July 7, 1970 P. J. WOOD 3,519,127

BOTTLE CARRIER

Filed Oct. 14, 1968 2 Sheets-Sheet 1

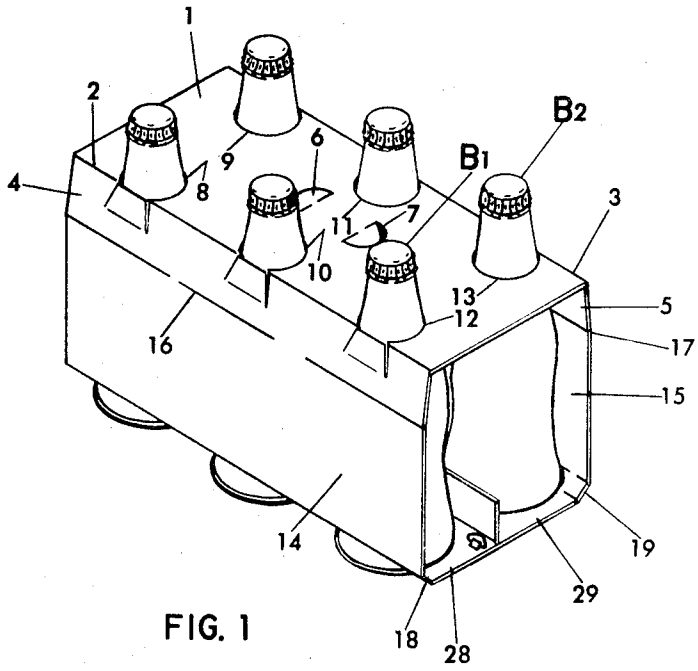


FIG. 1

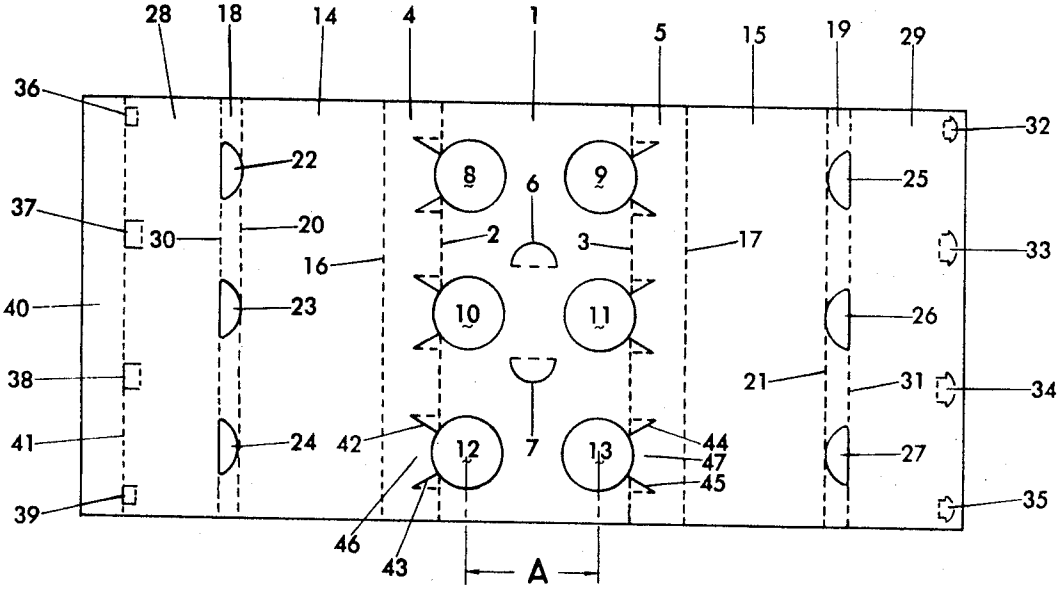


FIG. 2

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BOTTLE CARRIER

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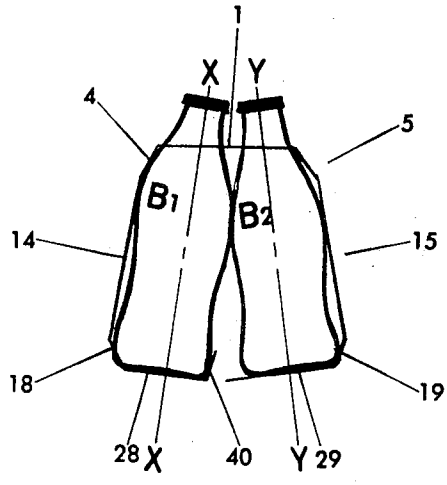


FIG. 3

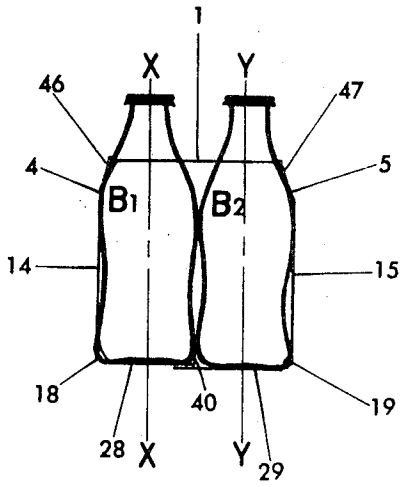


FIG. 4

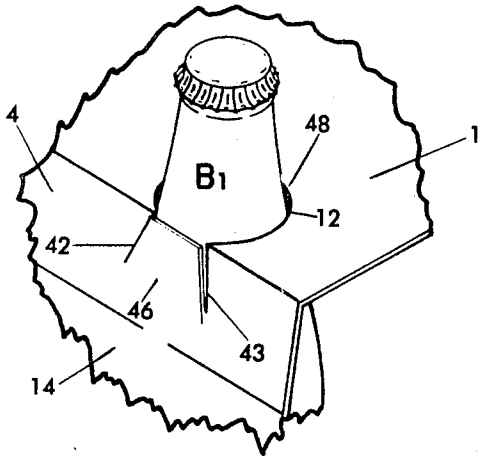


FIG. 5

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# BOTTLE CARRIER

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U.S. Cl. 206—65 3 Claims

## ABSTRACT OF THE DISCLOSURE

A bottle carrier of the tubular type having top, bottom and side walls and apertures formed in its top wall for receiving the bottle necks is adapted to accommodate variations in bottle sizes by means of an expansion feature. In order to render the carrier expandable, the apertures for the bottle necks which are formed in the top panel are spaced apart by a distance between centers which is slightly less than the diameter of one bottle and the peripheral portion of each aperture which is remote from the oppositely disposed aperture is rendered yieldable by suitable slits.

Variations in the size of bottles such as are used as primary packages for soft drinks and the like are sufficiently great that a wrap-around type blank having particular dimensional characteristics may be adequate for large size bottles but such a blank may be much too loose for smaller bottles. Conversely a particular wrapper having certain dimensional characteristics may be adequate for small bottles and yet may exert a bottle crushing force on larger bottles.

According to the present invention, wrap-around bottle carriers of the neck-through type in which apertures are formed in the top panel for receiving the bottle necks are constructed with an expansion feature so that a particular blank having particular dimensional relationships can readily adapt itself for variations in bottle size without imposing undue compressional stress on the larger bottles and which at the same time effects a secure holding action with respect to bottles of smaller sizes.

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 bottle carrier which is set up and which embodies this invention; FIG. 2 is a plan veiw of a blank from which the set up carrier of FIG. 1 is formed; FIG. 3 is a schematic end view of the carrier during an intermediate stage of a carrier forming operation; FIG. 4 is a view similar to FIG. 3 and showing the carrier in completely set-up condition; and in which FIG. 5 is a fragmentary perspective view of one corner of the carrier and which shows the expansion feature of this invention in detail.

In the drawing the numeral **1** generally designates the top central panel of the carrier to the side edges **2** and **3** of which a pair of sloping panels **4** and **5** are foldably joined. Finger gripping apertures **6** and **7** are formed in top panel **1** in known manner. Bottle receiving apertures for receiving the necks of the packaged bottles are designated by the numerals **8–13** inclusive.

The carrier is provided with side walls **14** and **15** which are foldably joined to sloping panels **4** and **5** respectively along fold lines **16** and **17**. Bottom sloping panels **18** and **19** are foldably joined to the bottom edges of side wall panels **14** and **15** along fold lines **20** and **21** respectively and a plurality of bottle receiving apertures **22**, **23** and **24** are formed in sloping panel **18** while similar apertures **25**, **26** and **27** are formed in sloping panel **19**.

The bottom panel of the carrier is a composite panel comprising a pair of lap panels **28** and **29** which are foldably joined to sloping panels **18** and **19** along fold lines **30** and **31** respectively. Of course lap panels **28** and **29** are secured together by suitable means in known manner such as by locking tabs **32**, **33**, **34** and **35** which are formed in lap panel **21** and which are driven through the openings defined by retaining tabs **36**, **37**, **38** and **39** which are formed in lap panel **28**.

In order to form a medial separating keel between the bottles in the two rows, a medial panel **40** is foldably joined along fold line **41** to an edge of lap panel **28**.

The expansion feature constructed according to this invention centers around the fact that the spacing between centers of bottles in one row from the centers of bottles in the other row as indicated by the letter A in FIG. 2 is somewhat smaller than the nominal diameter of one bottle. By the term "nominal" is meant the normal or specified diameter from which plus and minus variations are permitted within limits. Furthermore, the edge of each of the apertures **8–13** which is remote from the oppositely disposed aperture is rendered yieldable. For example, aperture **12** is provided with a pair of slits **42** and **43** which extend to the edge of aperture **12** to define expansion segment **46** and which thus can accommodate an outward movement of the bottle such as B1 whose neck portion is disposed within aperture **12**. Similarly, slits **44** and **45** which are associated with aperture **13** define expansion segment **47** to accommodate limited outward movement of bottle B2 whose neck is disposed within aperture **13**.

FIG. 3 is a schematic end view of a package during an intermediate stage of the formation thereof. It is apparent from FIG. 3 that the inner portions of the body portions of the bottles B1 and B2 are disposed in tangential relationship to each other and that the X and Y axes of bottles B1 and B2 respectively are disposed in angular relation to each other due to inward tilting of the bottles. Since the axes X and Y of the bottles B1 and B2 are angularly disposed with respect to each other as shown in FIG. 3, the expansion action of expansion segment **46** defined by slits **42** and **43** and of segment **47** defined by slits **44** and **45** is not apparent in FIG. 3.

In FIG. 4 however the expansion segments **46** and **47** are shown in outwardly protruding expanded position. Thus bottles such as B1 and B2 which are slightly larger than the normal bottle size for a particular carrier having certain dimensional relationships may be easily accommodated according to the invention.

As is apparent from FIG. 5 the bottle B1 is spaced in such manner that its edge portion is spaced from the inner peripheral part designated by the numeral **48** of the aperture **12** and the expansion segment **46** is shown in expanded outwardly protruding relationship.

Of course if the bottle such as B1 were of a small size, the bottle neck would be in snug engagement with the peripheral part **48** of aperture **12** and the expansion segment **46** would not protrude outwardly but rather would occupy a position in the plane of sloping panel **4**.

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

**1.** A bottle carrier for packaging two rows of bottles and having top, bottom and spaced side walls interconnected to form a tubular wrapper, said carrier comprising apertures formed in said top wall for receiving therethrough the necks of respective bottles, adjacent apertures in different rows being spaced apart by a distance between centers which is somewhat less than the nominal diameter of one bottle and the portion of the carrier defining the portion of the periphery of each aperture which is remote from the opposite aperture being yieldable.

**2.** A carrier according to claim **1** wherein adjacent oversized bottles in different rows are disposed with their body portions in substantially tangential relation to each

other and with their major axes substantially parallel to cause the bottle necks to protrude into the yieldable portions of the peripheries of their associated apertures.

3. A method of forming a package for two rows of over-sized bottles with a wrap-around blank having spaced top, bottom and side panels and having apertures in its top panel for receiving the necks of bottles, the blank having adjacent apertures in different rows spaced apart by a distance less than the nominal diameter of a bottle and the portion of the periphery of each aperture which is remote from the opposite aperture being yieldable, the method comprising tilting the bottles in the two rows so that their major axes are inclined upwardly and toward each other and in general alignment with their respective carton apertures, placing the blank onto the bottles so that the bottle necks project through the apertures respectively and above the plane of the top panel, folding the side



panels downwardly and simultaneously urging the bottles into upright positions whereby the necks of the bottles are forced at least partially into the yieldable portions of the apertures.

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U.S. Cl. X.R.

53—26; 220—116; 229—40