July 8, 1958 R. M. DUNNING ET AL 2,842,288

BOTTLE CARRIERS

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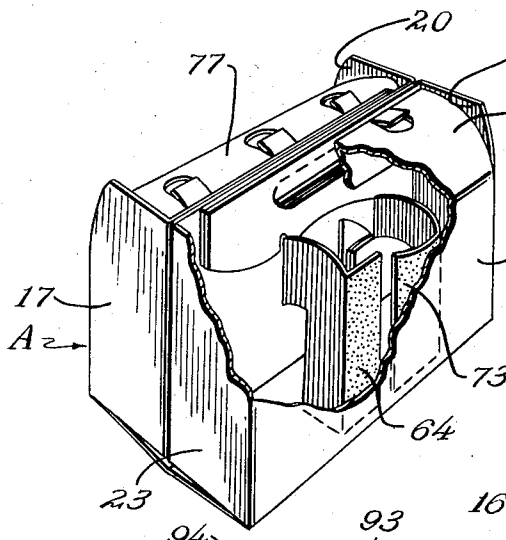


Fig. 1

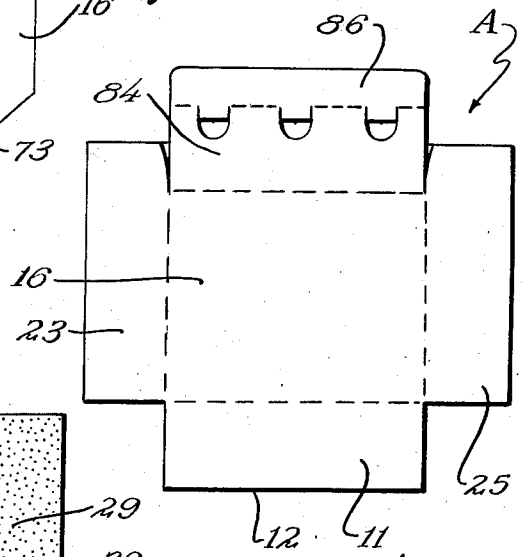


Fig. 4

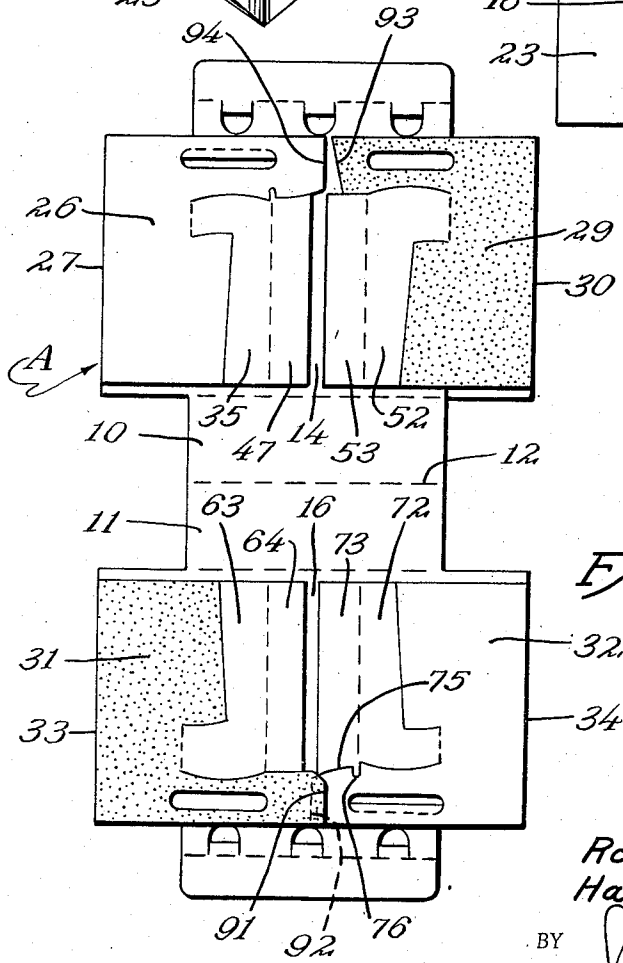


Fig. 3

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BOTTLE CARRIERS

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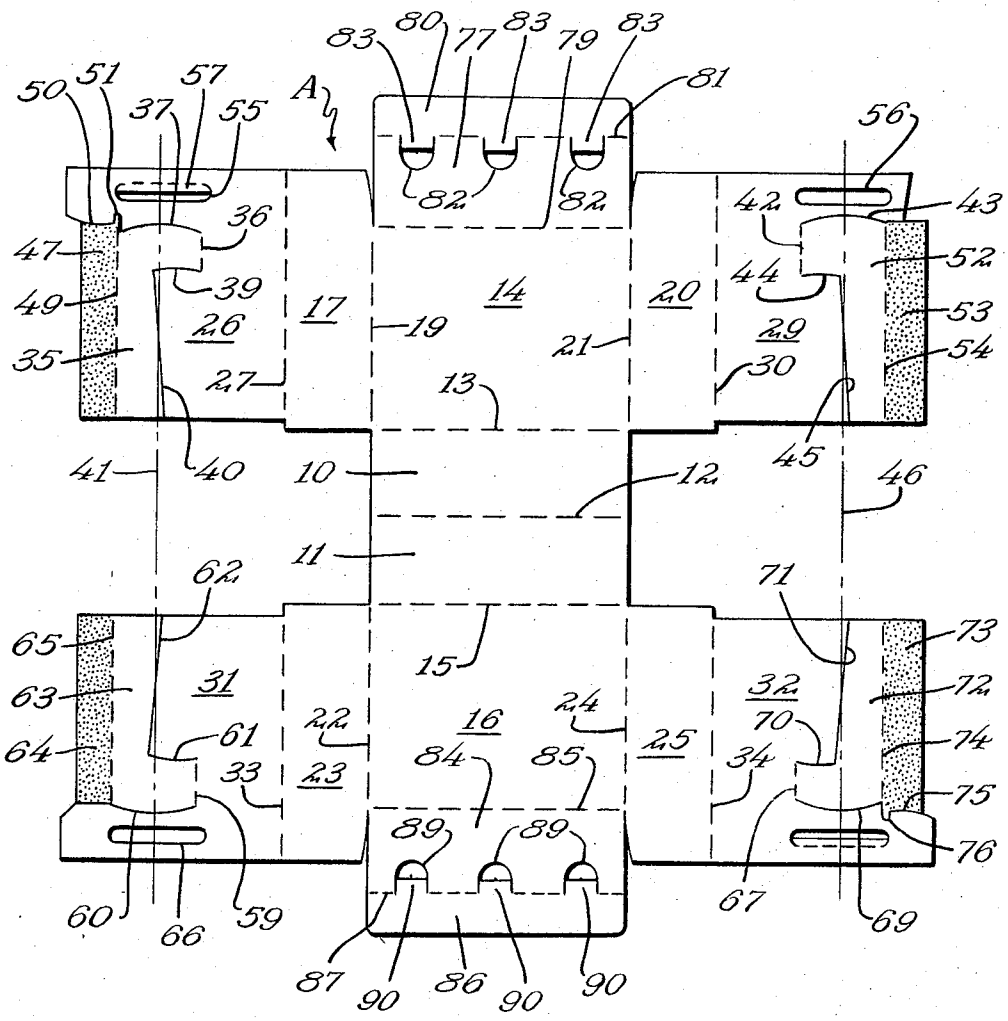


Fig. 2.

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BOTTLE CARRIERS

Filed Aug. 10, 1951 5 Sheets-Sheet 3

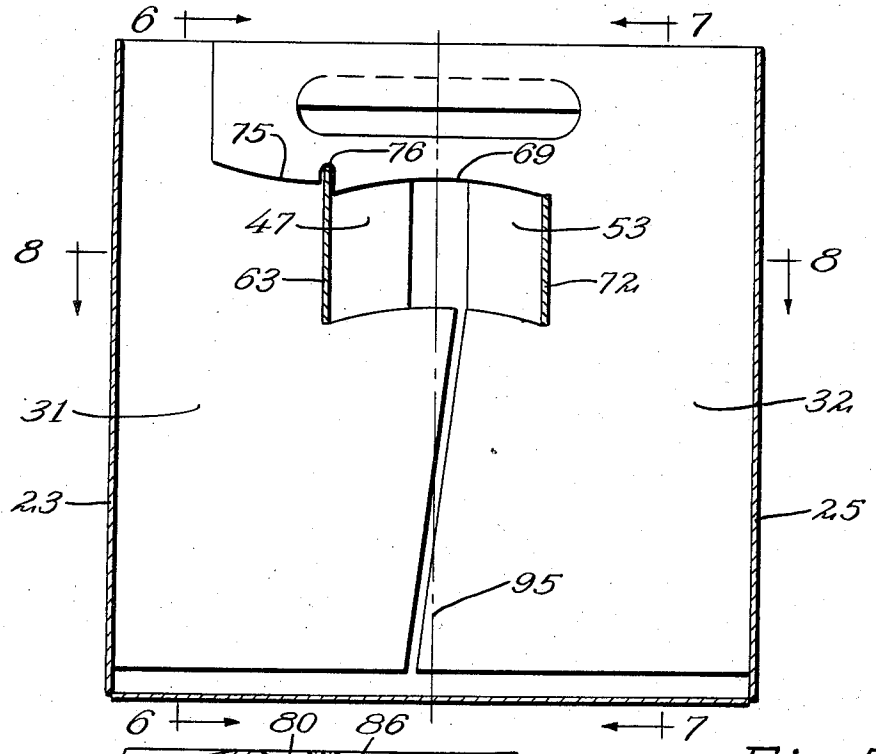


Fig. 5

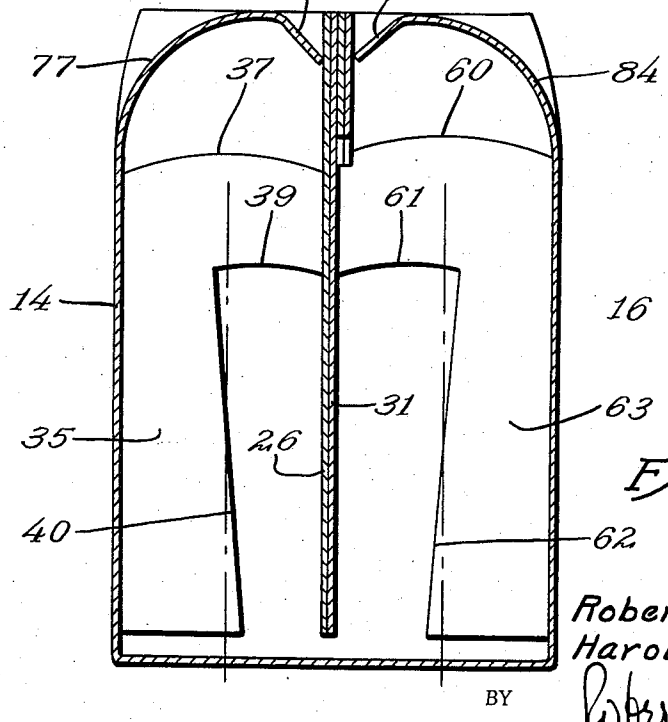


Fig. 6

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BOTTLE CARRIERS

Filed Aug. 10, 1951 5 Sheets-Sheet 4

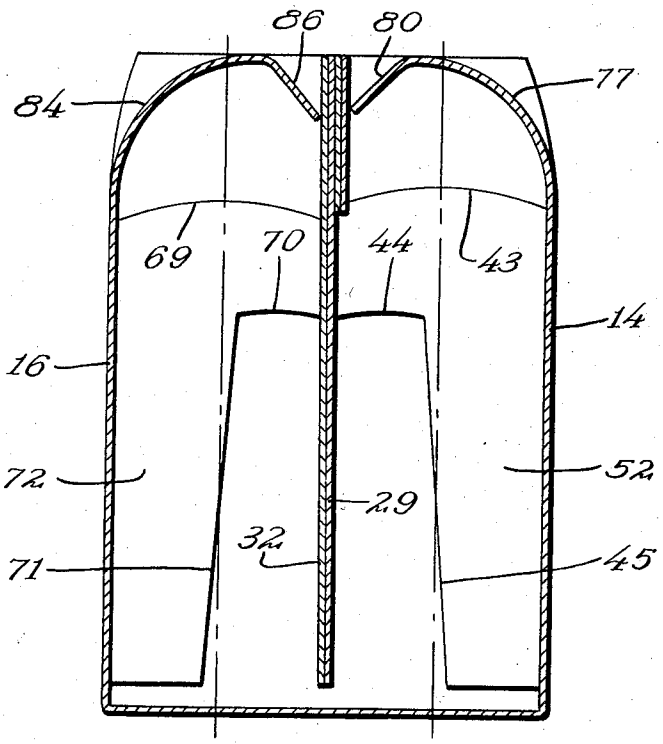


Fig. 7

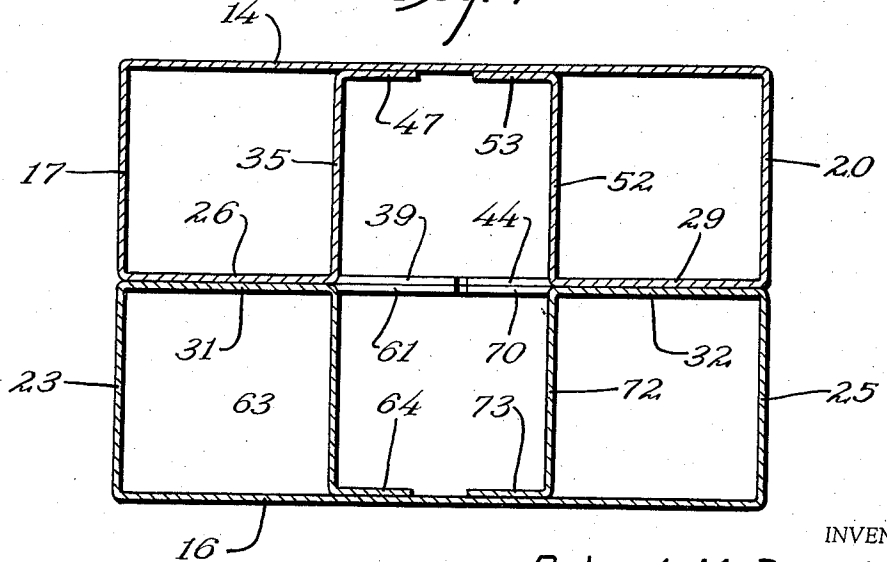


Fig. 8

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BOTTLE CARRIERS

Filed Aug. 10, 1951

5 Sheets-Sheet 5

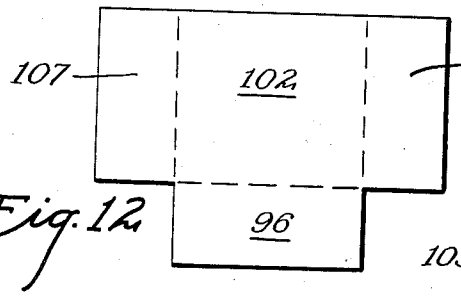


Fig. 12

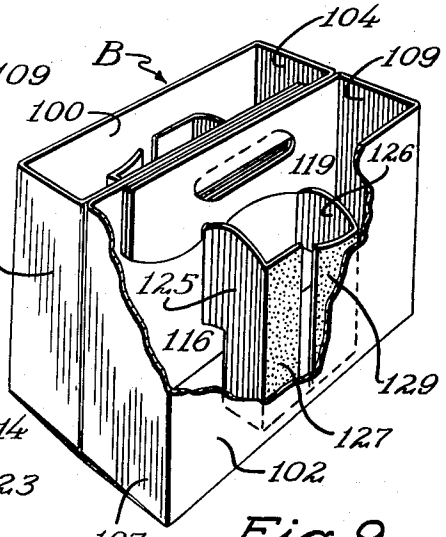


Fig. 9

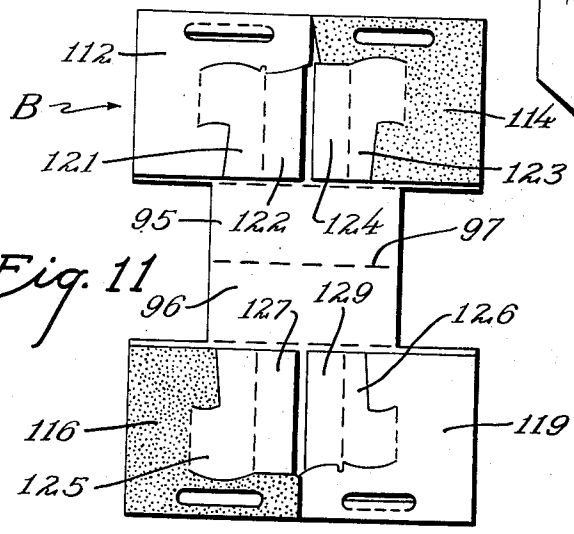


Fig. 11

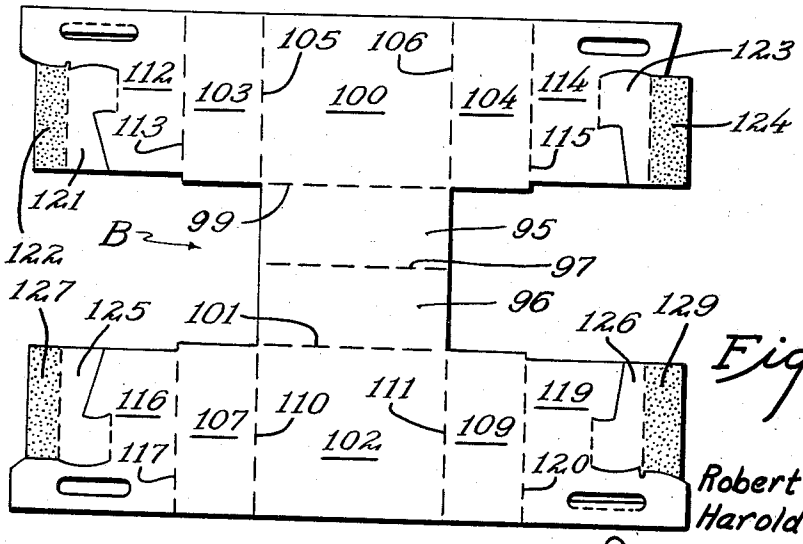


Fig. 10

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BOTTLE CARRIERS

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Application August 10, 1951, Serial No. 241,248

4 Claims. (Cl. 220—113)

This invention relates to an improvement in bottle carriers and deals particularly with a carrier for holding a plurality of bottles of beverage or the like.

A feature of the present invention resides in the provision of a carrier having integral partitions for spacing the bottles apart so that the bottles can not strike together during the carrying operation or during shipping. In many instances bottles are shipped from the bottle manufacturer to the bottler in corrugated containers or the like with the bottles inverted in their cells. When the empty bottles are received, they are washed and filled by the bottler and replaced in the carriers right side up. In such instances it is essential that the partitions be sufficiently high to protect the bottles either in upright position or in inverted position.

A feature of the present invention lies in the provision of a bottle carrier having a pair of center panels forming the bottom of the carrier and having connected thereto a pair of walls forming the outside walls of the carrier. A pair of end wall panels are hingedly connected to the vertical sides of the outer wall panels. Partition forming panels are hingedly connected to the end wall panels. The carton is designed to glue in a flat state and so that the partition forming members form both the center partition of the carrier and also form partitions extending from the center partition to the outer walls.

A feature of the present invention lies in the provision of a carrier which may if desired be provided with an integral top foldable over the bottles to protect the contents from the light. In preferred form, these top closures are provided with apertures through which the necks of the bottles may extend. As a result the bottle necks may project upwardly above the cover while the cover still extends above the level of the contents within the bottles, thus preventing the light from striking the contents. This is particularly desirable where beer, or other beverage which may be affected by light, is being carried.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification:

Figure 1 is a perspective view of the carrier, a portion of the outside thereof being broken away to disclose the interior construction.

Figure 2 is a diagrammatic view of the blank from which the carton is formed.

Figure 3 is a diagrammatic view showing the carton blank after the completion of the first folding operation.

Figure 4 is a diagrammatic view of the flat blank at the final folding operation.

Figure 5 is a vertical sectional view through the carrier, the cover flaps not being illustrated.

Figure 6 is a sectional view through the carrier, the position of the section being indicated by the line 6—6 of Figure 5.

Figure 7 is a sectional view through another portion

of the carrier, the position of the section being indicated by the line 7—7 of Figure 5.

Figure 8 is a horizontal sectional view through a portion of the carrier, the position of the section being indicated by the line 8—8 of Figure 5.

Figure 9 is a perspective view of a modified form of carton.

Figure 10 is a diagrammatic view of the blank from which the carton of Figure 5 is formed.

Figure 11 is a diagrammatic view of the blank at the completion of the first folding operation.

Figure 12 is a diagrammatic view of the blank at the completion of the final folding operation.

The carton A illustrated in Figures 1 through 4 of the drawings includes a pair of bottom panels **10** and **11** which are connected by a central fold line **12**. The bottom panel **10** is connected along a fold line **13** to a side wall panel **14**. The bottom panel **11** is connected along a fold line **15** to the opposite wall panel **16**.

An end wall panel **17** is connected to one side of the wall panel **14** along a fold line **19**. An opposite end wall panel **20** is foldably connected to the wall panel **14** along a fold line **21**. These wall panels **17** and **20** are substantially equal in width to the bottom panels **10** and each of the end wall panels form half of the corresponding end wall. The opposite wall panel **16** is connected along one side edge **22** to an end wall panel **23**. This wall panel **16** is also foldably connected along the edge **24** to an end wall panel **25**. In assembled condition of the carton the end panels **17** and **23** combine to form one complete end wall while the panels **20** and **25** combine to form the opposite end wall.

A partition forming panel **26** is foldably connected along the fold line **27** to the end panel **17**. A similar partition forming panel **29** is foldably connected to the end panel **20** along fold line **30**. In a similar manner the partition wall panels **31** and **32** are connected to the end wall panels **23** and **25** along parallel fold lines **33** and **34** respectively.

The particular carton illustrated is designed to accommodate six bottles, three of which extend on each side of the center partition. Accordingly in order to form a partition between the three individual bottles on each side of the center partition, a partition flap **35** is hingedly connected to the partition forming panel **26** along a short vertical fold line **36** which is spaced approximately one-third of the width of the side wall panels from the fold line **27**. This fold line **36** extends between two horizontally extending cut lines **37** and **39**. A slightly inclined cut line **40** connects the end of the cut line **39** with the bottom of the partition panel **26**.

As a result of this construction the cut lines **39** and **40** define a portion integral with the partition forming panel which remains in the plane of the portion thereof hingedly connected to the end wall. In other words, this portion extends toward the center of the carton in completed form of the construction to form a divider between the bottles in the center cells of each side of the carton. The cut line **40** inclines from a position slightly beyond the center of the cell to a position slightly short of the center of the cell. The purpose of this construction will be later described in detail. The cell center line is indicated by the broken line **41** and it will be noticed that the cut line preferably crosses this center line.

The partition forming panel **29** includes a similar short vertical line **42** parallel to the fold line **30** and a distance from the fold line **30** equal to substantially one-third of the width of the side walls. A cut line **43** and a cut line **44** extending in a generally horizontal direction are provided adjoining the top and bottom edges of the fold line **42**. A cut line **45** extends from the extremity of the lower cut line **44** to the bottom end of the partition wall.

This cut line 45 preferably inclines in the same direction as the cut line 40 and preferably crosses the center line 46.

An anchoring flap 47 is hingedly connected along a fold line 49 to the partition 35 defined by the cut lines 39, 37 and 40. The upper edge of the anchoring flap 47 is separated from the upper portion of the partition panel by an inclined or arcuate cut line 50. A notch 51 is provided between the cut lines 50 and 37, this notch being aligned with the fold line 49. The outer extremity of the cut line 37 is preferably below the level of the cut line 50 for a purpose which will be later described more in detail.

The cut lines 43, 44 and 45 in the partition forming panel 29 provide a partition flap 52 which is connected to an anchoring flap 53 by a fold line 54. The cut line 43 is slightly higher than the opposite cut line 37 for a purpose later described. Hand holes 55 and 56 are provided in the partition panels 26 and 29. One or both of these hand holes may be provided with hinged flaps 57 which are hinged to the upper edge of the hand hole and which may extend through the registering hand holes to form a better handle.

The partition forming flap 31 is substantially identical in structure to its diagonally opposite partition panel 29. A short vertical fold line 59 is provided in the panel 31 spaced from the fold line 33 a distance substantially equal to one-third the width of the side wall panels. A pair of cut lines 60 and 61 which extend generally horizontally join with upper and lower edges of the fold line 59. A cut line 62 extends from the cut line 61 to the lower edge of the partition panel 31. This cut line 62 is preferably angled slightly to extend through the center line 41 of the partition flap 63 defined by these cut lines.

An anchoring flap 64 is hingedly connected to the partition flap 63 along a vertical fold line 65. A hand hole 66 is provided in the partition panel 31 above the level of the cut lines.

The partition panel 32 is substantially identical to the partition panel 26 which is diagonally opposite in the blank. A short fold line 67 extends vertically in the panel 32 spaced from the fold line 34 a distance substantially equal to one-third the width of the wall panels 14 and 16. Substantially horizontally extending cut lines 69 and 70 connect with upper and lower edges of the fold line 67. A cut line 71 extends from the lower cut line 70 to the bottom of the partition wall panel 32. This cut line 71 preferably is inclined and passes through the center line 46 of the partition flap 72 defined by the cut lines described.

An anchoring flap 73 is hingedly connected to the partition flap 72 along a fold line 74. The upper edge of this partition flap is separated from the portion of the partition panel 32 above the flap 73 by a cut line 75. A notch 76 connects the cut lines 69 and 75. The cut line 69 is somewhat below the level of the cut line 60 in the partition panel 31.

A cover flap 77 is foldably connected along the horizontal fold line 79 to the upper edge of the side wall 14. In the form of construction illustrated this fold line 79 is below the level of the end walls and partition walls in order to conserve paper stock in the formation of the carrier. A tuck flap 80 is hingedly connected to the top panel 77 along a fold line 81. Arcuate cut lines 82 are provided in spaced relation in the top panel 77, these cut lines being generally U-shaped in form with the ends of the U terminating along the fold line 81. Transverse cut lines are provided across each of the U-shaped cut lines 82 forming tabs 83 which adjoin the tuck flap 80 and are not ordinarily folded with respect thereto. These tuck flaps are designed to extend along the inner walls of the bottles contained within the carton and engage alongside of the bottle caps or just beneath the bottle caps so as to prevent injury to the hands of a person carrying the carrier.

A cover panel 84 is hingedly connected to the side wall panel 16 along a fold line 85 normally spaced below the top of the carrier. A tuck flap 86 is hingedly connected to the top panel 84 along a fold line 87. A series of spaced U-shaped cut lines 89 are arranged with the ends thereof adjacent the fold line 87. Transverse cut lines extend across the U-shaped cuts providing tabs 90 which normally remain in the plane of the tuck flap and extend upwardly alongside of the bottles or bottle caps of the bottles contained in the carrier.

In the formation of the carrier, adhesive is applied to the anchoring flaps 47, 53, 64 and 73. The carrier is next folded from the position shown in Figure 2 to the position shown in Figure 3, the folding operation taking place along the aligned fold lines 27 and 33 along aligned fold lines 30 and 34. The anchoring flaps 47 and 53 are adhered to the inner surface of the side wall 14 while the anchoring flaps 64 and 73 are adhered to the inner surface of the wall panel 16. As a next step of the gluing operation adhesive is applied to the partition forming panels 29 and 31, not including the partition flaps 52 and 63 and not including the anchoring flaps 53 and 64. The carton is then folded along the center fold line 12 between the panels 10 and 11. During this operation the partition panel 26 is adhered to the partition panel 31 and the partition panel 29 is adhered to the partition panel 32. The lower portion of each of these panels and the laterally extending portions thereof which contain the hand holes are thus formed of double thickness to provide a rigid means of carrying the carton.

It should be noted that the laterally extending top portion of the partition panel 31 is slightly longer than the corresponding laterally extending portion of the partition panel 29. As a result the extended end 91 of the partition panel 31 overlaps the lateral extremity 92 of the partition panel 32. The end 93 of the lateral extension of the partition panel 29 does not overlap with the end 94 of the lateral extension of the partition panel 26.

Upon folding the carton blank along the fold line 12 the carton assumes the position shown in Figure 4 of the drawings. Each end wall of the carton is formed of two foldably connected panels having a partition forming panel extending inwardly therefrom. The marginal edges of these partition panels overlap due to the overlapping of the ends 91 and 92. As a result the carton may be easily and quickly assembled into open form by applying inward pressure to the opposite ends of the carton, tending to swing the two panels at each end of the carton into a common plane. This action causes the partition panels to overlap a greater and greater extent.

As shown in Figure 5 of the drawings, the panel 32 and the panel 29 adhered thereto overlap the corresponding partition panels 31 and 26. As the partition walls move toward overlapped position the bevel or rounded edge 75 of the partition panel extension 92 rides over the upper edge of the partition flap 63, the notch 76 finally engaging the upper edge of this partition panel. In order that the lateral extension be low enough to extend over the partition flap 63 and be locked thereto, the upper edges of alternate partition flaps 52 and 63 are higher than the upper edges of the remaining partition flaps. This provides alternate partition flaps which are slightly higher than the remaining flaps, but this feature is not undesirable or objectionable.

From Figure 2 of the drawings it will be noted that the cut lines 62 and 71 incline in the opposite direction from the cut lines 40 and 45 so that when the blank is folded along the center line the flaps remaining in the normal plane of the partition forming panels are of the same shape. From Figure 5 of the drawings it will be noted that the projections from the partition panels such as 31 and 32 substantially abut at the center of the carton. Obviously the cut lines defining the edges of these projections could be vertical, but by inclining them a full partition at the center 95 of the central partition is in-

sured. The bottles in the center cells of the carrier are thus held spaced by two thicknesses of paperboard which abut together in the center. In the event the two projections do not exactly match or abut, the inclination of these projections still provides a partition between the bottles which obviously could contact only at the center of the cells.

Figure 6 of the drawings shows the manner in which the partition flaps **35** and **63** extend beyond the center lines of the bottles so as to provide a partition between the center bottles of the carrier and the two bottles at one end of the carrier. Figure 7 illustrates the manner in which the remaining partition panels **52** and **72** are located relative to the center lines of the cells. The lower edges of the cut lines or edges **71** and **45** are extremely close to the center line near the bottom of the carrier so that the paper board lies between the bottles throughout the major portion of the height of these partition flaps.

If preferred the cut lines **40**, **45**, **62** and **71** could be vertical, as there would therefore be paper board at the center of each cell. Similarly if desired the cut lines **40** and **62** could be arranged with their upper ends even with center line and the lower ends spaced inwardly therefrom. Correspondingly the cut lines **45** and **71** could be provided with their lower ends at the center line **46** and their upper ends spaced inwardly therefrom, thus insuring a partition wall at the center line of each partition.

When the carton has been formed the cover flaps **77** and **84** are permitted to extend upwardly and the carton filled on an automatic filler if desired. The cover flaps may then be drawn over the tops of the bottles, the tuck flaps being inclined downwardly toward the center partition forming panels. These tuck flaps may fold outwardly when it is desired to carry the carton, the fingers extending between the tuck flap and the partition forming panels.

In Figures 9 through 12 of the drawings, we disclose a bottle carrier construction B which differs from the carrier A mainly in the fact that the carrier B is not provided with an integral cover. The carrier B is provided with a pair of bottom panels **95** and **96** connected along a center fold line **97**. The bottom panel **95** is connected along a fold line **99** to a wall panel **100**. The bottom panel **96** is connected along a fold line **101** to a wall panel **102**.

End panels **103** and **104** are connected along opposite edges of the side wall **100** along fold lines **105** and **106**. End panels **107** and **109** are connected to the side wall **102** along parallel fold lines **110** and **111**. Each of the end panels is in area substantially one-half the area of a complete end wall as in the previously described construction.

A central partition forming panel **112** is foldably connected along a fold line **113** to the end panel **103**. A central partition forming panel **114** is connected to the end panel **104** along the fold line **115**. A central partition forming panel **116** is foldably connected to the end panel **107** along a fold line **117**. A central partition forming panel **119** is foldably connected to the end panel **109** along the fold line **120**. The central partition forming panels described are generally identical to the panels **26**, **29**, **31** and **32** of the carrier A and include handle extensions having hand holes therethrough which align in erected condition of the carton as indicated in Figure 9.

A partition panel **121** is foldably connected to the central partition panel **112** and is foldably connected to an anchoring flap **122** by means of which the partition panel may be secured to the side wall of the carton. A generally similar partition panel **123** is foldably connected to the partition forming panel **114** and is foldably connected to an anchored flap **124** designed for adherence to a carton side wall. Partition forming panels **125** and **126** are foldably connected to the central partition forming panels **116** and **119** respectively and are each foldably connected to anchoring flaps **127** and **129**, respectively.

In forming the carrier, the central partition forming panels **112** and **114** are folded inwardly along the fold lines **113** and **115** so that the anchoring flaps **122** and **124** overlie the side wall **100** and are adhered thereto by the adhesive illustrated in Figure 10. Simultaneously the central partition panels **116** and **119** are folded along the fold lines **117** and **120**, respectively so that the anchoring flaps **127** and **129** overlie the side wall panel **102** and are adhered thereto by the adhesive indicated by stippling in Figure 10. As a second operation of the forming of the carton, the entire blank is folded along the central partition panel **97** so as to fold the carrier from the position shown in Figure 11 to the position shown in Figure 12. When in this position the carrier is ready for shipment or storage. During this folding operation, adhesive is applied to the central partition forming panels **114** and **116** as indicated in Figure 11 so as to adhere each central partition forming panel to its complementary partition panel.

In erecting the carrier from the position shown in Figure 12 to the position shown in Figure 9, it is only necessary to force the ends of the folded blank inwardly so as to swing the end panels at each end of the carton into a normal plane. During this action the center partition forming panels on one side of the carton blank overlap the partition forming panels on the opposite end of the blank until the projecting handle portions hook over certain of the partition forming panels in the manner previously described. In this position the various hand holes of the center partition forming members are in registry.

It will be noted that we have accomplished the objects of our invention. The carrier thus formed may be glued on a conventional right angle gluing machine or on a conventional straight line gluing machine by employing certain available attachments. The carrier is extremely easy to erect and when once erected the partitions hold the bottles in spaced relation whether the bottles are right side up or inverted in the carrier. While all of the partitions are not full partitions, they extend to or beyond the center of each of the cells so that there is always a partition wall between the adjacent portions of the bottles. The bottles fit within the cells rather snugly and obviously the bottles in adjoining cells can contact one another only at or closely adjacent the center line of each partition. Thus the carrier may meet with the necessary requirements for shipping and handling of the bottles.

Some authorities are of the opinion that it is necessary or at least desirable to prevent direct sunlight from striking bottles containing beer. Other authorities state that sunlight is not harmful if the beer is properly made and if the bottles are suitably tinted. The present carrier may be used where either a covered carrier or a non-covered carrier is desired.

The flaps **83** adjoining the holes in the cover panels **77** and the similar tabs **90** adjacent each aperture **89** in the cover panel **84** are designed to engage beneath the cap of the bottle so as to hold the cover in closed condition. In actual practice these tabs have been found extremely effective in holding the cover closed. The marginal flaps **80** and **86** may fold downwardly when a hand is inserted into the carton adjacent to the central partition forming panels so that the fingers of the hand may extend through the registering handle openings. These flaps also serve the purpose of protecting the hand from direct contact with the bottles.

In accordance with the patent statutes, we have described the principles of construction and operation of our bottle carrier, and while we have endeavored to set forth the best embodiments thereof, we desire to have it understood that these are only illustrative thereof and that obvious changes may be made within the scope of the following claims without departing from the spirit of our invention.

We claim:

1. A bottle carrier comprising a blank folded to provide parallel side walls, parallel end walls connecting said

side walls, and a bottom wall, a center partition forming member foldably connected to each of said end walls substantially centrally thereof, each of said center partition forming members including portions of two thicknesses, each center partition forming member having an upper projecting portion projecting toward the opposite end of the carrier in overlapping relation with the other projecting portion of the other central partition forming member, and a lower projecting portion on the center partition forming member at each end of the carrier designed to extend toward the opposite end of the carrier, and a partition wall foldably connected to each thickness of each center partition forming member between said upper and lower projecting portions, anchoring flaps on said partition walls secured in surface contact with said side walls, the partition walls attached to one central partition forming member being spaced from the partition walls attached to the other central partition forming member to provide a bottle cell therebetween on each side of the center partition forming members, the upper and lower projections on said central partition forming members forming upper and lower partition walls between the bottles in said cells on opposite sides of said center partition forming members the ends of the lower projections being inclined with respect to the vertical and each lower projection extending through a plane normal to the center partition forming members midway between the partition walls forming said cells.

2. The structure described in claim 1 and in which said inclined ends of said projections of the two center partition forming members are substantially parallel.

3. The structure described in claim 1 and in which the ends of the lower projections are arranged in generally parallel relation, the lower projections being cut away from the partition walls so that the partition walls extending at least to the center of the distance between each side wall and the center partition forming members at the lower extremity of the partition walls.

4. In a foldable bottle carrier blank comprising a generally H-shaped flat sheet cut and scored to form a rectangular bottom member foldable along its longitudinal median line, rectangular side wall panels foldably outstanding oppositely from said bottom member long sides, and like end wall flap panels foldably outstanding from and along each side wall panel margin perpendicular to the fold line junctions of said side wall panels and bottom member, like blank corner areas integrally and foldably related with and as continuations of said end wall flap panels for coaction as partition and handle elements of the carrier, each of said areas comprising a rectangular sheet portion foldably outstanding from and substantially coextensively along the margin of the associated end wall flap spacedly paralleling the fold junction of the latter with a side wall panel a distance more than twice the width dimension of the end wall flap and less than the corresponding dimension of the side wall panel, a fold line scored in said sheet portion paralleling the fold junction of the latter with an end wall flap panel and spaced therefrom a distance substantially equal to the width of said end wall flap panel, a cut intersecting said sheet portion from the end of said fold line remote from the sheet portion inner margin outwardly of the blank and through the free end of the sheet portion, a fold line scored between said cut and the inner margin of said sheet portion parallel to said last named fold line in a spacing from the latter a distance substantially equal to the width of the end wall flap panel, and said sheet portion also having elongated handle forming slots along a line inwardly adjacent and parallel to an outer long margin of the blank.

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