July 22, 1969 J. V. MAHON ETAL 3,456,841

BOTTLE CARRIER

Filed Dec. 1, 1967 2 Sheets-Sheet 1

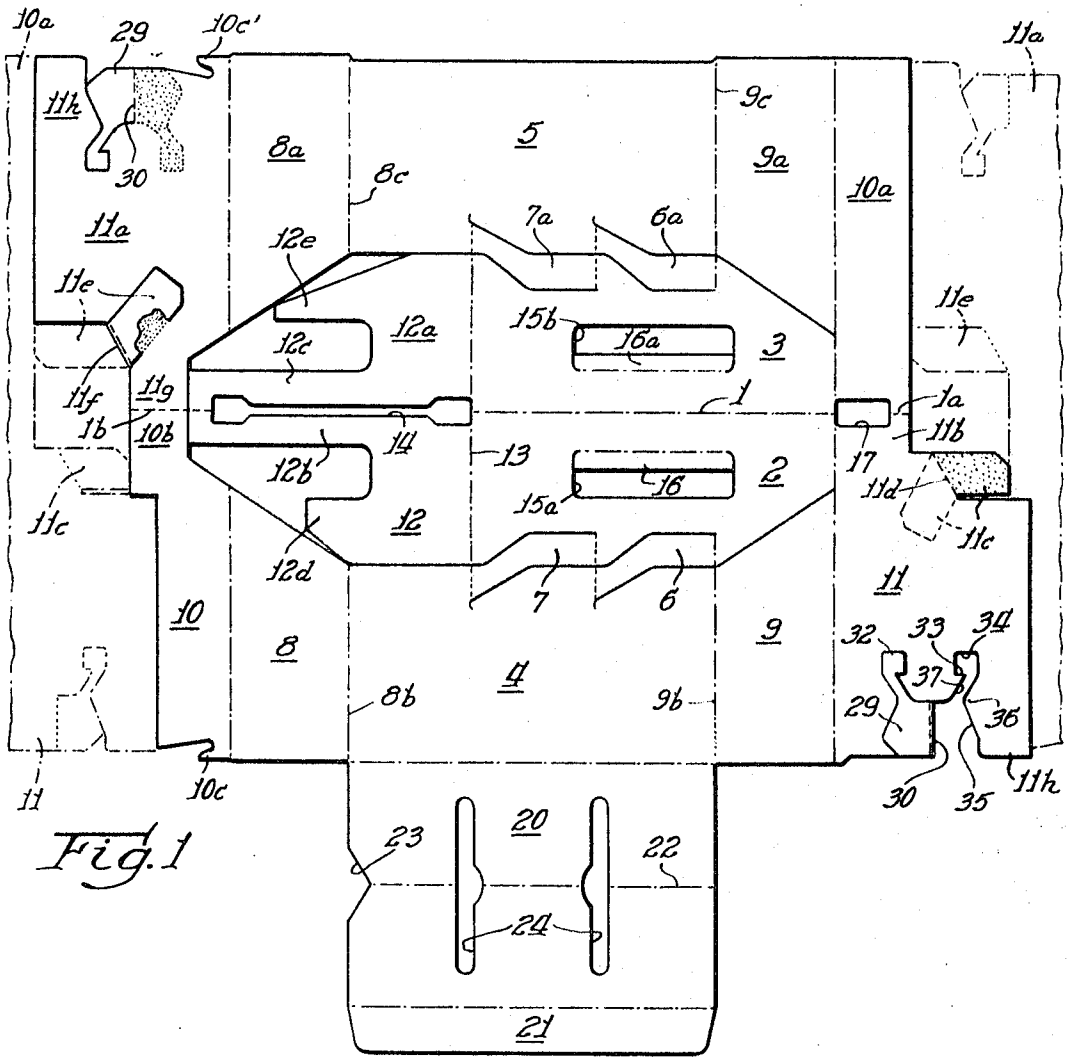

Fig. 1

Fig. 2

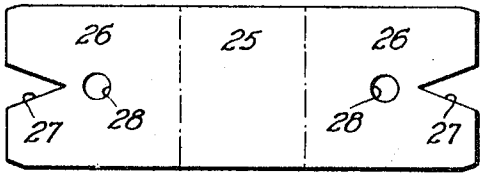

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Fig. 5

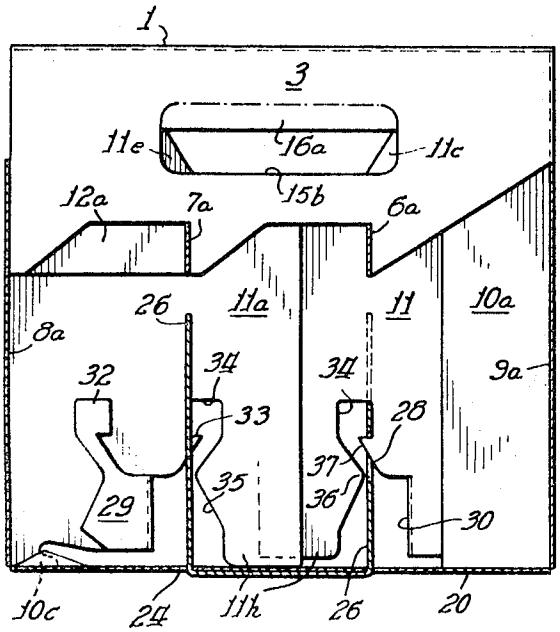


Fig. 3

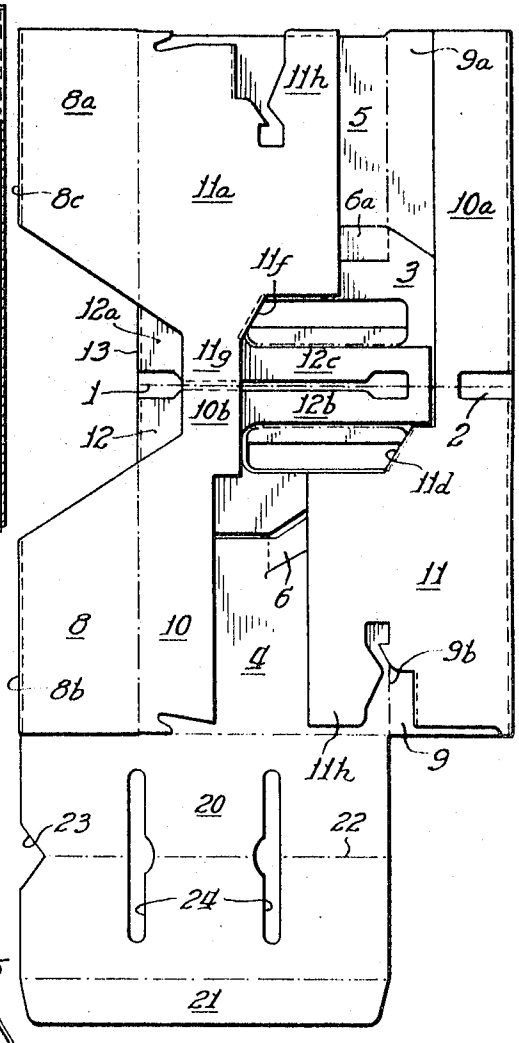
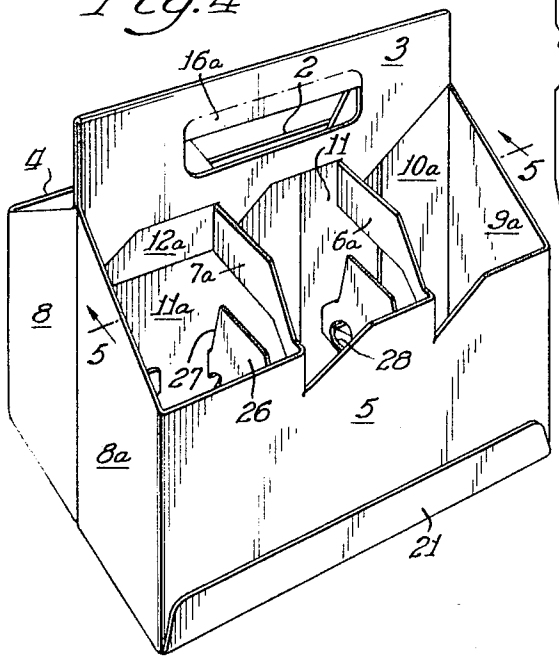


Fig. 4



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BOTTLE CARRIER

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Int. Cl. B65d 85/70
U.S. Cl. 220—113 8 Claims

ABSTRACT OF THE DISCLOSURE

The inventon is embodied in a basket type paperboard carrier for two rows of bottles, having a central handle section formed of foldably joined panels between which are secured the upper portions of longitudinally disposed partition panels which are carried by end-wall forming panels; such partition panels being overlapped centrally to provide extra cushioning for the centrally positioned bottles, and being also formed with the flaps or tabs to be folded back and secured to their attached panels to provide extra cushioning for the upper and lower portions of the end bottles of the rows; certain of the flaps or tabs being integrally formed with cut-away portions which, when removed, form locking slots to secure the ends of a U-shaped member providing transverse partitions insertable through slots in the carrier bottom panel.

It is an object of this invention to provide a generally improved, basket type, paperboard carrier for two rows of bottles having a reinforced central handle member, reinforced central or longitudinal partition forming members all formed from a single blank of paperboard and being provided with transverse slots in the bottom wall of the carrier to receive the upright panels of a separate U-shaped, partition forming member.

Another object of the invention is to provide an economical, efficient and easily formed paperboard carrier made of relatively light or thin caliper board including a composite central, longitudinal panel providing a double thickness of paperboard located at the adjacent tangent points of contact of the individual bottles held within the carrier in side-by-side rows.

Another object of the invention is to provide an economical form of carton blank for the production of carriers of the type described which will nest together effectively with identical blanks to minimize waste of paperboard stock.

A further object of the invention is to provide a paperboard carrier of the type referred to above, having transverse slots in the bottom panel to receive the upright partition panels of a U-shaped member, and having openings formed in the longitudinal partition which are shaped to provide locking means for the upright panels of the U-shaped member when in place, and in which the material which is cut in the longitudinal partition is made in tab form and adapted to be folded back and secured to the longitudinal partition to serve as an additional thickness of paperboard at the bottle tangent points to separate the bottles.

These and other objects and advantages of the invention will be apparent from the following description, and in the drawings, wherein:

FIGURE 1 is a plan view of a form of blank suitable for forming the carrier;

FIGURE 2 is a plan view of a separate blank which forms the U-shaped member to provide the transverse partitions;

FIGURE 3 is a plan view of the blank as it appears in partially assembled form;

FIGURE 4 is a perspective view of the carrier in set-up condition and with the U-shaped partition member in place; and

FIGURE 5 is a vertical sectional view of the set-up carrier, taken along line 5—5 of FIGURE 4.

The blank, as hereinshown, comprises two similar sections separated by a fold line **1** which defines the upper edge of the carrier handle. At the sides of the fold line are panels **2** and **3** which, when folded together, form a part of the carrier handle and a part of the center partition.

Side wall panels **4** and **5** are joined to the lower edges of panels **2** and **3** by outwardly swingable supporting strips **6**, **7** and **6***a*, **7***a*. At each end of panels **4** and **5** are end wall forming panels **8**, **9** and **8***a*, **9***a*, hinged respectively along lines **8***b*, **8***c* and **9***b*, **9***c*. The panels **8** and **8***a* when brought together form one end wall and panels **9** and **9***a* form the opposite end wall.

Narrow panels **10** and **10***a* are joined along score lines to the respective end wall forming panels **8** and **9***a*, and wider panels **11** and **11***a* are joined along score lines to the respective end wall forming panels **9** and **8***a*.

The panels **11** and **11***a*, together with the lower portions of the handle panels, form a central partition for the carrier. Panels **11** and **11***a* are preferably made sufficiently wide to overlap centrally of the length of the carrier and such overlapping edge portions, indicated at **11***h*, **11***h*, will form a cushioning area for the adjacent center bottles in the two rows.

Narrow panels **10** and **10***a* serve as attaching panels. Panel **10** is attached to the left hand edge portion of **11***a*, as viewed in FIGURE 3, and panel **10***a* is attached to the right hand edge portion of panel **11**. By securing the panels in this manner the hinge lines for the end panels **8** and **8***a* and likewise the hinge lines for the opposite panels **9** and **9***a* are fixed in close relation.

Panels **12** and **12***a* are foldably joined along score line **13** to handle panels **2** and **3**. These panels **12** and **12***a* are defined from each other by a long narrow slot **14** which is widened at its ends to facilitate the assembly of the carrier. Instead of cutting the slot **14** between the panels **12** and **12***a*, these panels may be separated, if desired, merely by forming a line of perforations between them. At the sides of slot **14**, panels **12** and **12***a* have separated extension portions **12***b* and **12***c* which, in the assembled carrier, will be disposed respectively against panels **2** and **3** to lie between finger openings **15***a* and **15***b* and the fold line **1**. Additional extended portions **12***d* and **12***e* are arranged to lie adjacent panels **2** and **3** on the opposite sides of the finger openings. Narrow flaps **16**, **16***a* foldably connected to panels **2** and **3** are left within the finger openings to provide for greater ease in carrying the loaded carrier.

The panels **10***a* and **11** may be integrally joined along fold line **1***a* and their adjoining portions are preferably somewhat spaced by forming an opening or slot **17** between the ends of fold lines **1** and **1***a*.

The width of panel **10***a* is preferably such that, when panels **10***a* and **11** are folded over to lie against panels **9** and **9***a*, and panels **12** and **12***a* are folded over against panesl **2** and **3**, the free edge of panels **10***a* will be clear of the free edge of the extension **12***c*. Likewise the inner portion of panel **11**, as indicated at **11***b*, is cut to a narrow width adjacent score line **1***a* to be clear of the end of panel **12***b* when these panels are folded over against panel **2**.

A tab **11***c* is formed on panel **11** and foldable downwardly at an angle along diagonal line **11***d*, and a similar tab **11***e* is formed on panel **11***a* to be foldable along diagonal line **11***f*. The outer end portions of these tabs when folded over against their attached panels serve to provide extra cushioning between the shoulders of the pairs of bottles at the ends of the rows. It is to be noted

that the blank portions from which tabs **11***c* and **11***e* are cut are in areas that, if left in place, would overlie and obstruct the finger openings **15***a* and **15***b*. To avoid this obstruction to the finger openings, these areas, that otherwise would constitute waste and would require being stripped away, are formed into foldable tabs that provide additional cushioning for the bottles in the carrier.

Panels **10** and **11***a* terminate at the mid portion of the blank in relatively narrow strip portions **10***b* and **11***g*. These portions may be left hinged together along hinge line **1***b* which is aligned with hinge line **1**.

As herein shown, a bottom panel **20** is hinged to side wall **4** and has a securing strip **21** for attachment to the lower end portion of side wall **15**. The bottom panel **20** is scored centrally along line **22** to provide for folding the two half sections of the bottom one upon the other in the collapsed form of the carrier.

For the purpose of retaining the carrier in expanded or set-up condition, a V-shaped cut **23** is made at the end of score line **2** in bottom panel **20** so that the bottom may be engaged by a rigid, composite locking tab formed from a tab section **10***c* on panel **10** and a similar tab section **10***c'* formed at the lower end of panel **11***a*.

The bottom panel **20** is formed with pair of spaced slots **24, 24** extending transversely of score line **22**. These slots are intended to receive the transverse partition panels when the carrier is set up.

The partition member, shown in FIGURE 2, is formed as an elongated blank having a central panel **25** and end panels **26, 26** defined by score lines from panel **25**. Each panel **26** has a central notch **27** in its free end and a closed aperture **28** below the notch.

The partition member is folded into U-shape and the end panels **26, 26** are inserted upwardly into an expanded empty carrier through slots **24, 24**.

For the purpose of receiving the panels **26** and locking them in position, the panels **11** and **11***a* are each formed with an opening extending upwardly from the lower edge of the panel. Referring particularly to panel **11**, the opening as herein shown, is relatively wide adjacent the lower edge of the panel to provide a tab section **29** hinged at **30** and foldable inwardly away from the outer free edge of panel **11**, as viewed in the carrier blank. In forming the carrier the tab section is folded back and secured against the face of the panel adjacent its hinge and, in the set-up condition of the carrier, the tab section will extend outwardly of is hinge toward the end of the carrier in a position in which its median portion will be in line with the innermost contours or tangent lines of the end bottles in the carrier. This provides a double thickness of paperboard as a cushion between the end bottles along areas where they would normally be in contact except for the partition.

Extending from the top of the portion referred to a tab section **29** is an integral cut-out section **32** which remains with tab **29** and which may also be secured to the face of the partition panel **11**. The cut-out section **32** adds somewhat to the reinforcement of the cushioning portion of panel **11**, but the primary object in cutting out this section is to provide a retaining or latching slot for the vertical panel **26** of the separate, transverse partition member.

For the purpose of latching the upright transverse partition section **26** an upwardly directed laterally extending latching edge **33** is formed which extends into the opening **34** created when the tab **29** and extended section **32** are swung outwardly on the hinge line **30**. As the upper end of the upright partition panel **26** enters the lower part of the opening or slot produced by forming the tab section **29**, it may slide along the edge **35** which is inclined at a small angle from the vertical in the general direction of tab **29**. The edge **35** forms the lower side of a triangular portion **36**, the upper side of which is inclined away from tab **29** at a small angle. As the partition panel slides past the apex of the triangular portion it meets and slides along the inclined edge **37**. At this time the aperture **28** will pass the apex of the triangular portion. As the partition panel continues its upward movement the upper edge of the aperture **28** will pass slightly above the laterally extending latching edge **33** and the face of the partition panel below the aperture **28** will bear against the apex of the triangular portion **36** which then deflects or cams the partition panel laterally sufficiently so that the upper edge of aperture **28** is retained by the latching edge **33**.

Considering the function of the opening for retaining the transverse partition **26**, such opening may be viewed as having three parts. The lowest or first part of the opening is defined on one side by the fold line **30** and on the other by the inclined edge **35**. The second part of the opening is the narrow slot defined by the inclined edge **37** and the opposite edge of the triangular part **36**. The uppermost or third part of the opening, indicated at **34**, is the part above the latching surface **33**.

Advantage is taken of the fact that the slot-type opening required for the separate upright partition panel is located only a short distance from the area where an increased cushioning thickness is desired when the carrier is formed of thin caliper paperboard. By cutting the opening wider near the lower edge of the partition **11** a cushioning tab is formed which, when folded over and secured in place, will be located at the tangent points of the bottles in the adjacent longitudinal rows.

Then, by leaving the stock attached to the cushioning tab which is required to be taken out to receive and lock the partition in place, such stock may be displaced or stripped out by the tab folding means employed in the assembly of the carrier. Thus the effect and expense of a separate stripping operation for the material in the partition-receiving slot is avoided.

The assembly of the carrier may be handled by well known high-speed folding and gluing mechanism. The exact sequence of assembling the parts of the blank may be varied. Typical procedure may comprise advancing the blank with its outer printed surface down, folding over and gluing down the tabs **29** and the attached slot-forming portions; folding and gluing down the tabs **11***c* and **11***e* to the upper portions of the respective panels **11** and **11***a*; folding and gluing the panels **12** and **12***a* onto the handle panels **2** and **3**. Next, as shown in FIGURE 3, the panels **8** and **10** are folded as a unit about hinge line **8***b* and at the same time panels **8***a* and **11***a* are folded as a unit about hinge line **8***c*. Panels **8** and **8***a* are thus brought against their adjacent side wall panels **4** and **5**. The upper portion **10***b* of panel **10** and the upper portion **11***g* of panel **11***a* are brought down against the previously downfolded panels **12** and **12***a* and glued thereto.

At the same time that panels **8** and **10** and panels **8***a* and **11***a* are acted upon, the panels **10***a* and **11** at the opposite end of the blank are folded over to lie flat against end panels **9***a* and **9**, and the upper parts of panels **10***a* and **11** are secured to the adjacent areas of handle panels **2** and **3**.

The blank as so far assembled (as shown in FIGURE 3) is then ready to be folded along hinge line **1**. Glue is applied to secure substantially all of panel **10** to panel **11***a*, and glue is applied to secure together the lapping portions of panels **11** and **11***a*. Glue is also applied to secure panel **10***a* to panel **11**. The two portions of the blank are then folded one against the other. Finally, glue is applied to the bottom wall flap **21**, then the bottom panel is folded along its center hinge line **22**, and the flap **21** is secured to the lower edge portion of the side wall panel **5**. The carrier is thus brought to its assembled collapsed condition, ready to be expanded and to receive the U-shaped partition member.

Referring to FIGURE 1, the form of blank from which the carrier is produced has definite economic advantages in the fitting or nesting of the blanks due to the fact that

the end portions of the blank which provide the composite center partition panels are located at diagonally opposite corners of the blank, and the contour of one end of the blank substantially follows in reverse the contour of the other end of the blank. The blanks can thus be formed from large paperboard sheets by using multiple dies in which common cutting rules are employed for the adjacent blank ends. In addition, the opposite end contours of the blanks are so shaped that only a relatively small amount of waste is produced.

Referring to the fragment of an adjacent blank, shown in broken lines in FIGURE 1, the edge of the partition forming panel **11**, shown at the left, is adjacent to or abutting the edge of attaching flap **10** and their edges are formed by a common line of cut.

The free end of tab **11***c* likewise is separated from the portion **10***b* of flap **10** by a common line of cut.

The attaching flap **10***a* of the blank shown in broken lines is likewise separated from the adjacent panel **11***a* by a common line of cut as well as from the end of the tab **11***e*.

Along the line of separation of the adjacent blanks there is only a small waste area, this being the approximately rectangular portion located between tab **11***e* of one blank and tab **11***c* of the adjoining blank.

By locating the wide, center partition forming panels **11** and **11***a* at diagonally opposite corners of the blank, and by locating the narrow attaching strips **10** and **10***a* at the other opposite corners, substantial savings in waste are realized by cutting the blanks in nested relation. At the same time, the carrier main bank may be made from relatively thin caliper stock, due to forming the center partition blanks **11** and **11***a* wide enough to overlap centrally of the carrier to provide a double thickness of board between the two center bottles of the rows.

We claim:

1. A paperboard carrier of rectangular shape for two rows of bottles or similar articles, said carrier being formed from a blank and comprising:

(a) a central fold line;

(b) a pair of handle panels hingedly connected on opposite sides of such fold line;

(c) said handle panels being formed with elongated finger openings spaced from the center fold line of the blank and generally parallel thereto;

(d) an elongated side wall forming panel at the side of each handle panel remote from the fold line and connected to the handle panel by hinged strips;

(e) an end wall forming panel hinged to each end of the two side wall forming panels, each end wall panel comprising one-half of a composite end wall;

(f) a longitudinal partition forming panel hinged to the outer free edge of each of two diagonally opposite end wall panels, said partition panels being foldable inwardly to form a composite, longitudinal partition disposed centrally between rows of bottles held within the carrier;

(g) the upper portion of at least one of said longitudinal partition panels being in the area adjacent an elongated finger opening; and

(h) such upper portion being formed with a tab which is hinged on a line extending diagonally to the hinge line of the longitudinal partition and adjacent the end of the finger opening, such tabe being foldable downwardly out of the area in which it would obstruct the finger opening and into an area of the partition where it may serve as an extra cushioning thickness between the shoulders of adjacent bottles held within the carrier.

2. A paperboard carrier as defined in claim **1** in which each longitudinal partition panel has a width dimension, lengthwise of the carrier, greater than one-half the length of the side wall panels, whereby such partition panels will extend inwardly in overlapping relation to form a vertically disposed, double-thickness, bottle dividing and cushioning section between adjacent center bottles in the rows within the carrier.

3. The invention as defined in claim **1** in which each of the remaining diagonally opposite end wall forming panels has a relatively narrow panel hinged thereto along its outer free edge, each said narrow panel serving as an attaching strip to be secured to the adjacent longitudinal partition panel, thus to connect the adjacent end wall forming panels at each end of the carrier in hinged relation to each other.

4. In a paperboard carrier for bottles or similar articles:

(a) a partition comprising center, longitudinal partition panels adapted to separate two adjacent rows of bottles held within the carrier;

(b) a hinged tab formed on each partition panel within the contour of the latter and adapted to be folded over in flat position against the panel along the tangent line of contact of adjacent bottles in the carrier to provide two cushioning thicknesses of paperboard between the bottles;

(c) said tab being formed with an integral, upwardly extending portion cut from said panel to form a slot therein;

(d) a transverse partition panel having means thereon cooperating with said slot to lock said transverse partition panel in position.

5. In a paperboard carrier as defined in claim **4** in which the slot in the partition panel is formed with a laterally directed latching edge extending inwardly of the slot and serving as a positive lock cooperating with said locking means of said transverse partition.

6. In a paperboard carrier for bottles or similar articles:

(a) a vertically disposed partition panel adapted to separate two adjacent rows of bottles held within the carrier;

(b) said partition panel being formed with a three-part slotted opening extending upwardly from the lower edge of the panel to receive and retain a vertical, transverse partition panel of the type formed with a latch-receiving aperture adjacent its upper edge;

(c) the lowest or first part of said opening being defined by spaced partition edges, one of which is upwardly inclined at a small angle from the vertical;

(d) one side of the intermediate or second part of the opening being defined by a second inclined edge joining and extending reversely from the first mentioned inclined edge, to form a triangular shaped portion, the apex of which is adapted to receive contact by the vertical face of a transverse partition;

(e) the opposite side of the second part of the opening being defined by a third inclined edge extending generally parallel to the second inclined edge, thus forming an inclined, relatively narrow slot;

(f) the uppermost or third part of the opening being extended above and partially offset from the narrow slot, and being defined by an upwardly extended edge on the same side of the slot as the triangular shaped portion and defined on the other side by a laterally extending edge to form a latching surface, and by a second upwardly extended edge.

7. A nestable blank for a collapsible, paperboard carrier which comprises:

(a) a central two-part, handle forming panel section foldable along a line extending medially of the blank;

(b) symmetrical side wall panels, one at each side of the handle forming section, and each connected to its adjacent side wall by hinged strips;

(c) symmetrical end wall forming panels at each end of each side wall panel, such panels each forming half of a complete end wall, the pairs of end wall panels on opposite sides of the line of fold being aligned and such aligned panels, in the completed

carrier, being foldable into edge-to-edge relation to form complete end walls;

(d) the two end wall forming panels at diagonally opposite ends of the blank each having on their outer free edge a partition forming panel to provide a composite, central, longitudinal partition in the carrier;

(e) the two remaining diagonally opposite end wall forming panels each having on its outer free edge a relatively narrow attaching panel to be secured to the adjacent partition forming panel in the assembly of the carrier;

(f) the difference in width between the center partition forming panels and the width of the adjacent attaching panels being the same at each end of the blank, whereby adjacent blanks, arranged end-to-end, may be formed along common severance lines.

8. The invention as defined in claim 7 in which the

two panels forming the central, longitudinal partition have dimensions measured parallel to the line of fold of the blank sufficient to cause their outer ends to overlap and form a vertically extending, double-thickness, cushioning section.

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U.S. Cl. X.R.

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