

[54] **CARTON WITH GUSSETED ENDS**

[72] Inventor: **Nicholas V. Morgese**, Garnerville, N.Y.

[73] Assignee: **Continental Can Company, Inc.**, New York, N.Y.

[22] Filed: **May 15, 1970**

[21] Appl. No.: **37,782**

[52] U.S. Cl. **229/40**

[51] Int. Cl. **B65d 5/02**

[58] Field of Search 229/40, 28 BC, 52 BC, 29;
206/65 E; 220/102, 108, 112, 113, 115

[56] **References Cited**

UNITED STATES PATENTS

3,157,309 11/1964 Chidsey, Jr. et al. 229/40 X

FOREIGN PATENTS OR APPLICATIONS

741,661 8/1966 Canada 229/40

Primary Examiner—Joseph Wegbreit

Assistant Examiner—Hadd S. Lane

Attorney—Diller, Brown, Ramik & Holt

[57]

ABSTRACT

This disclosure relates to a carton blank and a carton formed therefrom which includes top, side and bottom panels with the side panels each including an end panel joined thereto along a fold line whereupon being set up into a generally tubular configuration the end panels at least partially close axially opposite ends of the carton. The major feature of the invention is a locking panel associated with each bottom and end panel in the form of a pair of locking panel portions divided by a fold line which permits the locking panel to be folded or gusseted interiorly of the tubular body to maintain each end panel disposed less than 90° relative to its associated side panel whereby a projecting nose of one of the locking panel portions is deeply disposed within the carton at a position whereat the bottom wall of an associated container packaged within the carton may rest upon the nose to preclude inadvertent unfolding of the locking panel portions.

21 Claims, 4 Drawing Figures

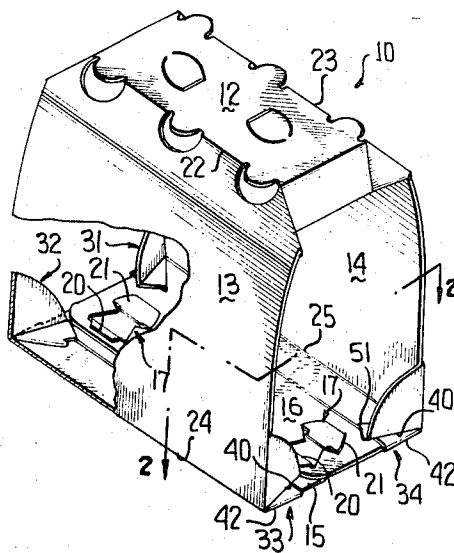


FIG. 1

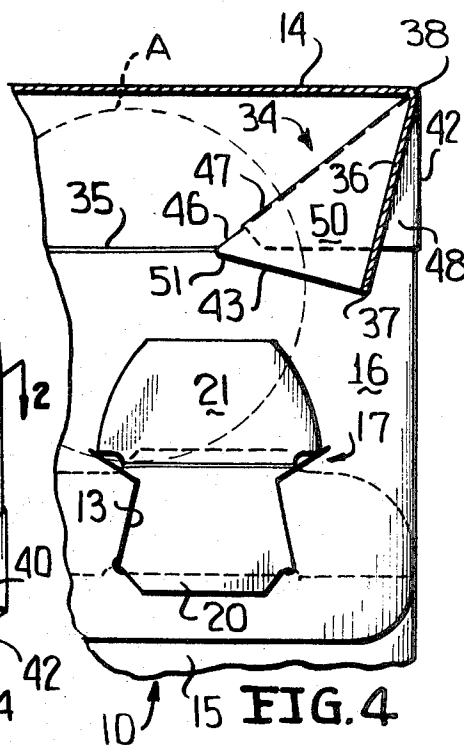
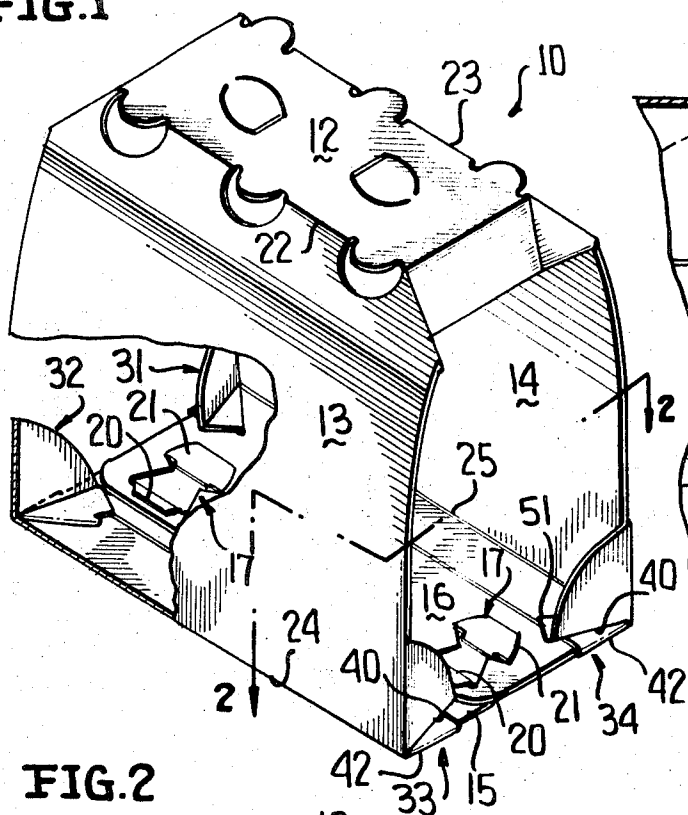


FIG. 2

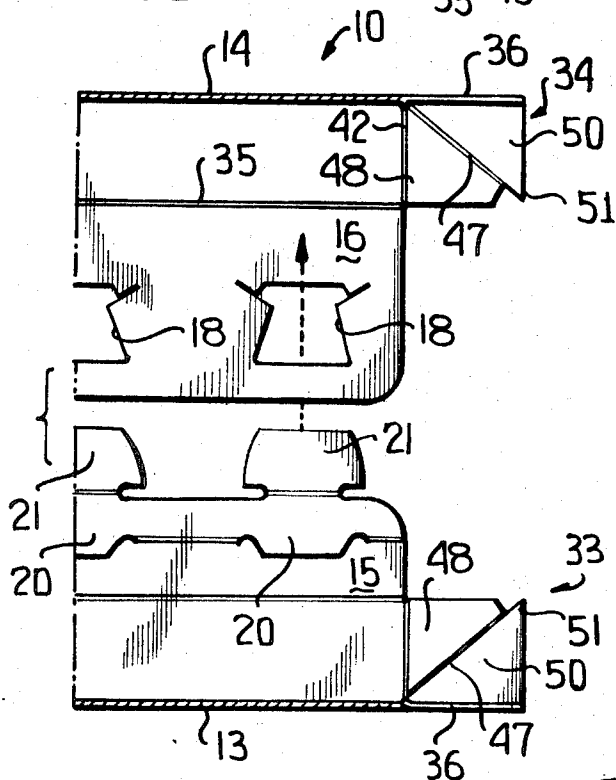
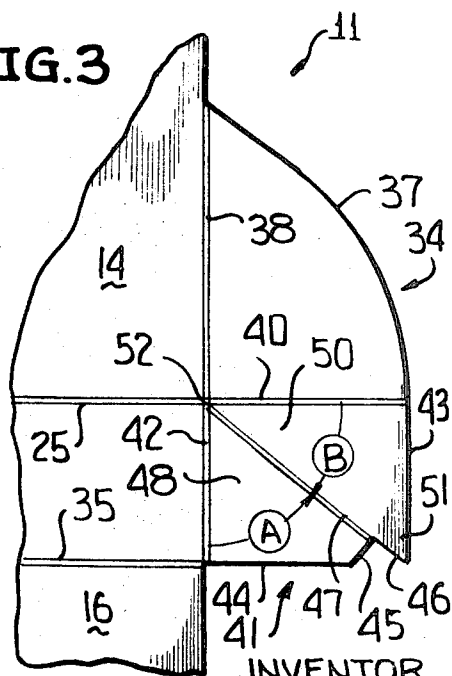


FIG. 3



INVENTOR
NICHOLAS V. MORGESSE

By
Diller, Brown, Ramik & Haet
ATTORNEYS

CARTON WITH GUSSETTED ENDS

A primary object of the present invention is to provide a novel carton blank and a carton formed therefrom of the generally tubular type having normally open axially opposite ends which in the present case are at least partially closed by a pair of end panels at each end of the carton, each end panel being joined to an associated edge of an associated side panel, and a locking flap being gussetted internally of the tubular carton into overlying relationship to an associated bottom panel to maintain the end panels less than normal to the side panels which not only closes the carton at each of its lower four corners but permits the locking panels to project very deep into the carton interior in order that endmost containers packaged therein may rest upon the locking flaps and prevent the inadvertent unfolding thereof.

A further object of this invention is to provide a novel wrap-around type carton in which each locking panel is joined to respective side and bottom panels by a pair of fold lines disposed generally normal to each other, each locking panel is divided into a pair of locking panel portions by a third fold line, and the third fold line and one of the pair of fold lines adjacent the associated end panel are disposed at an angle of less than 45° to each other.

A further object of this invention is to provide a novel carton of the type heretofore described in which the locking panel portion sandwiched between the bottom panel and the remaining locking panel portion is provided with a slot having an edge coincident with the third fold line and defining a projecting nose of the remaining locking panel portion.

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 claimed subject matter, and the several views illustrated in the accompanying drawing.

IN THE DRAWING:

FIG. 1 is a perspective view of a novel carton constructed in accordance with this invention, and illustrates four end panels at each of four bottom corners of the carton disposed at less than 90° to associated side panels, and being maintained in this position by gussetted locking flaps or panels.

FIG. 2 is an enlarged exploded cross-sectional view taken generally along line 2-2 of FIG. 1, and illustrates the condition of the carton prior to the folding of the locking panels to their final position and the latching of inner and outer bottom panels to each other.

FIG. 3 is a highly enlarged fragmentary plan view of one of the corners of the carton blank, and illustrates the manner in which a locking panel is joined by a fold line to an associated end and bottom panel and a fold line setting off two locking portions of the locking panel.

FIG. 4 is a fragmentary enlarged view taken generally along line 2-2 of FIG. 1, but illustrating only the right-handmost corner of the carton, and illustrates the manner in which a container in phantom outline overlies the now folded or gussetted locking panel.

Reference is made particularly to FIG. 1 of the drawing which illustrates a carton generally designated by the reference numeral 10 which is formed from a generally rectangular blank of sheet material, such as paper stock or similar foldable material. Though the blank 11 (FIG. 3) is not illustrated in its entirety, it is to be understood that except for the portion thereof illustrated in FIG. 3 the blank 11 is of a conventional construction and when set up to form the carton 10 includes a top panel 12, a pair of side panels 13, 14, an outer bottom panel 15, and an inner bottom panel 16. The bottom panels 15, 16 are secured by conventional latching means, generally designated by the reference numeral 17, which include a plurality of identical apertures 18 formed in the inner bottom panel 16 and a plurality of primary latching tabs 20 and secondary latching tabs 21 formed from the material of the bottom panel 15. The latching tabs 20, 21 in-

terlock with the apertures 18 in the manner clearly illustrated in FIG. 4 of the drawing.

In order to facilitate the folding of the blank 11 into the carton 10, the blank 11 is provided with a plurality of transverse fold lines such as, for example, fold lines 22, 23 which join the top panel 12 to the respective side panels 13, 14. Additionally, transverse fold lines 24, 25 join the respective side panels 13, 14 to the inner and outer bottom panels 15, 16, respectively.

At the intersection of each side and bottom panel is an identical corner construction, it being noted that there are four such corner constructions illustrated in FIG. 1, and are identified by reference numerals 31 through 34. Since the corner constructions 31 through 34 are identical, only the corner construction 34 will be described in detail and the same will suffice for a complete understanding of the present invention.

The corner construction 34 will be best understood by referring first to FIG. 3 which illustrates a portion of the side panel 14 joined by the fold line 25 to the inner bottom panel 16 which additionally includes a fold line 35 parallel to the fold line 25. An end panel 36 is defined by an arcuate edge 37 and is joined to the side panel 14 by a fold line 38 which is normal to the fold line 25 and to a fold line 40 which is in essence an extension or portion of the fold line 25. However, the fold line 40 further serves to join the end panel 36 to end panel holding means in the form of a locking panel 41 of a generally rectangular configuration defined by the extension 40 of the fold line 25, an extension 42 of the longitudinal fold line 38 and edges 43, 44 which are disposed generally normal to each other. However, it is to be noted that the edge 44 is interrupted by a pair of outwardly diverging edge portions 45, 46, the latter of which is coincident with a fold line or similar weakening line 47. The fold line 47 and the fold line 42 along with the edge 44 and the edge portion 45 define a locking panel portion 48 of the locking panel 41 while the fold lines 40, 47, the edge 43 and the edge portion 46 define another locking panel portion 50 of the locking panel 41. In addition, the edge portion 46 and the lower end of the edge 43, as viewed in FIG. 3, define a nose 51, the purpose of which is to permit a bottom wall of a container A or similar article (FIG. 4) to rest thereupon in a manner to be described more fully hereinafter in order that the folded or gussetted locking panel portions 48, 50 cannot inadvertently unfold.

Referring again to FIG. 3 of the drawing, the lines 40, 42 and 47 have a common point of intersection, generally designated by the reference numeral 52 and also define angles A, B which are not identical and in conjunction with the nose 51 form the major inventive concept of this disclosure. The angle B is in fact at all times less than the angle A and is also less than 45°, and preferably approximately 40° although this angle can be decreased appreciably. As will be seen hereinafter, as the angle B is decreased the nose 51 (FIG. 4) is directed deeper into the interior of the carton 10 while the angle between the end panel 36 and the side panel 14 progressively decreases. Thus, in the folded position (FIGS. 1 and 4) of each of the corner constructions the angle between adjacent side and end panels is always less than 90° and the fold line portion 40 is always inboard of the fold line portion 42, as is best illustrated in FIG. 1 of the drawing.

The corner construction 34, as well as the remaining corner constructions 31 through 33, is set up to the position illustrated in FIG. 1 by merely folding the end panel 36 and the locking panel 41 along the fold line 38 and its extension 42. This brings the panels 36, 41 temporarily normal to the side panel 14 and the bottom panel 16. Thereafter the bottom panel 16 is folded toward its final position normal to the side panel 14 by upward folding movement about the fold line 25. Simultaneously therewith the panels 48, 50 are folded relatively to each other to form an outwardly opening gusset which progressively closes to the position best shown in FIGS. 1 and 4 whereat the fold line 40 is inboard of the fold line 42 and the end panel 36 is less than normal to the side panel 14. In this position the locking panel portions 48, 50 are in

generally parallel relationship to each other with the panel portion 48 being sandwiched between the panel portion 50 and the inner bottom panel 16. When the articles A are packaged in the carton 10, the nose 51 of each of the corner constructions 31 through 34 projects inwardly a distance sufficient such that the bottom wall of each article rests upon the noses 51 and prevents the gusset from inadvertently opening, thus maintaining the end panels properly positioned, in the manner best illustrated in FIGS. 1 and 4 of the drawing.

While preferred forms and arrangements of parts have been shown in illustrating the invention, it is to be clearly understood that various changes in details and arrangement of parts may be made without departing from the spirit and scope of this disclosure.

I claim:

1. A carton blank corner construction comprising a plurality of panels including a bottom panel joined to a side panel along a transverse fold line, said transverse fold line intersecting a longitudinal fold line normal thereto, said longitudinal fold line having coincident first and second portions at opposite sides of said point of intersection in part defining said respective side and bottom panels, an end panel joined to said side panel along said longitudinal fold line first portion, said transverse fold line having first and second portions on opposite sides of said point of intersection with said transverse fold line first portion being common to said side and bottom panels and said transverse fold line second portion in part defining said end panel, said end panel being additionally defined by a first edge extending between ends of said longitudinal and transverse fold line first and second portions respectively which are remote from said point of intersection, a locking panel in part defined by said longitudinal and transverse fold line second portions, said locking panel being additionally defined by a second edge extending between said first edge and said longitudinal fold line second portion at a point thereof remote from said point of intersection, another fold line in said locking panel disposed at an angle of less than 45° to said transverse fold line second portion and greater than 45° to said longitudinal fold line second portion and setting off therewith a pair of locking panel portions adapted for folding into generally overlapped relationship when said blank is set up to form a generally tubular carton having axially open ends at least one of which is partially closed by said end panel.

2. The carton blank as defined in claim 1 wherein said second edge has first and second edge portions merging at a nose remote from said point of intersection, and said second edge portion is generally parallel to said longitudinal fold line second portion.

3. The carton blank as defined in claim 1 wherein said second edge has first and second edge portions merging at a nose remote from said point of intersection, and said first edge portion is generally partially parallel to said transverse fold line second portion.

4. The carton blank as defined in claim 1 wherein said second edge has first and second edge portions merging at a nose remote from said point of intersection, said second edge portion is generally parallel to said longitudinal fold line second portion, and said first edge portion is generally partially parallel to said transverse fold line second portion.

5. The carton blank as defined in claim 2 wherein said first edge portion is notched adjacent said nose.

6. The carton blank as defined in claim 3 wherein said first edge portion is notched adjacent said nose.

7. The carton blank as defined in claim 4 wherein said first edge portion is notched adjacent said nose.

8. The carton blank as defined in claim 5 wherein said bottom and side panels are additionally defined by edges coincident with said longitudinal fold line.

9. The carton blank as defined in claim 6 wherein said bot-

tom and side panels are additionally defined by edges coincident with said longitudinal fold line.

10. The carton blank as defined in claim 7 wherein said bottom and side panels are additionally defined by edges coincident with said longitudinal fold line.

11. A package comprising a plurality of articles housed within a carton, said carton including a body of a generally tubular open ended configuration defined at least in part by top, side, bottom and end panels, said bottom and side panels being disposed generally normal to each other, said end panel being joined to said side panel along a first fold line, the improvement comprising means for holding said end panel disposed transverse to said side panel, said holding means being in the form of a locking panel between said bottom and end panels, said locking panel being joined by a portion of said first fold line to said bottom panel, said locking panel being joined by a portion of said second fold line to said end panel, another fold line between said first and second fold line portions setting off a pair of locking panel portions of said locking panel, said locking portions being folded about said another fold line into overlapping relationship to each other inboard of said carton body with said second fold line portion being inboard of said first fold line portion thereby effecting deep projection of at least one of said locking panel portions into said carton body, and each said one locking panel portion being held in position by an article seated thereon whereby each one locking panel portion is sandwiched between an article and its associated remaining locking panel portion.

12. The package as defined in claim 11 wherein said first and second fold line portions and said another fold line intersect at a common point.

13. The package as defined in claim 11 wherein said end and side panels define an angle of less than 90° therebetween.

14. The package as defined in claim 11 wherein said second fold line portion and said another fold line define therebetween an angle of less than 45°.

15. The package as defined in claim 11 wherein each said remaining locking panel portion is sandwiched between said one locking panel portion and said bottom panel, and each said one locking panel portion includes a terminal inboard nose upon which rests a bottom wall of an associated article within said package.

16. The package as defined in claim 12 wherein said end and side panels define an angle of less than 90° therebetween.

17. The package as defined in claim 12 wherein said second fold line portion and said another fold line define therebetween an angle of less than 45°.

18. The package as defined in claim 13 wherein said second fold line portion and said another fold line define therebetween an angle of less than 45°.

19. The package as defined in claim 12 wherein each said remaining locking panel portion is sandwiched between said one locking panel portion and said bottom panel, and each said one locking panel portion includes a terminal inboard nose upon which rests a bottom wall of an associated article within said package.

20. The package as defined in claim 13 wherein each said remaining locking panel portion is sandwiched between said one locking panel portion and said bottom panel, and each said one locking panel portion includes a terminal inboard nose upon which rests a bottom wall of an associated article within said package.

21. The package as defined in claim 14 wherein each said remaining locking panel portion is sandwiched between said one locking panel portion and said bottom panel, and each said one locking panel portion includes a terminal inboard nose upon which rests a bottom wall of an associated article within said package.

* * * * *