June 28, 1960 P. C. COLLURA ET AL 2,942,756

PAPERBOARD CARRIER WITH HANDLE

Filed April 21, 1958 2 Sheets-Sheet 1

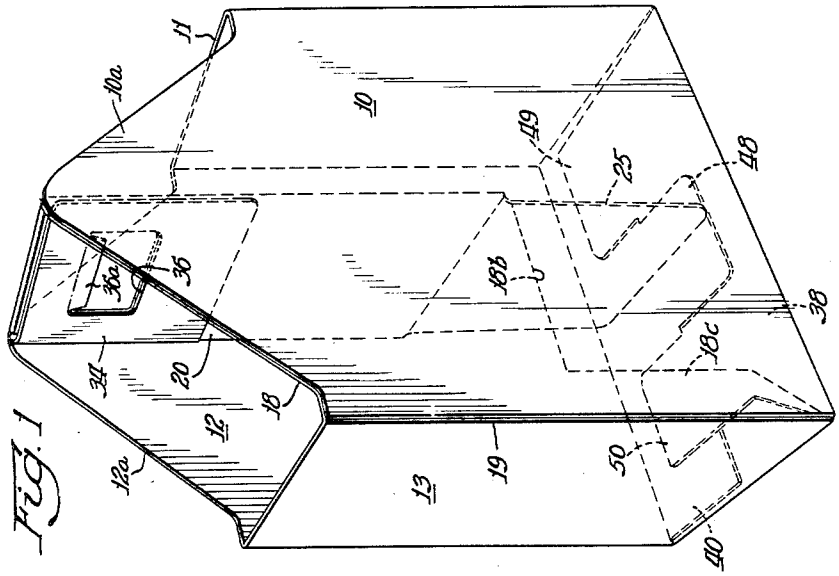


Fig. 1

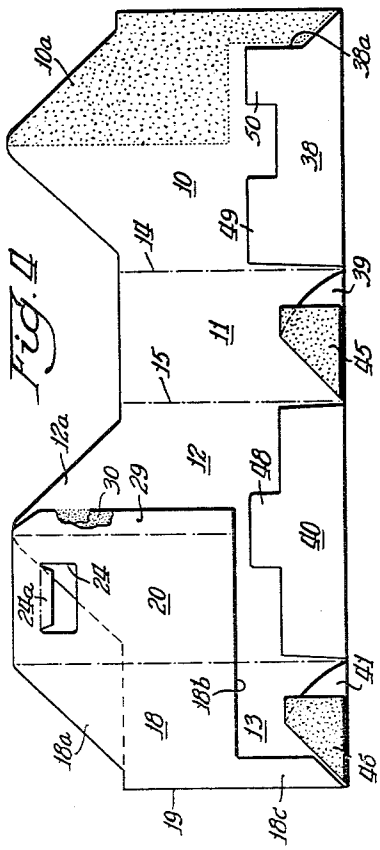


Fig. 4

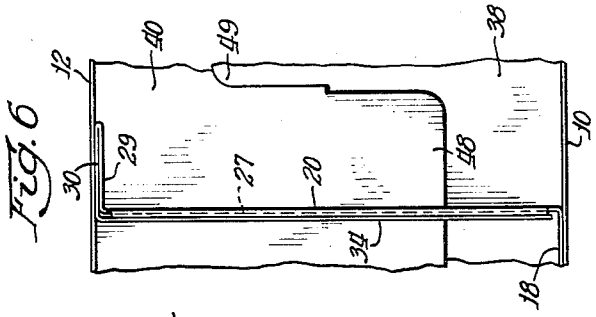


Fig. 6

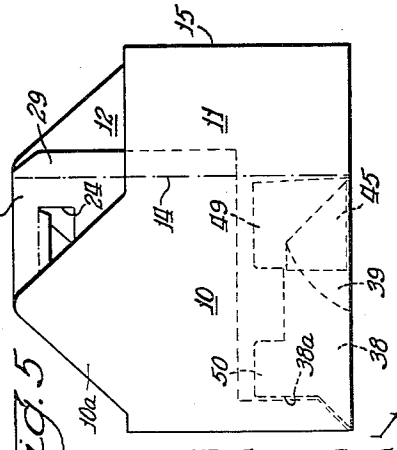


Fig. 5

Inventors:
Peter C. Collura and
Robert M. Hurley
By: Clarence H. Seeley
Atty.

June 28, 1960 P. C. COLLURA ET AL 2,942,756

PAPERBOARD CARRIER WITH HANDLE

Filed April 21, 1958 2 Sheets-Sheet 2

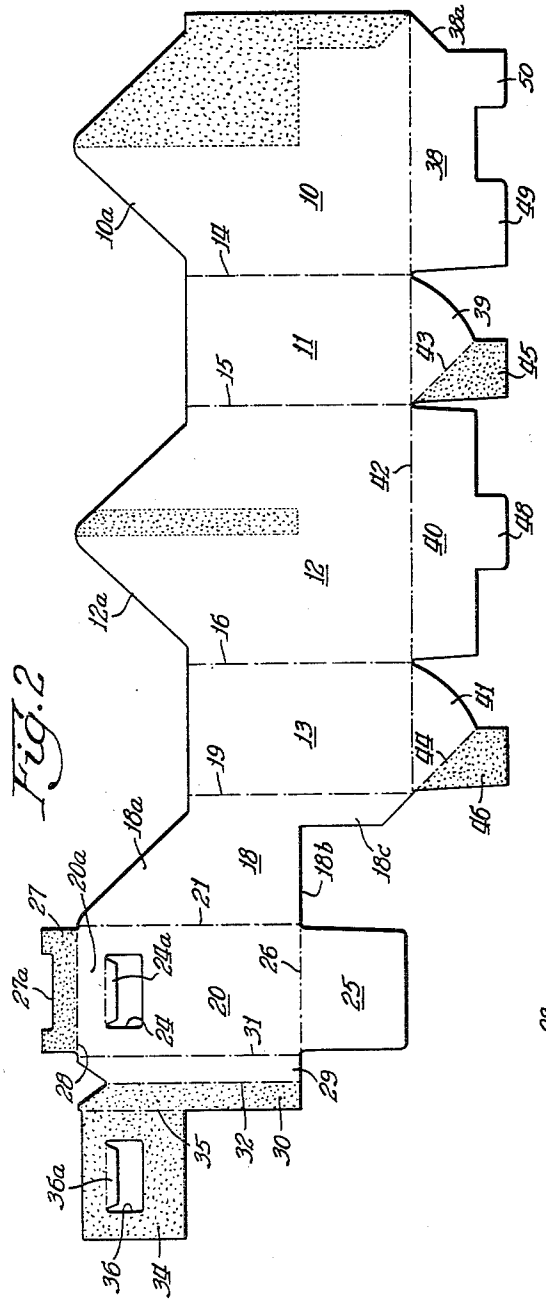


Fig. 2

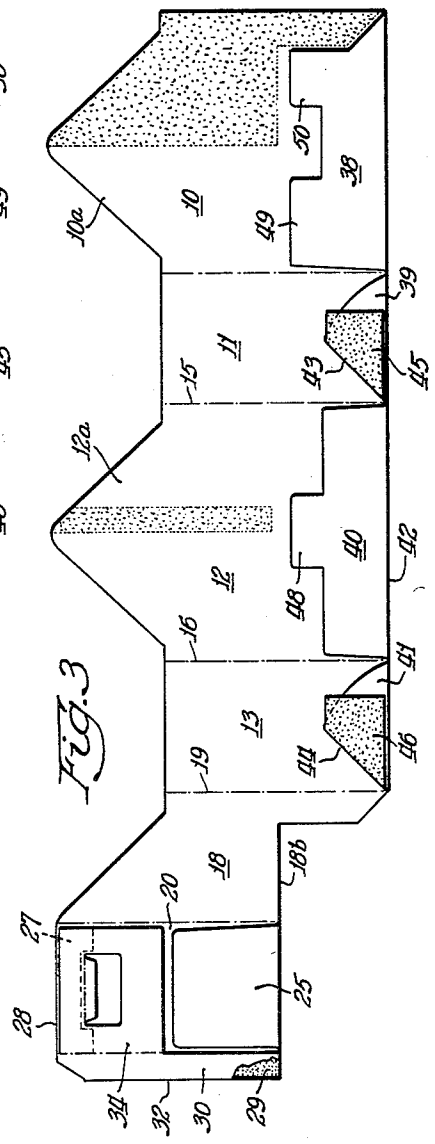


Fig. 3

Inventors:
Peter C. Collura and
Robert M. Hurley
By: Clarence H. Seeley.
Atty.

United States Patent Office

2,942,756

Patented June 28, 1960

2,942,756

PAPERBOARD CARRIER WITH HANDLE

Peter C. Collura, Waltham, and Robert M. Hurley, Cambridge, Mass., assignors to Container Corporation of America, Chicago, Ill., a corporation of Delaware

Filed Apr. 21, 1958, Ser. No. 729,755

6 Claims. (Cl. 220—113)

The present invention relates to carriers for cans, bottles and similar articles and more particularly to collapsable carriers formed of foldable sheet material such as paperboard.

An important object of the invention is to provide a collapsable paperboard carrier with a centrally located handle and partition panel adapted to separate articles contained in the carrier and at the same time serve as a means for assisting the carrier to remain in expanded condition after its initial setting up and before receiving its contents.

A further object is to provide a collapsable form of carrier particularly adapted for two bottles, cans or similar articles, such carriers having bottom closure parts designed to move into closure forming position in the process of expanding the carrier, and including in such carrier a unitary handle and partition panel that has a portion extending into close proximity to the bottom closure to afford complete separation of articles held in the carrier and at the same time retain the bottom closure in flat position to increase the rigidity of the set up carrier.

A still further object is to provide a carrier of the type above referred to which is formed from a minimum number of panels joined together so that the vertical outer walls of the carrier are solid or unbroken to furnish printing surfaces of maximum desirability.

Other objects are to provide a generally improved paperboard carrier, of simple construction, having relatively few parts, and affording maximum strength and protection to its contents while utilizing a minimum area of paperboard.

Additional and more specific objects and advantages of the carrier of the present invention will become apparent as the description proceeds.

In the drawings, illustrating a preferred embodiment of the invention—

Fig. 1 is a perspective view of the carrier in its set up condition;

Fig. 2 is a reduced-scale plan view of the carrier blank laid out flat and indicating areas where adhesive may be applied to secure the parts in operative relation;

Figs. 3 and 4 are plan views of the carrier blank showing progressive stages of folding the blanks to form a collapsed carrier;

Fig. 5 is a plan view of the carrier in collapsed condition after final folding and gluing; and

Fig. 6 is a fragmentary top plan view, looking down into the expanded carrier illustrated in Fig. 1, to show the construction of the handle portion of the carrier.

The carrier, as herein disclosed, is well adapted to hold two cans or bottles of a size to contain a quart or more of liquid which, in common practice, has been found to comprise a convenient retail sales unit. The carrier is preferably formed from a single blank of foldable sheet material providing four wall panels secured in rectangular form. A composite handle and partition panel extends transversely across the carrier and has its edges hingedly secured along medial vertical lines of opposite walls. One edge of the partition is secured to a short connecting panel which, in the blank, is located between the partition panel and one of the wall panels. This connecting panel has a dimension approximately one-half the length of the walls to which the partition is secured and serves to position one edge of the partition accurately when the short connecting panel is folded against and secured to the inner face of the carrier wall. The other edge of the partition preferably carries a pair of narrow flaps which are hinged together. These are folded one against the other and the outer of the two flaps is secured to the carrier wall. This outer flap carries at its free edge a supplemental panel which is foldable against the principal panel and reinforces it. Both panels have registering openings cut therein to admit the fingers of a person handling the carrier.

Referring more particularly to the drawings, the carrier shown in set up condition in Fig. 1 is in the present instance formed from a single blank of foldable paperboard, as shown in Fig. 2. The blank is suitably cut and creased to form four wall panels **10**, **11**, **12** and **13**, defined from each other by fold lines **14**, **15** and **16**. Panels **10** and **12** are preferably made approximately twice the width of panels **11** and **13**. The longer panels form the side walls and the shorter panels form the end walls. An intermediate connecting panel **18**, hinged to panel **13** along fold line **19**, carries a principal partition panel **20** which is hinged to panel **18** along fold line **21**.

The wall panels **10** and **12** are preferably formed with triangularly shaped, upward extensions **10***a* and **12***a* to provide part of an upstanding central portion located between the carrier compartments. The connecting panel **18**, which is designed in the set up carrier to be secured to panel **10**, also has an extended portion indicated at **18***a*. The panel **18** could extend downward substantially to the lower end of panel **13** but preferably is cut away, as indicated at **18***b*, except for a narrow strip **18***c* serving with the main panel **18** as a connection with wall panel **10** to secure the walls in rectangular tubular form. By cutting away panel **18** as shown, gluing of the carrier is facilitated as will be made clear below.

The principal partition panel also functions as a handle panel and for this purpose has a cut-out opening **24** near its upper end to admit a person's fingers for ease in handling the carrier. This panel may conveniently be referred to as a composite handle and partition panel. At the lower edge of panel **20** is a supplemental panel **25** hinged to panel **20** along fold line **26** for a purpose presently to be explained. At the upper end of panel **20** there is provided a small panel **27** having a narrow cut-out section **27***a*. This panel is adapted to be folded down along fold line **28** and adhesively secured to the top part of panel **20** to provide an additional thickness of sheet material at the strip **20***a* constituting the hand grip.

On the outer edge of panel **20** there is provided a pair of narrow panels **29** and **30**. The panel **29** is separated from the partition **20** by a fold line **31**, and the two narrow panels are separated by fold line **32**. In the present instance the panels **29** and **30** are substantially identical in shape. At their upper ends they are cut at an angle so they will conform to the shape of the side wall **12**, as will be made clear as the description proceeds.

On the outer edge of narrow panel **30** is carried a reinforcing panel **34**, hinged to panel **30** along fold line **35**. This panel **34** is adapted to be secured to the upper portion of the panel **20** and has an opening **36** cut therein cut to register with opening **24** in panel **20**. Both panels **20** and **34** may have narrow strip portions indicated at **24***a* and **36***a* designed to be folded over in a well known manner to provide a relatively flat bearing surface at the upper side of the finger opening to provide a more comfortable construction for carrying.

The carrier walls are provided with hinged flap extensions 38, 39, 40 and 41 which together form an automatic lock-bottom closure of generally conventional form, similar in construction and operation to the bottom construction disclosed in the U.S. patent to L. H. Phillips, No. 2,569,335. The bottom flaps are defined from the side walls by a common, longitudinally extending fold line 42. The flaps 39 and 41 are each diagonally creased at 43 and 44 to separate the main portions of the flaps from foldable portions 45 and 46. The flaps 38 and 40 are constructed with interengaging parts which in normal use aid in holding the flaps in closure forming position and resist forces on the flaps tending to swing them downward and outward of the carrier. In order to cause the closure flaps to interengage, the flap 40 is formed with a rigid tongue portion 48 receivable within the space between two separated, rigid tabs or tongues 49 and 50 projecting from the outer edge of the flap 38.

The triangular portions 41 and 43 hinged to walls 13 and 11 are folded to lie against such walls; the triangular portions 45 and 49 are folded outwardly and have adhesive applied thereto; after which the blank is folded so that the carrier is brought to collapsed tubular form with flap 38 bearing on the portion 46 and flap 40 bearing on portion 45. When the adhesive has set the bottom closure is ready for use and completely enclosed within the collapsed carrier walls. As the carrier walls are brought to expanded position the bottom closure flaps are automatically pulled down and the tongue 48 moves in between tabs 49 and 50 and comes to rest on the body of flap 38. The tabs 49 and 50 likewise come to rest on the body of flap 40. At the same time diagonally foldable flaps are moved to unfolded condition to lie substantially parallel with the interengaged flaps 38 and 40. Depending upon the resistance of the fold lines and the length of time the carrier has remained collapsed, there is some tendency of the closure flaps to swing somewhat upward from their closed positions after the force applied to expand the carrier walls is released. This tendency may be prevented by forming the supplemental partition panel 25 of such length that its lower end will swing down into engagement with the closure flaps.

The flat blanks, as shown in Fig. 2, are treated by suitable gluing and folding mechanism by means of which adhesive is applied to the areas shown in stippling on panels 10, 12, 27, 30, 34, 45 and 46. After adhesive has been applied, the first folding step is indicated by comparing Fig. 2 and Fig. 3. It will be seen that panel 27 will be folded down upon panel 20 along fold line 28. Panels 30 and 34 will be folded as a unit about fold line 32 so that the narrow panel 30 will come to rest upon its companion narrow panel 29; panel 34 will overlie infolded panel 27 above the finger opening; and the lower part of panel 34 will directly contact panel 20. The portions of flaps 39 and 41 hinged to the narrow panels 11 and 13 are folded to lie flat on their attached walls, and the flap portions 45 and 46 are folded along their diagonal fold lines to lie against the portions to which they are attached. The closure flaps 38 and 40 are folded over to lie flat on their attached walls 10 and 12. The supplemental partition panel 25 is folded up to lie against the principal partition 20.

The next folding step will be understood by a comparison of Fig. 3 and Fig. 4. It will be seen that the panels 18 and 20, with the infolded panels carried by panel 20, will be folded as a unit about fold line 19. This will bring the narrow flap 30 against the glued area on wall panel 12. Panel 20 will overlie a portion of wall panel 12 and connecting panel 18 will overlie a portion of wall panel 13. It may be noted that the extended part 18c is cut away along a diagonal line at its lower end so as not to interfere with the diagonally folded flap 41.

The final folding step, see Fig. 5, is to swing the panels 10 and 11, and portions carried thereby, as a unit about fold line 15. This will bring the glued area on panel 10 into contact with the panel 18 and its extended portion 18c. The flap 38 will be folded over against the glued triangular flap portion 46 and the flap 40 will be brought against the triangular flap portion 45. It should be noted that the closure flap 38 is suitably cut away at 38a to permit contact of the extended part 18c with the glued edge portion of wall 10 to enable the closure flap to swing down when the carrier is being set up. It is also to be noted that cutting away the panel 18 at 18b enables this panel to be glued to the side wall 10 without interfering with the closure flap 38 which, at the time panel 18 is brought against the side wall for permanent gluing thereto, is lying flat against the wall panel 10.

The carrier as thus far described is in complete flat, collapsed form, ready to be delivered to the user. When it is desired to set up the carrier it is only necessary to apply inward pressure along the two edges of the collapsed carrier. This will cause the carrier to expand toward rectangular form. As walls 11 and 12 move away from each other the diagonally folded flap 39 will be caused to move toward flat or uniplanar condition. This will forcefully pull downward the closure flap 40 to which the triangular part 45 is secured. Likewise the closure flap 38 is pulled down by the flattening of the diagonally folded flap 41. During the downward swinging movement the free portions of flaps 38 and 40 come into contact and move relatively with a combined swinging and sliding movement until the tongue 48 snaps into place between the two rigid tab portions 49 and 50. When this point has been reached the carrier will be approximately in rectangular form. Due, however, to the fact that the closure flaps will generally have remained infolded for a time before use, there will be a tendency in an infilled carrier for the flaps to assume a slightly upwardly inclined position. In order to retain the closure flaps substantially in flat position the supplemental panel 25 is swung down with its lower free edge bearing against the flaps, causing them to move down. The pressure of the flaps upward on the edge of the supplemental panel will hold such panel in position substantially in the plane of the panel 20 on which panel 25 is carried.

The carrier, when set up as just described, is ready to receive its contents, such as two bottles of beverage. The compartments of the carrier will, of course, be proportioned so that the bottles will fit relatively closely therein. Due to the fact that the supplemental partition extends to the bottom closure, bottles placed within the carrier compartments will be effectively separated adjacent their lower portions as well as their upper portions. In the preferred practice the height of the carrier with respect to the bottles to be carried is such that the juncture of the neck with the shoulders of the bottle will be somewhat below the finger opening.

The carrier disclosed herein has many advantages. It may be formed from a single blank of paperboard on high speed gluing machines and is thus relatively inexpensive to produce. All four walls of the carrier are formed as complete solid or unbroken panels. The blanks when printed with the user's trademark and other descriptive or advertising matter enable the finished carriers to have a neat and pleasing appearance. Problems of copy make-up and panel registration in the gluing operation are largely eliminated. As the composite handle and partition panel readily lends itself to the employment of additional integral panels to reinforce the handle portion, it is feasible to utilize relatively light paperboard and still provide a carrier with adequate strength for the purpose intended. By the use of a depending supplemental partition panel foldable against the principal partition panel in the collapsed condition of the carrier, it is pos-

sible to provide a carrier with an infolded automatic lock bottom closure and still obtain a full length partition construction to separate the body portions of the bottles in the carrier throughout their lengths. The combination of the supplemental partition panel with an automatic lock bottom in which the bottom closure parts are maintained flat, due to edge engagement by the supplemental partition panel, provides a relatively rigid, nonweaving carrier when held by the handle. Due to the use of the handle reinforcing panels on both the upper edge and lateral edge of the principal panel, a sturdy gripping strip of three-ply construction is provided and both sides of the finished handle panel present the outside surface of the paperboard stock, giving a desirable printing surface on both sides of the handle.

While the foregoing description sets forth a preferred embodiment of the invention, numerous changes may be made in the construction without departing from the spirit of the invention, and it is therefore desired that the present embodiment be considered as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

We claim:

1. A rectangular lock bottom carrier formed of foldable sheet material, having elongated side walls and narrow end walls hingedly connected in tubular form and adapted to be folded together as a flat, collapsed tube, upwardly foldable flaps hinged on the bottom edges of the walls, adapted to lie flatwise between the walls in their flat, collapsed condition and swingable downward to closure forming position when the side and end walls are moved to expanded condition, interengaging parts on the closure flaps to prevent the swinging of such flaps outward beyond their closure forming position, a principal partition panel extending vertically between the inner surfaces of the side walls and having its vertical edges hingedly secured thereto, said principal partition panel having on its lower edge an extended, hinged, supplemental partition, such supplemental partition being unsecured to the side walls and adapted to be folded up to lie flat against the principal partition in the collapsed condition of the walls and to be swung down into the plane of the principal partition after the carrier walls have been moved to their expanded position.

2. A carrier as defined in claim 1, wherein the lower edge of the principal partition is spaced above the plane of the closure flaps in their closed position a distance approximately equal to the vertical dimension of the supplemental partition, whereby swinging of the supplemental partition down into the plane of the principal partition will bring the lower free edge of the supplemental partition into juxtaposition with the plane of the closure flaps and restrain their upward movement.

3. A rectangular carrier formed of foldable sheet material, having elongated side walls and narrow end walls hingedly connected in tubular form and adapted to be folded together as a flat, collapsed tube, a bottom closure for the carrier, a principal partition panel extending vertically between the inner surfaces of the side walls and having its vertical edges hingedly secured thereto, said principal partition panel having on its lower edge an extended, hinged, supplemental partition, such supplemental partition being unsecured to the side walls and adapted to be folded up to lie flat against the principal partition in the collapsed condition of the walls and be swung down into the plane of the principal partition when the carrier walls are moved to an expanded condition.

4. A rectangular lock bottom carrier formed of foldable sheet material, comprising two side walls and two end walls hingedly connected in tubular form and adapted to be folded together as a flat, collapsed tube, upwardly foldable flaps hinged on the bottom edges of the walls, adapted to lie flatwise between the walls in their flat, collapsed condition and swingable downward to closure forming position when the side and end walls are moved to expanded condition, interengaging parts on the closure flaps to prevent the swinging of such flaps outward beyond their closure forming position, a principal partition panel extending vertically between the inner faces of the side walls and parallel with the end walls, an intermediate panel integrally hinged along one edge to an edge of one of the carrier walls, the other edge of the intermediate panel being integrally hinged to a vertical edge of the principal partition panel, said intermediate panel having a width approximately equal to one-half the side wall length and being secured flat against one of the side walls, thereby serving to secure one edge of the partition centrally of such side wall, an attaching flap hinged on the opposite vertical edge of the principal partition, said attaching flap being secured to the opposite side wall with its hinge line disposed centrally of such side wall, whereby two rectangular compartments are provided in the carrier and whereby the principal partition may be moved to a flat position between the side walls when the carrier is folded in the form of a flat, collapsed tube, and said principal partition having on its lower edge an extended, hinged. supplemental partition, such supplemental partition being unsecured to the side walls and adapted to be folded up to lie flat against the principal partition in the collapsed condition of the walls and to be swung down into the plane of the principal partition after the carrier walls have been moved to an expanded position.

5. A carrier as defined in claim 4, wherein the intermediate panel is cut away along an edge substantially aligned with the lower edge of the principal partition to permit the upward folded bottom closure flaps to engage flatwise against the inner surfaces of the carrier walls, in collapsed condition, without contacting the intermediate panel, the principal partition or supplemental partition.

6. A rectangular carrier formed of foldable sheet material, comprising two side walls and two end walls hingedly connected in tubular form and adapted to be folded together as a flat, collapsed tube, a bottom closure for the carrier, a partition panel extending vertically between the inner faces of the side walls and parallel with the end walls, an intermediate panel integrally hinged along one edge to an edge of one of the carrier walls, the other edge of the intermediate panel being integrally hinged to a vertical edge of the partition panel, said intermediate panel having a width approximately equal to one-half the side wall length and being secured flat against one of the side walls, thereby serving to secure one edge of the partition centrally of such side wall, an attaching flap hinged on the opposite vertical edge of the partition, said attaching flap being secured to the opposite side wall with its hinge line disposed centrally of such side wall, whereby two rectangular compartments are provided in the carrier and whereby the partition may be moved to a flat position between the side walls when the carrier is folded in the form of a flat, collapsed tube, and a supplemental partition hingedly connected to the lower edge of the partition panel and extending therefrom, such supplemental partition being unsecured to the side walls and adapted to be folded up to lie flat against said partition in the collapsed condition of the walls.

References Cited in the file of this patent

UNITED STATES PATENTS

2,543,821	Arneson	Mar. 6, 1951
2,569,335	Phillips	Sept. 25, 1951
2,881,946	Bosrock et al.	Apr. 14, 1959