May 31, 1966 E. OPLER 3,253,769

COLLAPSIBLE CARTON

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Fig. 1

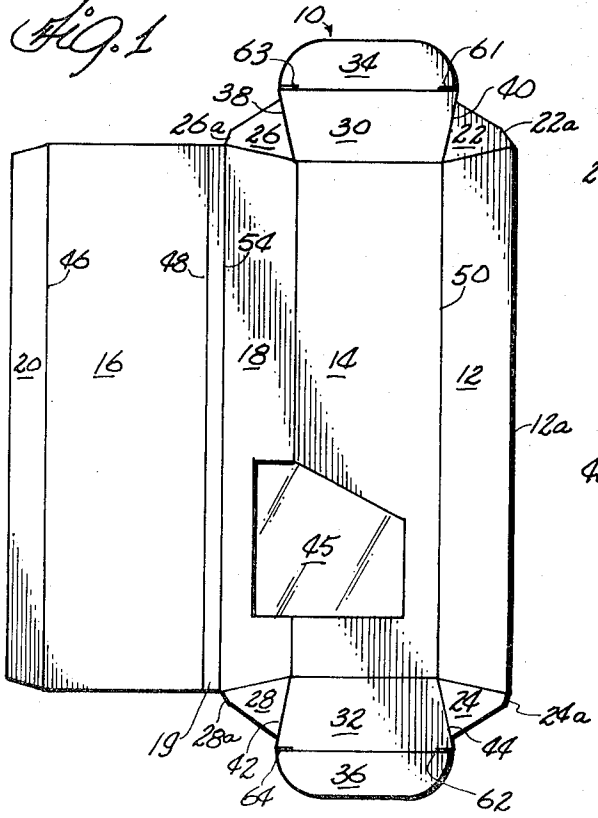

Fig. 2

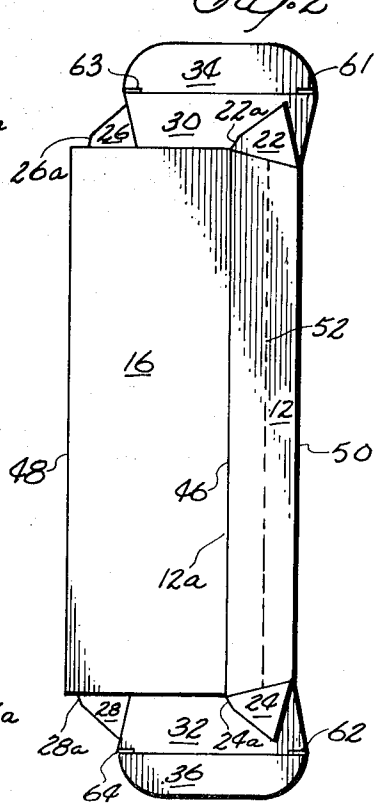

Fig. 3

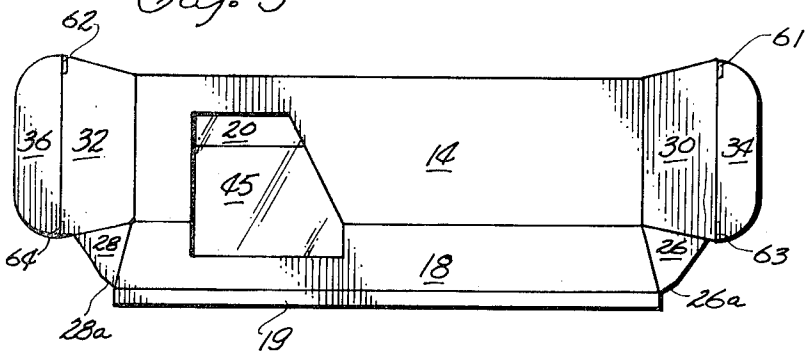

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Fig. 4

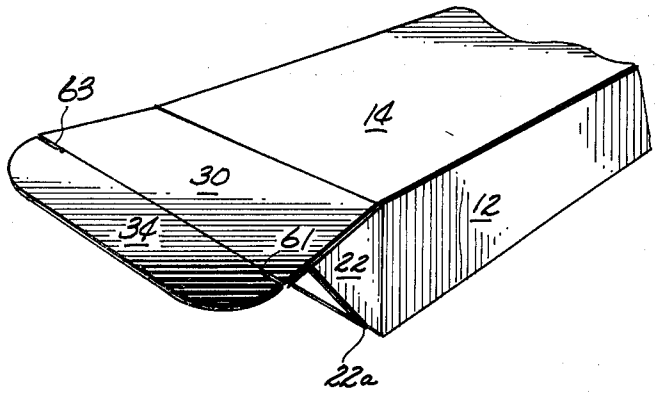


Fig. 6

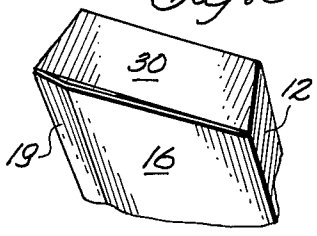


Fig. 7

Fig. 9

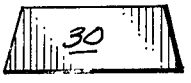


Fig. 8

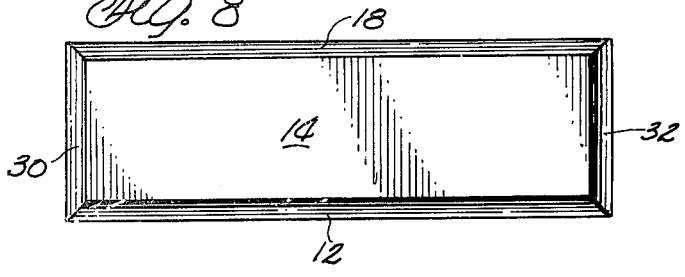
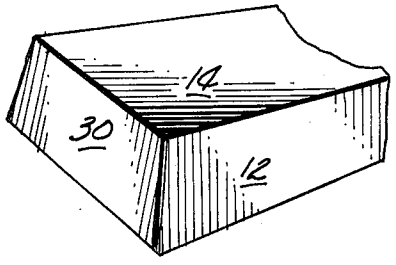


Fig. 5



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3,253,769

COLLAPSIBLE CARTON

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Filed Sept. 29, 1964, Ser. No. 400,088
10 Claims. (Cl. 229—38)

This invention relates to a carton, and more particularly to a carton which is adaptable for containing consumer commodities such as candy, nuts, and the like.

Cartons or containers used to contain and display consumer goods should be attractive and eye-catching, a feature which may be achieved through the use of a distinctive shape. The difficulty in adapting various attractive shapes for cartons, however, is the further important requirement that such articles be formed from a compact, partially set up structure which can be readily stored and transported to the packager. This partially set up structure should be capable of being easily formed into the finished carton, filled, and sealed by the packager. It is also important for the cartons to be adapted for tight closure to prevent loss of the contents during shipment and delivery to the retailer or other distributor and for easy opening and reclosing during intermittent usage of the contents by the consumer.

Accordingly, it is one of the objects of this invention to provide an attractively and distinctively shaped carton which has all of the aforementioned advantages.

It is a further object of this invention to provide an improved, distinctively shaped carton which may be partially set up at the time the blank is formed so that the packager's use of the carton is facilitated.

It is a further object of this invention to provide an improved carton which is made from a collapsed, partially set up structure and which has a distinctive configuration substantially like that of a truncated pyramid.

It is a further object of this invention to provide an improved distinctively shaped carton which may be tightly and securely closed during shipment and handling en route to the distributor and which may be readily opened and reclosed during intermittent use of the contents by the consumer.

It is another object of this invention to provide an improved carton which may be easily and economically formed, filled, and sealed by the packager.

Further and additional objects will become apparent from the description, accompanying drawings and appended claims.

In accordance with one embodiment of this invention, a carton of foldable material is provided which has a generally truncated pyramidal shape. It is former from a collapsed tubular shaped structure which in turn is formed from a blank. The carton has two rectangular shaped side panels disposed in overlying, substantially parallel relationship and located at the top and bottom of the carton. Two trapezoidal shaped panels form two of the ends of the carton, and these panels define equal obtuse angles with the top side panel. A narrow rectangular strip is disposed intermediate the other or bottom side panel and one of the trapezoidal panels, and this strip together with the bottom side panel forms the bottom of the carton. The discharge openings of the carton are covered by closure means which are adapted to be repeatedly re-opened and reclosed. The closure means comprise flaps extending from the top side panel consisting of a trapezoidal shaped portion and a tuck flap foldably attached thereto. These flaps cooperate with flaps extending from the end panels to form tight seals at each end of the carton. Because of the trapezoidal shape of the end panels and closure flaps, the finished carton has the appearance of a truncated pyramid. When the carton is in its collapsed condition it consists of two portions—one portion comprising the top side panel, the narrow rectangular strip, the end panel disposed between the top side panel and the strip, and the flaps extending from the panels; the other portion comprising the bottom side panel, the other end panel and the flaps extending therefrom, and a glue flap extending from the bottom side panel and secured to the concealed surface of the end panel. This collapsed structure is capable of being quickly and efficiently set up into the carton either by hand or by automatic equipment.

For a more complete understanding of the invention reference is now made to the drawings wherein:

FIG. 1 is a plan view of one form of the improved carton blank.

FIG. 2 shows a bottom plan view of the carton formed from the blank shown in FIG. 1, showing the carton in a collapsed partially set up condition.

FIG. 3 is a top plan view of the carton formed from the blank shown in FIG. 1, showing the carton in the collapsed, partially set up condition shown in FIG. 2.

FIG. 4 is a fragmentary perspective view of the carton formed from the blank shown in FIG. 1, showing the carton in a further stage of formation than that shown in FIGS. 2 and 3.

FIG. 5 is a fragmentary perspective view of the carton formed from the blank shown in FIG. 1.

FIG. 6 is a fragmentary perspective view of the carton formed from the blank of FIG. 1, showing the bottom of the carton.

FIG. 7 is a front elevational view of the carton formed from the blank shown in FIG. 1.

FIG. 8 is a top plan view of the carton formed from the blank shown in FIG. 1, showing the carton without the display window.

FIG. 9 is a side elevational view of the carton formed from the blank shown in FIG. 1.

Referring now to the drawings and more particularly to FIG. 1, one form of the carton blank **10** of this invention is shown. Blank **10** is cut from a sheet of foldable material such as fibreboard. The blank includes a plurality of foldlines and slits which cooperate to form a trapezoidally shaped end panel **12**, a pair of rectangular side panels **14** and **16**, and a second trapezoidal end panel **18**. A narrow rectangular strip **19** separates panels **16** and **18** and a glue flap **20** is foldably connected to panel **16** along the side opposite that connected to strip **19**. Dust flaps **22** and **24** are foldably attached to end panel **12**, and dust flaps **26** and **28** are similarly connected to end panel **18**. Trapezoidal side flaps **30** and **32** are foldably connected to the opposite ends of side panel **14**, and tuck flaps **34** and **36** are foldably connected to flaps **30** and **32**, respectively. The end flaps **22**, **24**, **26** and **28** are separated from the side flaps **30** and **32** by appropriate slits **38**, **40**, **42**, and **44**. A transparent cellophane or flexible plastic display window **45** may be provided in the blank.

The carton is partially set up from the blank **10**, as shown in FIGS. 2 and 3, by applying a suitable adhesive by appropriate means to substantially all of the outer surface of glue flap **20**, i.e., to that surface of the flap **20** which is not exposed in FIG. 1. The side panel **16** is then folded along foldline **48**, and the coated surface of flap **20** is brought into overlying relationship with the concealed surface of panel **12**, the latter panel being folded about foldline **50**. The glue flap **20** is adhesively secured to panel **12** so that the edge **12***a* of the panel will be adjacent the foldline **46**. The position of the glue flap **20** relative to panel **12** is shown by the dotted line **52** in FIG. 2. When the carton is in this collapsed partially set up form, the panel **16** is folded almost 180° about foldline **48** to a point where it overlies strip **19**, panel **18** and panel **14**.

In the collapsed, partially set up form shown in FIGS. 2 and 3, the structure is generally flat and therefore may be readily stored and shipped. The partially set up carton may be easily manipulated by the packager, normally by automatic equipment, into a tubular form as shown for example, in FIGS. 4–9. When set up in tubular form, flap **20** with panel **12** secured thereto is folded along foldline **46**, the strip **19** is folded along foldline **54**, and the fold which has been formed in the collapsed structure along foldline **48** is substantially straightened out so that, as shown best in FIG. 6, the strip **19** is brought practically into the same relationship with respect to panel **16** that it had prior to setting up the blank **10**. Thus, strip **19** together with panel **16** form the bottom of the completely set up carton, as best shown in FIG. 6. The strip **19** in this way provides the means by which the disclosed carton may be formed into its peculiar configuration from a collapsed, partially set up blank. The distinctive shape of the disclosed embodiment of this invention is shown best in FIGS. 7–9.

When the carton is set up in tubular form the end panels **12** and **18** form equal obtuse angles with the side panel **14**. The degree of these angles may be varied depending upon the particular shape and depth of the carton that is desired. For example, a shallower carton may be formed without changing the end panel dimensions by increasing the size of the angles between the end panels and the side panel **14**.

To close one of the discharge openings of the carton, the flaps **22** and **26** are folded inwardly as shown in FIG. 4. Flaps **30** and **34** are folded over flaps **22** and **26**, and tuck flap **34** is inserted into the carton in overlying relation to the inner surface of its bottom panel, as shown, for example, in FIG. 5. The flaps may be adhesively secured so as to form a sealed end, and the adhesive may be applied between the outer surface (unexposed surface in FIG. 1) of tuck flap **34** and the inner surface of the bottom of the carton. After this end of the carton is sealed, it is moved to the filling station where the product to be packaged is deposited into the carton. After the carton is filled, the other open end of the carton is closed by manipulating the flaps **24**, **28**, **32**, and **36** in a manner similar to that used to close the first opening. One end of the carton, usually the one closed after filling, is generally not adhesively secured so that it may be repeatedly opened and reclosed during the use of the contents of the carton.

To insure secure closure of the carton ends, each of the dust flaps **22**, **24**, **26**, and **28** has a portion of its periphery **22***a*, **24***a*, **26***a*, and **28***a*, respectively, which, when the carton is closed, engages corresponding slits **61**, **62**, **63**, and **64**, disposed between the tuck flaps and side flaps of the carton. When the dust flaps and slits are in engagement, the corresponding flaps are locked together and accidental opening of the carton during handling is prevented.

In FIGS. 1 and 3, window **45** is shown as part of the blank **10**. This window should be transparent and made of a flexible or foldable material, such as cellophane, so that it can be manipulated along with the remainder of the blank into the desired carton. In the finished carton the window provides a means for displaying the contents of the carton to the consumer.

While one embodiment of this invention has been described and illustrated, further modifications may be made thereto, and it is contemplated, therefore, by the appended claims to cover any such modifications that fall within the spirit and scope of this invention.

I claim:

1. A carton constructed from a collapsed tubular shaped article, said carton comprising a pair of side panels disposed in overlying spaced relationship; end panels joined to said side panels, one end panel forming an obtuse angle with one side panel substantially equal to the angle formed by the other end panel with the same side panel; a strip disposed intermediate the other of said side panels and one of said end panels, said strip forming with said other side panel one side of said carton and when the carton is in its collapsed form overlying said other side panel; and means for closing the openings at the opposite ends of said carton.

2. A carton constructed from a collapsed tubular shaped article, said carton comprising first and second side panels disposed in overlying spaced relationship; end panels joined to said side panels, one end panel forming an obtuse angle with said first side panel substantially equal to the angle formed by the other end panel with said first side panel; a strip disposed intermediate one of said end panels and said second side panel, said strip forming with said second side panel one side of said carton and when the carton is in its collapsed form overlying said second side panel; a flap intermediate the other of said end panels and said second side panel, said flap being secured to the concealed surface of said other end panel, and means for closing the openings at the opposite ends of said carton said means comprising side flaps foldably attached to the opposed ends of said first side panel, a tuck flap foldably attached to the end of at least one of said side flaps opposite the end thereof which is attached to said first side panel, and end flaps foldably attached to the opposed ends of said end panels.

3. The carton of claim **2** wherein slits are disposed intermediate the side flaps and the tuck flaps, and means are provided on the end flaps for engaging said slits and locking said closing means into a closed position.

4. The carton of claim **2** wherein the first and second side panels are rectangularly shaped said end panels are trapezoidally shaped and the side flaps attached to opposed ends of said first side panel are trapezoidally shaped.

5. A blank of foldable material from which a carton may be formed, said blank comprising a plurality of foldlines cooperating with each other to form a pair of end panels; a first side panel joined to and intermediate said end panels and forming equal obtuse angles therewith when a carton is formed from said blank; a second side panel; a strip intermediate said second side panel and one of said end panels, said strip and said second side panel forming one side of the carton when the carton is formed from said blank; means for securing said second side panel to the other of said end panels; and means for closing openings at the opposite ends of said carton when it is formed from said blank.

6. A blank of foldable material from which a carton may be formed, said blank comprising a plurality of foldlines cooperating with each other to form a first trapezoidal end panel; a first rectangular side panel attached thereto; a second trapezoidal end panel attached to said side panel, said first and second end panels forming equal obtuse angles with said first side panel when a carton is formed from said blank; a second rectangular side panel; a strip joined to and intermediate said second end panel and said second side panel, said strip and second side panel forming one side of the carton when the carton is formed from said blank; a glue flap attached to said second side panel and adapted to be secured to the concealed surface of said first end panel; and closure means including trapezoidally-shaped side flaps attached to the opposite ends of said first side panel, a tuck flap attached to the end of at least one of said side flaps opposite the end thereof which is attached to said first side panel, and end flaps attached to the opposite ends of said end panels.

7. The blank of claim **6** wherein slits are disposed intermediate the side flaps and the tuck flaps, and means are provided on the end flaps for engaging said slits and locking said closure means into a closed position.

8. A collapsed tubular shaped article from which a carton may be formed, said article comprising a plurality of foldlines cooperating with each other to form a first

end panel; a first side panel attached thereto; a second end panel attached to said side panel, said first and second end panels forming equal obtuse angles with said first side panel when a carton is formed from said article; a second side panel; a strip joined to and intermediate said second end panel and said second side panel, said strip and said second side panel forming one side of the carton when the carton is formed from said article; means for securing said second side panel to said first end panel; and means for closing the openings at the opposite ends of said carton when it is formed from said blank; said article being folded about foldlines to form two overlying portions, said first portion comprising said first end panel, said first side panel and said strip, and said second portion comprising said second end panel and said second side panel.

9. A collapsed tubular shaped article from which a carton may be formed, said article comprising a plurality of foldlines cooperating with each other to form a first trapezoidal end panel; a first rectangular side panel attached thereto; a second trapezoidal end panel attached to said side panel, said first and second end panels forming equal obtuse angles with said first side panel when a carton is formed from said article; a second rectangular side panel; a strip joined to and intermediate said second end panel and said second side panel, said strip and second side panel forming one side of the carton when the carton is formed from said article; a glue flap attached to said second side panel and secured to the concealed surface of said first end panel; and closure

means including trapezoidally-shaped side flaps attached to the opposite ends of said first side panel, a tuck flap attached to the end of at least one of said side flaps opposite the end thereof which is attached to said first side panel, and end flaps attached to the opposite ends of said end panels; said article being folded about foldlines to form two overlying portions, said first portion comprising said first end panel, said first side panel, the flaps attached thereto, and said strip, and said second portion comprising said second end panel, the flaps attached thereto, said second side panel and said glue flap.

10. The article of claim 9 wherein slits are disposed intermediate the side flaps and the tuck flaps, and means are provided on the end flaps for engaging said slits and locking said closure means into a closed position.

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