

[54] FULLY ENCLOSED BOTTLE CONTAINER

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[22] Filed: **Nov. 15, 1974**

[21] Appl. No.: **524,144**

[52] U.S. Cl. **206/427; 229/38; 229/40**

[51] Int. Cl. **B65D 65/12; B65D 65/14; B65D 65/28; B65D 75/08**

[58] Field of Search **206/427, 434; 229/38, 40**

[56] **References Cited**

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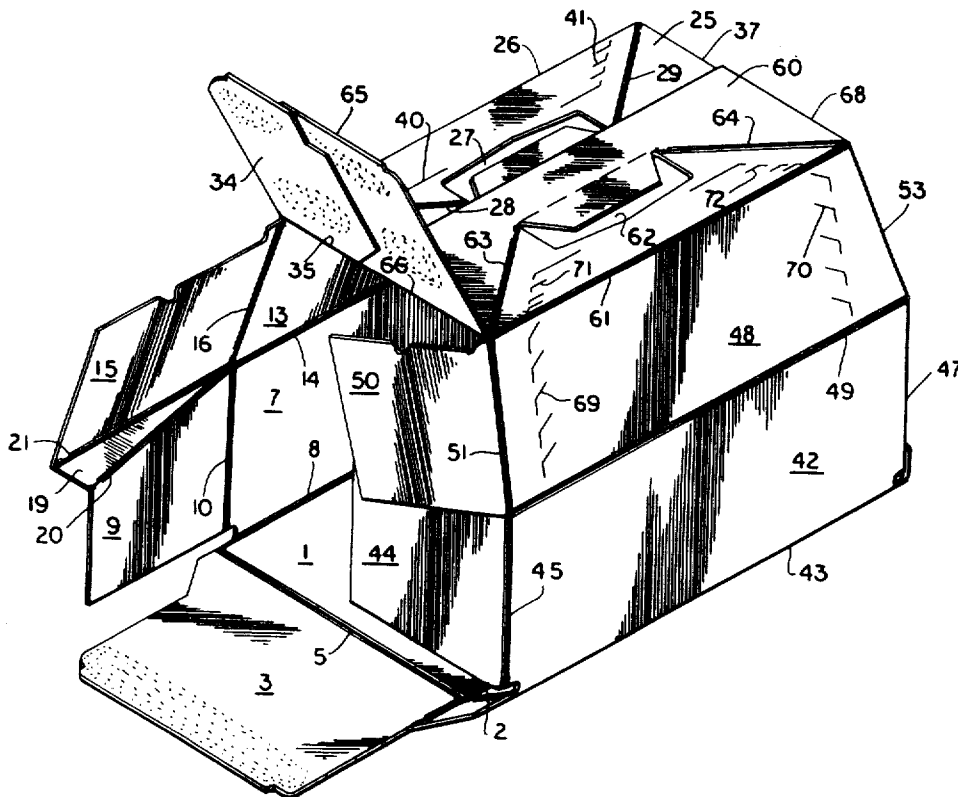
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[57] **ABSTRACT**

An enclosed container for packaging a plurality of bottles having tapered neck portions includes bottom, top and side walls interconnected to form a tubular structure having end closure means at each end which includes a bottom end panel foldably joined to each end of the bottom wall, a top end panel foldably joined to each end edge of the top wall together with a transverse lower end flap foldably joined to each end edge of the bottom portion of each side wall, a transverse upper end flap foldably joined to each end of the inwardly tapered top shoulder portion of each side wall, and web structure which interconnects the adjacent edges of the transverse upper and lower end flaps associated with each end edge of each side wall. The upper portion of the end closure structure is inwardly tapered so that the top wall is of a shorter longitudinal dimension than the bottom wall. In order to provide for collapsing a pre-glued sleeve formed according to this invention, a so-called false score is formed in the bottom wall and disposed in parallel relation to a side edge thereof.

15 Claims, 9 Drawing Figures



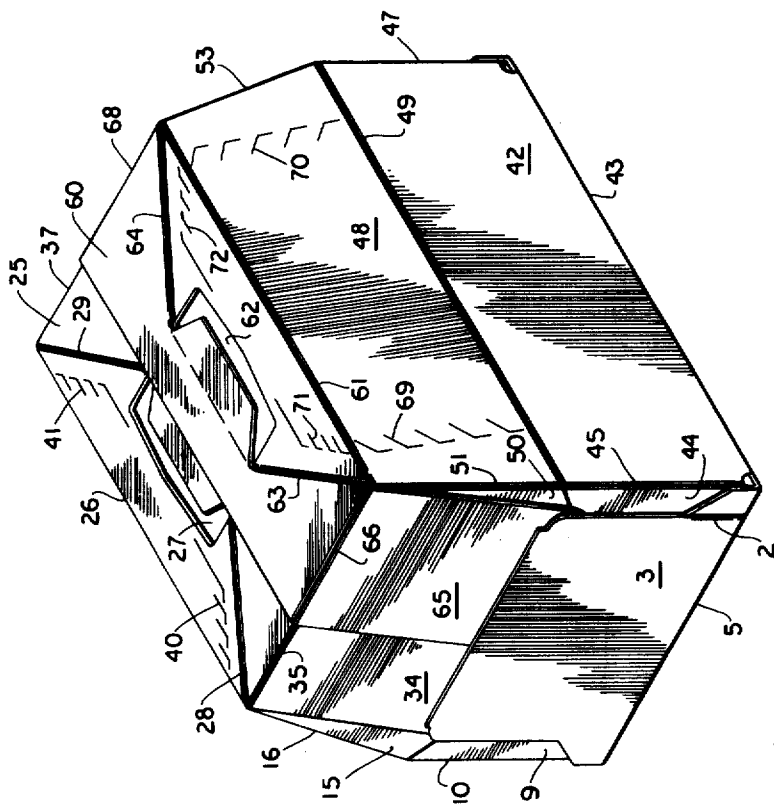
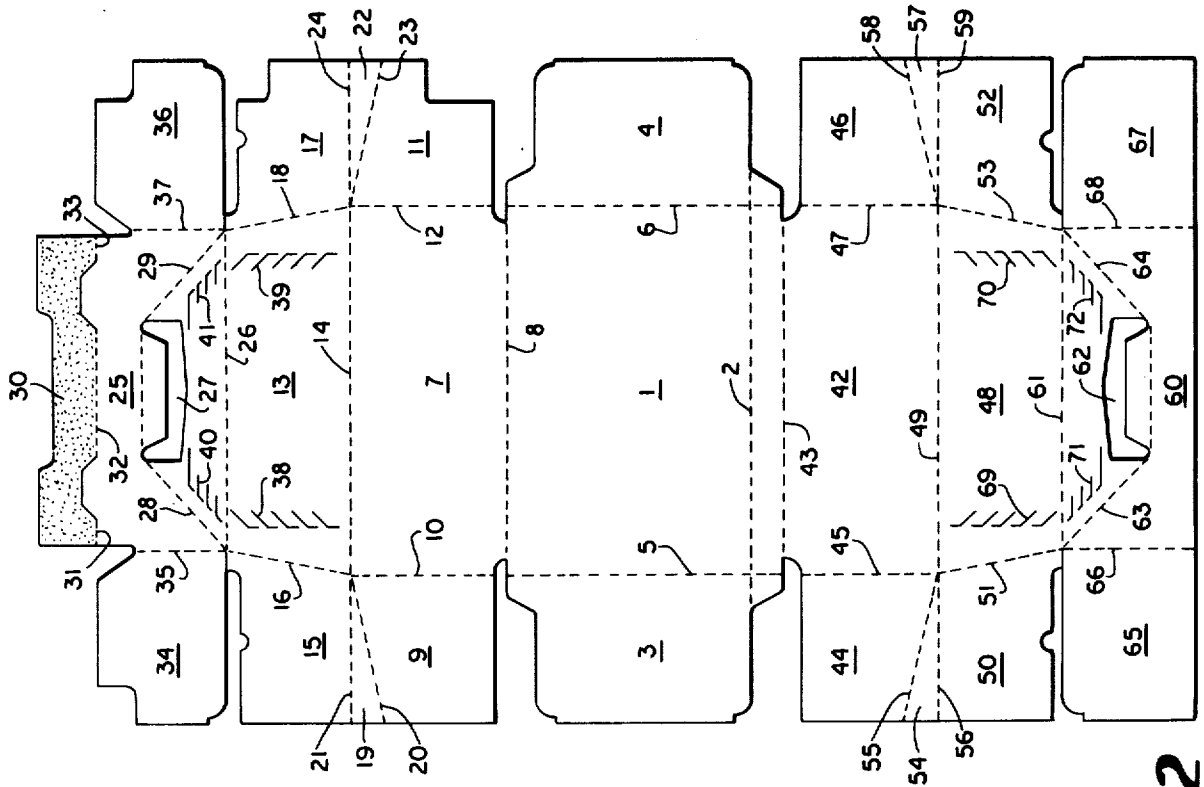


FIG 2

FIG 1

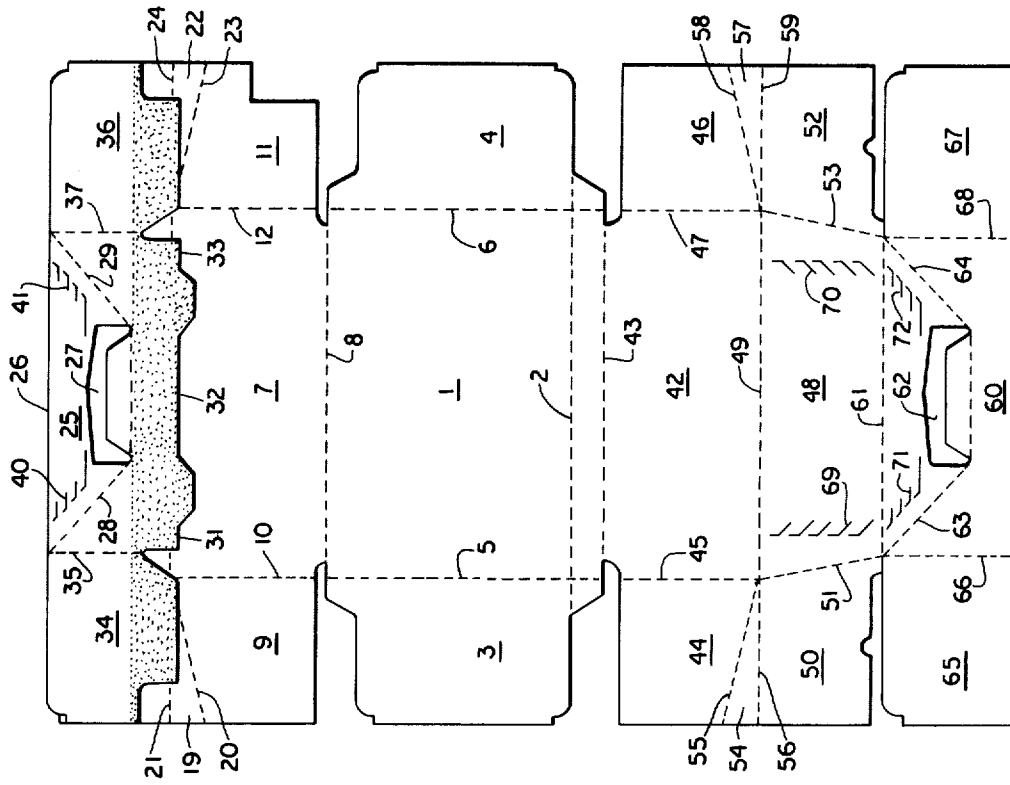


FIG 4

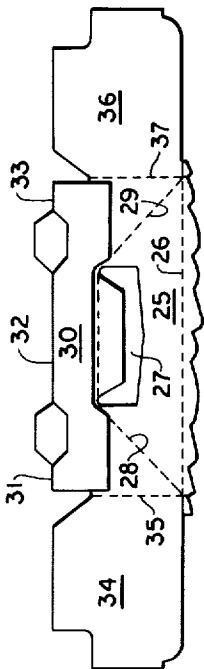


FIG 3

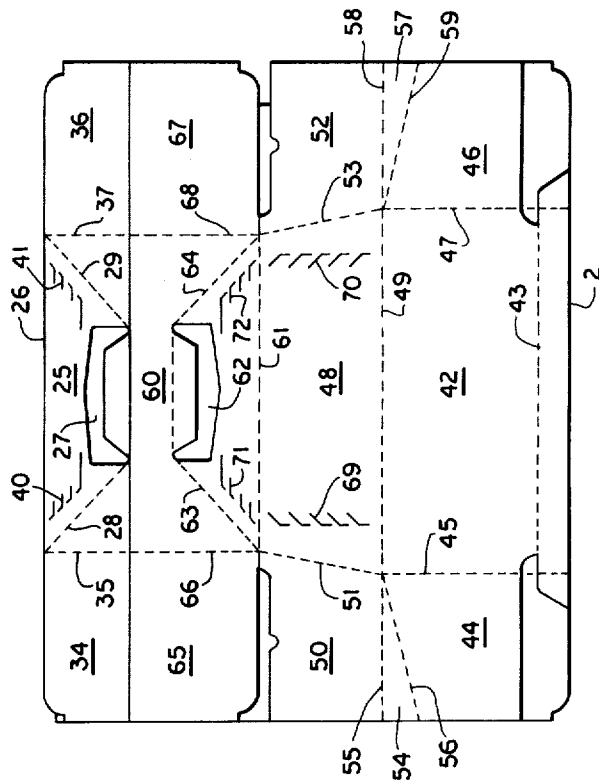


FIG 5

FIG 6

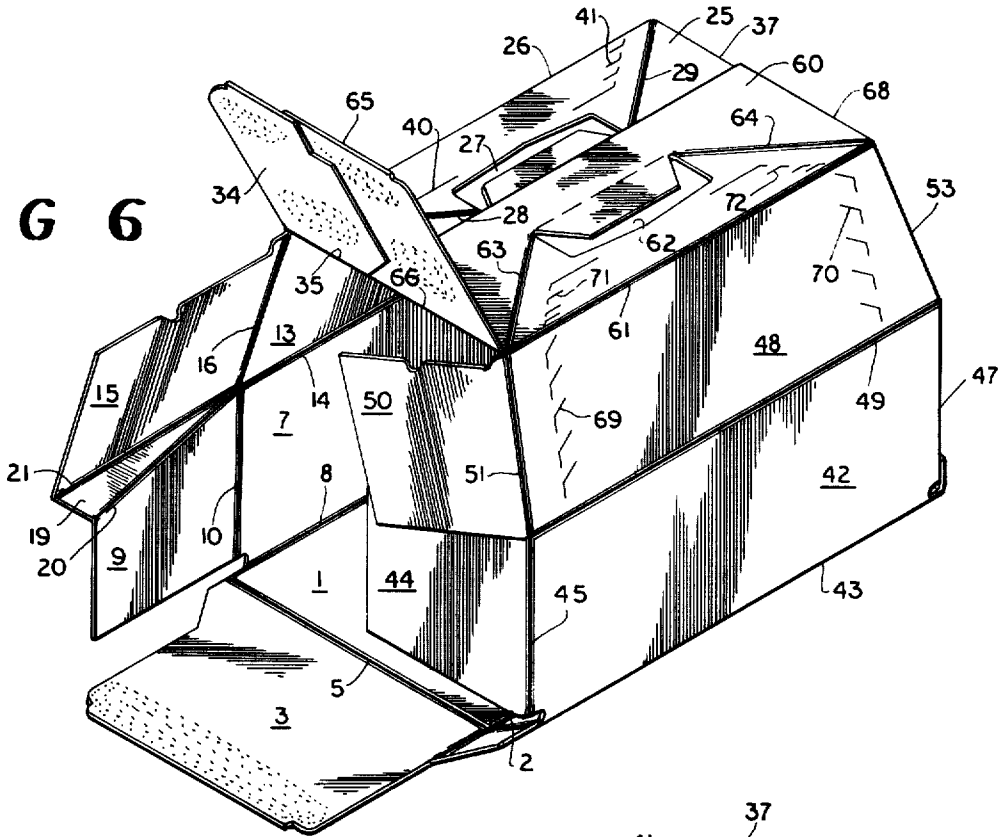
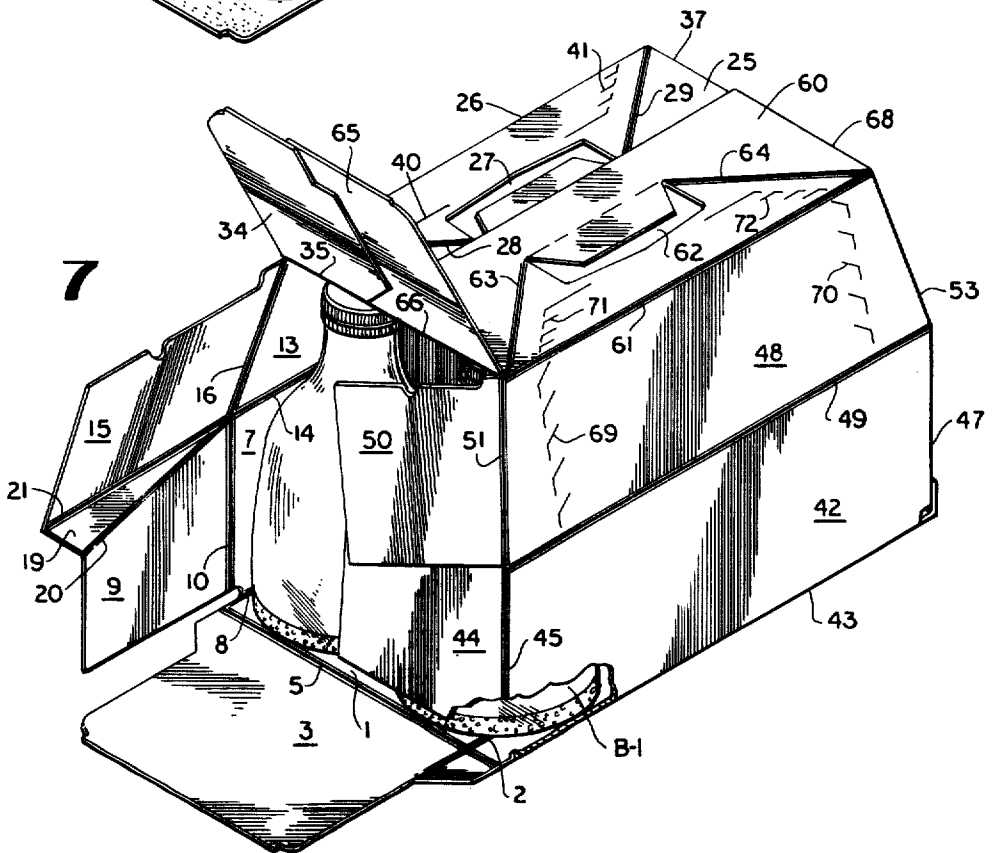


FIG 7



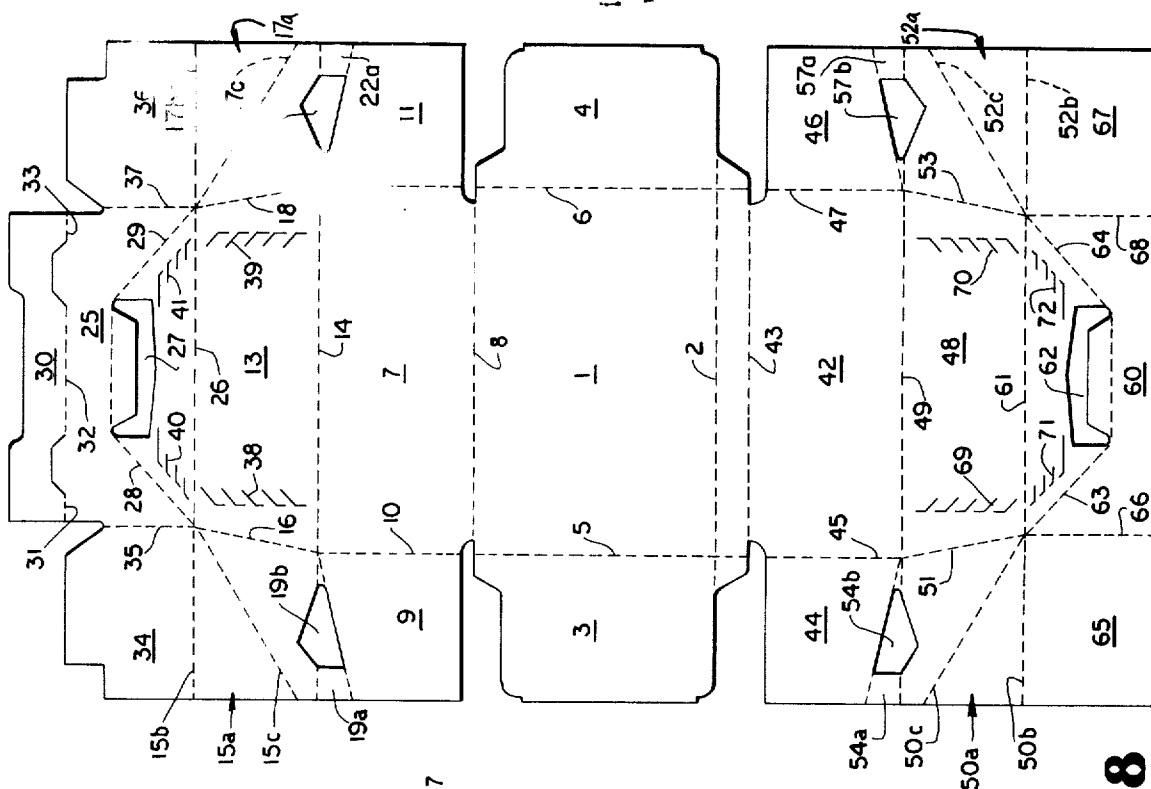


FIG 8

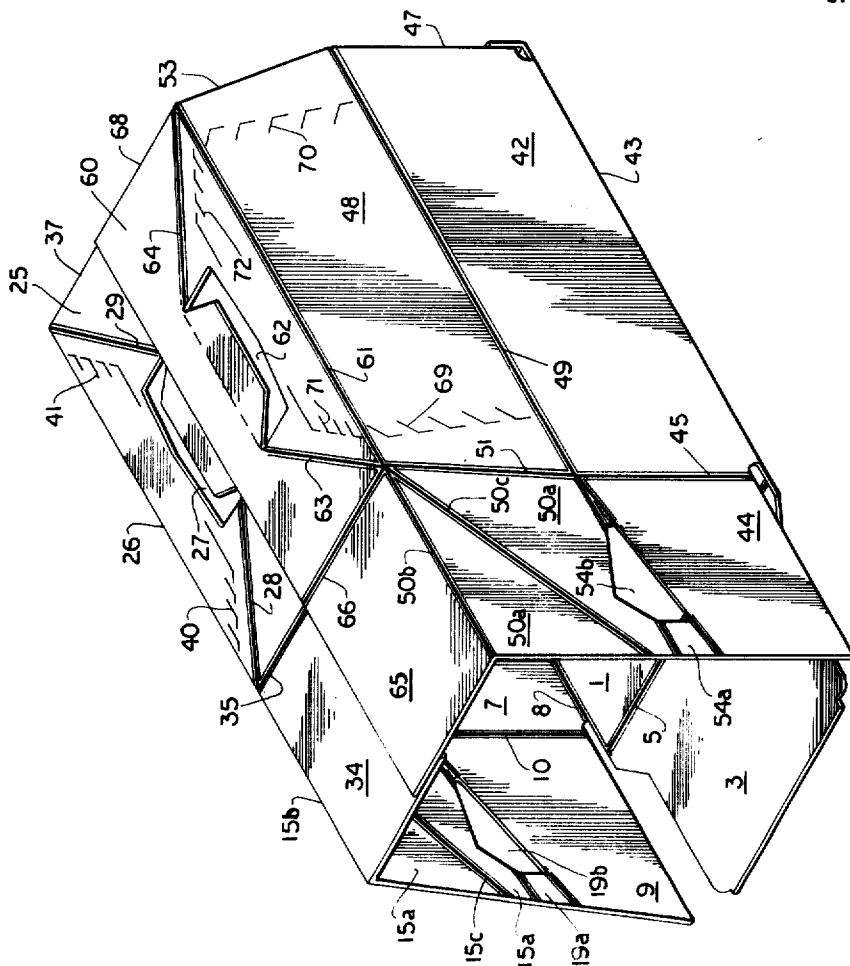


FIG 9

FULLY ENCLOSED BOTTLE CONTAINER

Known totally enclosed containers for packaging a plurality of bottles having tapered neck portions have frequently proved to be unsatisfactory due in many instances to the fact that the side and end walls tend to bulge outwardly and thus allow relative movement between the packaged bottles. Such jostling of the packaged bottles frequently results in damage or breakage and in some instances resort has been had to the inclusion of costly cushioning partitions whereby the bottles are separated and cushioned from each other. If cushioning partitions could be eliminated, substantial economies in the cost of packaging could be effected.

According to this invention, a totally enclosed container for packaging a plurality of bottles having tapered neck portions is specially constructed so as to maintain the top, bottom, side and end closure panels in tight and snug engagement with the bottles included within the package. Such a tight construction tends to eliminate undesired relative movement and the resulting collision of adjacent bottles. Tightness of the package is accomplished according to this invention by properly dimensioning the interconnected top, bottom and side walls which form a tubular structure and by unique and effective end closure means which includes a transverse lower end flap foldably joined to each end edge of the bottom portion of each side wall together with a transverse upper end flap foldably joined to the inwardly tapered upper shoulder portion of each side wall, each transverse lower end flap being connected with the adjacent transverse upper end flap with web structure which imposes a force to the end closure means whereby the top wall is held firmly and securely against the tops of the packaged bottles and the side walls are braced against outward bulging. In addition, a top end panel is foldably joined to the end edges of the top walls and is secured in overlapping relationship with an associated bottom end panel foldably joined to each end edge of the bottom wall and folded upwardly. The top and bottom end panels preferably are secured to the associated transverse upper end flaps and transverse lower end flaps so that the end closure structure not only imposes substantial inward holding pressure to the packaged bottles but also constitutes a multiply cushioning end closure means for the container.

For a better understanding of the invention reference may be had to the following detailed description taken in conjunction with the accompanying drawings in which

FIG. 1 is a perspective view of a completed container formed according to one form of the invention;

FIG. 2 is a plan view of a unitary blank from which the container shown in FIG. 1 is formed;

FIGS. 3-7 inclusive depict gluing and folding operations through which the blank of FIG. 2 is manipulated in order to form the completed container shown in FIG. 1;

FIG. 8 is a plan view of a unitary blank constructed according to a modification of the invention and in which

FIG. 9 is a view somewhat similar to FIG. 6 and which depicts a stage in the folding and gluing operations through which the blank of FIG. 8 is manipulated in order to form a completed package from that blank.

In the drawings the numeral 1 designates the bottom wall in which a folding or so-called false score line designated by the numeral 2 is formed. Bottom end panels

3 and 4 are foldably joined to the end edges of bottom wall 1 along fold lines 5 and 6 respectively. The bottom portion of one side is designated by the numeral 7 and is foldably joined to a side edge of bottom wall 1 along fold line 8. A transverse lower end flap 9 is foldably joined to an end edge 10 of the lower portion 7 of one end wall and a transverse lower end flap 11 is foldably joined along fold line 12 to the opposite end edge of the lower portion 7 of one side wall. Inwardly tapered top shoulder portion 13 of one side wall is foldably joined along fold line 14 to the lower portion 7 of that side wall and a transverse upper end flap 15 is foldably joined along inwardly tapered fold line 16 to the shoulder portion 13 of one side wall and a transverse upper end flap 17 is foldably joined along inwardly tapered fold line 18 to the opposite end edge of shoulder portion 13 of one side wall.

For the purpose of interconnecting adjacent edges of upper end flap 15 with lower end flap 9, a web panel 19 is foldably joined along fold line 20 to lower end flap 9 and along fold line 21 to upper end flap 15. Similarly at the other end of the container, a web panel 22 is foldably joined along fold line 23 with lower end flap 11 and web panel 22 is foldably joined to upper end flap 17 along fold line 24.

A top wall lap panel 25 is foldably joined to the upper edge of shoulder portion 13 of one side wall along a fold line 26. Elongated hand gripping aperture 27 is formed in top wall lap panel 25 and score lines 28 and 29 respectively interconnect opposite ends of the longitudinal hand gripping aperture 27 and the adjacent corners of top wall lap panel 25. A reinforcing flap 30 is foldably joined along fold lines 31, 32 and 33 to an edge of top wall lap panel 25. A top end panel component 34 is foldably joined along fold line 35 to an end edge of top wall lap panel 25 and a similar top end panel component 36 is foldably joined along fold line 37 to the opposite end edge of top wall lap panel 25.

For the purpose of facilitating access to the packaged bottles inside the container, a plurality of tear slits of conventional construction may be formed in shoulder portion 13 of one side wall as indicated at 38 and 39 and similar slits as indicated at 40 and 41 may be formed in adjacent portions of top wall lap panel 25.

The opposite side of the container is similar to that already described and includes bottom portion 42 of the opposite side wall which is foldably joined along fold line 43 to a side edge of bottom wall 1. A transverse lower end flap 44 is foldably joined to one end of lower portion 42 of one side wall along fold line 45 while a similar transverse lower end flap 46 is foldably joined along fold line 47 to the other end edge of the lower portion 42 of one side wall.

Inwardly tapered top shoulder portion of the side wall is designated by the numeral 48 and is foldably joined to the bottom portion 42 of the side wall along fold line 49. Transverse upper end flap 50 is foldably joined to one end of shoulder portion 48 along fold line 51 while transverse end flap 52 is foldably joined to the other end of shoulder portion 48 of one side wall along fold line 53.

For interconnecting adjacent edges of upper and lower end flaps 44 and 50, a web panel 54 is foldably joined to the lower end flap 44 along fold line 55 and web 54 is foldably joined along fold line 56 to transverse upper end flap 50. Similarly at the other end of the container web panel 57 is foldably joined to trans-

verse lower end flap 46 along fold line 58 and to transverse upper end flap 52 along fold line 59.

Top wall lap panel 60 is foldably joined to shoulder portion 48 of the associated side wall along a fold line 61 and is provided with an elongated longitudinal hand gripping aperture 62. Score lines 63 and 64 respectively interconnect opposite ends of the longitudinal hand gripping aperture 62 and the adjacent corners of top wall lap panel 60.

A component of the top end panel is designated by the numeral 65 and is foldably joined to top wall lap panel 60 along fold line 66. At the other end of the blank, top end panel component 67 is foldably joined to top wall lap panel 60 along fold line 68.

For facilitating access to the interior of the package, conventional tear slits such as are indicated at 69 and 70 may be formed in the shoulder portion 48 of one side wall and corresponding tear slits 71 and 72 may be formed in top wall lap panel 60.

In order to form the container, an application of glue is first made to the hand reinforcing panel 30 as indicated by stippling in FIG. 2. Panel 30 is then elevated and folded into face contacting relation with top wall lap panel 25 to occupy the position depicted in the fragmentary view designated as FIG. 3. This operation causes reinforcing panel 30 to adhere to top wall lap panel 25.

Thereafter top wall lap panel 25 together with hand reinforcing panel 30 and top end panel components 34 and 36 are elevated and folded along the fold line 26 to occupy the positions depicted in FIG. 4.

With the structure arranged as shown in FIG. 4, an application of glue is made to the aligned edges of top wall lap panel 25 and to top end panel components 34 and 36 as indicated by stippling in FIG. 4. Simultaneously an application of glue can be made if desired to the aligned edges of top wall lap panel 60 and top end panel components 65 and 67. Thereafter the bottom portion 42 and the shoulder portion 48 of the side wall together with top wall lap panel 60, lower end flaps 44 and 46, upper end flaps 50 and 52, web panels 54 and 57 and top end panel components 65 and 67 are elevated and folded forwardly along fold line 2 to occupy the positions depicted in FIG. 5. This folding operation causes top wall lap panel 25 to adhere along its stippled edge to top wall lap panel 60 by way of a manufacturer's joint thus to form a composite top wall for the container. Simultaneously top end panel components 65 and 34 adhere to each other along a manufacturer's joint as do top end panel components 36 and 67. The collapsed structure as shown in FIG. 5 represents the condition of the container upon completion of the container manufacturer's operations and it is in this form that the container is shipped to a packager such as a bottler. Of course the false score or folding line 2 allows the structure as shown in FIG. 5 completely to collapse because the space between fold line 2 and the side edge 43 of bottom wall 1 is approximately equal to the difference in width between the top wall which is a composite structure comprising top wall lap panels 25 and 60 and the bottom wall 1.

The bottler sets up the carrier by first forming a tubular structure from the collapsed arrangement shown in FIG. 5. Thereafter the closure structure at one end preferably is closed and the container may then appear somewhat as shown in FIG. 6. Bottles of course are loaded from the left hand end of FIG. 6. Structure as

shown in FIG. 6 without the bottles allows the near side of the composite top wall and the side wall 42, 48 to be elevated somewhat higher from the bottom wall than in the completed package due to folding of the bottom wall structure along the fold line 2. Thus it is relatively simple to insert the bottles into the open end of the container due to the fact that the side wall 42, 48 is elevated somewhat by folding along the false score 2. Preferably the left side of the container as shown in FIGS. 6 and 7 is loaded first and the right hand side is loaded as the last phase of a loading operation. As is apparent in FIG. 7, the lower rounded bottom part of bottle B1 "irons out" that portion of the bottom wall which is disposed between the fold lines 2 and 43. Thus when the bottles B1 are inserted, the top, bottom and side walls are tightened and the package is then in the form of a unitary tight structure wherein the top wall is forced firmly down against the caps of the bottles.

After the bottles are end loaded into the structure as shown in FIG. 7, it is then only necessary to complete the end closure at the left hand end of the container. Toward this end an application of glue is applied to the bottom end panel 3 and to the top end panel components 34 and 65 as indicated by stippling in FIG. 6. Thereafter transverse upper end flap 15 and transverse lower end flap 9 are folded inwardly along their respective fold lines 16 and 10 while transverse upper end flap 50 and lower transverse end flap 44 are simultaneously folded inwardly along their respective fold lines 51 and 45 to occupy positions of flat contacting relationship with the bottles within the container. Since the shoulder portion of each side wall designated by the numerals 13 and 48 are inwardly tapered and since the fold lines for the transverse upper end flaps 15 and 50 designated by the numerals 16 and 51 are also inwardly tapered, folding of the lower and upper end flaps on each side of the carrier causes the web panels 19 and 59 to occupy positions between the adjacent portions of each of the upper end flaps 15 and 50 and lower end flaps 9 and 44. Thus web panel 19 is captured between upper end flap 15 and lower end flap 9 and thus imposes a vertical tension in those panels after bottom end panel 3 is secured to lower end flaps 9 and 44 and after top end panel 34, 65 becomes adhered in overlapped relationship to bottom end panel 3 and to the upper end flaps 15 and 50. Thus by this invention, end closure means is provided for a sleeve type wrapper which not only imposes substantial downward force on the composite top wall which causes that wall snugly to engage the tops of the packaged bottles but the end closure structure also is of a multiply thickness which affords substantial cushioning action against dislodgment of bottles or collision with adjacent containers or other foreign objects near the ends of the container. By this means the container securely grips the packaged bottles and prevents jostling and thereby eliminates the necessity for interior separate cushioning partitions between adjacent bottles.

Furthermore as is apparent from FIG. 1, hand gripping apertures 27 and 62 are disposed on opposite sides of the manufacturer's joint. Furthermore, it is apparent that fold lines 28, 29, 63 and 64 extend between the corners of the composite top wall and adjacent ends of the hand gripping apertures 27 and 62 as is obvious from FIG. 1. Thus the portion of the manufacturer's joint which is between the hand gripping apertures 27 and 62 is allowed to move upwardly somewhat when

the package is grasped for transport and the portions of the top wall adjacent the fold lines 28, 29, 63 and 64 are allowed to bend. Insurance is thus provided whereby any tendency for the ends of the hand gripping apertures to tear is eliminated since the weight of the package simply causes slight deformation of the top panel along the fold lines 28, 29, 63 and 64 and eliminates possible rupture of the top panel.

The modification of the invention shown in FIGS. 8 and 9 is similar to that shown in FIGS. 1-7 inclusive. The structure of FIGS. 8 and 9 differs primarily with respect to the construction and arrangement of the transverse upper end flaps. For example, the end flap designated 15a is foldably joined to top end panel component 34 along fold line 15b and the transverse fold line 15c is formed in the panel 15a and is arranged with one end disposed at a corner of the container. In addition web panel 19a is cut away in part which cut away portion may in some instances facilitate manipulation of the end closure structure by machine operations. Furthermore when the end structure is closed, upper end flap 15a collapses on itself along the diagonal fold line 15c. Manipulation of the upper end flap 15a is quite similar to the manipulation of end closure flap 15 of the arrangement shown in FIGS. 1-7. Upper end closure flap 17a is similarly provided with a fold line 17b between top end panel component 36 and end flap 17a and a diagonal fold line 17c is formed in upper end flap 17a and a cutaway portion 22b is comparable to cutaway portion 19b.

In like fashion upper end flap 50a is provided with a fold line 50b and a transverse fold line 50c and web panel 54a is cut away somewhat as shown at 54b. Similarly end flap 52a is provided with fold line 52b and with transverse fold line 52c while cutaway area 57b is provided in conjunction with web 57a.

The closure structure for the arrangements of FIGS. 8 and 9 is manipulated and secured in a manner virtually identical to that described above in connection with FIGS. 6 and 7. The results obtained by the modification of FIGS. 8 and 9 are similar and almost identical to the characteristics achieved with the arrangement shown in FIGS. 1-7 inclusive, both with respect to tight gripping of the packaged bottles and with respect to the action of the yieldable fold lines 28, 29, 63 and 64.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A bottle container comprising top, bottom, and side walls, each side wall having a bottom portion, and an inwardly tapered top shoulder portion said top and bottom walls and said wall portions being interconnected to form a tubular structure, a transverse lower end flap foldably joined to each end edge of the bottom portion of each side wall, a transverse upper end flap foldably joined to each end edge of the shoulder portion of each side wall, web structure interconnecting each lower end flap and the associated upper end flap and disposed in flat face contacting relation therewith, a top end panel foldably joined to each end edge of said top wall and folded downwardly and secured in flat face contacting relation with at least one transverse end flap on each side of each end of the container, and a bottom end panel foldably joined to each end edge of said bottom wall and folded upwardly and secured to said top end panel.

2. A container according to claim 1 wherein each of said transverse upper end flaps is foldably joined along at least a portion of its top edge to the adjacent edge of the associated top end panel.

3. A container according to claim 2 wherein each of said transverse upper end flaps is collapsible along a diagonal fold line one end of which coincides with an adjacent top corner of the container.

4. A container according to claim 1 wherein said web structure comprises a web panel defined by a pair of spaced angularly related fold lines.

5. A container according to claim 4 wherein a portion of each of said web panels and of an adjacent area of each of said transverse upper end flaps is cut away to facilitate manipulation thereof.

6. A container according to claim 1 wherein each top end panel is secured to both of the associated transverse upper end flaps.

7. A container according to claim 1 wherein each bottom end panel is secured to both of the associated transverse lower end flaps.

8. A container according to claim 1 wherein said top wall is a composite structure and includes a medial double thickness manufacturer's joint and an adjacent hand gripping aperture formed in a single thickness portion of said top wall and wherein said top end panels are composite structures.

9. A container according to claim 8 wherein an elongated hand gripping aperture is disposed on each side of said joint and wherein a score line interconnects each corner of said top wall and the adjacent end of one of said hand gripping apertures.

10. A container according to claim 1 wherein a folding score line is formed in said bottom wall and disposed in parallel relation to a side edge thereof.

11. A container according to claim 10 wherein said folding score is spaced from one side edge of said bottom wall by a distance approximately equal to the difference in width between said top wall and said bottom wall.

12. A container blank comprising a generally rectangular bottom wall, a bottom end panel foldably joined to each end edge of said bottom wall, a pair of side walls having bottom portions foldably joined respectively to opposite side edges of said bottom wall and having shoulder portions foldably joined to said bottom portions, a lower end flap foldably joined to each end edge of the bottom portion of each side wall, an upper end flap foldably joined to each end edge of the shoulder portion of each side wall, a web panel foldably adjoined to the upper edge of each said lower end flaps and to the lower edge of the adjacent upper end flap, and a top wall lap panel foldably joined to the upper edge of the shoulder portion of each of said side walls.

13. A blank according to claim 12 wherein an elongated longitudinal hand gripping aperture is formed in each of said top wall lap panels and wherein a pair of score lines are formed in each of said top wall lap panels and wherein each fold line extends between an end of the fold line between the associated top wall lap panel and the associated shoulder portion of one side wall and the adjacent end of the associated hand gripping aperture.

14. A blank according to claim 12 wherein a folding score is formed in said bottom wall and disposed in parallel relation to a side edge thereof.

15. A blank according to claim 12 wherein a handle reinforcing panel is foldably joined to one of said top wall lap panels along an edge thereof remote from the shoulder portion of the associated side wall.

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