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Klygis

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[54] **BOTTLE CARRIER**

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[52] **U.S. Cl.** ..... **294/87.2,** 206/65 E

[51] **Int. Cl.** **B65d 71/00**

[58] **Field of Search** ..... 294/87, 87.2; 206/65 C, 65 E; 224/45 A, 45 AA, 45 AB, 45 BA; 229/40, 52 BC

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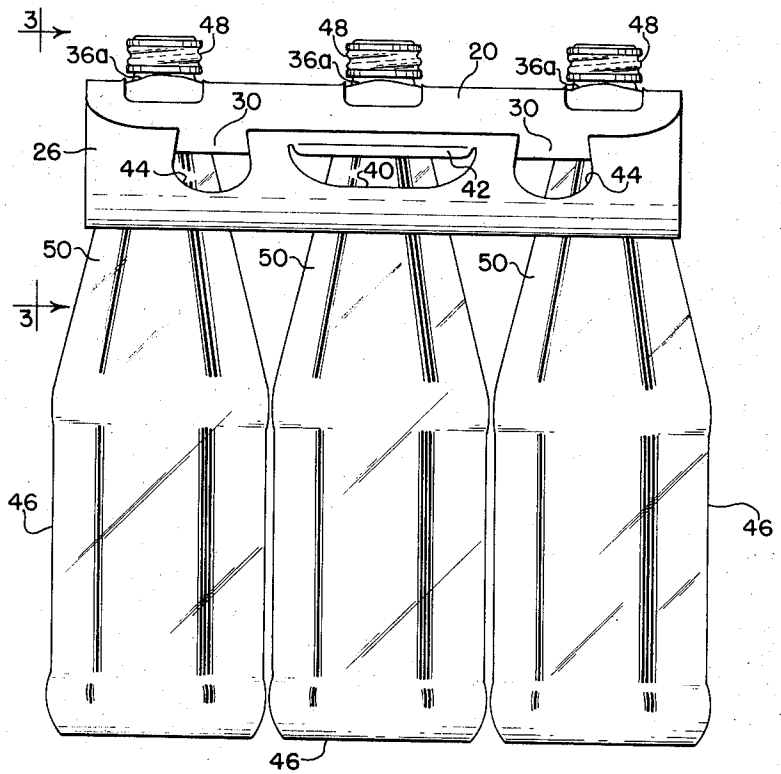
[57] **ABSTRACT**

A carrier for a plurality for bottles arranged in a row. The carrier is made from a resilient deformable plastic sheet material which folds and mechanically locks into a prism-like shape in which the end faces are triangles. Aligned apertures through the base and apex of the carrier provide an interlocking relationship of the carrier with the bottles such that the side walls of the carrier are bowed outwardly to project the marginal edges of the apertures in the apex of the carrier firmly against the underside of the cap portion enlargements of the bottles with the marginal edges of the apertures in the base of the carrier being firmly circumferentially urged downwardly against the enlarging neck portions of the bottles. The bottle gripping apertures in the apex of the carrier are defined by partially lapped larger apertures in lapped sections of the carrier. Simple tabs permit the carrier to be unlocked and the larger apertures in lapped sections of the carrier may then be axially aligned to permit the carrier to be easily lifted from the bottles. The carrier may be reused by mechanically interlocking the tabs in the tab receiving apertures and projecting the carrier downwardly over the bottles until the apex apertures snap below the enlarged cap portions of the bottles.

9 Claims, 3 Drawing Figures



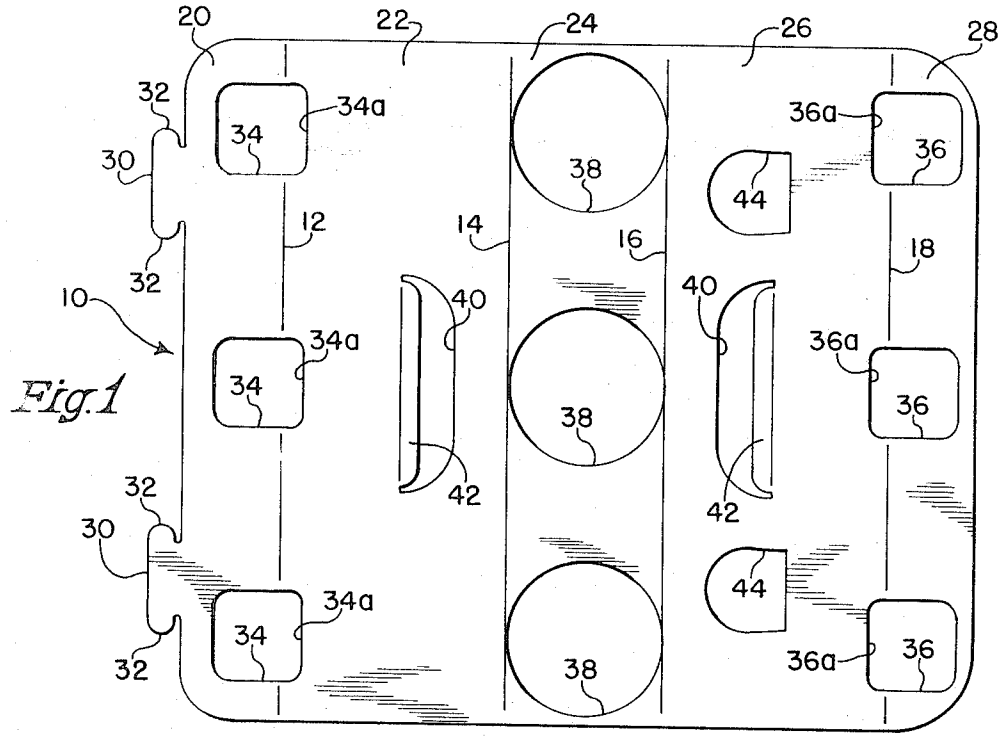


Fig. 1

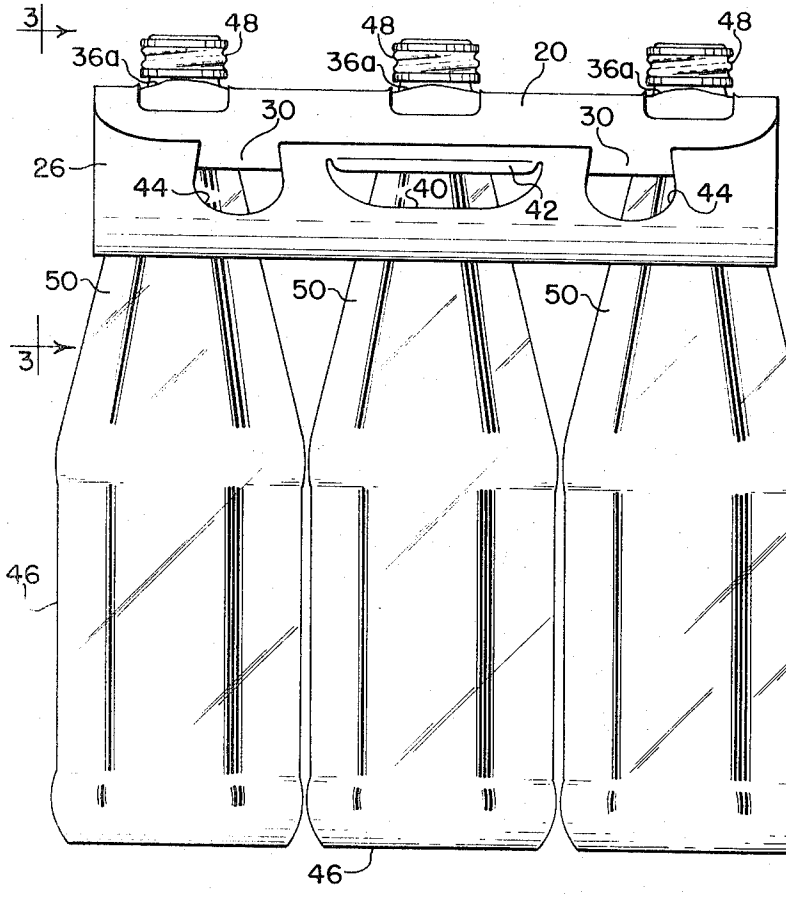


Fig. 2

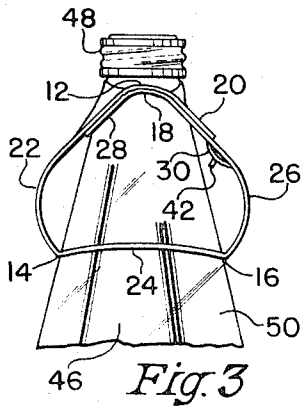


Fig. 3

BOTTLE CARRIER

BACKGROUND OF THE INVENTION

The subject invention is primarily directed to carrier constructions for relatively large beverage bottles such, for example, as those of a one quart size, and particularly such beverage bottles which have enlarged cap or crown portions and downwardly enlarging or diverging neck portions beneath the cap portions. The invention is further directed to such carriers in which the bottles are held by the neck portions thereof and depend or hang from the carrier. Paperboard carriers have been made for packaging or otherwise securing a group of such beverage bottles together in a depending condition, and to support the relatively heavy weight of a number of such bottles has generally required positive paperboard gripping means which must generally be torn or otherwise destroyed to remove bottles from the carrier, with the result that the carrier cannot be used again for carrying the empty bottles when their return to a store is desirable or necessary. Various molded or formed bifurcated clips are also known for carrying a group of bottles in a depending condition. While reusable, such carriers are generally expensive and do not hold the bottles against pivoting in the carrier.

SUMMARY OF THE INVENTION

The carrier of the invention is a simple and economical carrier that can be used and reused for carrying returnable or non-returnable bottles and is intended for use with a plurality of bottles arranged in a row. The carrier firmly holds the bottles against pivoting in the carrier. The carrier is made from a resilient, deformable plastic sheet material, such as high density polyethylene. The carrier blank has various apertures therein and a pair of tabs which cooperate with four fold lines to permit the blank to be folded and locked into a bottle carrier for a plurality of bottles arranged in a row. The assembled carrier is generally in the shape of a prism having end faces which are triangles, and has a length sufficient to span the row of bottles. The carrier is applied to the row of bottles by projecting it downwardly over the tops of the bottles. In the initial projection of the carrier downward over the bottles, the base of the carrier, which has apertures of a substantial size therein, engages the enlarging or diverging neck portions of the bottles substantially below the cap portions. In the further downward porjection of the carrier over the bottles, the apex of the carrier, which has apertures therein with opposed upwardly and inwardly inclined edges, is cammed over the enlarged cap portions of the bottles to lock beneath the cap portions. In the locking of the apex apertures beneath the cap portions enlargements, the opposed side walls of the carrier are bowed outwardly and, by virtue of the resiliency of the material, the longitudinally extending sides of the apex apertures are urged upwardly into firm locking engagement with the underside of the cap portion enlargements and the marginal edges of the apertures in the base of the carrier are firmly urged downwardly and circumferentially about the enlarging neck portions of the bottles to firmly hold the bottles in axial parallel alignment against pivoting to permit safe, convenient transport of the resulting package.

The resulting package is carried by grasping finger-gripping means such as apertures which are formed in the opposed side walls of the carrier.

The resulting package is easily removed from the bottles by pulling the tabs from their interlocking apertures. The apex of the carrier then opens into axially aligned overlapping apertures which are substantially larger than the enlarged cap portions of the bottles and the opened carrier is then merely lifted from the bottles.

The carrier of the invention is also easily reassembled for carrying bottles, such as returning empties to the store, by over-lapping the apex portions of the carrier, and manually snapping the tabs into their interlocking apertures. The carrier is then merely pushed downwardly over the bottles as previously described to again lock the carrier and the bottles together as a package.

The primary object of the present invention is to provide a simple reusable carrier, for a plurality of beverage bottles having enlarged cap portions and downwardly diverging neck portions, which is easily assembled in a locked condition for application to the bottles, easily unlocked for removal from the bottles, and which, in the locked and applied condition to the bottles, will firmly hold the bottles in a row for hand transport by gripping the carrier with the bottles in a depending condition therefrom.

Other objects and features of the invention will be apparent upon the perusal of the hereinafter following specification and drawing.

DESCRIPTION OF THE DRAWING

FIG. **1** is a plan view of a carrier blank constructed according to the invention;

FIG. **2** is a side elevational view of a package showing the carrier of FIG. **1** in an assembled condition and applied to three bottles in a row; and

FIG. **3** is a fragmentary end view of the structure shown in FIG. **2** and taken substantially along the line **3—3** of FIG. **2.**

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The carrier blank **10** shown in FIG. **1** is punched or otherwise formed from a sheet of plastic material of uniform thickness. In reductions to practice of the invention, one suitable material has been found to be high density polyethylene in a 0.04 inch thickness. High density polyethylene has the proper resiliency and deformability to permit the carrier blank **10** to be folded and locked into an assembled condition, to effectively interlock with a plurality of substantially heavy beverage bottles, to be easily disassembled and removed from the bottles, and to be easily reassembled for repeated use.

The carrier blank **10** is provided with four spaced-apart and parallel fold lines **12, 14, 16** and **18.** The fold lines **12, 14, 16** and **18** divide the carrier blank **10** into five panel sections **20, 22, 24, 26** and **28.**

Panel section **20** includes one longitudinal edge of the carrier and is contiguous to panel section **22** on fold line **12.** The outer longitudinal edge of panel section **20** is provided with a pair of integral tabs **30** which extend outwardly therefrom in the plane of panel section **20.** Each tab **30** has opposed ears **32** which extend in directions longitudinal of the panel section **20.** Although the ears **32** on the tabs **30** are shown as substantially semicircular, the invention contemplates other forms for the tabs **30.** For example, the tabs **30** may have the general shape of an arrowhead.

The panel section **20** further includes the major portions of a plurality of apertures **34.** In the present embodiment, the apertures **34** are three in number to provide a carrier embodiment for three bottles, however, the invention contemplates a greater or lesser number of apertures for a corresponding different number of bottles. The apertures **34** intersect and make the fold line **12** discontinuous. Portions of the apertures **34,** about one-fourth of the width thereof measured transversely of the panel sections **20** and **22,** extend into panel section **22.** The apertures **34** are substantially square in shape and the length of a side thereof is greater than the largest diameter of the cap portion of the bottle intended to be associated therewith.

Panel section **28** is substantially a mirror image of panel section **20** without the tabs **30.** Panel section **28** includes one longitudinal edge of the carrier blank **10** and is contiguous to panel section **26** on fold line **18.** Panel sections **28** and **26** are provided with apertures **36** which are formed therein as apertures **34** are formed in panel sections **20** and **22.** Panel section **28** preferably has a width which is narrower than the width of panel section **20,** absent of the tabs **30,** by a distance of substantially equal to the thickness of the blank **10.**

Panel section **26** is also narrower than panel section **22** by about the thickness of the blank **10.** This width arrangement of the panel sections **20, 22, 26** and **28** provides for proper relative positioning of panel section **20** over panel section **26** with fold line **12** at the apex of the defined prism as may be seen in FIG. **3.**

Panel section **22** is contiguous to panel section **24** along fold line **14.** Panel section **26** is contiguous to panel section **24** along fold line **16.** Panel section **24** is provided with three circular apertures **38** which are arranged in a spaced-apart relationship longitudinally of the panel section **24** and substantially in transverse alignment with the apertures **34** and **36.** The apertures **38** are tangent to the fold lines **14** and **16.** The apertures **38** have a diameter less than the diameter of the bottle intended to be associated therewith at a point measured axially downward of the bottle from the underside of the enlarged cap portion, a distance substantially equal to the vertically projected width of the panel section **22.**

The panel sections **22** and **26** are further provided with longitudinally extending finger-gripping apertures **40.** The finger-gripping apertures **40** are arranged as mirror images of each other in the panel sections **22** and **26** and are further positioned respectively, one between center aperture **34** and center aperture **38,** and the other between center aperture **36** and center aperture **38.** Each of the finger-gripping apertures **40** is further provided with a flap **42** extending along the longitudinal edge thereof closest to the apertures **34** and **36** and foldable from the plane of the panel sections **22** and **26** to provide a substantially wider finger engaging area than is provided by the edge or thickness of the material of the blank **10.**

Panel section **26** is provided with a pair of tab interlocking apertures **44.** The tab interlocking apertures **44** are positioned in a spaced-apart relationship longitudinally of the panel section **26** on opposite sides of the finger-gripping aperture **40** therein and substantially in transverse alignment with the tabs **30.** The tab interlocking apertures **44** have widths measured in a direction longitudinally of the panel section **26** which are substantially equal to the width of the tabs **30** without the ears **32.**

In assembling the carrier, the panel sections **22** and **26** are folded upwardly in the same direction from the panel section **24** so that the panel section **24** defines the base of the carrier. The panel sections **20** and **28** are then folded along the fold lines **12** and **18** respectively toward each other, and the fold lines **12** and **18** are brought together in a lapped arrangement with the fold line **12** over the fold line **18** to cause the panels **22** and **26** to form the side walls of the carrier with the general shape of a prism having end faces which are triangles. The ears **32** of the tabs **30** are then projected or snapped through the tab interlocking apertures **44** so that the panel sections **20** and **28** extend generally downwardly from the apex formed by fold lines **12** and **18** and generally parallel and against the side walls of the carrier formed by panel sections **22** and **26.** In the assembled condition of the carrier, openings of a size, measured in a direction transversely of the carrier, substantially smaller than the maximum diameter of the enlarged cap portions of the bottles intended to be associated therewith are formed by the opposed longitudinally extending sides **34***a* and **36***a* of the apertures **34** and **36.**

In the foregoing described assembled condition of the carrier it is merely necessary to downwardly project the carrier over the bottles intended to be associated therewith. Such bottles are shown at **46** in FIGS. **2** and **3.** The enlarged cap portions of the bottles **46** are indicated at **48.** The downwardly diverging portions of the bottles **46** are indicated at **50.** In the initial projection of the carrier downwardly over the three bottles **46** arranged in a row, the inner periphery of the apertures **38** in the base of the carrier will firmly circumferentially engage the enlarging or diverging neck portions **50** of the bottles **46.** Further downward projection of the carrier by a force applied on the apex of the carrier will cause side edge **34***a* of each aperture **34** and side edge **36***a* of each aperture **36** to cam over and lock immediately beneath the enlarged cap portions **48.** The side edges **34***a* and **36***a* are slightly deformed as may be seen in FIGS. **2** and **3.** The resiliency of the material in the described arrangement will cause the side edges **34***a* and **36***a* of the apertures **34** and **36** to be firmly urged against the necks of the bottles immediately beneath the enlarged cap portions **48.**

When the partially lapped apertures **34** and **36** are interlocked beneath the enlarged cap portions **48** as described, the side walls of the carrier will be bowed outwardly longitudinally thereof as shown in FIG. **3.** This bowing of the side walls of the carrier produces an extremely stable and substantially rigid package. The resiliency of the side walls urges the apex of the carrier and the openings therein in firm locking contact with the necks of the bottles **46** beneath the cap portions **48** and further urges the base portion of the carrier downwardly relative to the bottles **46** to firmly hold the bottles **46** with the longitudinal axis thereof parallel and against pivoting thereof. The finger-gripping apertures **40** in the side walls of the carrier do not disturb the firm resilient locking and holding arrangement of the carrier on the bottles **46** when the carrier is hand-transported by a person grasping the carrier with his fingers in finger-gripping apertures **40** and with the bottles **46** in a depending condition from the carrier.

The carrier is easily removed from the bottles **46** by a person pulling the central portion of the tabs **30** downwardly of the side wall of the carrier to pull or snap the ears **32** of the tabs **30** out of the tab interlocking apertures **44.** When the tabs **30** have been unlocked from the apertures **44,** the panel sections **20** and **28** are shiftable relative to each other to substantially axially align the peripheries of the apertures **34** with the peripheries of the apertures **36** and the carrier may then be merely lifted from the bottles **46.**

When it is desired to reuse the carrier, it is merely necessary to lap the panel section **20** over the panel section **26** and snap the tabs **30** in the apertures **44.** With the carrier again in an assembled condition, it is merely necessary to project the carrier downwardly over the bottles **46** as previously described to reform the defined carrier package.

Having described the invention, it is to be understood that changes can be made in the described embodiments by one skilled in the art within the spirit and scope of the invention as defined in the claims.

I claim:

1. A carrier for a plurality of bottles arranged in a row, said carrier formed from a sheet of resilient deformable plastic material, said sheet of plastic material having four fold lines therein in a parallel spaced apart relationship, to form five panel sections, the third panel section being located centrally of said carrier with the second and fourth panel sections being contiguous thereto along the opposite longitudinal marginal edges thereof, the first panel section being contiguous to said second panel section and including one longitudinal edge of said sheet, the fifth panel section being contiguous to said fourth panel section and including the other longitudinal edge of said sheet, said third panel section including a plurality of bottle encircling apertures therein arranged in a row extending longitudinally of said third panel section, said carrier being foldable into the configuration of a prism having triangular end faces with said third panel section defining the base of said prism and with said second and fourth panel sections defining the side walls of said prism, said fifth section being folded beneath said second section and said first section being folded over said fourth section whereby the fold line between said first and second sections defines the apex of said prism and the fold line between said fourth and fifth sections is disposed immediately beneath the apex of said prism, a second plurality of apertures through said first and second sections, said second plurality of apertures arranged in a row longitudinally of said first and second sections and intersecting the fold line between said first and second sections, a third plurality of apertures formed in said fourth and fifth sections, said third plurality of apertures arranged in a row longitudinally of said third and fourth sections and intersecting the fold line between said third and fourth sections, said second and third plurality of apertures being dimensioned larger than the enlarged cap portions of the bottles intended to be associated with said carrier, said second plurality of apertures lapping said third plurality of apertures to define openings through the apex of said prism above respective ones of said apertures in said base section with said openings being dimensioned in a direction transversely of said sections less than the diameter of the enlarged cap portions of the bottles intended to be associated therewith, means between said first and fourth panel sections for releasably securing the outer edge of said first panel section to said fourth panel section, said apertures in said base section being of a size capable of being received over the neck portions and below the enlarged cap portions of the bottles intended to be associated with said carrier, whereby said carrier is projectable downwardly over a plurality of bottles intended to be associated therewith with said apertures in said base portion circumferentially engaging the neck portions of said bottles below the enlarged cap portions thereof and with said openings deformed and resiliently gripping the portions of said bottles immediately below the enlarged cap portions.

2. A carrier as defined in claim **1,** wherein said second and fourth panel sections have a transverse width dimensioned to cause said second and fourth panel sections to be bowed outwardly when said carrier is projected downwardly over a plurality of bottles intended to be associated therewith with said apertures in said base portion circumferentially engaging neck portions of said bottles below the enlarged cap portions thereof and with said openings deformed and resiliently gripping the portions of said bottles immediately below the enlarged cap portions.

3. A carrier as defined in claim **1,** and finger gripping means formed in said second and fourth panel sections for transporting said carrier and any bottles therein.

4. A carrier as defined in claim **3,** wherein said finger gripping means comprises a slot formed in each of said second and fourth panel sections with said slots extending longitudinally of said panel sections, and flap means integrally formed along the upper longitudinally extending side of each slot to provide substantial finger gripping surfaces.

5. A carrier as defined in claim **1,** wherein said means between said first and fourth panel sections for releasably securing the outer edge of said first panel section to said fourth panel section comprises a plurality of tab interlocking apertures formed in said fourth section in a longitudinally spaced apart relationship thereof, and a plurality of tabs integrally formed on the outer edge of said first panel section and shaped to mechanically interlock in said tab interlocking apertures when said first panel section is folded over said fourth section and said tabs are projected into said tab interlocking apertures.

6. A carrier as defined in claim **5,** wherein said tabs are formed to have ears projecting from opposite sides thereof in directions longitudinally of said first panel section.

7. A carrier as defined in claim **1,** wherein said plurality of bottle encircling apertures in said third panel section tangentially engage the fold lines along the longitudinal sides of said third panel section.

8. A carrier as defined in claim **1,** wherein the sides of said second and third plurality of apertures defining the sides of said openings transversely opposed of said sections are straight lines.

9. A carrier blank for bottles having an enlarged cap portion associated with their open ends, said carrier blank being formed from a resilient deformable plastic sheet material and having a bight portion through the middle of the blank, said bight portion provided with a plurality of first apertures in predetermined spaced relation to accept and engage a portion of the neck of the bottles below their open ends, opposed margins on opposite sides of said bight portion being provided with

predetermined spaced second apertures each of which is substantially larger in every dimension than the largest diameter of said enlarged cap portions, the material at the edge of each of said second apertures being continuous and uninterrupted, means for releasably locking said opposed margins together in an overlapped arrangement with said blank in a substantially tubular prism shape, said second apertures being positioned in said opposed margins to cooperate in pairs to define central openings each center of which lies on the axis of one of said first apertures and about the apex of said prism shape of said blank when said opposed margins are locked together in said overlapped arrangement, and said second apertures being further positioned in said opposed margins to position the centers of said second apertures of each pair thereof on opposite sides of the apex of said prism shape of said blank in the direction of overlapping when said opposed margins are locked together in said overlapped arrangement to cause each of said central openings to have a dimension in the direction of overlapping which is substantially less than the dimension of each second aperture in the same direction and less than the largest diameter of said enlarged cap portions.

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