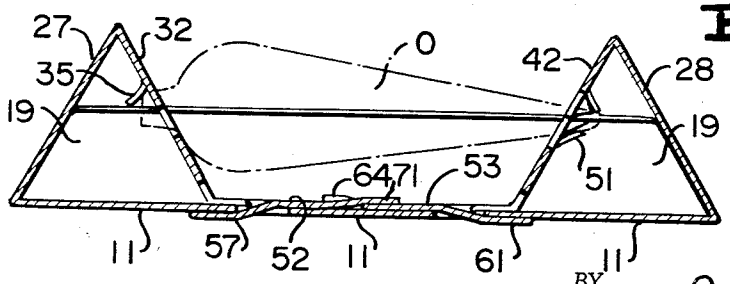


FIG.7



INVENTOR
GUELFO A. MANIZZA

BY Mason, Porter, Miller & Brown
ATTORNEYS

United States Patent Office 3,405,860 Patented Oct. 15, 1968

3,405,860

REUSABLE DISPLAY CARTON FOR RELATIVELY SMALL OBJECTS

Guelfo A. Manizza, Blauvelt, N.Y., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed Mar. 25, 1966, Ser. No. 537,507
19 Claims. (Cl. 229—34)

ABSTRACT OF THE DISCLOSURE

This disclosure relates to a carton which includes a base panel having apertures and to each side of the base panel is successively provided a side panel, a support panel and a latch panel having latch tabs with the latch tabs being engaged in the latch openings and facing in opposite directions away from the base panel, and the latch panels further including interlocked tabs for securing the panels to each other whereupon articles can be supported between aligned apertures in the support panels.

In the packaging of small consumer items such as Christmas ornaments or the like, it is often desirable to package the items in a display-type carton from which the items may be removed one at a time without opening the carton or disturbing the other items therein. Display cartons of this type are hung upon racks in stores, and customers are then able to easily remove as many items from the carton as they may need without disturbing the other items. In cartons of this type, of course, the items packaged therein must be exposed to view and must be securely held in place but not so securely held as to preclude easy removal from the carton. In the case of Christmas tree ornaments or the like, it is also desirable that the display carton be reusable so that the customer can use the carton as a storage means for the items. For this purpose, of course, it is desirable that the carton be designed so that the items can be repeatedly removed and replaced without damaging the carton.

Accordingly, one object of this invention is to provide a display-type carton in which relatively small objects can be displayed.

Another object of this invention is to provide a display-type carton which is easy to form, easy to fill, and simple in structure.

A further object of this invention is to provide a display-type carton whose sides can be securely joined together by means of latch tabs and latch openings without the use of any other fastening means.

An additional object of this invention is to provide a reusable display-type carton from which objects can be repeatedly removed and replaced without damaging the carton.

Another object of this invention is to provide carton blanks from which cartons having the above described characteristics can be formed.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims, and the several views illustrated in the accompanying drawings, in which:

FIGURE 1 is a plan view of one illustrative carton blank of this invention;

FIGURE 2 is a perspective view of the carton blank of FIGURE 1 illustrating the procedure for forming a carton therefrom;

FIGURE 3 is a sectional view taken along the plane 3—3 of FIGURE 2;

FIGURE 4 is a perspective view of a closed carton formed in accordance with the procedure illustrated in FIGURES 2 and 3;

FIGURE 5 is a plan view of the carton illustrated in FIGURE 4;

FIGURE 6 is a sectional view taken along the line 6—6 of FIGURE 5; and

FIGURE 7 is a sectional view taken along the line 7—7 of FIGURE 5.

Referring to FIGURE 1, one specific carton blank of this invention is generally indicated by the numeral **10**. In the center of carton blank **10** is a base panel **11**, which has four substantially rectangular latch openings **12, 13, 14**, and **15** formed therein. The purpose of latch openings **12, 13, 14** and **15** will be explained later, but it should be noted at this point that each of the latch openings is slightly tapered so that the side edge closest to the vertical center line CL is slightly larger than the opposing side edge in each of the openings. This taper facilitates the engagement of latch tabs in the latch openings as will be described later.

Also formed in base panel **11** is a hanger tab **16** containing an aperture **17** and foldably joined to base panel **11** by fold line **18**. Hanger tab **16** can be folded outwardly from base panel **11** along fold line **18** to form a hanger for the carton formed from carton blank **10**.

Foldably joined to opposite side edges of base panel **11** are two side flaps **19** and **20**. Side flap **19** is foldably joined to base panel **11** by perforated fold line **21**, and side flap **20** is foldably joined to base panel **11** by perforated fold line **22**. Both end edges of the side flaps **19** and **20** are tapered inwardly toward vertical center line CL as indicated by the numerals **23, 24, 25**, and **26** for reasons which will be described later.

A pair of side panels **27** and **28** are foldably joined to opposite side edges of base panel **11** by perforated fold lines **30** and **31**, respectively. A support panel **32** is foldably joined to one side edge of side panel **27** by a fold line **33**. Support panel **32** has a plurality of D-shaped openings **34** formed therein to receive the flat end of a plurality of Christmas tree ornaments. Each of the D-shaped openings **34** is in the form of a semi-circle, and a tab member is defined adjacent to each of the D-shaped openings **34** by means of parallel cuts extending from the top and bottom of the D-shaped openings. Tabs **35** are adapted to be bent by the flat ends of the Christmas tree ornaments so as to apply a supporting pressure thereto, as will be explained later. A pair of substantially V-shaped notches **36** and **37** are formed in opposing end edges of support panel **32**. Notches **36** and **37** are skewed with respect to the end edges of panel **32** to define a pair of pointed tabs **38** and **39** and a pair of sloping shoulders **40** and **41** in opposite end edges of panel **32**. In the closed configuration of carton blank **10**, sloping shoulders **40** and **41** act as supporting shoulders for the inside surface of side flaps **19** and **20**, respectively, and pointed tabs **38** and **39** engage the outer side edges of flaps **19** and **20** to securely lock them in place against their corresponding support shoulders. To achieve this purpose, it will be apparent to those skilled in the art that the width of side flaps **19** and **20** along center line CL must be selected so that they are slightly shorter than the length of sloping shoulders **40** and **41** in the closed position of the carton blank, as will be discussed in detail later.

An opposing support panel **42** is foldably joined to opposing side panel **28** by a fold line **43**. A pair of substantially V-shaped notches **44** and **45** are formed in opposing end edges of support panel **42**. V-shaped notches **44** and **45** are skewed with respect to their respective end edges to define a pair of pointed tabs **46** and **47** and a pair of sloping shoulders **48** and **49**, which perform the same functions as the above described tabs **38** and **39** and sloping shoulders **40** and **41**. Also formed in support panel **42** is a plurality of substantially star-shaped perfora-

tions 50 each of which defines a circular cluster of pointed tabs 51. Each of the star-shaped perforations 50 is positioned opposite a corresponding D-shaped opening 34 in panel 32 to receive the pointed end of a Christmas tree ornament. Each cluster of tabs 51 is adpated to be bent inwardly to receive the pointed end of the ornament and to apply supporting pressure thereto, as will be explained in detail later.

A pair of latch panels 52 and 53 are foldably joined to opposing side edges of support panels 32 and 43 by perforated fold lines 54 and 55. A pair of latch tabs 56 and 57 are formed in latch panel 52 by means of substantially U-shaped cuts 58 and 59 which overlap fold line 54 with the closed end of the cut directed toward base panel 10. Cuts 58 and 59 are aligned respectively with latch openings 12 and 14, and the tabs 56 and 57 defined thereby are adapted to be engaged respectively in latch openings 12 and 14. It will be apparent to those skilled in the art that the slight taper shown of the upper and lower edges of latch openings 12 and 14 serves to facilitate the insertion of corresponding latch tabs 56 and 57.

A pair of similar latch tabs 60 and 61 are formed on opposing latch panel 53 by means of substantially U-shaped cuts 62 and 63, which are aligned respectively with latch openings 13 and 15. Latch tabs 60 and 61 are adapted to be inserted respectively into latch openings 13 and 15, and the slight taper shown in the end of latch openings 13 and 15 facilitates the insertion of the corresponding tabs 60 and 61.

A central tab 64 is formed on the outer side edge of latch panel 53, and a central recess 65 is formed on the outer side edge of latch panel 52 to receive the tab 64. The end edges of tab 64 are tapered as indicated by the numerals 66 and 67, and the end edges of recess 65 are tapered as indicated by the numerals 68 and 69 to facilitate the entry of tab 64 into recess 65. The inner side edge of tab 64 and the inner side edge of recess 65 are approximately equal so as to provide a latching action when tab 64 is fully engaged in recess 65. It should be noted at this point that recess 65 can also be defined as a pair of flanking tabs 70 and 71 which are spaced apart by a distance approximately equal to the length of the tab 64. In this definition, tabs 64, 70, and 71 would constitute interlocking tab means comprising a central tab on the outer side edge of one latch panel and a pair of flanking tabs on the outer side edge of the opposing latch panel, with the central tab and flanking tabs being adapted to engage each other in an interlocked relationship.

FIGURES 2 and 3 illustrate the initial steps in forming the above described carton blank into a closed carton. The carton blank is first folded along the vetrical fold lines 30, 31, 33, 43, 54 and 55 in the direction indicated in FIGURE 3. The opposing side panels 27 and 28 are then grasped in the palms of the hands with the thumbs extending over support panels 32 and 42 and the fingers extending under base panel 11. Interlocking tabs 64, 70, and 71 are then engaged with each other as indicated in FIGURES 2 and 3 by applying the appropriate pressure to the panels in contact with the hands. It is not necessary to move the position of the hands to correctly align the interlocking tabs and to interlock them as shown. In the first place, the relative position of latch panels 52 and 53 can be completely controlled with the hands placed as shown in FIGURE 3, and in the second place, the tapered end portions 66, 67, 68, and 69 make it very easy to align the interlocking tabs with each other.

After the interlocking tabs 65, 70 and 71 have been interlocked as shown in FIGURES 2 and 3, latch tabs 56, 57, 60, and 61 will be correctly aligned with their corresponding latch openings 12, 14, 13, and 15. This is due to the alignment function performed by the interlocking tabs in their fully engaged position. Thus, latch tabs 56 and 57 can be easily inserted into their corresponding latch openings 12 and 14 by pressing downwardly with the thumb on panel 32, and the tabs 56 and 57 can be fully engaged after they have been inserted into latch openings 12 and 14 by slightly rotating the appropriate hand in a clockwise direction with respect to the orientation shown in FIGURE 3. After tabs 56 and 57 have been fully inserted in openings 12 and 14, the opposing latch tabs 60 and 61 can be similarly inserted and latched in their respective latch openings 13 and 15 by performing the same movements with the other hand. Latch panels 52 and 53 can then be rotated downwardly as indicated by the central arrow in FIGURE 3 to contact the surface of base panel 10 by simultaneously applying a spreading force to support panels 32 and 42 through the thumbs. The formation of the carton is then completed by bending side flaps 19 and 20 along their respective fold lines 21 and 22 and snapping them into the V-shaped notches 36, 37, 44, and 45 formed in the end edges of support panels 32 and 42, as illustrated in FIGURES 4, 5, and 6. Christmas tree ornaments 0 can then be easily inserted into the carton by pressing the pointed end of the ornament into the corresponding one of the star-shaped perforations 50, thus spreading apart the cluster of pointed tabs defined thereby as indicated in FIGURE 7, and then placing the flat end of the ornament into the appropriate D-shaped opening 34 and bending back the corresponding tab 35 as indicated in FIGURE 7.

An analysis of the structural characteristics of the completed carton illustrated in FIGURES 4, 5, 6, and 7 will show that the latch means formed on the carton blank are more than adequate to support the carton walls and maintain the carton in a closed position without any additional fastening means even under the stresses imposed by repeatedly removing and replacing items in the carton. Referring to FIGURE 4, it can be seen that the tapered side edges 23, 24, 25, and 26 of side flaps 19 and 20 serve as supporting shoulders for the opposing side panels 27 and 28 to secure them against inward movement. Side panels 27 and 28 and support panels 32 and 42 are secured against outward movement by the engagement of latch tabs 56, 57, 60, and 61 in their respective latch openings 12, 14, 13, and 15. Side flaps 19 and 20 are secured against inward movement by the sloping shoulders 40, 41, 48, and 49 and against outward movement by the overhanging portion of pointed tabs 38, 39, 46, and 47. Latch panels 52 and 53 are secured at one end against sliding movement in the direction of ornaments 0 by the interlocked tabs 64, 70, and 71, and they are secured against sliding movement in the direction of the ornaments 0 at their other ends by the engagement of latch tabs 56, 57, 60 and 61 in their respective latch openings 12, 14, 13, and 15. Latch tabs 52 and 53 are secured against sliding movement transverse of the ornament 0 by means of the above noted interlocking tabs and latch tabs and also by means of their abutment against the inner side edge of side flaps 19 and 20. Latch tabs 52 and 53 are secured against the rotary movement back toward the partially closed position shown in FIGURE 3 by the engagement of the outer side edges of side flaps 19 and 20 in the apex of V-shaped notches 36, 37, 44, and 45. Thus it can be seen that the carton is completely secured against forces applied from any direction without the use of any additional fastening means, and it should furthermore be noted that the spreading force applied by the ornaments 0 to the support panels 32 and 42 serves to augment the natural latching provided by the latch means of this invention. It can also be seen that the ornaments 0 can be repeatedly removed and reinserted into the carton as long as the tabs 35 and 51 retain their resiliency.

It will be apparent to those skilled in the art that the dimensions of the various panels, tabs, and latch openings and their respective positions of the carton blank must be selected so that these members will properly cooperate with each other in the closed form of the carton blank to form a securely latched carton. It will also be apparent

that the specific dimensions and positions will vary in accordance with the objects to be placed in the carton, the type of material to be used for the carton blanks, and with environmental factors such as the size of the rack upon which the cartons are to be hung for display. The dimensions and positions shown in the drawings are correct for the specific Christmas tree ornaments illustrated therein, but the dimensions will, of course, have to be altered for larger or smaller or differently shaped objects. The exact dimensions and position required for any given application of the invention can, however, be easily computed by those skilled in the art by well known prior art techniques coupled with the foregoing disclosure of one illustrative embodiment of the invention.

From the foregoing description it will be apparent that this invention provides a reusable display carton-type carton blank which is easy to form into a carton and which requires no fastening means other than latch tabs and latch tab openings formed in the carton blank. It will also be apparent that this invention provides a reusable display type carton and carton blank therefor which is easy to fill, and from which objects may be repeatedly removed and reinserted without damaging the carton or disturbing the other objects therein. And while one form of the invention has been shown for purposes of illustration, it is to be understood that various changes in the details of construction and arrangement of parts may be made without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. A carton blank comprising a base panel having latch openings formed therein for receiving and engaging latch tabs, a pair of side panels foldably joined to opposite side edges of said base panel, a pair of support panels foldably joined to opposite side edges of said side panels, a pair of latch panels foldably joined to opposite side edges of said support panels, latch tabs joined to said latch panels and positioned for engagement with said latch openings in said base panel, and the latch tabs of said latch panels being directed toward each other and toward said base panel.

2. A carton blank as defined in claim **1** and also including interlocking tabs formed on the outer side edges of said latch panels and positioned for engagement with each other.

3. A carton blank as defined in claim **2** and also including a pair of side flaps foldably joined to opposite side edges of said base panel, and latch notches formed in opposite end edges of said support panels and positioned for engagement with the outer side edges of said side flaps.

4. A carton blank as defined in claim **2** and also including means joined to said support panels for engaging and supporting opposite ends of an object.

5. A carton blank as defined in claim **4** wherein said means joined to said support panels comprises means formed in one of said support panels for engaging and supporting one end of a plurality of objects and means formed in the other support panel for engaging and supporting the other end of said plurality of objects.

6. A carton blank as defined in claim **4** wherein said interlocking tabs comprise a central tab projecting from the outer side edge of one of said latch panels and a pair of flanking tabs projecting from the outer side edge of the other of said latch panels, said central tab and flanking tabs being dimensioned and positioned to engage each other in interlocking relationship with the central tab between the flanking tabs.

7. A carton blank as defined in claim **6** wherein the adjacent side edges of said interlocking tabs are tapered in different directions to facilitate engagement therein-between.

8. A carton blank as defined in claim **4** wherein said latch tabs joined to said latch panels are formed by substantially U-shaped cuts across the fold lines joining said latch panels to said support panels, each of said U-shaped cuts being aligned with a corresponding one of said latch openings formed in said base panel, and the closed end of each U-shaped cut being directed toward the corresponding latch opening.

9. A carton blank as defined in claim **4** wherein said latch notches comprise substantially V-shaped openings, the boundaries of said V-shaped openings being skewed with respect to the corresponding end edges of said support panels, and the apex of each V-shaped opening being directed toward said base panel.

10. A carton blank as defined in claim **4** wherein said means joined to said support panels comprises a plurality of D-shaped openings formed in one of said support panels and a tab member adjacent to each of said D-shaped openings, said D-shaped openings and tabs adjacent thereto being adapted to engage and support one end of a plurality of objects, and a plurality of star-like perforations formed in the other of said support panels, said star-like perforations being adapted to engage and support the other ends of said plurality of objects.

11. A carton blank as defined in claim **4** wherein the end edges of said side flaps are tapered to act as supporting surfaces for said side panels when said carton blank is folded along said fold lines to form a carton.

12. A carton blank as defined in claim **9** wherein one side of each V-shaped opening is positioned to act as a supporting surface for the corresponding side flap when said carton blank is folded along said fold lines to form a carton, and wherein the other side of each V-shaped opening is positioned to define a tab for engaging the outer side edge of the corresponding side flap and securing it against the first mentioned side of said V-shaped opening.

13. A carton comprising a base panel having latch openings therein for receiving and engaging latch tabs, a pair of side panels foldably joined to opposite side edges of said base panel, a pair of support panels foldably joined to opposite side edges of said side panels, a pair of latch panels foldably joined to opposite side edges of said support panels, latch tabs joined to said latch panels and positioned for engagement with said latch openings in said base panel, said latch panels being folded down onto said base panel, and said latch tabs being engaged in said latch openings and facing in opposite directions away from each other.

14. A carton as defined in claim **13** and also including interlocking tabs formed on the outer side edges of said latch panels and interlocked with each other to secure the outer side edges of said latch panels to each other.

15. A carton as defined in claim **14** and also including a pair of side flaps foldably joined to opposite side edges of said base panel, and latch notches formed in opposite end edges of said support panels, said side flaps being engaged in said latch notches.

16. A carton as defined in claim **15** and also including means joined to said support panels for engaging and supporting opposite ends of an object.

17. A carton as defined in claim **16** wherein said latch notches comprise substantially V-shaped openings, one side of each V-shaped opening being positioned to act as a supporting surface for the corresponding side flap, and the other side of each V-shaped opening being positioned to define a tab for engaging the outer side edge of the corresponding side flap and securing it against the first mentioned side of said V-shaped opening.

18. A carton as defined in claim **17** wherein the end edges of said side flaps are tapered to act as supporting surfaces for said side panels.

19. A carton as defined in claim **18** wherein said means joined to said support panels comprises means formed in one of said support panels for engaging and supporting one end of a plurality of objects and means formed

in the other of said support panels for engaging and supporting the other end of said plurality of objects.

References Cited

UNITED STATES PATENTS

2,303,264	11/1942	Flick	206—45.19
2,620,962	12/1952	Powell	206—45.19
2,621,783	12/1952	Buttery.	
2,964,175	12/1960	Nolte.	
3,009,622	11/1961	Leone	206—45.19
3,093,290	6/1963	Banks et al.	
3,330,465	7/1967	Davidson et al.	206—45.14

WILLIAM T. DIXSON, JR., *Primary Examiner.*