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ENCLOSED BOTTLE CARRIER

TECHNICAL FIELD

5 This invention relates to carriers for packaging which are specially designed to prevent bottle breakage due to collision between adjacent bottles.

BACKGROUND ART

10 U.S. patent 3,904,036 issued September 9, 1975 and owned by the assignee of this invention discloses a fully enclosed bottle container and includes a so called false score formed in the bottom wall.

Canadian patent 1,166,211 owned by the assignee of this invention discloses a carton for beverage containers which is related in some respects with this invention.

SUMMARY OF THE INVENTION

15 This invention in one form provides an enclosed bottle carrier having top, bottom and side walls wherein each side wall includes a bottom portion and an inwardly inclined top portion, said top, bottom and side walls being interconnected to form a tubular structure, a top end panel
 20 foldably joined to each end edge of said top wall, collapsible web structure foldably joined to each end edge of each of said top end panels and to the end edge of each of said inwardly inclined top wall portions, each of said collapsible webs having a yieldable fold line extending from
 25 the adjacent corner of said top wall and disposed in angular relation to the adjacent end edge of each of said inwardly inclined top wall portions so as to grip the necks of the corner bottles in a taut fashion and a bottom end panel foldably joined to each end edge of said bottom wall and

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secured in overlapping relation with the associated top end panel.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, FIG. 1 is a plan view taken from the inside of a blank formed according to this invention; FIGS. 2 and 3 show stages of folding through which the blank of FIG. 1 is manipulated so as to form a complete set up and closed carrier as shown in FIG. 4. FIG. 5 shows the carton partially closed and with areas broken away; and FIG. 6 shows the carton from one end which is fully enclosed.

A modified form of the invention is shown in FIG. 7 to 12 whereby FIG. 7 is a perspective view of the fully set up and enclosed carrier; FIG. 8 is a plan view of a blank from which this modified carrier is formed; FIG. 9 is an enlarged fragmentary view of the top wall and adjacent panels of this modified carrier as viewed from the inside; FIG. 10 is a view similar to FIG. 7 but which shows the near end of the modified carrier with the end closure panels and the web structures in partially set up condition; FIG. 11 is a cross sectional view of the top wall taken along the line 11-11 of FIG. 10; and FIG. 12 is a view which shows carrier parts as they appear during closing of an end of this modified version.

BEST MODE OF CARRYING OUT THE INVENTION

With reference to FIG. 1, the top wall of the carrier is designated by the numeral 1. Top end panel which is designated by the numeral 2 is foldably joined to top wall 1 along fold line 3 and top end panel 4 is foldably joined to top wall 1 along fold line 5. Side wall top portion is designated by the numeral 6 is foldably joined to top wall 1 along fold line 7. On the other side of the carrier, top side wall portion 8 is foldably joined to top



wall 1 along fold line 9. Tear strip 10 having a finger gripping pull tab 11 is formed in side wall 6 and extends into top wall 1 as indicated at 10a and 10b. On the other side of the carrier, tear line 12 and pull tab 13 are formed in the upper side wall element 8 and extend into the top wall as designated at 12a and 12b. Hand gripping handle is formed in top wall 1 and designated generally at 14.

Collapsible web structure 15 is foldably joined to the upper side wall panel 6 along fold line 16 and similar collapsible web structure 17 is foldably joined to the upper inwardly inclined side wall panel 6 along fold line 18. Collapsible web structure 15 is formed with a fold line 19 along which parts 19a and 19b are foldable when the structure 15 is collapsed during set up of the carrier. In similar fashion, collapsible web structure 17 includes a fold line 20 along which panels 20a and 20b are foldable into flat face contacting relation when the carrier is set up.

Side wall bottom portion is designated at 21 and is foldably joined to inwardly inclined side wall 6 along fold line 22. Web structure 23 is foldably joined to side wall bottom portion 21 along fold line 24. Web structure 23 includes weakened lines 25 and 26 which facilitate manipulation of panel elements 25a, 26a and 26b which aid in gripping the bottles and tend to prevent breakage.

In like fashion, web structure 27 is foldably joined to side wall bottom portion 21 along fold line 28 and includes weakened lines 29, 30 and 33 which facilitate gripping of bottles in a taut fashion.

According to one feature of this invention, a weakened fold line 30 is formed in collapsible web structure 15 and a yieldable fold line 31 is formed in collapsible web structure 17 as shown in FIG. 1.



According to another feature of this invention, the yieldable fold line 30 is extended into the collapsible structure 23 along a fold line 32 which is coaxially disposed relative to fold line 30. In like fashion, a yieldable fold line 33 is formed in collapsible structure 27. Yieldable fold line 32 is coaxially disposed with respect to yieldable fold line 30 and yieldable fold line 33 is coaxially disposed relative to yieldable fold line 31. These yieldable fold lines 30, 32, 31 and 33 constitute an improvement whereby bottles packaged within the container are securely gripped so as to hold the bottles in a taut and secure condition.

On the other side of the carrier, a side wall bottom portion is designated by the numeral 35 and is foldably joined to the top inwardly inclined side wall portion 8 along fold line 36. Collapsible web structure generally designated at 37 is formed and foldably joined to one end 38 of inwardly inclined top wall portion 8. In like fashion, collapsible web structure 40 is foldably joined to the opposite end of inwardly inclined side wall panel 8 along fold line 41. Collapsible web structures 37 and 40 are formed in the same manner as are the collapsible structures 15 and 17 previously described.

Also a web structure generally designated at 42 is foldably joined to bottom side wall portion 35 along fold line 43 and is formed in a manner identical to the manner in which collapsible structure 15 is formed. Web structure 42 is partially separated from collapsible web structure 37 by a slot 42a and is interconnected therewith by a small rectangular panel 42b. In like fashion, web structure 44 is foldably joined to bottom side wall portion 35 along fold line 45 and collapsible structure 44 is identical to side wall structure 27 previously described. Web structure 44 is partially separated from collapsible web structure 40 by a



slot 44a and is interconnected therewith by a small rectangular panel 44b.

Bottom wall 47 is foldably joined to the bottom side wall portion 35 along fold line 48 and bottom end panel 49 is foldably joined to bottom wall 47 along fold line 50. In like fashion, bottom end panel 51 is foldably joined to bottom wall panel 47 along fold line 52. A glue flap 53 is foldably joined to an edge of bottom wall 47 along fold line 54.

In order to manipulate the blank of FIG. 1 into the condition shown in FIG. 2, side wall bottom portion 21 is simply elevated and folded forwardly along fold line 22 and web structures 23 and 27 are from their positions shown in FIG. 1 to the position shown in FIG. 2.

The carton as shown in FIG. 2 is manipulated into the collapsed condition shown in FIG. 3 by simply elevating the lower side wall 6, the handle 14 and side wall 8 along with wall panel 21 and folding downwardly along the fold line 36 following the application of glue to glue flap 53. This folding operation causes the web structure 37 and 40 as well as the web structure 15 and 17 to overly their associated webs 42 and 44 and 23 and 27.

In order to set the carrier up from its collapsed condition as shown in FIG. 3 into its fully completed condition as shown in FIG. 4, the top wall 14 is elevated so that the bottom side wall panels 21 and 35 are substantially vertically disposed relative to the bottom wall 47. Following loading of the bottles into the carrier, from one or both ends, the structures 15, 23, 17, 27, 37, 42, 40 and 44 are swung inwardly into set up condition. The top end panels 2 and 4 are swung downwardly along the fold lines 3 and 5 respectively while the bottom end panels 49 and 51 are folded along fold lines 50 and 52 to cause the adhesive 2a



on top end panel 2 and the adhesive 4a formed in top end panel 4 to become adhered to the outer edges of bottom end panels 49 and 51 and the fully loaded and set up carton appears as shown in FIG. 4. FIG. 5 shows the carrier from one end with parts broken away so as to show weakened lines 30, 32, 25 and 26.

Turning now to the modified form of the invention, reference is made to the blank illustrated in FIG. 8 wherein the top wall is designated by the numeral 101. Parts of the carton handle structure are generally designated by the numeral 102 and U-shaped tabs 103, 104, 105 and 106 are struck from the top wall 101. Top end panel 107 is foldably joined to top wall 101 along fold line 108 and top end panel 109 is foldably joined to top wall 101 along fold line 110.

In the preferred embodiment, the bottom upright portion of one side wall is designated by the numeral 110 and an inwardly inclined top wall portion 111 is foldably joined to the lower portion 110 along a fold line 112 and inwardly inclined portion 111 is foldably joined to top wall 101 along fold line 113. In an alternate embodiment (not shown), top wall portion 111 is not inwardly inclined, but rather is coplanar with lower portion 110. In such a case, fold line 112 may be omitted, and both portions may be formed as a single wall panel.

Conventional tear strips 114 and 115 are struck from panel 111 and from top wall 101.

Suitable web structure formed according to this invention includes a first web panel 116 foldably joined to top end panel 107 along fold line 117. A second triangular web panel 118 is foldably joined to first web panel 116 along fold line 119. Second triangular web panel 118 is foldably joined along line 120 to the adjacent end of the inwardly inclined upper portion of one side wall. Fold line



120 is substantially perpendicular to line 112, and substantially vertical when the carton is set up.

Third web panel 122 is foldably joined to the lower upright portion 110 of one side wall along fold line 123. Fold line 123 is substantially perpendicular to fold line 112, substantially parallel to and offset from fold line 120, and when the carton is set up, substantially vertical. A fourth web panel 124 is of a triangular configuration and is defined by weakened fold lines 125 and 126 which diverge upwardly from a point 127 on fold line 123. Adjacent parts of a second triangular web panel 118 coincide with a corresponding side 125 and 126 of the fourth web panel 124. A cutaway area 130 allows the adjacent parts of second triangular web panel 118 and a fourth triangular web panel 124 to move into abutment with each other so as to facilitate manipulation of the web structures during a carrier set up and loading operation. As may be necessary to achieve proper folding, cutaway area 130 may extend inwardly completely to fold lines 120 and 126, or may extend only partially thereto as shown. Cutaway area 131 also aids in manipulation of the webs during a carrier loading operation.

In the preferred embodiment, a bridge portion 132 is foldably interconnected between first and third web panels 116 and 122 to assist infolding panels 116 and 122 following carrier loading, and in maintaining the panels in position during subsequent gluing of the carrier ends. If desired, however, it is possible to omit bridge portions 132, whereby cutaway areas 131 take the form of notches rather than openings, particularly if cutaway areas 130 extend inwardly only partially toward fold lines 120 and 126.

The angular relationship between the third and fourth web panels is preferable such that the third web



panel extends inwardly at a right angle to the lower side wall portion 110 and presents a flat and substantially vertical surface for gluing when the bottom end panel 146 is folded into overlapping face contacting relationship therewith. In addition, fourth web panel 124 helps to maintain the third web panel 122 in engagement with the lower portions of the adjacent corner bottles.

Web structure at the other end of the carrier is identical to that just described and includes first web panel 116, second triangular web panel 118, third web panel 122 and fourth web panel 124.

The bottom edge 135 of the lower portion 110 of one side wall is foldably joined to the bottom wall 136 along fold line 135. Openings 137, 138, 139, 140, 141 and 142 are formed in bottom wall 136 and facilitate manipulation of the carrier during feeding and setting up operations. Bottom end panel 144 is foldably joined to bottom wall 136 along fold line 145 and bottom end panel 146 is foldably joined to bottom wall 136 along fold line 147.

The remaining side wall structure as well as the web structures previously described are identical to those shown in FIG. 8 and a detailed description of these parts is not deemed necessary. The same numerals are applied to designate both sets of parts.

In order to interconnect the opposite ends of the blank as shown in FIG. 8 to form a tubular enclosure, lap panel 150 is foldably joined to inwardly inclined panel 111 along fold line 151 and end panel 152 is foldably joined to panel 150 along fold line 153. At the other side of the blank end panel 154 is foldably joined to panel 150 along fold line 155. U-shaped cutouts 156 and 157 are positioned as shown in FIG. 8.



In order to set the carrier up from the condition shown in FIG. 8 to that shown in FIGS. 7 and 10, an application of glue is made to the reinforcing panel 158 as indicated by stippling in FIG. 8. Thereafter the reinforcing panel is elevated and folded toward the right along fold line 159. This operation of course causes the reinforcing panel 158 to become adhered to the inner surface of the panel 150. Thereafter panels 111 and 116 together with panels 150, 152 and 154 are elevated and folded toward the left along the right hand fold line 112. An application of glue is then made to panels 150, 152 and 154, following which panels 111, 116, 101, 107 and 109 are elevated and folded toward the right along the left fold line 112 to cause panel 150 to become adhered to the inside surface of panel 102, as shown in FIG. 9.

The carton may then be set up into open ended condition and loaded through one or both ends. The top and bottom end panels are secured together by glue shown as stippling in FIG. 12. The various web structures are manipulated into fully set up condition and the carton then appears in completed form as shown in FIG. 7.

Access to the contents of the carrier may be had by simply rupturing the tear lines such as 114 and 115 to gain access to the packaged bottles. If bottle return is desired, the empty bottles may be reinserted into the carrier and returned.

What is claimed is:

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CLAIMS

1. A bottle carrier comprising top, bottom, and side walls, each side wall having a bottom portion and an inwardly inclined top portion, said top, bottom and side walls being interconnected to form a tubular structure, said top wall being rectangular, a top end panel foldably joined to each end edge of said top wall, a web structure foldably joined to each end edge of each of said top end panels and to an adjacent end edge of each of said inwardly inclined top wall portions, each of said webs structures having a yieldable fold line extending from an adjacent corner of said top wall and disposed in angular relation to the adjacent end edge of the associated inwardly inclined top wall portion so as to grip the necks of the corner bottles in a taut fashion, and a bottom end panel foldably joined to each end edge of said bottom wall and secured in overlapping relation with the associated top end panel.

2. A bottle carrier according to claim 1 wherein a second web is foldably joined to an adjacent end edge of each of said side wall bottom portions.

3. A bottle carrier according to claim 2 wherein each said second web is partially separated by a slot from said first web and interconnected therewith by a small rectangular panel.

4. A bottle carrier according to claim 2 wherein a first yieldable fold line is formed in each of said second webs and disposed in coaxial relation with said yieldable fold line in said first webs.

5. A bottle carrier according to claim 2 wherein each of said bottom end panels is secured to the adjacent second web by adhesive.



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5 6. A bottle carrier according to claim 4 wherein a second yieldable fold line is formed in each of said second webs and extends from an upper corner of each of said side wall bottom portions downwardly and in converging relation to each of said first yieldable fold lines.

10 7. A bottle carrier according to claim 6 wherein a third yieldable fold line is formed in each of said second webs and extends from a lower outer corner of each of said second webs upwardly and inwardly to a point of intersection with the associated one of said second yieldable fold lines to aid in gripping the body portion of the corner bottles in the carrier in a taut and stable fashion.

15 8. A bottle carrier according to claim 1 wherein each of said web structures is collapsible along a fold line which extends from an outer edge thereof toward the adjacent top corner of the carton.

20 9. A bottle carrier according to claim 1 wherein a third web panel is foldably joined to the bottom portions of said side walls and folded inwardly into engagement with the adjacent corner bottles, and fourth web panels are joined to said bottom portion of said side walls and said third web panels and defined by pairs of fold lines each of which diverges upwardly and which terminate adjacent the lower ends of said triangular web panels, said third and
25 fourth web panels being related to each other so as to maintain said third web panels in engagement with the adjacent corner bottles.

30 10. A bottle carrier according to claim 9 wherein said fourth web panels are disposed astride the corners of said carrier.

11. A bottle carrier according to claim 9 wherein the lower ends of said second web panels and the adjacent



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upper ends of said fourth web panels are disposed in extension of said fold lines which define the junction between said top and said bottom portions of said side walls.

5 12. A bottle carrier according to claim 11 wherein the lower ends of said second web panels and the upper ends of said second web panels and the upper ends of said fourth web panels are separated by cut lines.

10 13. A carrier for bottles arranged in a side by side rectilinear group comprising a top wall, a bottom wall, and side walls, each side wall having a bottom portion and a top side wall portion having an end edge, said top, bottom and side walls being interconnected to form a tubular structure, a top end panel foldably joined to each end edge
15 of said top wall along a fold line which extends between opposite corners of the carton, a first web panel foldably joined to one side edge of each of said top end panels, a second triangular web panel foldably joined to an end edge of the adjacent top side wall portion and to the adjacent
20 edge of said first web panel along fold lines which diverge downwardly to define at least in part a third edge of said second triangular web panel so as to position said second triangular web panel astride the adjacent corner of the carrier and to cause said second web panel to engage the
25 neck of the adjacent corner bottle and to impart a taut inward force thereto, a third web panel foldably joined to the adjacent end of said bottom portion of the side wall and folded inwardly into engagement with the large bottom portion of the adjacent bottle, and a fourth web panel
30 defined by a pair of fold lines which diverge upwardly from a point on the end edge of said third web panel and which terminate adjacent the junction between said bottom portion of the adjacent side wall and the associated top side wall portion to impart an inward taut force to the large bottom
35 portion of the adjacent corner bottle.



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5 14. A bottle carrier according to claim 13 wherein said fourth web panel is of generally triangular configuration defined by said pair of lines which diverge upwardly and by a third line which extends for a portion of the distance between the upper extremities of said pair of lines which diverge upwardly.

10 15. A bottle carrier according to claim 14 wherein the remainder of the distance between the upper extremities of said pair of lines which diverge upwardly is a cutaway line.

15 16. A bottle carrier according to claim 13 wherein the point of intersection of said downwardly diverging sides of each of said fourth web panels also coincides with the fold line between each of said third web panels and with each end of each of said bottom portions of each side wall said fourth web panel being disposed astride the adjacent corner of the carrier.

20 17. A bottle carrier according to claim 15 wherein said cutaway line affords clearance for its adjacent edges whereby said edges move into engagement with each other thereby to impart an inward force to the adjacent third web panel.

25 18. A bottle carrier according to claim 13 wherein said top side wall portions are upwardly and inwardly inclined and wherein said end edge of the adjacent inwardly inclined top side wall portion is substantially perpendicular to the bottom edge of said inwardly inclined top side wall portion.



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ABSTRACT OF THE DISCLOSURE

A bottle carrier for packaging and gripping in a taut fashion a plurality of bottles includes top, bottom and side walls, each side wall having a substantially vertically disposed bottom portion and an inwardly inclined top portion foldably joined to the bottom portion to form a tubular structure, top end panels foldably joined to each end edge of the top wall together with a bottom end panel foldably joined to each end edge of the bottom wall and secured in overlapping relation with the associated top end panel. A first collapsible web is foldably joined to each end edge of each top end panel and to the end edge of each of the inwardly inclined top wall portion. A yieldable fold line formed in each collapsible web extends from the adjacent corner of the top wall downwardly in angular relation to the adjacent end edge of the associated inwardly inclined top wall portion.

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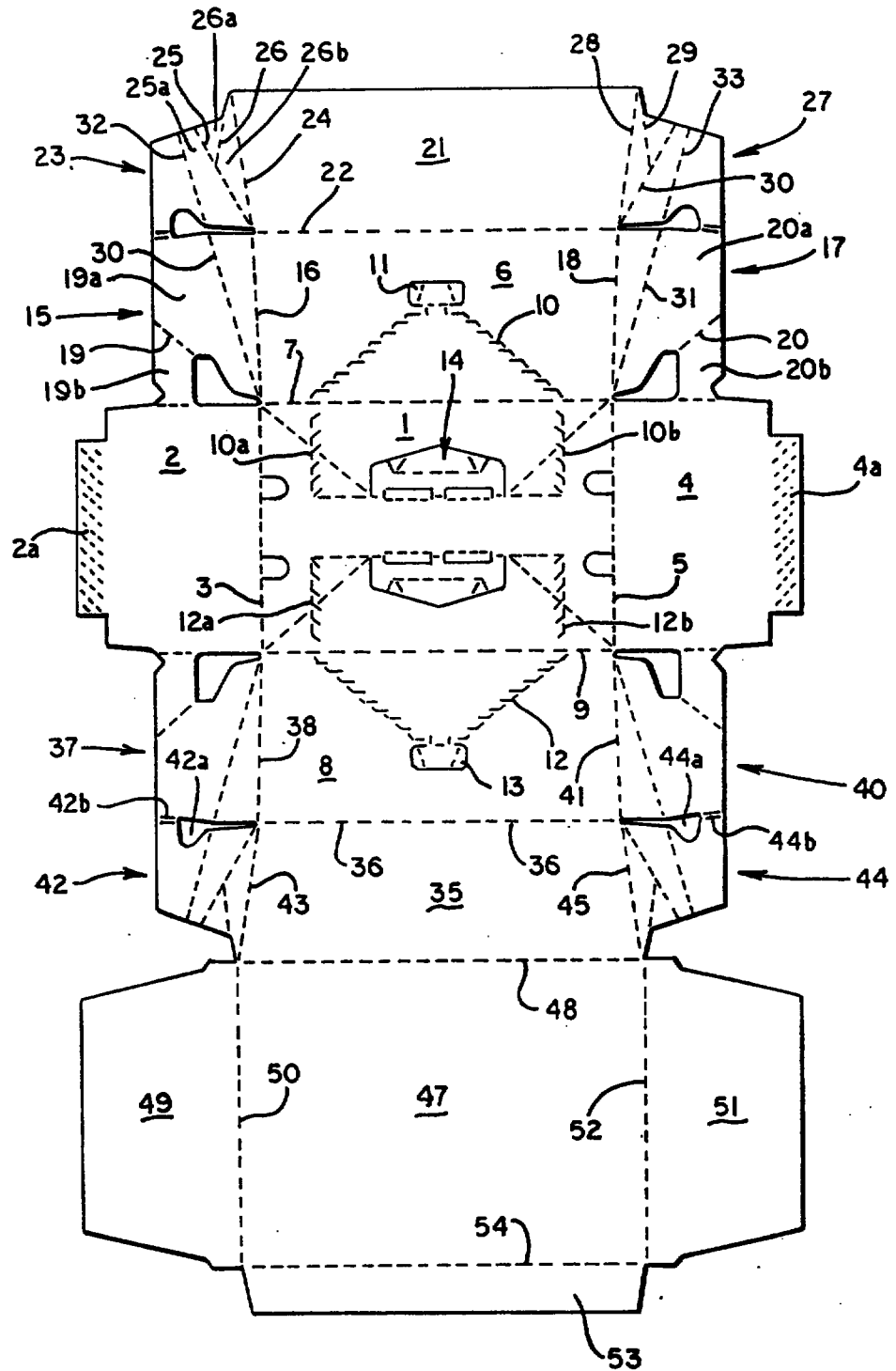


Fig. 1

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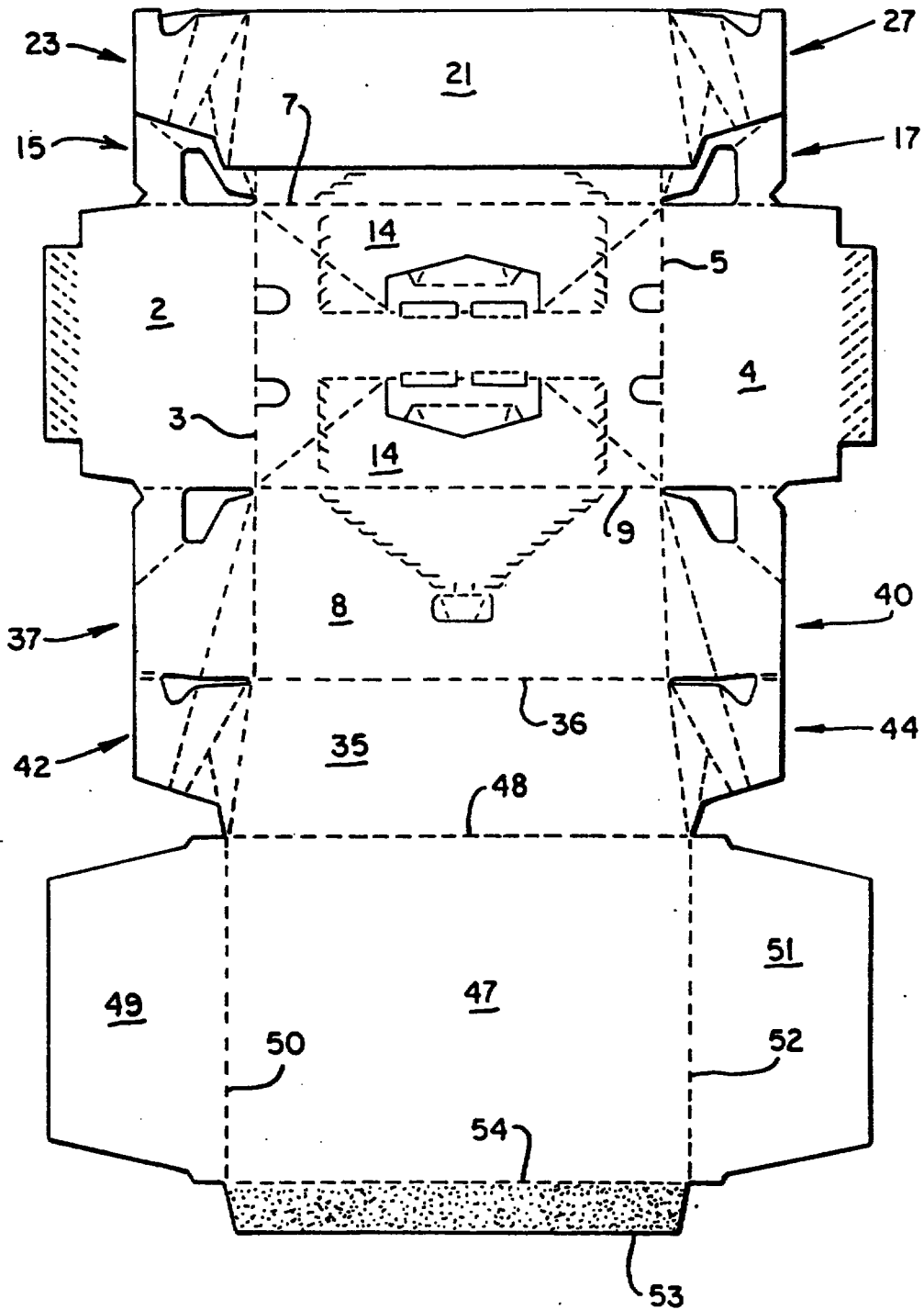


Fig. 2

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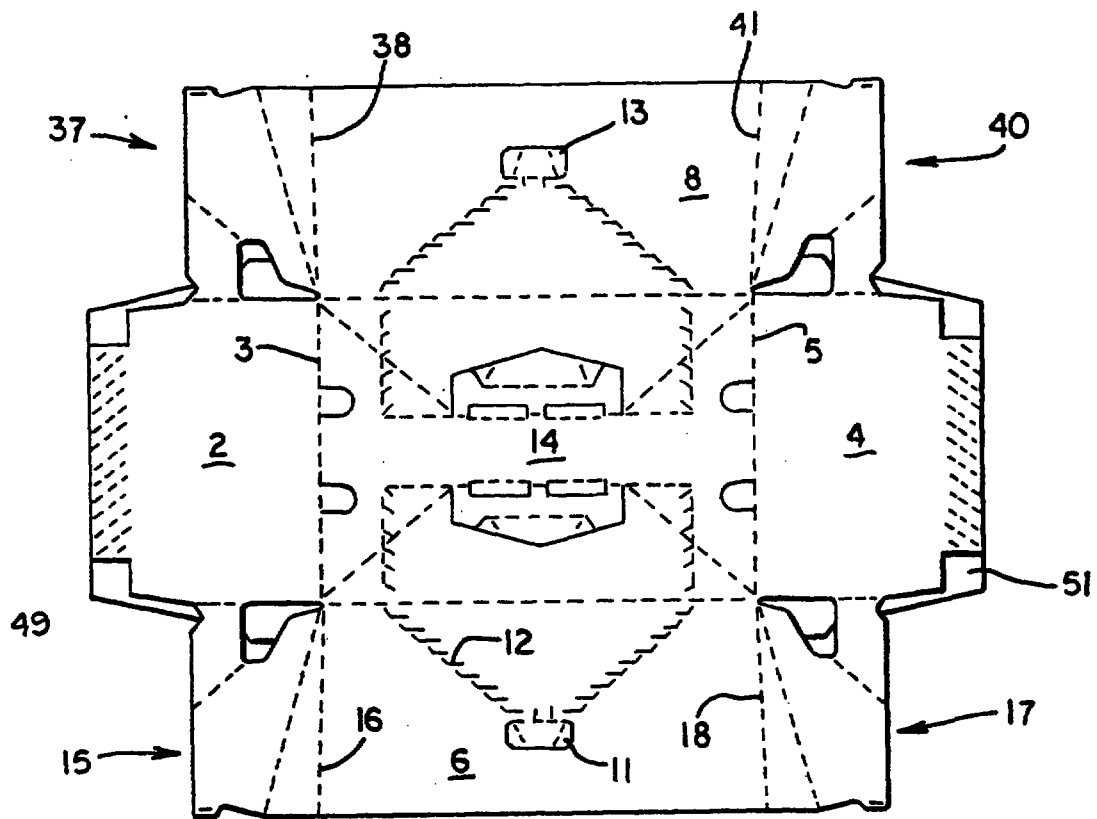


Fig. 3

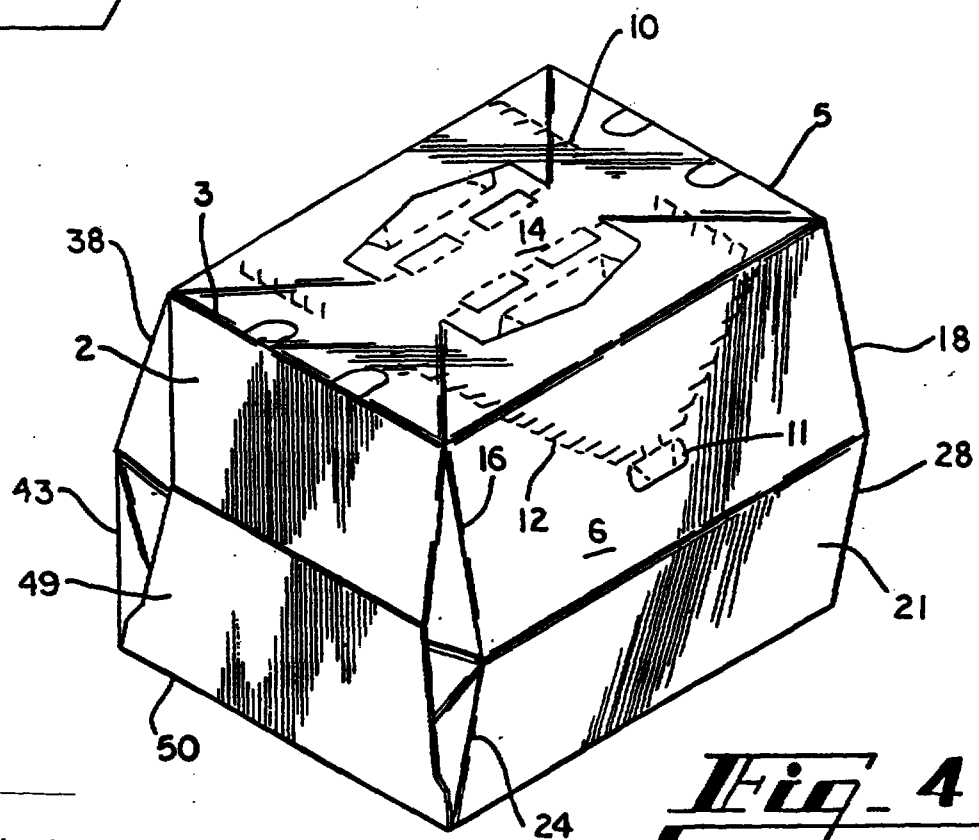


Fig. 4

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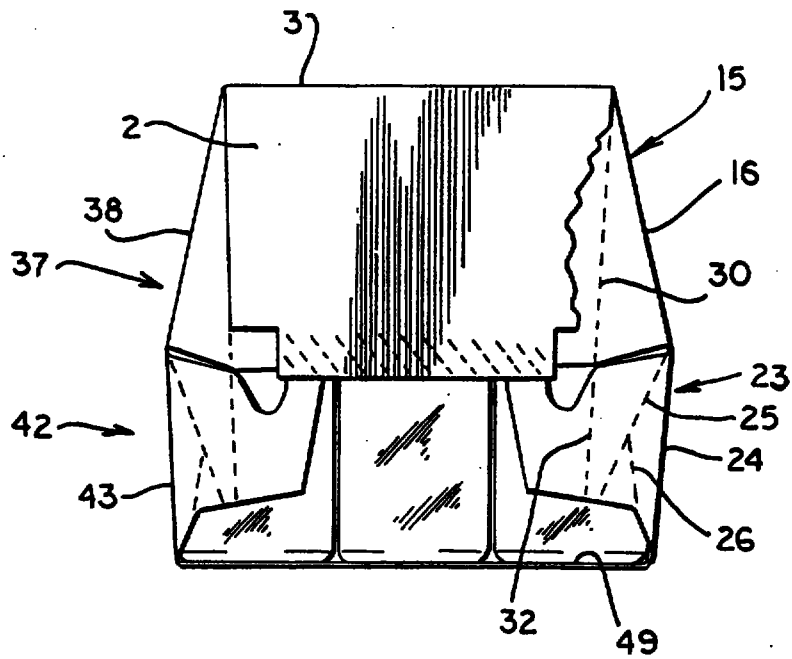


Fig. 5

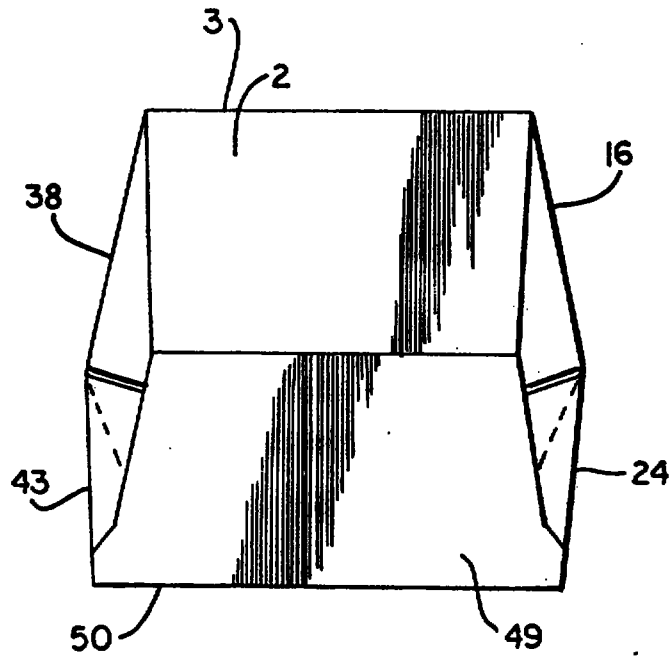


Fig. 6

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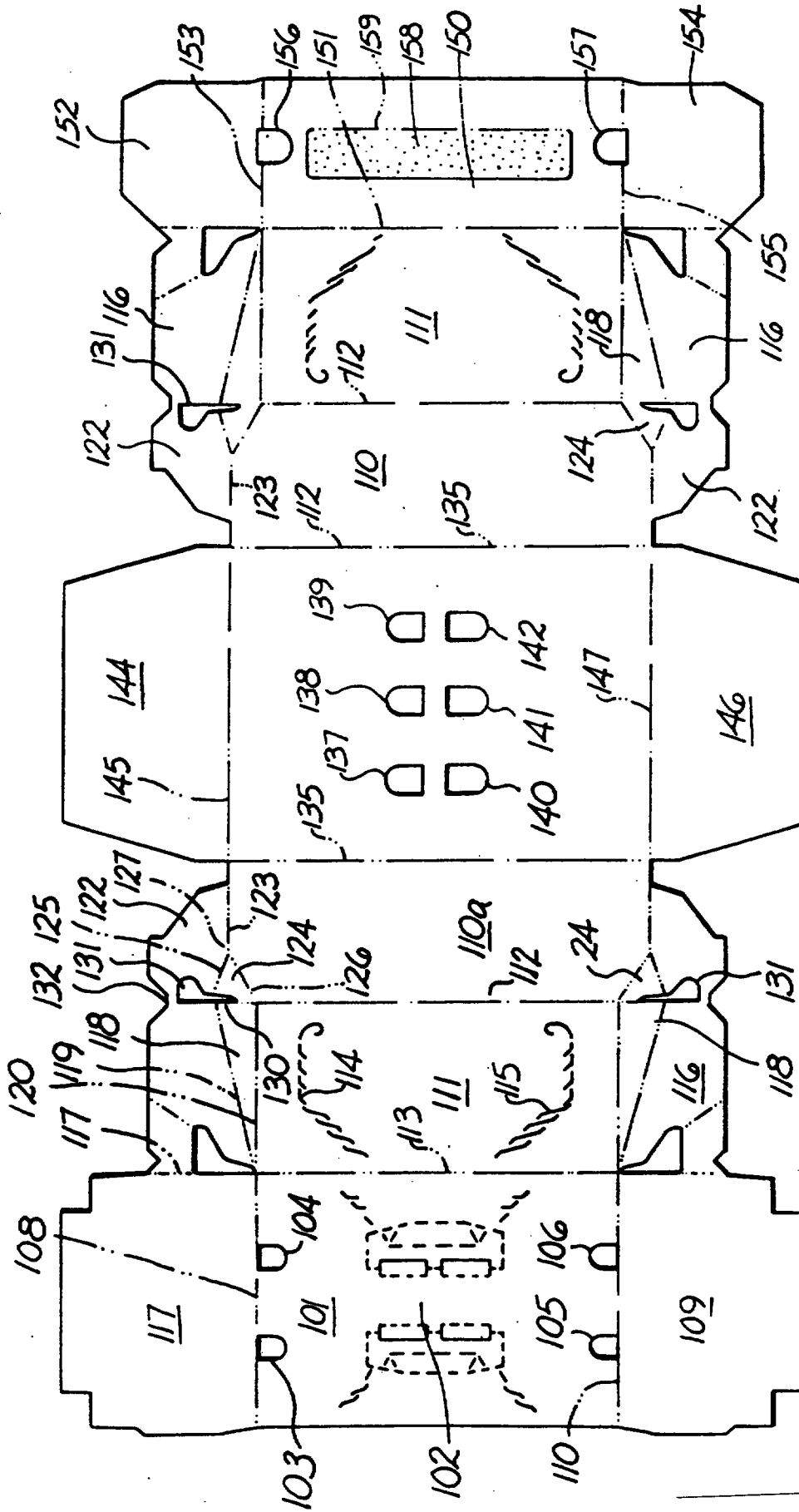
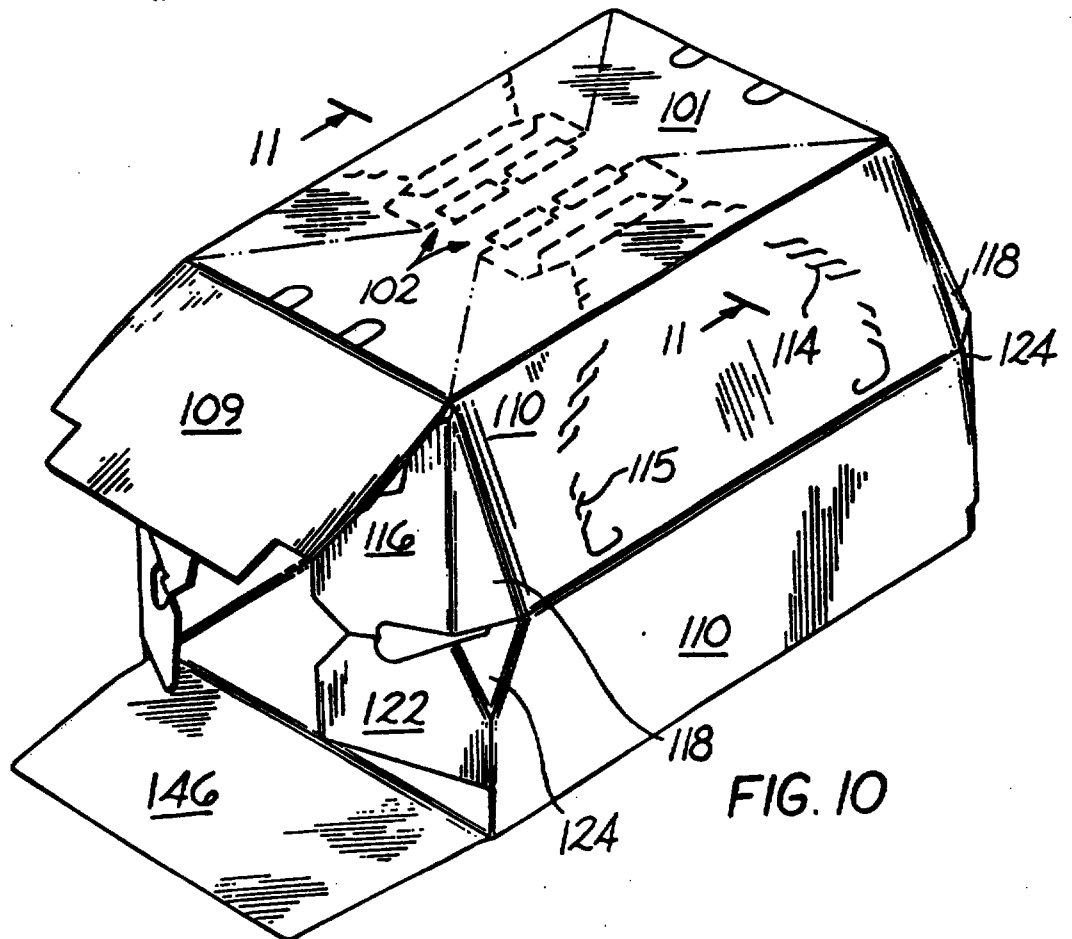
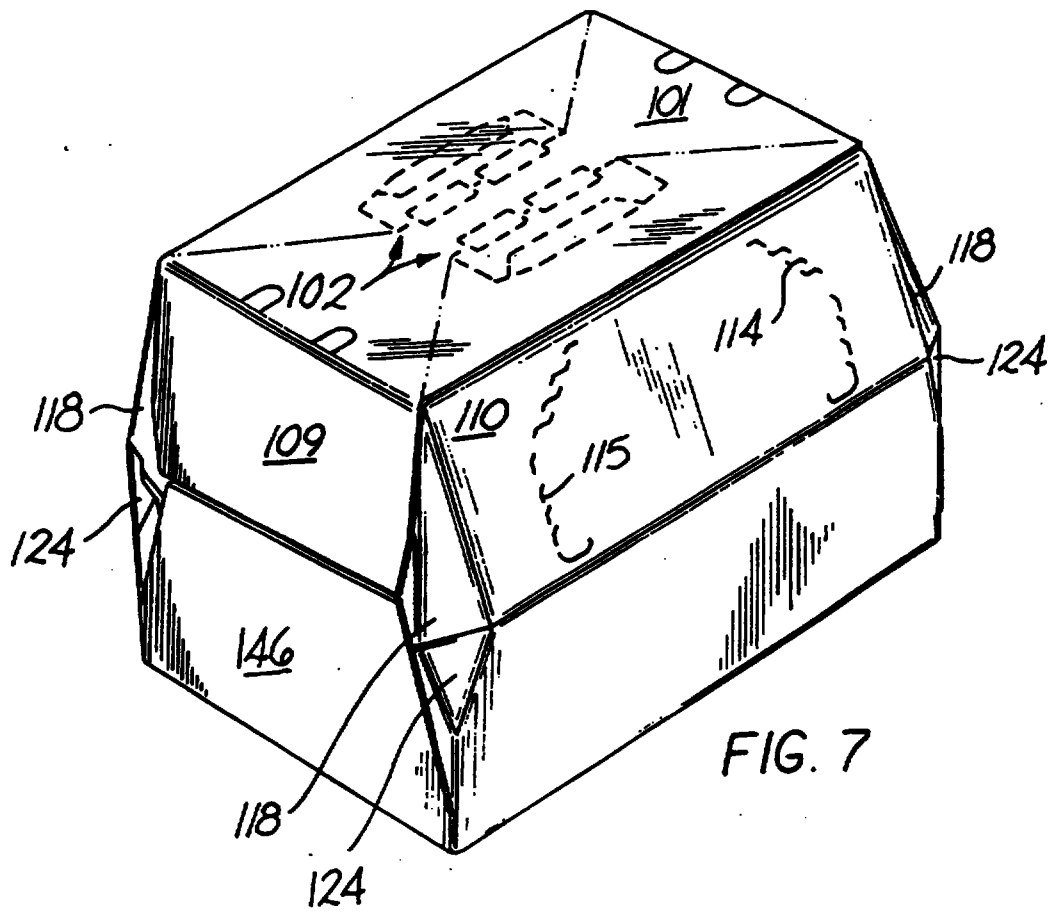


FIG. 8



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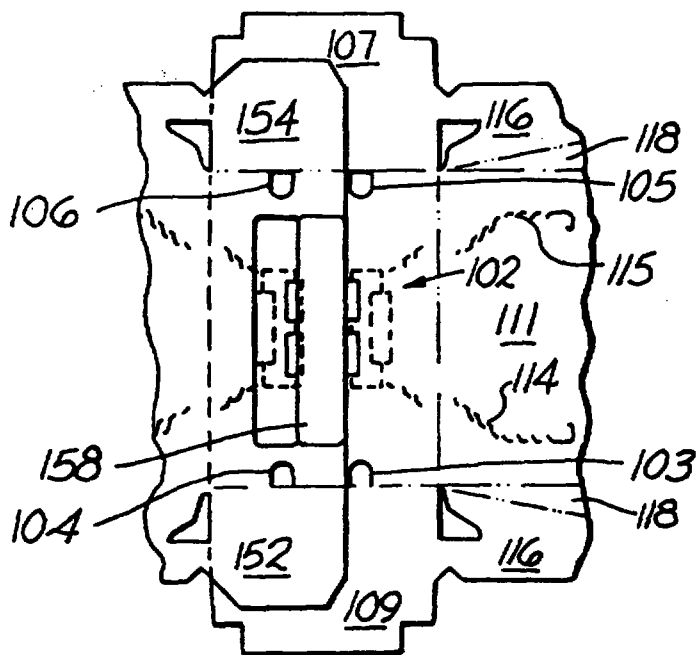


FIG. 9

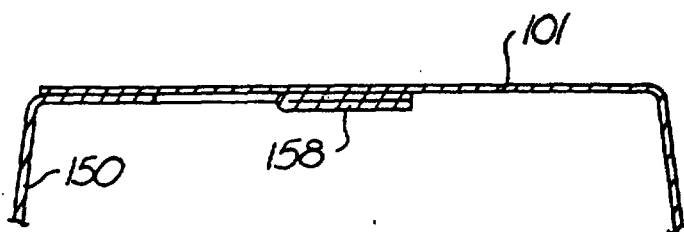


FIG. 11

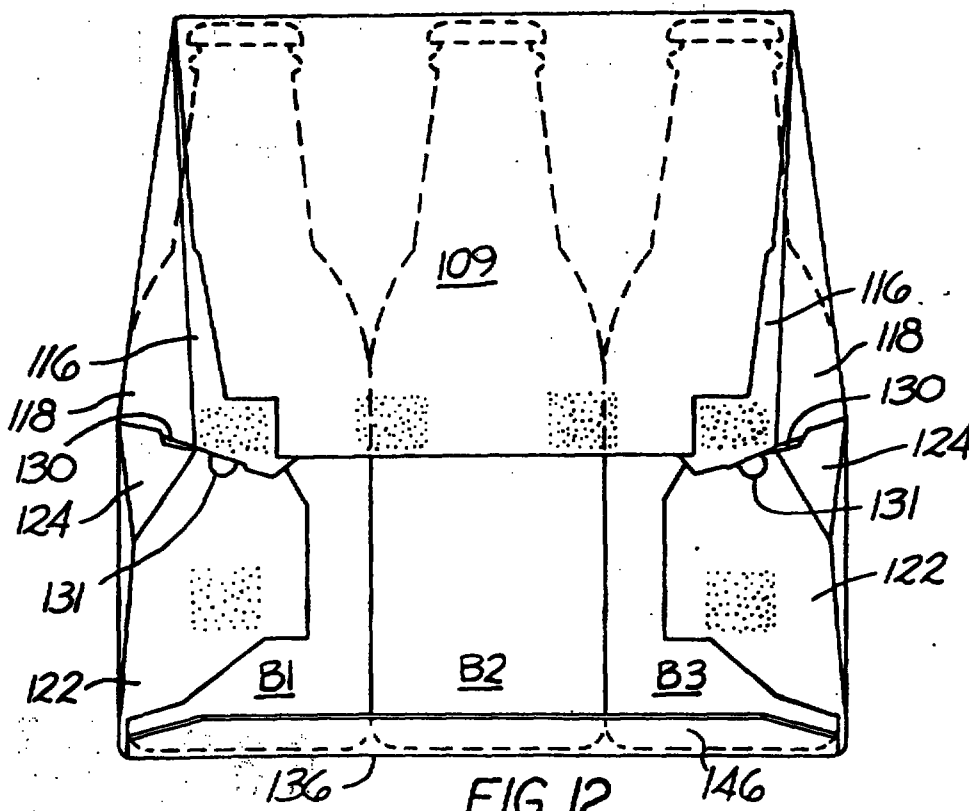


FIG. 12

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ENCLOSED BOTTLE CARRIER

TECHNICAL FIELD

This invention relates to carriers for packaging which are specially designed to prevent bottle breakage due to collision between adjacent bottles.

BACKGROUND ART

U.S. patent 3,904,036 issued September 9, 1975 and owned by the assignee of this invention discloses a fully enclosed bottle container and includes a so called false score formed in the bottom wall.

Canadian patent 1,166,211 owned by the assignee of this invention discloses a carton for beverage containers which is related in some respects with this invention.

SUMMARY OF THE INVENTION

This invention in one form provides an enclosed bottle carrier having top, bottom and side walls wherein each side wall includes a bottom portion and an inwardly inclined top portion, said top, bottom and side walls being interconnected to form a tubular structure, a top end panel foldably joined to each end edge of said top wall, collapsible web structure foldably joined to each end edge of each of said top end panels and to the end edge of each of said inwardly inclined top wall portions, each of said collapsible webs having a yieldable fold line extending from the adjacent corner of said top wall and disposed in angular relation to the adjacent end edge of each of said inwardly inclined top wall portions so as to grip the necks of the corner bottles in a taut fashion and a bottom end panel foldably joined to each end edge of said bottom wall and

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secured in overlapping relation with the associated top end panel.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, FIG. 1 is a plan view taken from the inside of a blank formed according to this invention; FIGS. 2 and 3 show stages of folding through which the blank of FIG. 1 is manipulated so as to form a complete set up and closed carrier as shown in FIG. 4. FIG. 5 shows the carton partially closed and with areas broken away; and FIG. 6 shows the carton from one end which is fully enclosed.

A modified form of the invention is shown in FIG. 7 to 12 whereby FIG. 7 is a perspective view of the fully set up and enclosed carrier; FIG. 8 is a plan view of a blank from which this modified carrier is formed; FIG. 9 is an enlarged fragmentary view of the top wall and adjacent panels of this modified carrier as viewed from the inside; FIG. 10 is a view similar to FIG. 7 but which shows the near end of the modified carrier with the end closure panels and the web structures in partially set up condition; FIG. 11 is a cross sectional view of the top wall taken along the line 11-11 of FIG. 10; and FIG. 12 is a view which shows carrier parts as they appear during closing of an end of this modified version.

BEST MODE OF CARRYING OUT THE INVENTION

With reference to FIG. 1, the top wall of the carrier is designated by the numeral 1. Top end panel which is designated by the numeral 2 is foldably joined to top wall 1 along fold line 3 and top end panel 4 is foldably joined to top wall 1 along fold line 5. Side wall top portion is designated by the numeral 6 is foldably joined to top wall 1 along fold line 7. On the other side of the carrier, top side wall portion 8 is foldably joined to top

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wall 1 along fold line 9. Tear strip 10 having a finger gripping pull tab 11 is formed in side wall 6 and extends into top wall 1 as indicated at 10a and 10b. On the other side of the carrier, tear line 12 and pull tab 13 are formed in the upper side wall element 8 and extend into the top wall as designated at 12a and 12b. Hand gripping handle is formed in top wall 1 and designated generally at 14.

Collapsible web structure 15 is foldably joined to the upper side wall panel 6 along fold line 16 and similar collapsible web structure 17 is foldably joined to the upper inwardly inclined side wall panel 6 along fold line 18. Collapsible web structure 15 is formed with a fold line 19 along which parts 19a and 19b are foldable when the structure 15 is collapsed during set up of the carrier. In similar fashion, collapsible web structure 17 includes a fold line 20 along which panels 20a and 20b are foldable into flat face contacting relation when the carrier is set up.

Side wall bottom portion is designated at 21 and is foldably joined to inwardly inclined side wall 6 along fold line 22. Web structure 23 is foldably joined to side wall bottom portion 21 along fold line 24. Web structure 23 includes weakened lines 25 and 26 which facilitate manipulation of panel elements 25a, 26a and 26b which aid in gripping the bottles and tend to prevent breakage.

In like fashion, web structure 27 is foldably joined to side wall bottom portion 21 along fold line 28 and includes weakened lines 29, 30 and 33 which facilitate gripping of bottles in a taut fashion.

According to one feature of this invention, a weakened fold line 30 is formed in collapsible web structure 15 and a yieldable fold line 31 is formed in collapsible web structure 17 as shown in FIG. 1.

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According to another feature of this invention, the yieldable fold line 30 is extended into the collapsible structure 23 along a fold line 32 which is coaxially disposed relative to fold line 30. In like fashion, a yieldable fold line 33 is formed in collapsible structure 27. Yieldable fold line 32 is coaxially disposed with respect to yieldable fold line 30 and yieldable fold line 33 is coaxially disposed relative to yieldable fold line 31. These yieldable fold lines 30, 32, 31 and 33 constitute an improvement whereby bottles packaged within the container are securely gripped so as to hold the bottles in a taut and secure condition.

On the other side of the carrier, a side wall bottom portion is designated by the numeral 35 and is foldably joined to the top inwardly inclined side wall portion 8 along fold line 36. Collapsible web structure generally designated at 37 is formed and foldably joined to one end 38 of inwardly inclined top wall portion 8. In like fashion, collapsible web structure 40 is foldably joined to the opposite end of inwardly inclined side wall panel 8 along fold line 41. Collapsible web structures 37 and 40 are formed in the same manner as are the collapsible structures 15 and 17 previously described.

Also a web structure generally designated at 42 is foldably joined to bottom side wall portion 35 along fold line 43 and is formed in a manner identical to the manner in which collapsible structure 15 is formed. Web structure 42 is partially separated from collapsible web structure 37 by a slot 42a and is interconnected therewith by a small rectangular panel 42b. In like fashion, web structure 44 is foldably joined to bottom side wall portion 35 along fold line 45 and collapsible structure 44 is identical to side wall structure 27 previously described. Web structure 44 is partially separated from collapsible web structure 40 by a

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slot 44a and is interconnected therewith by a small rectangular panel 44b.

Bottom wall 47 is foldably joined to the bottom side wall portion 35 along fold line 48 and bottom end panel 49 is foldably joined to bottom wall 47 along fold line 50. In like fashion, bottom end panel 51 is foldably joined to bottom wall panel 47 along fold line 52. A glue flap 53 is foldably joined to an edge of bottom wall 47 along fold line 54.

In order to manipulate the blank of FIG. 1 into the condition shown in FIG. 2, side wall bottom portion 21 is simply elevated and folded forwardly along fold line 22 and web structures 23 and 27 are from their positions shown in FIG. 1 to the position shown in FIG. 2.

The carton as shown in FIG. 2 is manipulated into the collapsed condition shown in FIG. 3 by simply elevating the lower side wall 6, the handle 14 and side wall 8 along with wall panel 21 and folding downwardly along the fold line 36 following the application of glue to glue flap 53. This folding operation causes the web structure 37 and 40 as well as the web structure 15 and 17 to overly their associated webs 42 and 44 and 23 and 27.

In order to set the carrier up from its collapsed condition as shown in FIG. 3 into its fully completed condition as shown in FIG. 4, the top wall 14 is elevated so that the bottom side wall panels 21 and 35 are substantially vertically disposed relative to the bottom wall 47. Following loading of the bottles into the carrier, from one or both ends, the structures 15, 23, 17, 27, 37, 42, 40 and 44 are swung inwardly into set up condition. The top end panels 2 and 4 are swung downwardly along the fold lines 3 and 5 respectively while the bottom end panels 49 and 51 are folded along fold lines 50 and 52 to cause the adhesive 2a

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on top end panel 2 and the adhesive 4a formed in top end panel 4 to become adhered to the outer edges of bottom end panels 49 and 51 and the fully loaded and set up carton appears as shown in FIG. 4. FIG. 5 shows the carrier from one end with parts broken away so as to show weakened lines 30, 32, 25 and 26.

Turning now to the modified form of the invention, reference is made to the blank illustrated in FIG. 8 wherein the top wall is designated by the numeral 101. Parts of the carton handle structure are generally designated by the numeral 102 and U-shaped tabs 103, 104, 105 and 106 are struck from the top wall 101. Top end panel 107 is foldably joined to top wall 101 along fold line 108 and top end panel 109 is foldably joined to top wall 101 along fold line 110.

In the preferred embodiment, the bottom upright portion of one side wall is designated by the numeral 110 and an inwardly inclined top wall portion 111 is foldably joined to the lower portion 110 along a fold line 112 and inwardly inclined portion 111 is foldably joined to top wall 101 along fold line 113. In an alternate embodiment (not shown), top wall portion 111 is not inwardly inclined, but rather is coplanar with lower portion 110. In such a case, fold line 112 may be omitted, and both portions may be formed as a single wall panel.

Conventional tear strips 114 and 115 are struck from panel 111 and from top wall 101.

Suitable web structure formed according to this invention includes a first web panel 116 foldably joined to top end panel 107 along fold line 117. A second triangular web panel 118 is foldably joined to first web panel 116 along fold line 119. Second triangular web panel 118 is foldably joined along line 120 to the adjacent end of the inwardly inclined upper portion of one side wall. Fold line

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120 is substantially perpendicular to line 112, and substantially vertical when the carton is set up.

Third web panel 122 is foldably joined to the lower upright portion 110 of one side wall along fold line 123. Fold line 123 is substantially perpendicular to fold line 112, substantially parallel to and offset from fold line 120, and when the carton is set up, substantially vertical. A fourth web panel 124 is of a triangular configuration and is defined by weakened fold lines 125 and 126 which diverge upwardly from a point 127 on fold line 123. Adjacent parts of a second triangular web panel 118 coincide with a corresponding side 125 and 126 of the fourth web panel 124. A cutaway area 130 allows the adjacent parts of second triangular web panel 118 and a fourth triangular web panel 124 to move into abutment with each other so as to facilitate manipulation of the web structures during a carrier set up and loading operation. As may be necessary to achieve proper folding, cutaway area 130 may extend inwardly completely to fold lines 120 and 126, or may extend only partially thereto as shown. Cutaway area 131 also aids in manipulation of the webs during a carrier loading operation.

In the preferred embodiment, a bridge portion 132 is foldably interconnected between first and third web panels 116 and 122 to assist infolding panels 116 and 122 following carrier loading, and in maintaining the panels in position during subsequent gluing of the carrier ends. If desired, however, it is possible to omit bridge portions 132, whereby cutaway areas 131 take the form of notches rather than openings, particularly if cutaway areas 130 extend inwardly only partially toward fold lines 120 and 126.

The angular relationship between the third and fourth web panels is preferable such that the third web

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panel extends inwardly at a right angle to the lower side wall portion 110 and presents a flat and substantially vertical surface for gluing when the bottom end panel 146 is folded into overlapping face contacting relationship therewith. In addition, fourth web panel 124 helps to maintain the third web panel 122 in engagement with the lower portions of the adjacent corner bottles.

Web structure at the other end of the carrier is identical to that just described and includes first web panel 116, second triangular web panel 118, third web panel 122 and fourth web panel 124.

The bottom edge 135 of the lower portion 110 of one side wall is foldably joined to the bottom wall 136 along fold line 135. Openings 137, 138, 139, 140, 141 and 142 are formed in bottom wall 136 and facilitate manipulation of the carrier during feeding and setting up operations. Bottom end panel 144 is foldably joined to bottom wall 136 along fold line 145 and bottom end panel 146 is foldably joined to bottom wall 136 along fold line 147.

The remaining side wall structure as well as the web structures previously described are identical to those shown in FIG. 8 and a detailed description of these parts is not deemed necessary. The same numerals are applied to designate both sets of parts.

In order to interconnect the opposite ends of the blank as shown in FIG. 8 to form a tubular enclosure, lap panel 150 is foldably joined to inwardly inclined panel 111 along fold line 151 and end panel 152 is foldably joined to panel 150 along fold line 153. At the other side of the blank end panel 154 is foldably joined to panel 150 along fold line 155. U-shaped cutouts 156 and 157 are positioned as shown in FIG. 8.

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In order to set the carrier up from the condition shown in FIG. 8 to that shown in FIGS. 7 and 10, an application of glue is made to the reinforcing panel 158 as indicated by stippling in FIG. 8. Thereafter the reinforcing panel is elevated and folded toward the right along fold line 159. This operation of course causes the reinforcing panel 158 to become adhered to the inner surface of the panel 150. Thereafter panels 111 and 116 together with panels 150, 152 and 154 are elevated and folded toward the left along the right hand fold line 112. An application of glue is then made to panels 150, 152 and 154, following which panels 111, 116, 101, 107 and 109 are elevated and folded toward the right along the left fold line 112 to cause panel 150 to become adhered to the inside surface of panel 102, as shown in FIG. 9.

The carton may then be set up into open ended condition and loaded through one or both ends. The top and bottom end panels are secured together by glue shown as stippling in FIG. 12. The various web structures are manipulated into fully set up condition and the carton then appears in completed form as shown in FIG. 7.

Access to the contents of the carrier may be had by simply rupturing the tear lines such as 114 and 115 to gain access to the packaged bottles. If bottle return is desired, the empty bottles may be reinserted into the carrier and returned.

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CLAIMS

1. A bottle carrier comprising top, bottom, and side walls, each side wall having a bottom portion and an inwardly inclined top portion, said top, bottom and side walls being interconnected to form a tubular structure, said top wall being rectangular, a top end panel foldably joined to each end edge of said top wall, a web structure foldably joined to each end edge of each of said top end panels and to an adjacent end edge of each of said inwardly inclined top wall portions, each of said webs structures having a yieldable fold line extending from an adjacent corner of said top wall and disposed in angular relation to the adjacent end edge of the associated inwardly inclined top wall portion so as to grip the necks of the corner bottles in a taut fashion, and a bottom end panel foldably joined to each end edge of said bottom wall and secured in overlapping relation with the associated top end panel.

2. A bottle carrier according to claim 1 wherein a second web is foldably joined to an adjacent end edge of each of said side wall bottom portions.

3. A bottle carrier according to claim 2 wherein each said second web is partially separated by a slot from said first web and interconnected therewith by a small rectangular panel.

4. A bottle carrier according to claim 2 wherein a first yieldable fold line is formed in each of said second webs and disposed in coaxial relation with said yieldable fold line in said first webs.

5. A bottle carrier according to claim 2 wherein each of said bottom end panels is secured to the adjacent second web by adhesive.

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6. A bottle carrier according to claim 4 wherein a second yieldable fold line is formed in each of said second webs and extends from an upper corner of each of said side wall bottom portions downwardly and in converging relation to each of said first yieldable fold lines.

7. A bottle carrier according to claim 6 wherein a third yieldable fold line is formed in each of said second webs and extends from a lower outer corner of each of said second webs upwardly and inwardly to a point of intersection with the associated one of said second yieldable fold lines to aid in gripping the body portion of the corner bottles in the carrier in a taut and stable fashion.

8. A bottle carrier according to claim 1 wherein each of said web structures is collapsible along a fold line which extends from an outer edge thereof toward the adjacent top corner of the carton.

9. A bottle carrier according to claim 1 wherein a third web panel is foldably joined to the bottom portions of said side walls and folded inwardly into engagement with the adjacent corner bottles, and fourth web panels are joined to said bottom portion of said side walls and said third web panels and defined by pairs of fold lines each of which diverges upwardly and which terminate adjacent the lower ends of said triangular web panels, said third and fourth web panels being related to each other so as to maintain said third web panels in engagement with the adjacent corner bottles.

10. A bottle carrier according to claim 9 wherein said fourth web panels are disposed astride the corners of said carrier.

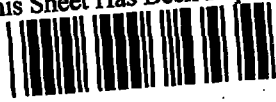
11. A bottle carrier according to claim 9 wherein the lower ends of said second web panels and the adjacent

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upper ends of said fourth web panels are disposed in extension of said fold lines which define the junction between said top and said bottom portions of said side walls.

12. A bottle carrier according to claim 11 wherein the lower ends of said second web panels and the upper ends of said second web panels and the upper ends of said fourth web panels are separated by cut lines.

13. A carrier for bottles arranged in a side by side rectilinear group comprising a top wall, a bottom wall, and side walls, each side wall having a bottom portion and a top side wall portion having an end edge, said top, bottom and side walls being interconnected to form a tubular structure, a top end panel foldably joined to each end edge of said top wall along a fold line which extends between opposite corners of the carton, a first web panel foldably joined to one side edge of each of said top end panels, a second triangular web panel foldably joined to an end edge of the adjacent top side wall portion and to the adjacent edge of said first web panel along fold lines which diverge downwardly to define at least in part a third edge of said second triangular web panel so as to position said second triangular web panel astride the adjacent corner of the carrier and to cause said second web panel to engage the neck of the adjacent corner bottle and to impart a taut inward force thereto, a third web panel foldably joined to the adjacent end of said bottom portion of the side wall and folded inwardly into engagement with the large bottom portion of the adjacent bottle, and a fourth web panel defined by a pair of fold lines which diverge upwardly from a point on the end edge of said third web panel and which terminate adjacent the junction between said bottom portion of the adjacent side wall and the associated top side wall portion to impart an inward taut force to the large bottom portion of the adjacent corner bottle.

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14. A bottle carrier according to claim 13 wherein said fourth web panel is of generally triangular configuration defined by said pair of lines which diverge upwardly and by a third line which extends for a portion of the distance between the upper extremities of said pair of lines which diverge upwardly.

15. A bottle carrier according to claim 14 wherein the remainder of the distance between the upper extremities of said pair of lines which diverge upwardly is a cutaway line.

16. A bottle carrier according to claim 13 wherein the point of intersection of said downwardly diverging sides of each of said fourth web panels also coincides with the fold line between each of said third web panels and with each end of each of said bottom portions of each side wall said fourth web panel being disposed astride the adjacent corner of the carrier.

17. A bottle carrier according to claim 15 wherein said cutaway line affords clearance for its adjacent edges whereby said edges move into engagement with each other thereby to impart an inward force to the adjacent third web panel.

18. A bottle carrier according to claim 13 wherein said top side wall portions are upwardly and inwardly inclined and wherein said end edge of the adjacent inwardly inclined top side wall portion is substantially perpendicular to the bottom edge of said inwardly inclined top side wall portion.



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ENCLOSED BOTTLE CARRIER

ABSTRACT

A bottle carrier for packaging and gripping in a taut fashion a plurality of bottles includes top (1), bottom (47) and side (6) walls, each side wall having a substantially vertically disposed bottom portion and an inwardly inclined top portion (6) foldably joined to the bottom portion to form a tubular structure, top end panels (24) foldably joined to each end edge of the top wall together with a bottom end panel foldably joined to each end edge of the bottom wall and secured in overlapping relation with the associated top end panel (2, 4). A first collapsible web (15) is foldably joined to each end edge of each top end panel (2, 4) and to the end edge of each of the inwardly inclined top wall portion (1). A yieldable fold line (5) formed in each collapsible web (15, 17) extends from the adjacent corner of the top wall (1) downwardly in angular relation to the adjacent end edge of the associated inwardly inclined top wall portion (1).

Fig. 1.

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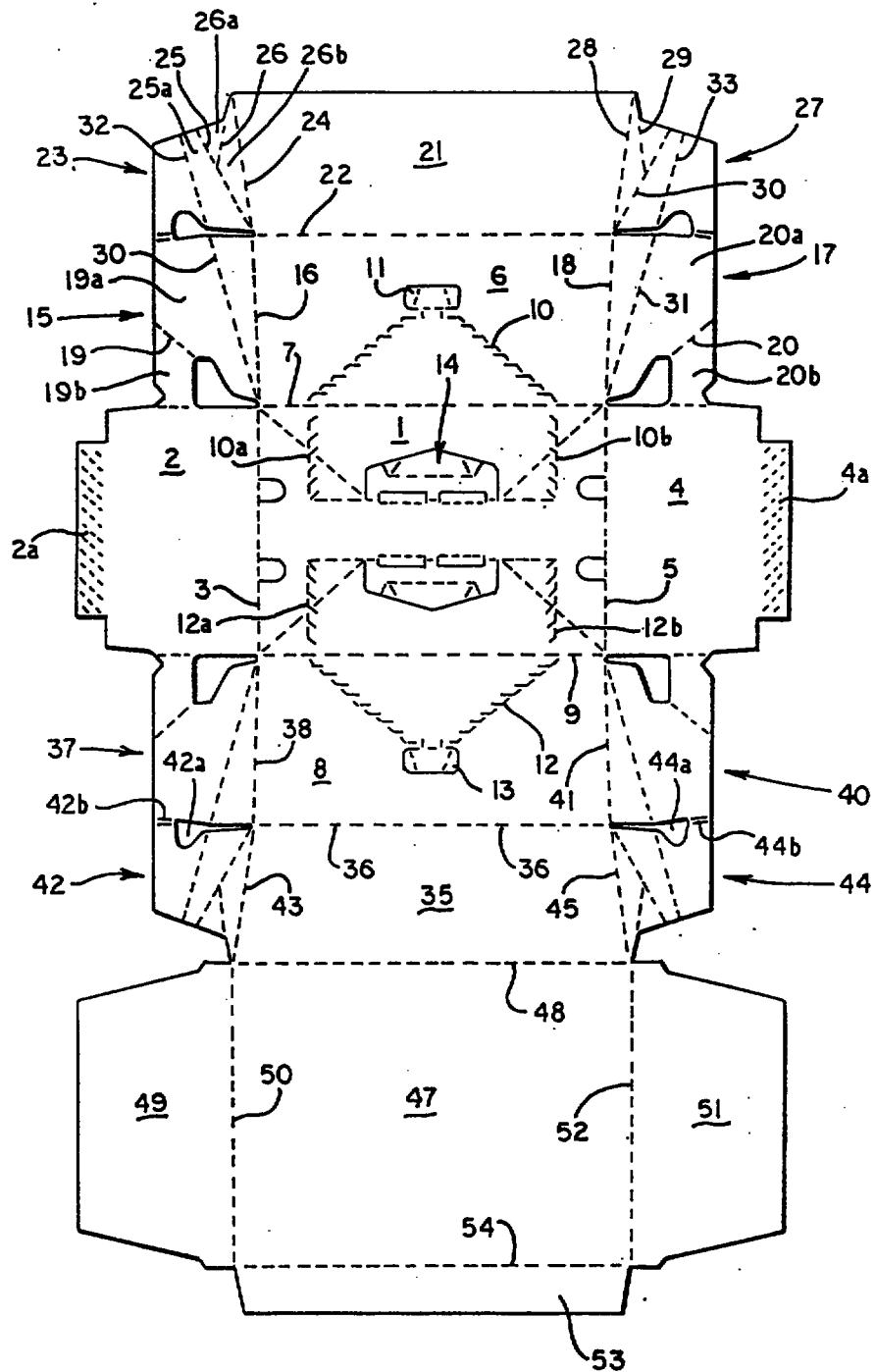


Fig. 1

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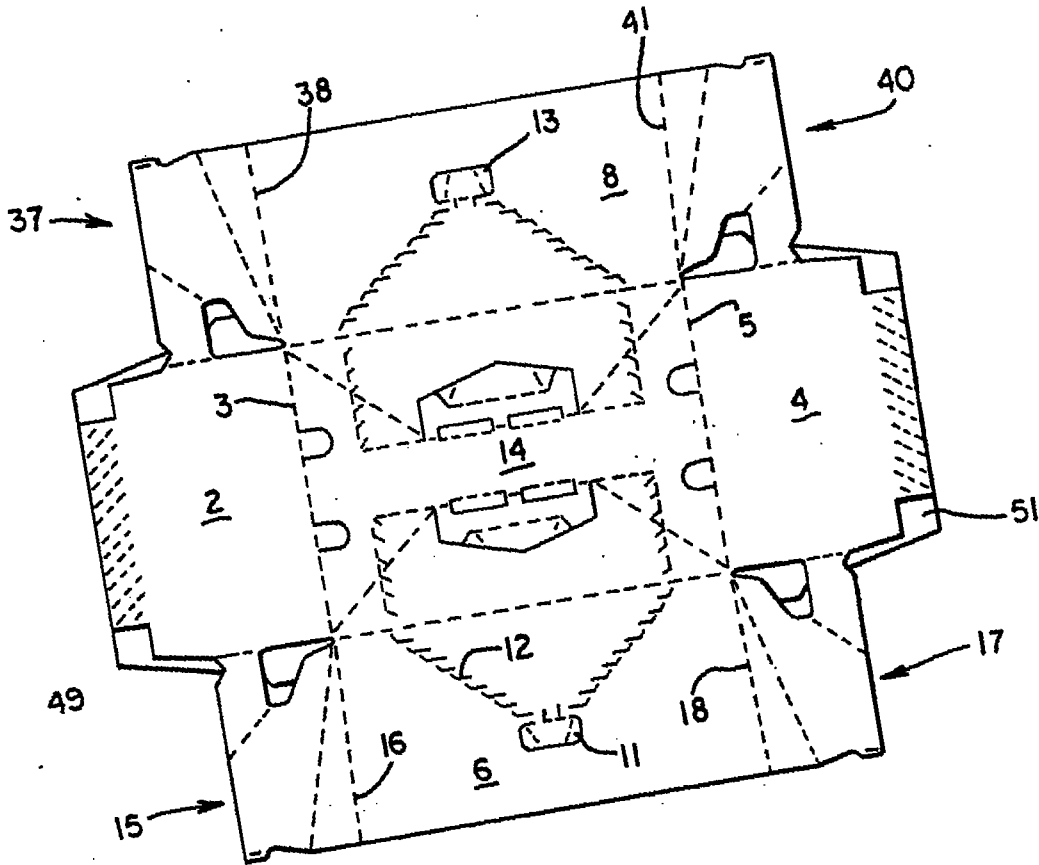


Fig. 3

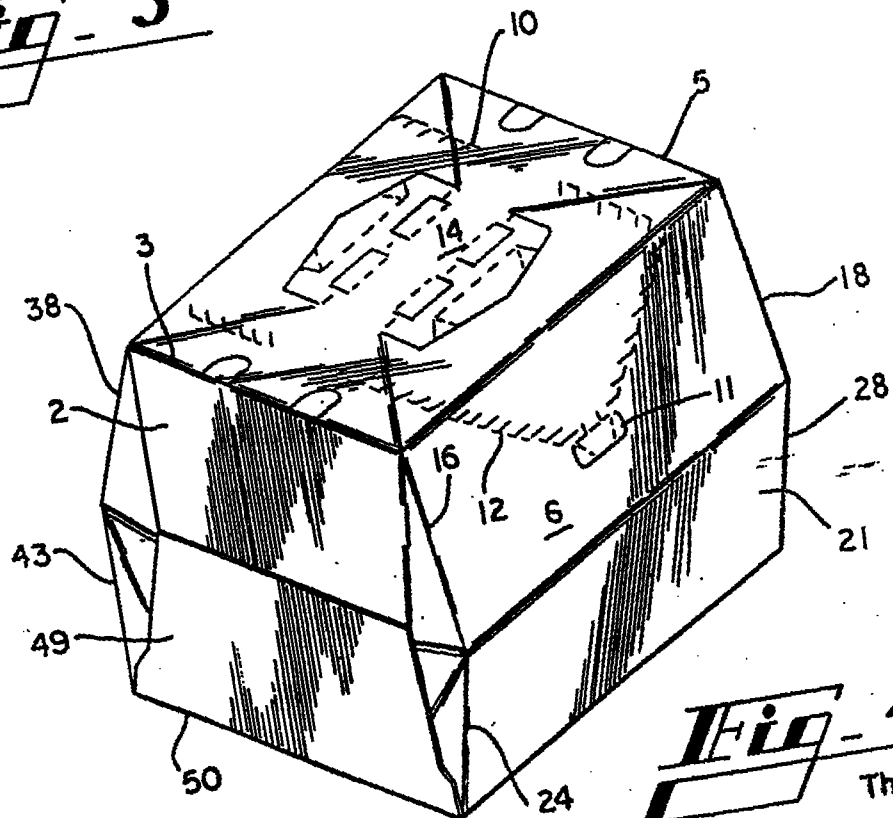


Fig. 4

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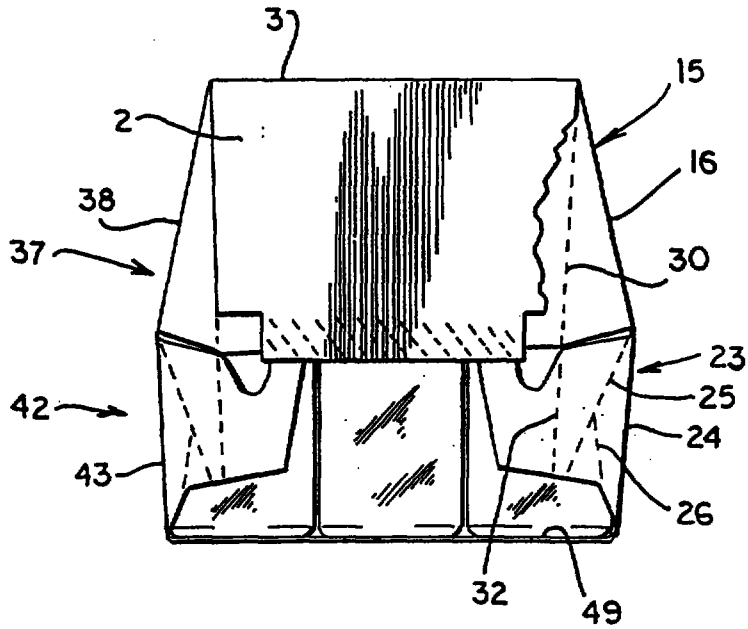


Fig. 5

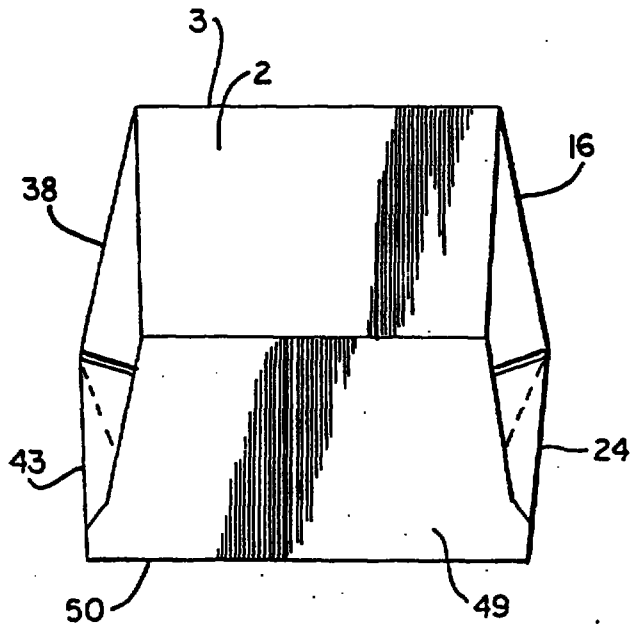


Fig. 6

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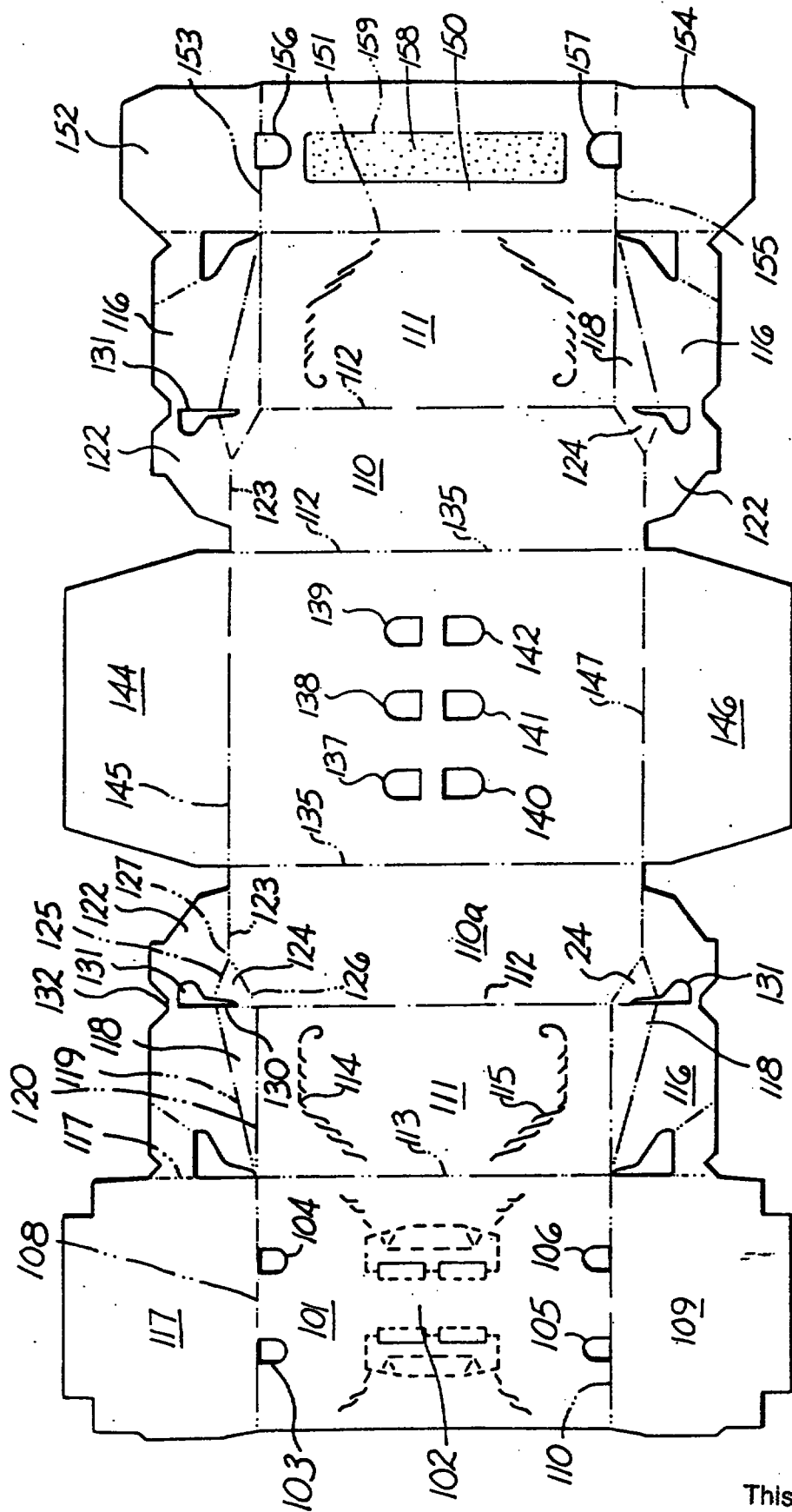
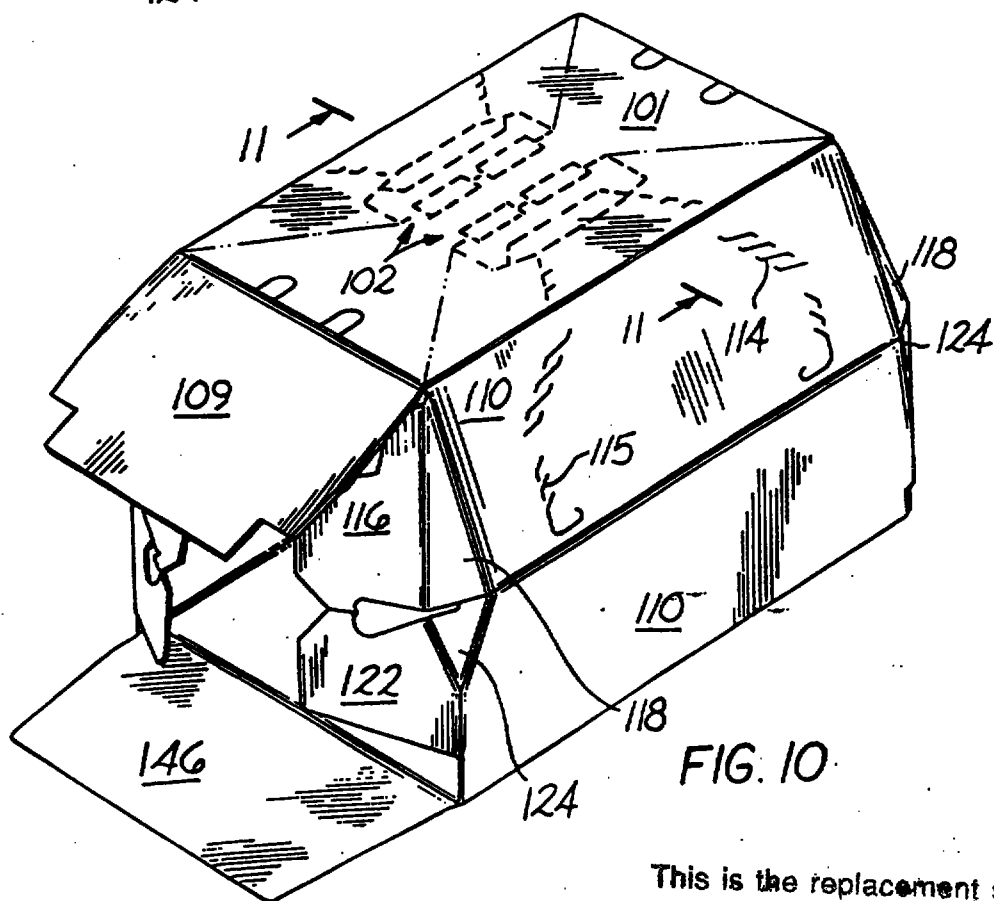
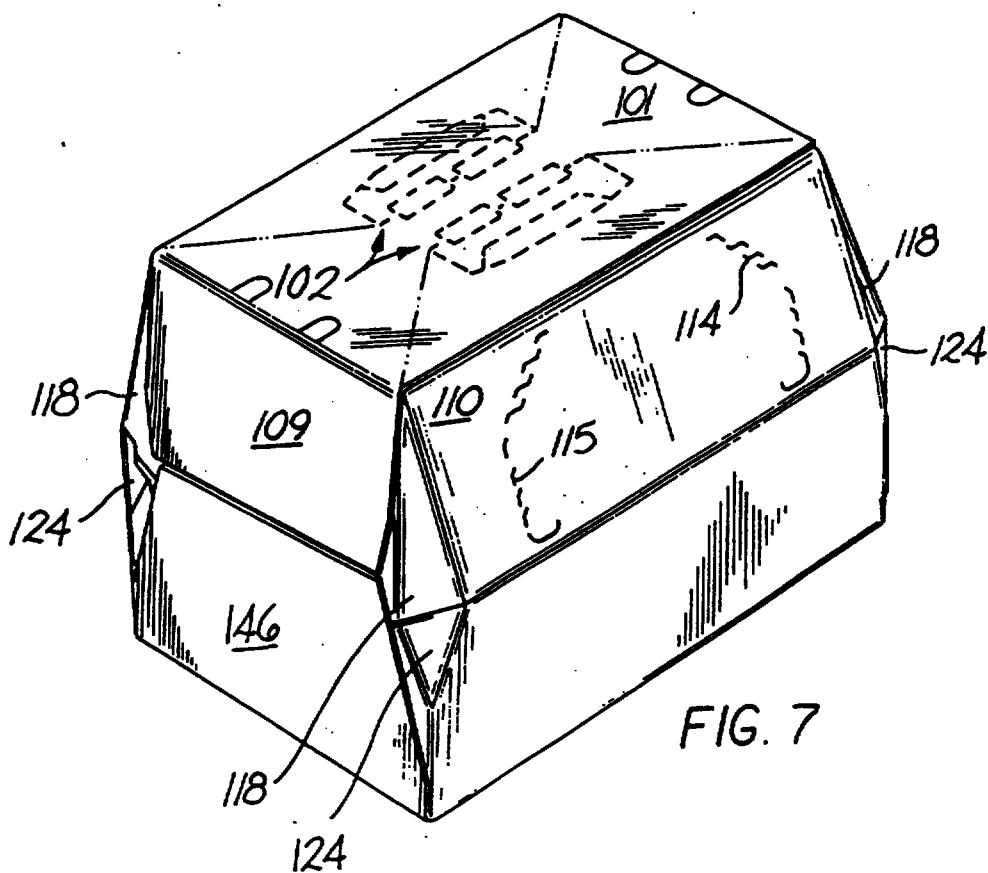


FIG. 8

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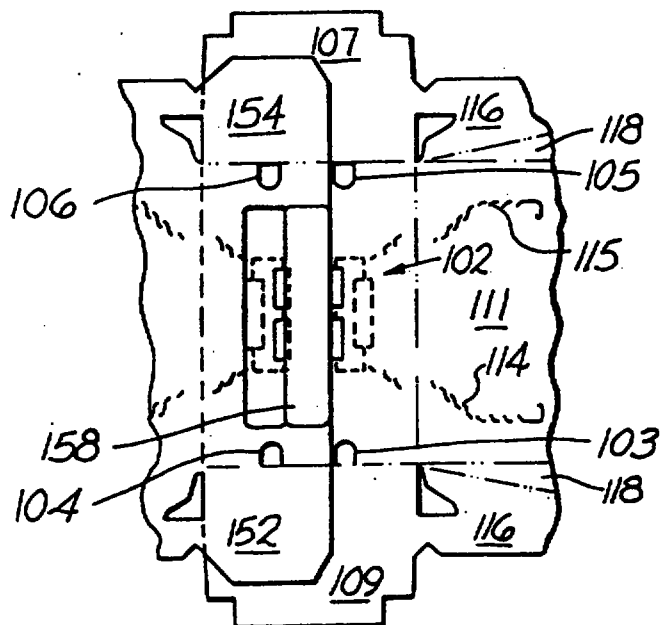


FIG. 9

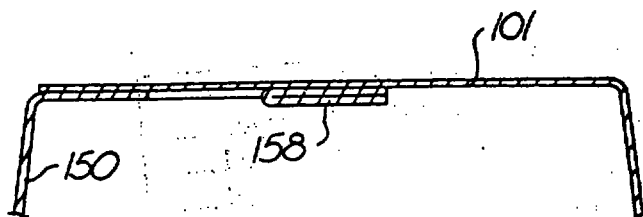


FIG. 11

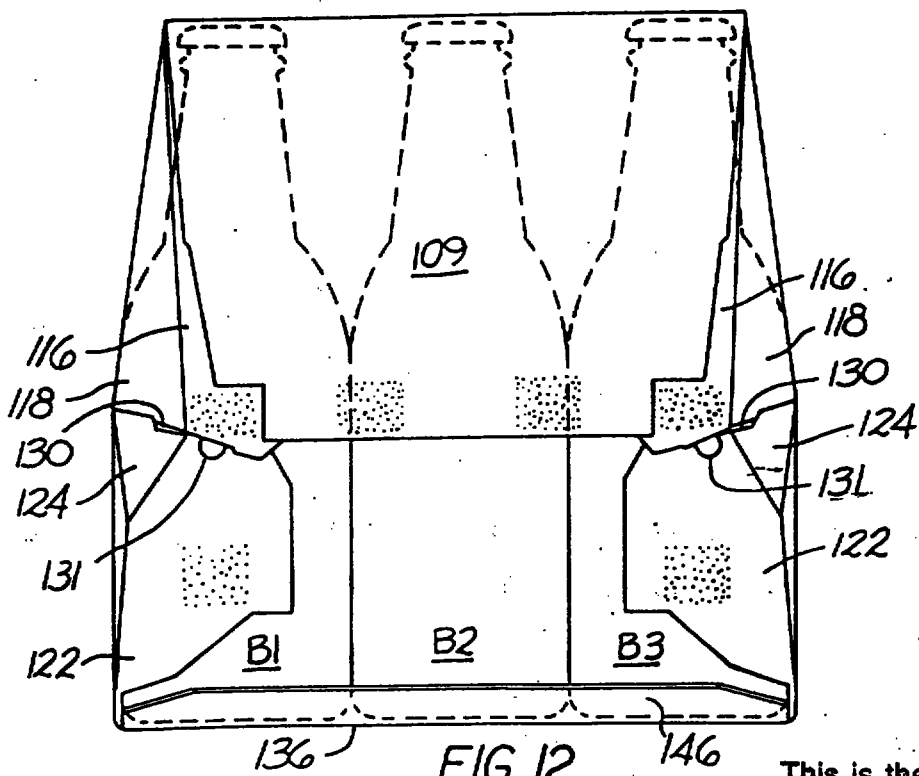
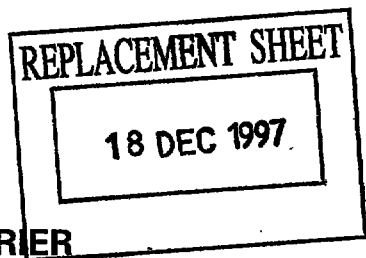


FIG. 12

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ENCLOSED BOTTLE CARRIER

TECHNICAL FIELD

This invention relates to carriers for packaging which are specially designed to prevent bottle breakage due to collision between adjacent bottles.

BACKGROUND ART

U.S. patent 3,904,036 issued September 9, 1975 and owned by the assignee of this invention discloses a fully enclosed bottle container and includes a so called false score formed in the bottom wall.

Canadian patent 1,166,211 owned by the assignee of this invention discloses a carton for beverage containers which is related in some respects with this invention.

SUMMARY OF THE INVENTION

This invention in one form provides a bottle carrier comprising top, bottom, and side walls, each side wall having a bottom portion and an inwardly inclined top portion, said top, bottom and side walls being interconnected to form a tubular structure, said top wall being rectangular, a top end panel foldably joined to each end edge of said top wall, a web structure foldably joined to each side edge of each of said top end panels and to an adjacent end edge of each of said inwardly inclined top wall portions, each of said web structures having a yieldable fold line extending from an adjacent corner of said top wall and disposed in angular relation to the adjacent end edge of the associated inwardly inclined top wall portion so as to grip the necks of the corner bottles in a taut fashion, and a bottom end panel foldably joined to each end edge of said bottom wall and secured in overlapping relation with the associated top end panel.

In another form, the invention provides a carrier for bottles arranged in a side by side rectilinear group comprising a top wall, a bottom wall, and side walls, each side wall having a bottom portion and a top side wall portion having an end edge, said top, bottom and side walls being interconnected to form a tubular structure, a top end panel foldably joined to each end edge of said top wall along a fold line which extends between opposite corners of the carton, a first web panel foldably joined to one side edge of each of said top end panels, a triangular second web panel foldably joined to an end edge of the adjacent top side wall portion and to the adjacent edge of said first web panel along fold lines which diverge downwardly to define at least in part a third edge of said second triangular web panel so as to position said triangular web panel astride the adjacent corner of the carrier and to cause said second web panel to engage the neck of the adjacent corner bottle and to impart a taut inward force thereto, a third web panel

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foldably joined to the adjacent end of said bottom portion of the side wall and folded inwardly into engagement with the large bottom portion of the adjacent bottle, and a fourth web panel defined by a pair of fold lines which diverge upwardly from a point on the end edge of said third web panel and which terminate adjacent the junction between said bottom portion of the adjacent side wall and the associated top side wall portion to impart an inward taut force to the large bottom portion of the adjacent corner bottle.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred forms of the present invention will now be described by way of example with reference to the accompanying drawings, wherein:

FIG. 1 is a plan view taken from the inside of a blank formed according to this invention;

FIG. 2 and FIG. 3 show stages of folding through which the blank of FIG. 1 is manipulated so as to form a complete set up and closed carrier as shown in FIG. 4;

FIG. 5 shows the carton partially closed and with areas broken away; and

FIG. 6 shows the carton from one end which is fully enclosed.

A modified form of the invention is shown in FIG. 7 to 12 whereby FIG. 7 is a perspective view of the fully set up and enclosed carrier;

FIG. 8 is a plan view of a blank from which this modified carrier is formed;

FIG. 9 is an enlarged fragmentary view of the top wall and adjacent panels of this modified carrier as viewed from the inside;

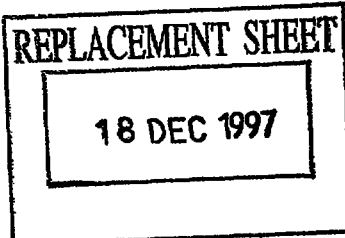
FIG. 10 is a view similar to FIG. 7 but which shows the near end of the modified carrier with the end closure panels and the web structures in partially set up condition;

FIG. 11 is a cross sectional view of the top wall taken along the line 11-11 of FIG. 10; and

FIG. 12 is a view which shows carrier parts as they appear during closing of an end of this modified version.

BEST MODE OF CARRYING OUT THE INVENTION

With reference to FIG. 1, the top wall of the carrier is designated by the numeral 1. Top end panel which is designated by the numeral 2 is foldably joined to top wall 1 along fold line 3 and top end panel 4 is foldably joined to top wall 1 along fold line 5. Side wall top portion is designated by the numeral 6 is foldably joined to top wall 1 along fold line 7. On the other side of the carrier, top side wall portion 8 is foldably joined to top



CLAIMS

1. A bottle carrier comprising top, bottom, and side walls, each side wall having a bottom portion and an inwardly inclined top portion, said top, bottom and side walls being interconnected to form a tubular structure, said top wall being rectangular, a top end panel foldably joined to each end edge of said top wall, a web structure foldably joined to each side edge of each of said top end panels and to an adjacent end edge of each of said inwardly inclined top wall portions, each of said web structures having a yieldable fold line extending from an adjacent corner of said top wall and disposed in angular relation to the adjacent end edge of the associated inwardly inclined top wall portion so as to grip the necks of the corner bottles in a taut fashion, and a bottom end panel foldably joined to each end edge of said bottom wall and secured in overlapping relation with the associated top end panel.
2. A bottle carrier according to claim 1 wherein a second web structure is foldably joined to an adjacent end edge of each of said side wall bottom portions.
3. A bottle carrier according to claim 2 wherein each said second web structure is partially separated by a slot from said first web structure and interconnected therewith by a small rectangular panel.
4. A bottle carrier according to claim 2 wherein a first yieldable fold line is formed in each of said second web structures and disposed in coaxial relation with said yieldable fold line in said first web structures.
5. A bottle carrier according to claim 2 wherein each of said bottom end panels is secured to the adjacent second web structure by adhesive.
6. A bottle carrier according to claim 4 wherein a second yieldable fold line is formed in each of said second web structures and extends from an upper corner of each of said side wall bottom portions downwardly and in converging relation to each of said first yieldable fold lines.
7. A bottle carrier according to claim 6 wherein a third yieldable fold line is formed in each of said second web structures and extends from a lower outer corner of each of said second web structures upwardly and inwardly to a point of intersection with the associated one of said second yieldable fold lines to aid in gripping the body portion of the corner bottles in the carrier in a taut and stable fashion.
8. A bottle carrier according to claim 1 wherein each of said web structures is collapsible along a fold line which extends from an outer edge thereof toward the adjacent top corner of the carton.
9. A bottle carrier according to any one of claims 2 to 8 wherein a third web structure is foldably joined to the bottom portions of said side walls and folded inwardly into engagement with the adjacent corner bottles, and fourth web structures



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are joined to said bottom portion of said side walls and said third web structures are defined by pairs of fold lines each of which diverges upwardly and which terminate adjacent the lower ends of said web structures, said third and fourth web structures being related to each other so as to maintain said third web structures in engagement with the adjacent corner bottles.

10. A bottle carrier according to claim 9 wherein said fourth web structures are disposed astride the corners of said carrier.

11. A bottle carrier according to claim 9 wherein the lower ends of said second web structures and the adjacent upper ends of said fourth web panels are disposed in extension of said fold lines which define the junction between said top and said bottom portions of said side walls.

12. A bottle carrier according to claim 11 wherein the lower ends of said second web panels and the upper ends of said second web panels and the upper ends of said fourth web panels are separated by cut lines.

13. A carrier for bottles arranged in a side by side rectilinear group comprising a top wall, a bottom wall, and side walls, each side wall having a bottom portion and a top side wall portion having an end edge, said top, bottom and side walls being interconnected to form a tubular structure, a top end panel foldably joined to each end edge of said top wall along a fold line which extends between opposite corners of the carton, a first web panel foldably joined to one side edge of each of said top end panels, a triangular second web panel foldably joined to an end edge of the adjacent top side wall portion and to the adjacent edge of said first web panel along fold lines which diverge downwardly to define at least in part a third edge of said second triangular web panel so as to position said triangular second web panel astride the adjacent corner of the carrier and to cause said second web panel to engage the neck of the adjacent corner bottle and to impart a taut inward force thereto, a third web panel foldably joined to the adjacent end of said bottom portion of the side wall and folded inwardly into engagement with the large bottom portion of the adjacent bottle, and a fourth web panel defined by a pair of fold lines which diverge upwardly from a point on the end edge of said third web panel and which terminate adjacent the junction between said bottom portion of the adjacent side wall and the associated top side wall portion to impart an inward taut force to the large bottom portion of the adjacent corner bottle.

14. A bottle carrier according to claim 13 wherein said fourth web panel is of generally triangular configuration defined by said pair of lines which diverge upwardly and by a third line which extends for a portion of the distance between the upper extremities of said pair of lines which diverge upwardly.



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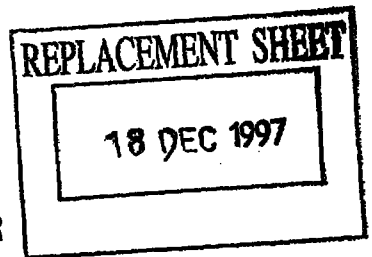
15. A bottle carrier according to claim 14 wherein the remainder of the distance between the upper extremities of said pair of lines which diverge upwardly is a cutaway line.

16. A bottle carrier according to claim 13 wherein the point of intersection of said downwardly diverging sides of each of said fourth web panels also coincides with the fold line between each of said third web panels and with each end of each of said bottom portions of each side wall said fourth web panel being disposed astride the adjacent corner of the carrier.

17. A bottle carrier according to claim 15 wherein said cutaway line affords clearance for its adjacent edges whereby said edges move into engagement with each other thereby to impart an inward force to the adjacent third web panel.

18. A bottle carrier according to claim 13 wherein said top side wall portions are upwardly and inwardly inclined and wherein said end edges of each top side wall portion are substantially perpendicular to the bottom edge of said top side wall portion.





ENCLOSED BOTTLE CARRIER

ABSTRACT

A bottle carrier for packaging and gripping in a taut fashion a plurality of bottles includes top (1), bottom (47) and side (6) walls, each side wall having a substantially vertically disposed bottom portion and an inwardly inclined top portion (6) foldably joined to the bottom portion to form a tubular structure, top end panels (24) foldably joined to each end edge of the top wall together with a bottom end panel foldably joined to each end edge of the bottom wall and secured in overlapping relation with the associated top end panel (2, 4). A first collapsible web (15) is foldably joined to each end edge of each top end panel (24), and to the end edge of each of the inwardly inclined top wall portion (1). A yieldable fold line (5) formed in each collapsible web (15,17) extends from the adjacent corner of the top wall (1) downwardly in angular relation to the adjacent end edge of the associated inwardly inclined top wall portion (1).

FIG. 1

