May 23, 1950 M. G. HALL ET AL 2,508,943

BOTTLE CARRIER

Filed May 6, 1948 3 Sheets-Sheet 1

Fig. 2

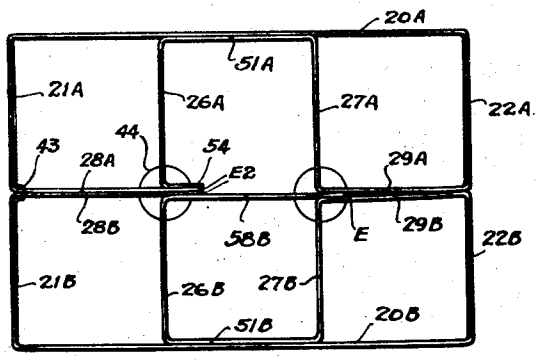


Fig. 4

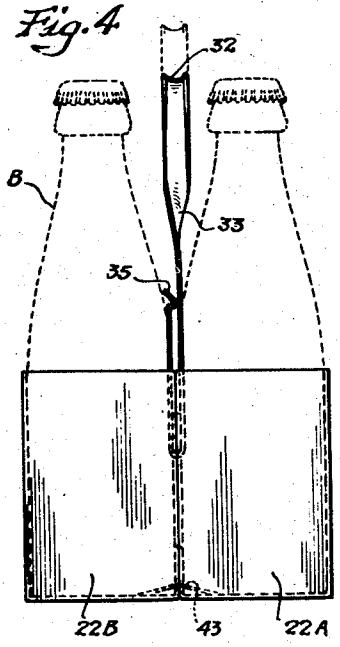


Fig. 3

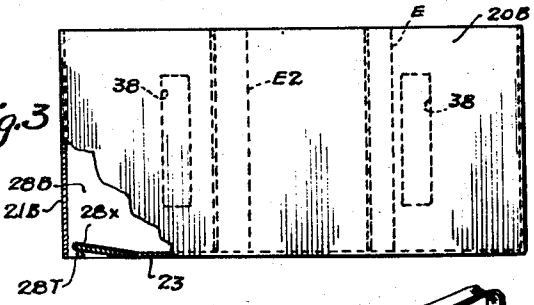
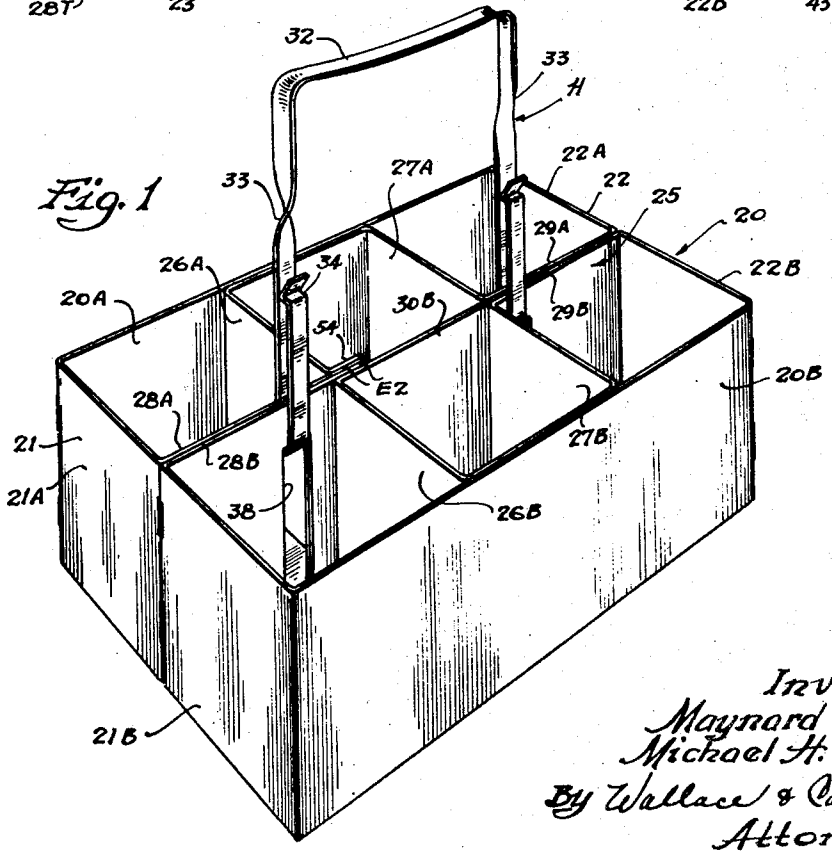


Fig. 1



Inventors
Maynard G. Hall
Michael H. Kowal
By Wallace & Cannon
Attorneys

May 23, 1950 M. G. HALL ET AL 2,508,943

BOTTLE CARRIER

Filed May 6, 1948 3 Sheets-Sheet 2

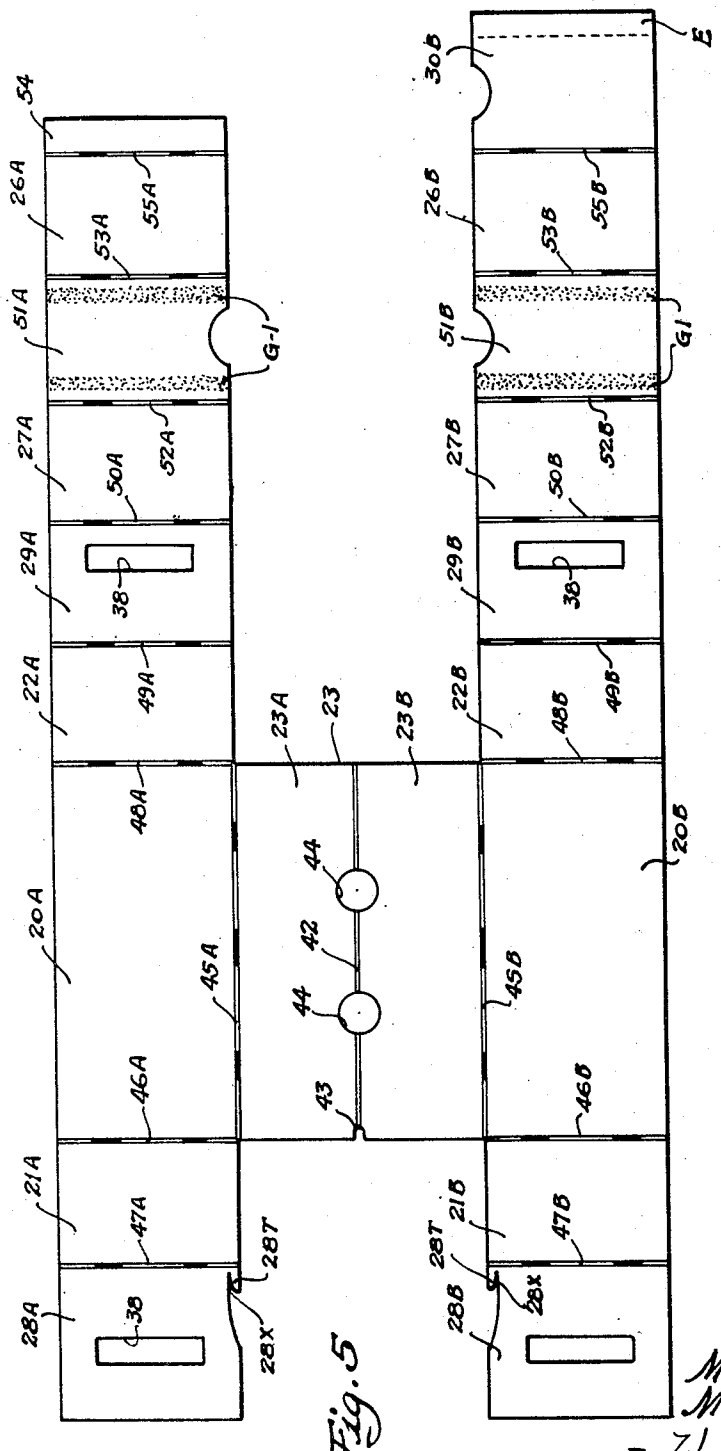


Fig. 5

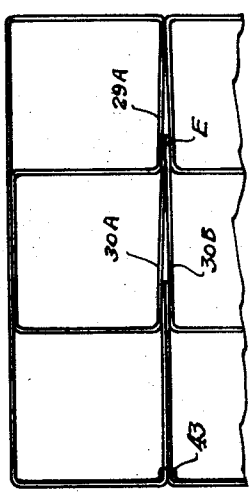


Fig. 6

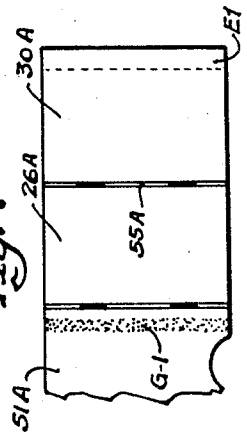


Fig. 7

Inventors
Maynard G. Hall
Michael H. Kowal
By Wallace & Cannon
Attorneys

May 23, 1950 M. G. HALL ET AL 2,508,943

BOTTLE CARRIER

Filed May 6, 1948 3 Sheets-Sheet 3

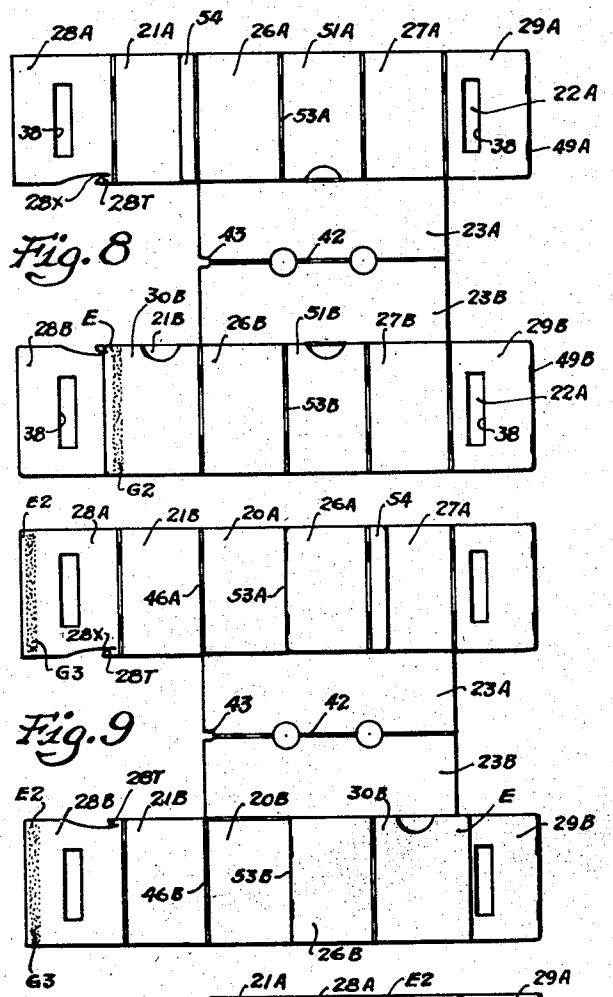


Fig. 8

Fig. 9

Fig. 10

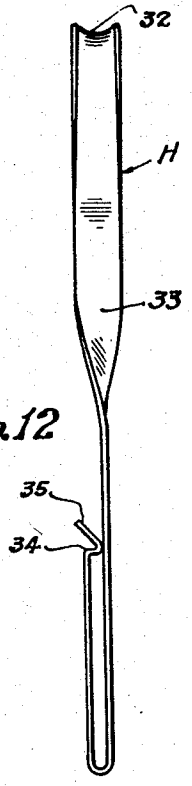


Fig. 12

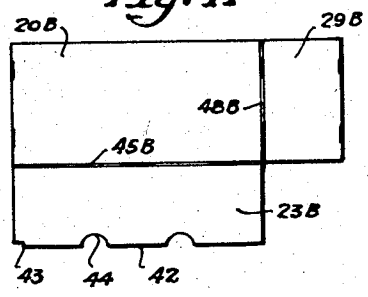


Fig. 11

Inventors
Maynard G. Hall
Michael H. Kowal
By Wallace & Cannon
Attorneys

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UNITED STATES PATENT OFFICE

2,508,943

BOTTLE CARRIER

Maynard G. Hall, Rutherford, and Michael H. Kowal, Prompton Falls, N. J., assignors to Empire Box Corporation, Garfield, N. J., a corporation of Delaware

Application May 6, 1948, Serial No. 25,414

3 Claims. (Cl. 229—28)

1

This invention relates to bottle carriers, particularly to such bottle carriers made from sheet material such as cardboard or the like.

Bottle carriers of a general character to which the present invention relates have been made in many different forms from cardboard and like material, and these bottle carriers are made in what is termed collapsible form so that the carriers may be manufactured and shipped in a collapsed or flat form and may be readily erected at the time when such carriers are to be loaded with bottles. The usual arrangement in bottle carriers of this general character provides for carrying six bottles arranged in parallel rows of three bottles each and with an upwardly extending handle disposed between the rows of bottles and adapted to be grasped by the user in supporting the loaded carrier. Such bottle carriers must, of course, be economical insofar as material requirements and manufacturing costs may be concerned, but in many years of merchandising experience wherein bottle carriers have been made in many different forms, it has been found that other requirements must be met by such carriers in order to render the use thereof practical and economical.

One of the primary requirements that has been encountered in the bottle carrier art is the necessity for the provision of what has been termed a depressible handle arrangement whereby the handle may extend substantially above the tops of the bottles when the carrier is to be transported, and yet may be moved downwardly to a point at or below the level of the tops of the bottles so as to enable loaded carriers to be stacked one directly on top of another. Another governing condition that must be met in the structure of a bottle carrier is the attainment of a relatively small size in plan-form so that the carrier occupies but little greater area than the bottles which are carried thereby, this limitation as to size being imposed by the commercial necessity for the loading of the loaded carriers into cases of the conventional size which have been used for many years in the bottling industry.

In bottle carriers of the aforesaid general character it is also essential that the bottle carriers be so arranged and constructed that they may be readily erected, and an aspect of this requirement is related to the maintenance of the erected form after the erecting forces have been applied to the carriers. Another important factor in this regard is the desirability of attaining a simplified loading procedure, and in this connection it is highly desirable that the carriers be of such character that bottles may be loaded therein by the conventional case-loading machinery that is utilized throughout a large portion of the bottling industry. Thus, it is important that the bottle receiving openings or compartments of a bottle

2

carrier be of such a character that bottles may be freely dropped into such openings or bottle receiving compartments, thereby to enable conventional case-loading equipment to function properly when the erected bottle carriers are initially positioned in cases and are loaded by such machinery in the usual case-by-case operation thereof.

In view of the foregoing it is the primary object of the present invention to enable all of these desirable characteristics to be attained in a bottle carrier made from cardboard or like sheet material, and objects related to the foregoing are to enable this to be accomplished in such bottle carriers that are of a simple, economical and rugged construction, and which may be manufactured with the minimum of folding and gluing operations.

In order that bottle carriers made from cardboard may be utilized on a proper and economical basis, it has been determined that such bottle carriers should be so constructed that they may be used in several bottle-transporting trips or operations, and it is a further object of the present invention to enable bottle carriers to be made from cardboard or like sheet material in such a way that the structural parts thereof will withstand the forces and abuses incident to the use of such bottle carriers in several bottle transporting operations or trips.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show a preferred embodiment and the principles thereof and what we now consider to be the best mode in which we have contemplated applying those principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

Fig. 1 is a perspective view illustrating a bottle carrier embodying the features of the invention;

Fig. 2 is a plan view bottle carrier shown in Fig. 1, but having the separate handle removed therefrom;

Fig. 3 is a side elevational view taken partially in section and showing the bottle carrier illustrated in Figs. 1 and 2;

Fig. 4 is an end elevational view of the bottle carrier showing the handle in two different positions and illustrating the handle relationship with respect to bottles that are illustrated in dotted outline;

Fig. 5 is a face view of the cardboard blank utilized in constructing the bottle carrier of Fig. 1;

Fig. 6 is a plan view, similar to Fig. 2, illustrating an alternative construction that may be utilized;

Fig. 7 is a fragmentary face view of a portion of the blank utilized in constructing the bottle carrier of Fig. 6;

Figs. 8, 9, 10 and 11 are views on a reduced scale which, in connection with Fig. 5, illustrate the successive folding and gluing steps that are performed in constructing the bottle carrier in Fig. 1 from the blank of Fig. 5; and

Fig. 12 is an end elevational view of the separately formed handle.

For purposes of disclosure, the present invention has been illustrated in Figs. 1 to 5 and 8 to 11, as embodied in a bottle carrier **20** made from cardboard or like sheet material and embodying side walls **20A** and **20B**, end walls **21** and **22**, with a bottom wall **23** extended between the lower edges of the side walls **20A** and **20B** so that this bottom wall **23** may serve to support the several bottles B that may be disposed in two rows of three bottles each on opposite sides of an upwardly extending central handle H. The rectangular space defined in the erected carrier between the side walls **20A** and **20B** and the end walls **21** and **22** is divided into six bottle-receiving compartments that are defined in part by a sectionally formed central partition **25**, Fig. 1, and a plurality of transverse partition walls **26A**, **26B**, **27A** and **27B**. The sectional central partition **25** is formed by a number of panels, and adjacent the end wall **21** this central partition is defined by a double thickness wall made up of panels **28A** and **28B**. Similarly, near the end wall **22** the central partition is made up of panels **29A** and **29B**. In the intermediate portion of the carrier, however, the central division wall is afforded by a single panel **30B**.

The handle H as herein shown is made from a flat steel wire which in its central portion is formed to an arcuate cross-section to afford a gripping portion **32**, and from opposite ends of this gripping portion the material is extended downwardly past or through twisted portions **33** and at the lower end thereof the material is bent reversely in an upward direction for a substantial distance, and at the upper ends of the reversely bent portions, hook elements **34** are formed. Above the hook elements, an outwardly sloping guiding lip **35** is provided so that when the bottle carrier **20** is erected the guiding portions **35** may be inserted through vertically elongated connecting slots **38** that are formed in the panels **28A** and **28B** at one end and the panels **29A** and **29B** at the other end. The length of the reversely bent portions of the handle H and the vertical extent of the slots **38** cooperate to enable the handle H to be raised to an operating or carrying position shown in dotted outline in Fig. 4, or to be depressed to the level of the tops of the bottles as shown in full outline in Fig. 4, thereby to permit stacking of loaded bottle carriers **20** directly on top of one another.

In the manufacture of the bottle carrier of Fig. 1, the blank shown in Fig. 5 of the drawings is made from cardboard or like sheet material. Thus, the blank shown in Fig. 5 provides the bottom wall **23** in the form of two rectangular panels **23A** and **23B** of the same size and shape that are joined along a central longitudinal fold line **42**. Near the left-hand end of the fold line **42**, the material of the bottom wall is cut away along the fold line to afford an inwardly extending notch **43**, the functional purpose of which will hereinafter appear. Also, at what may be termed the one-third points along the central longitudinal fold line **42**, ventilating and drainage apertures **44** of relatively large size are provided for purposes that are well understood in the art.

Along the other edge of the panel bottom **23A**, the side wall **20A** is connected along a weakened fold line **45** that is parallel to the central fold line **42**. The end walls **21** and **22** are, as will be evident in Figs. 1 to 5, each formed as a pair of foldable related panels, the end wall **21** being provided by connecting panels **21A** and **21B**, while the end wall **22** is afforded by panels **22A** and **22B**. Thus, in Fig. 5 of the drawings, the end panel **21A** is joined to the left-hand end of the side wall **20A** along a weakened fold line **46A** that in effect is an extension of the left-hand end of the bottom panel **23**. To the left of the end panel **21A**, the panel **28A** is connected along the weakened fold line **47A** to the other or left edge of the panel **21A**.

In the lower edges of the panels **28A** and **28B**, retaining tabs **28X** are formed as shown in Fig. 5 by converging slits **28Y** which form a tab **28T** on each panel **28A** adjacent to the fold lines **46A** and **46B**. This tab **28T** faces or extends horizontally away from the adjacent end panels **21A** and **21B**, and the two slits or cuts **28X** extend along the upper edge of the tab **28T** so as to afford a locking or retaining notch, the purpose of which will hereinafter appear.

At the other or right-hand end of the side wall **20A**, the end panel **22A** is connected to the end edge of the side wall along a weakened fold line **48A**, and the right hand edge of the end wall panel **22A** is joined to the panel **29A** along a weakened fold line **49A**. The panel **27A** is joined along a fold line **50A** to the other edge of the panel **29A**, and a glue panel **51A** is connected along a weakened fold line **52A** to the other edge of the panel **27A**. The other edge of the glue panel **51A** is connected along a weakened fold line **53A** to one edge of the panel **26A**, this panel **26A** having a glue flap **54** connected thereto at its other edge along a weakened fold line **55A**.

The elements of the blank that are associated with the bottom panel **23B** are disposed in a substantially similar but reverse relationship, but in most instances the corresponding panels are disposed in alignment on opposite sides of the blank. Thus, the bottom panel **23B** is joined along a weakened fold line **45B** to the lower edge of the side wall **26B**, and at the left-hand end of the side wall **20B**, the end panel **21B** is connected by a weakened fold line **46B**. The other edge of the end panel **21B** is connected along a weakened fold line **47B** to one edge of the panel **28B**.

The other end panel **22B** has one of its edges joined along a weakened fold line **48B** to the right-hand end edge of the side wall **29B**, and the other edge of the end panel **22B** is connected along a weakened fold line **49B** to one edge of the panel **29B**. The other edge of the panel **29B** is connected along a weakened fold line **50B** to one edge of the partition panel **27B**. At the other edge of the panel **27B**, a glue panel **51B** is connected along a weakened fold line **52B**, the other edge of this glue panel being connected along a weakened fold line **53B** to one edge of the partition panel **26B**. At the other edge of the partition panel **26B**, a weakened fold line **55B** is effective to join one edge of the dividing panel **30B**, this being in contrast to the structure in the other half of the blank, where it will be noted that the partition panel **26A** has a glue flap **54** joined thereto.

As will be evident in Fig. 2, the several bottle receiving compartments are formed so as to be square, and the size of the square is such that the bottles B will be snugly received within these bottle receiving compartments. Thus, in Fig. 5, it will be observed that the panels 21A, 22A, 29A, 27A, 51A and 26A are identical in width, and this width is equal to the side dimension of the bottle receiving compartments or openings that are to be formed in the finished carrier. The same thing is true with respect to corresponding panels in the other section of the blank. With respect, however, to the panels 28A, 28B and 30B, the horizontal dimension of such panels is increased in an amount sufficient to allow for overlapping of these panels with other elements of the structure in securing the blank together. Thus, the panel 30B has an extension E at its right-hand edge, while the panels 28A and 28B have extensions E2 formed at the left-hand edge thereof. These panels, therefore, are of a width that is greater than the other panels, and the extensions E and E2 are formed in a rigid or uncreased relationship with respect to the panels to which they are related.

In the assembly of the carrier 20, the gluing and folding operations are performed in the advantageous sequence that is illustrated in detail in Figs. 5 to 11 of the drawings. Thus, the first operation is the application of adhesive to what may be termed the upper faces of the glue panels 51A, this application of glue being along parallel strips indicated at G1 in Fig. 5. One of these glue strips is disposed on panels 51A and 51B adjacent to the fold lines 52A and 52B, while the other glue strip is disposed on these panels adjacent to the fold lines 53A and 53B. After the glue strips G1 have been applied, the blank is folded along the aligned fold lines 49A and 49B, so as to assume the form shown in Fig. 8 of the drawings. It will be observed in this regard that when the portions of the blank have been folded to the relationship shown in Fig. 8, the glue panels 51A and 51B have the glue strips G1 thereof engaged with what may be termed the upper faces of the side walls 20A and 20B, respectively, and the glue panels 51A and 51B are disposed in a centered relationship with respect to the ends of the side walls 20A and 20B. After the glue panels 51A and 51B have been pressed against the opposed side walls so as to adhere thereto, the corresponding portions of the blank are bent in a reverse or right-hand direction as indicated in Fig. 9 of the drawings along the aligned fold lines 53A and 53B. Prior to this last mentioned folding operation, however, a glue strip G2 is applied along the upper or exposed left-hand edge portion of the panel 30B, this portion constituting what has been termed the rigid and uncreased extension E. This disposes the panel 26A on top of the unglued face of the panel 51A, and it disposes the glue flap 54 over a portion of the panel 27A. On the other side of the blank, the panel 26B is disposed over the unglued face of the panel 51B, the panel 30B is disposed over the panel 27B, and the extended portion E is disposed over a portion of the panel 29B, as will be evident in Fig. 9. The glue strip G2 is thus pressed against the panel 29B so that the extension E is secured to the panel 29B.

While the blank is in the form illustrated in Fig. 9, glue strips G3 are applied to the upper faces of the panels 28A and 28B along the left-hand border portions of these panels, these border portions constituting the extensions E2 which are

in a rigid or uncreased relationship with respect to the panels 28A and 28B as hereinbefore explained. The blank is then in condition for the third folding operation in which the blank is folded along the fold lines 46A and 46B so as to locate the elements of the blank in the positions shown in Fig. 10. Thus, the end panel 21B is disposed opposite a portion of the side wall 20A, the panel 28A is disposed opposite the panel 26A, and the extension E2 of the panel 28A is disposed opposite the glue flap 54 so that the glue strip G3 on the extension of the panel 28A secures this extension to the glue flap 54. On the other side of the blank, the panel 21B is disposed opposite a portion of the side wall 20B, the panel 28B is disposed opposite the panel 26B, and the extension E2 of the panel 28B is disposed opposite a border portion of the panel 30B so that this extension E2 will be secured by its glue strip G3 to the panel 30B. Thus, the blank is held in the relationship shown in Fig. 10, and while the blank is in this relationship, glue areas G4 are applied to the exposed surfaces of the panels 28B and 29B as will be evident in Fig. 10. The glue area on the panel 29B is extended as at G4—1 onto the exposed face of the extension E. The blank is then folded along the central longitudinal fold line 42 so that the panels 28A and 28B and the panels 29A and 29B will be disposed in an opposite relation, and these panels and the extensions E2 thereof are secured together by the left-hand glue area G4 in Fig. 10, while the panel 29A will be secured to the panel 29B and to the opposed face of the extension E. Thus, the folding and forming operations are completed with respect to the blank so as to afford a collapsed bottle carrier in the form illustrated in Fig. 11 of the drawings.

In Figs. 6 and 7 of the drawings, an alternative embodiment of the invention is illustrated wherein the entire central partition wall is made up of at least two thicknesses of material throughout its entire length. Thus, it will be noted that opposite the division wall 30B, a generally parallel panel 30A is afforded which is secured adhesively to the panel 29A and to the extension E of the wall or panel 30B. In affording this modified form of structure, the blank of Fig. 5 is modified so that the glue flap 54 is replaced by a panel 30A, which has the same form and relative location as the extension E that is provided on the panel 30B. This panel 30A is joined to the panel 26A along the weakened fold line 55A. Hence, in the assembly of the carrier, a glue strip is formed on the extension E1 of the panel 30A at the same time and in alignment with the glue strip G2. Moreover, in the final glue applying operation, glue is applied to the reverse surface of the panel 30A in a strip that is located in the same relationship as the glue area G4—1. Thus, the same folding and gluing sequence may be utilized in this embodiment of the invention.

After the bottle carriers of either of the two embodiments have been completed so as to have the collapsed form shown in Fig. 11, such bottle carriers may be readily set up merely by applying opposed endwise forces to the opposite ends of the flat blank. Thus, one end of the end wall panel 29B is subjected to a left-hand force as viewed in Fig. 11, while the left end of the side wall 20B may be subjected to a right-hand force, this application of opposed forces being effective to pivot the panels of the two end walls toward the relationship shown in Fig. 2. This, of course, separates the side walls 20A and 20B, and causes

the bottom panels 23A and 23B to move into a common plane wherein they are located adjacent to the lower edges of the various internal division walls of the carrier. In the erecting operation as thus described, the rigid and increased relation of the extensions E and E1 serve to impart rigidity to the central division wall 25, thereby to assure proper relative movement of the elements of the carrier as the erecting forces are applied thereto. When the carrier has been thus erected to the form shown in Fig. 2, the elements thereof may be maintained in this relationship while the carrier is being put in position in the carrying case merely by interengaging the slot 43 of the bottom wall with the locking notch formed above the tabs 28T. Thus the erecting forces are continued until the slot 43 is aligned with the ends of the tabs 28T, and the adjacent end portion of the bottom wall is bent upwardly past the tabs 28T. The endwise erecting forces are then released, so that the resilient tendency of the carrier to return to its collapsed form will move the bottom or inner end portion of the slot 43 into the locking notch above the tabs 28T. This affords a retaining or interlocking means that will maintain the carrier in an erected position while it is being loaded or put in position in a carrying case. With the bottle carrier thus disposed in a carrying case, the handle H may readily be associated therewith merely by moving the guiding ears 35 upwardly through the slots 38 until the hook portions 34 are disposed above the upper edges of the central division wall. It will be observed that when the carrier is thus disposed in a case, the bottle receiving spaces are defined by the narrow top edges of the various walls and panels that are rigid insofar as downwardly applied forces are concerned, and hence the bottle B may be readily and easily lowered into such spaces by the usual case loading machines.

From the foregoing it will be apparent that the present invention affords a collapsible bottle carrier made from cardboard or like sheet material in such a way that this bottle carrier will withstand use in a number of bottle transport operations. Moreover, it will be evident that the bottle carrier afforded by the present invention meets all of the other known requirements for such devices and is capable of economical manufacture.

Thus, while we have illustrated and described the preferred embodiment of our invention, it is to be understood that this is capable of variation and modification and we therefore do not wish to be limited to the precise details set forth, but desire to avail ourselves of such changes and alterations as fall within the purview of the following claims:

We claim:

1. A one-piece open-topped compartmented bottle carrier formed from cardboard or like material and comprising, when erected, bottom and side walls, end walls each comprised of two panels, and center and cross partitions, the end and side walls and the partitions defining six enclosed compartments disposed in two rows of three each, that portion of the center partition between two end compartments at one end of the carrier being formed by integral extensions from the inner ends of the panels of one end wall and comprising parallel face contacting walls, extensions of such parallel walls forming all of the cross partitions and portions respectively secured centrally to the inner sides of the opposite side walls, a further extension of at least one of the cross partitions forming the central portion of the center partition that is disposed between the center compartments of each row, such further extensions being connected to said parallel walls, an extension of another of said cross partitions being connected to said further extension of a cross partition, that portion of the center partition between the other end compartments at the other end of the carrier comprising an integral extension from the inner end of one of the panels of the other end wall and which is joined to said further extension of a cross partition, and means for connecting the other panel of said end wall to the first named panel of said other end wall.

2. A bottle carrier as defined in and by claim 1 wherein the center partition is provided with elongated vertically disposed slots, a substantially U-shaped handle having similarly formed reversely bent ends, which reversely bent ends of said handle are positioned in said slots and allows for vertical movement of the handle relative to the carrier.

3. A one-piece open-topped compartmented bottle carrier formed from cardboard or like material and comprising, when erected, bottom and side walls, end walls each comprised of two panels, and center and cross partitions, the end and side walls and the partitions defining six enclosed compartments disposed in two rows of three each, that portion of the center partition between two end compartments at one end of the carrier being formed by integral extensions from the inner ends of the panels of one end wall and comprising parallel face contacting walls, extensions of such parallel walls forming all of the cross partitions and portions respectively secured centrally to the inner sides of the opposite side walls and forming a single wall thickness of the central portion of the center partition that is disposed between the center compartments of each row, said central portion of the center partition being directly connected with the one of the cross partitions and paralleling one of the portions secured centrally to an inner side wall, an extension of another of said cross partitions being connected to said center partition at the direct connection of the one said cross partition therewith, that portion of the center partition between the other end compartments at the other end of the carrier comprising an integral extension from the inner end of one of the panels of the other end wall and which is joined to said central portion at the direct connection of said one cross partition, and means for connecting the other panel of said end wall to the first named panel of said other end wall.

MAYNARD G. HALL.
MICHAEL H. KOWAL.

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