

[54] CARTON WITH GUSSETTED ENDS

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 [58] Field of Search206/65 C, 65 E; 229/40; 220/115, 110-114

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[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 generally 90° relative to its associated side panel.

12 Claims, 4 Drawing Figures

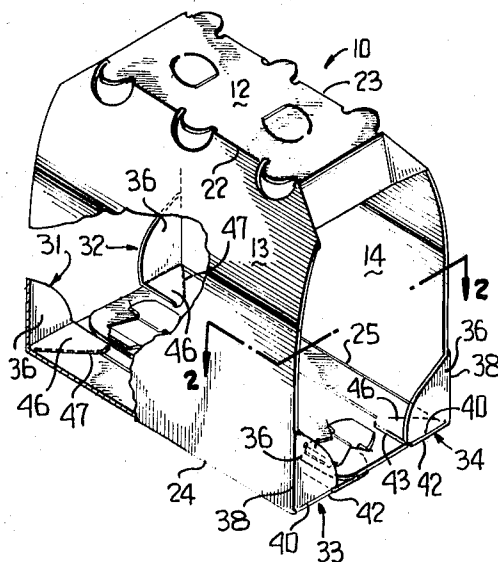


FIG. 1

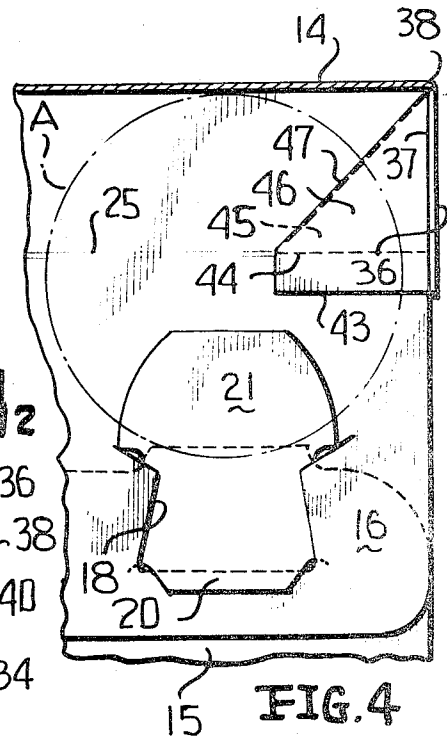
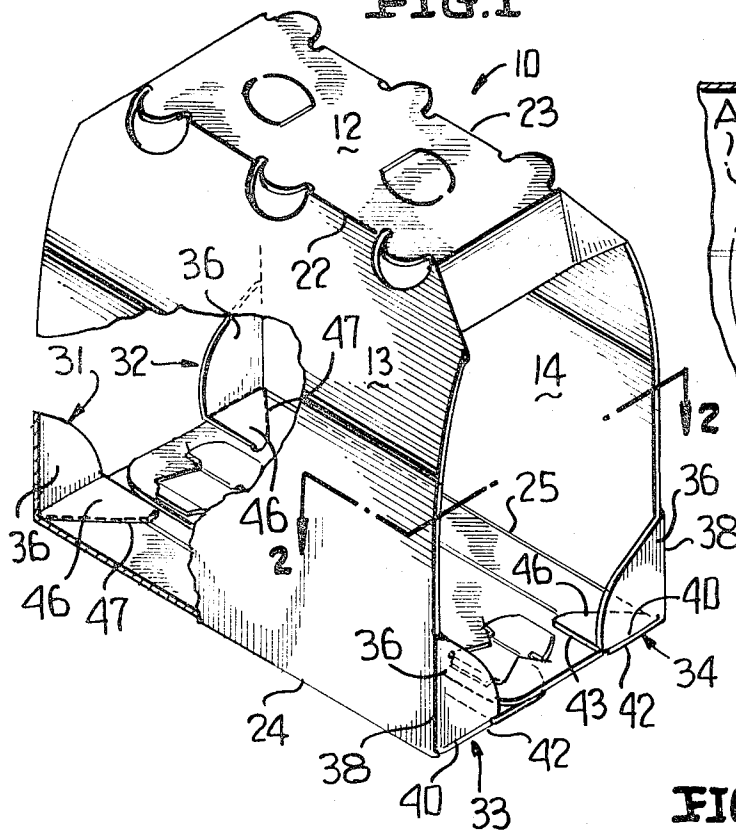


FIG. 2

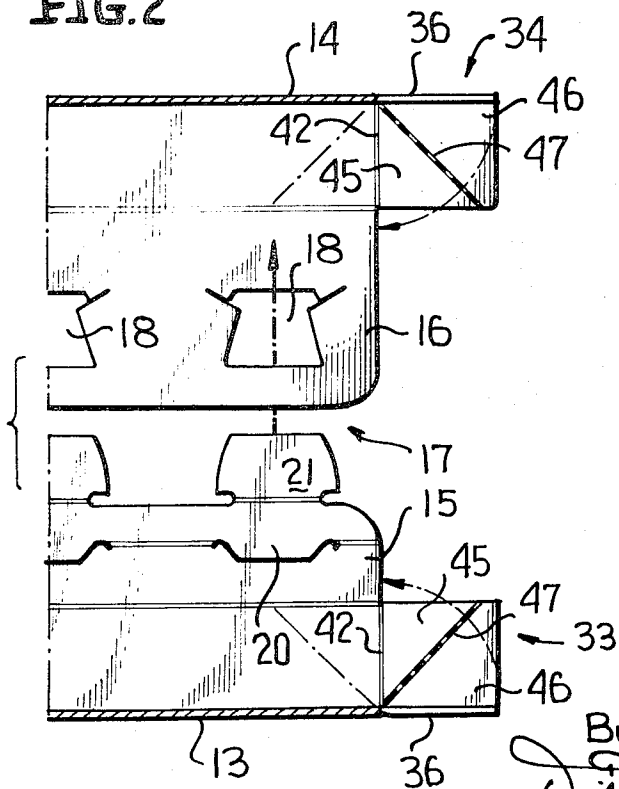
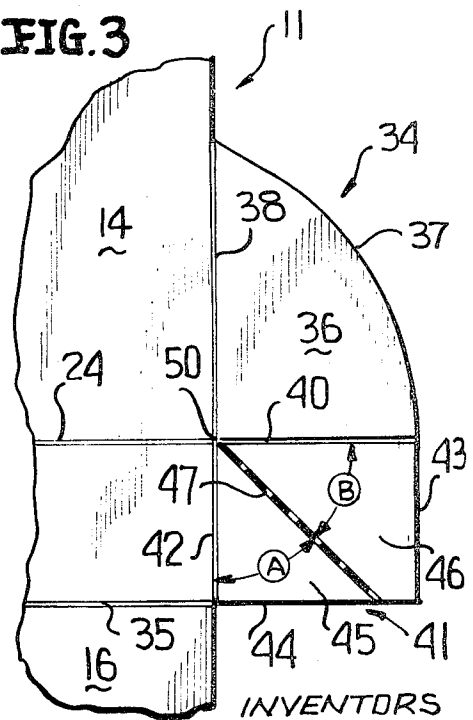


FIG. 3



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CARTON WITH GUSSETED 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 edge of an associated side panel, and a locking flap being gusseted internally of the tubular carton into overlying relationship to an associated bottom panel to maintain the end panels generally normal to the side panels and thus the tubular carton is essentially closed at each of its lower four corners.

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, and each locking panel is divided into a pair of locking panel portions by a third fold line generally bisecting the angle between the pair of fold lines and intersecting a common point of intersection thereof.

A further object of this invention is to provide a novel carton of the type heretofore described in which each gusseted locking panel is sandwiched between a bottom wall of an associated container housed within the carton and the bottom panel thereof.

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 accompany 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 generally normal to associated side and bottom panels, and being maintained in this position by gusseted locking flaps.

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 flaps to their final position and the latching 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 blocking 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 gusseted locking flap.

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 interlock 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 24 to the inner bottom panel 16 which additionally includes a fold line 35 parallel to the fold line 24. 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 24 and to a fold line 40 which is in essence an extension of the fold line 24. 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 24, and extension 42 of the longitudinal fold line 38, and edges 43, 44 which are disposed generally normal to each other. The locking panel 41 is further set off into a pair of locking panel portions 45, 46 of a generally triangular configuration by a weakening line 47. The lines 40, 42 and 47 have a common point of intersection, generally designated by the reference numeral 50 and the angles A, B are identical and are generally each 45° which when the carton 10 is set up in a manner to be described immediately hereinafter the extensions 40, 42 are in coincident overlying relationship to each other in generally parallel relationship to the bottom panel and normal relationship to the side panel 14 and the fold line 38 thereof.

The corner construction 34, as well as the remaining corner constructions 31 through 33, are set up to the positions 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 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 24. Simultaneously therewith the panels 45, 46 are folded relative to each other to form an outwardly opening gusset which progressively closes to the position best shown in FIG. 1 whereat the fold lines 40, 42 are disposed coincident to each other in generally parallel relationship normal to the side panel 14 whereas the fold line or weakened line 47 is now positioned approximately 40° to the side panel 14. In this position it is to be noted that the panel portions 45, 46 are in generally parallel relationship to each other with the panel portion 45 being sandwiched between the panel portion 46 and the inner bottom panel 16.

After articles have been placed internally of the carton, the latter is latched by the means 18, 20, 21 in a conventional manner. However, it is to be noted that in the completely set-up condition of the carton 10 (FIG. 1) an article A, only one of which is illustrated, overlyingly rests with its bottom wall seated upon the now gusseted locking panel 41 thereby sandwiching the latter between the bottom wall of the article A and bottom panel 16. In this manner the articles which are prevented from shifting axially outwardly of the carton 10 due to the end panels 36 also assist in precluding the inadvertent unfolding of the panel 41 simply by being disposed thereupon in the manner herebefore described.

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.

We claim:

1. A carton blank comprising a plurality of panels including a bottom panel joined to a side panel along a first transverse fold line, an end panel joined to said side panel along a first longitudinal fold line, a locking panel defined at least in part

by portions of said first transverse and longitudinal fold lines, and another fold line in said locking panel disposed at an angle other than normal to said first longitudinal and first transverse fold lines 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, another bottom panel joined to another side panel along another transverse fold line, another end panel joined to said another side panel along another longitudinal fold line, another locking panel defined at least in part by portions of said another transverse and longitudinal fold lines, a similar fold line in said another locking panel disposed at an angle other than normal to said another longitudinal and transverse fold lines and setting off therewith another 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 said one of which is partially closed by said first-mentioned and another end panels.

2. The carton blank as defined in claim 1 wherein said last-mentioned another and similar fold lines intersect at a common point.

3. The carton blank as defined in claim 2 wherein said similar fold line is disposed at an angle of generally 45 degrees to said another longitudinal and transverse fold lines.

4. The carton blank as defined in claim 1 wherein said similar fold line is disposed at an angle of generally 45° to said another longitudinal and transverse fold lines.

5. 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 45° to said

transverse fold line second portion and 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 disposed normal to said side panel and second portions of said transverse and longitudinal fold lines.

6. The carton blank as defined in claim 5 wherein said second edge portion is generally parallel to said longitudinal fold line second portion.

7. The carton blank as defined in claim 6 wherein said bottom and side panels are additionally defined by edges coincident with said longitudinal fold line.

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. 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 and to said bottom panel along a second 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, 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, and said second fold line portion and said another fold line define therebetween an angle of 45°.

10. The package as defined in claim 9 wherein said first and second fold line portions and said another fold line intersect at a common point.

11. The package as defined in claim 10 wherein said end and side panels define an angle of 90° therebetween.

12. The package as defined in claim 9 wherein each said remaining locking panel portion is sandwiched between said one locking panel portion and said bottom panel.

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