Oct. 25, 1960 F. A. RYDER ET AL 2,957,602

CARRYING CARTON

Filed April 17, 1957 4 Sheets-Sheet 1

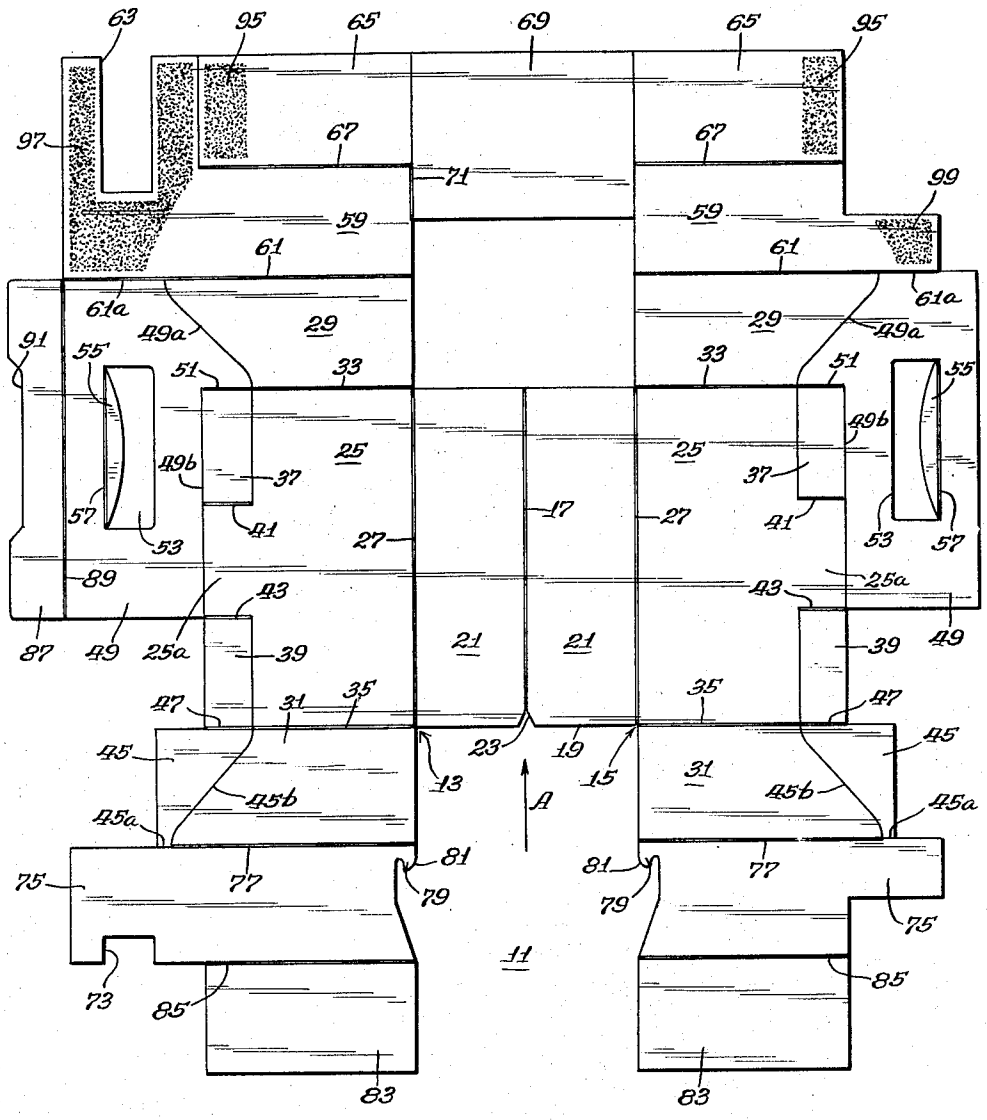


Fig. 1.

INVENTORS.
Fred A. Ryder
John R. Redpath

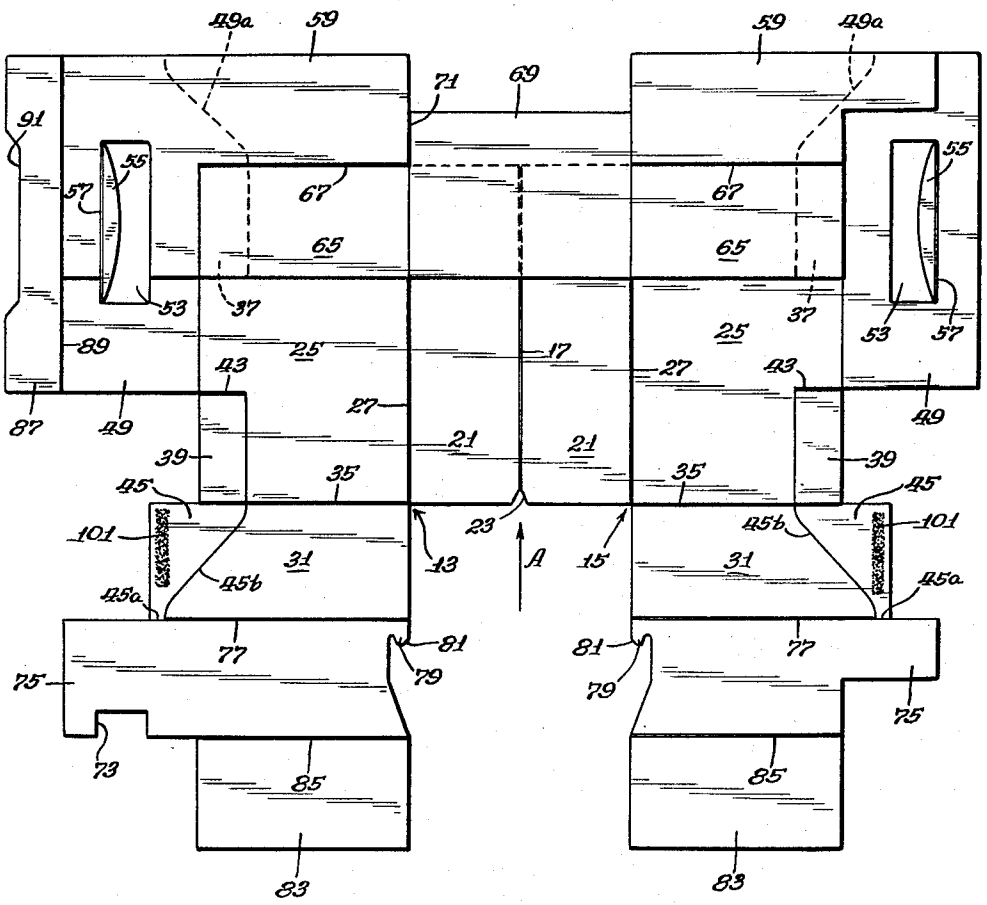
By: Soans, Anderson, Luedeka & Fitch
Attorneys

Oct. 25, 1960 F. A. RYDER ET AL 2,957,602

CARRYING CARTON

Filed April 17, 1957 4 Sheets-Sheet 2

Fig. 2.



INVENTORS.
Fred A. Ryder
John R. Redpath

By: Soans, Anderson, Luedeka & Fitch
Attorneys

Oct. 25, 1960 F. A. RYDER ET AL 2,957,602

CARRYING CARTON

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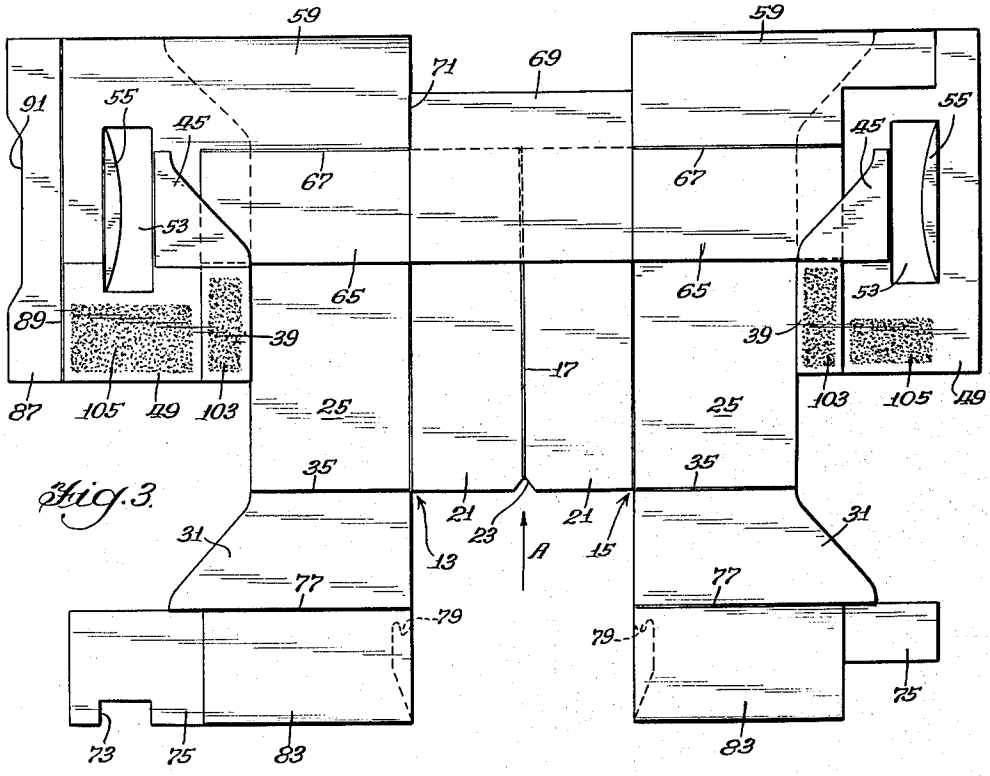


Fig. 3.

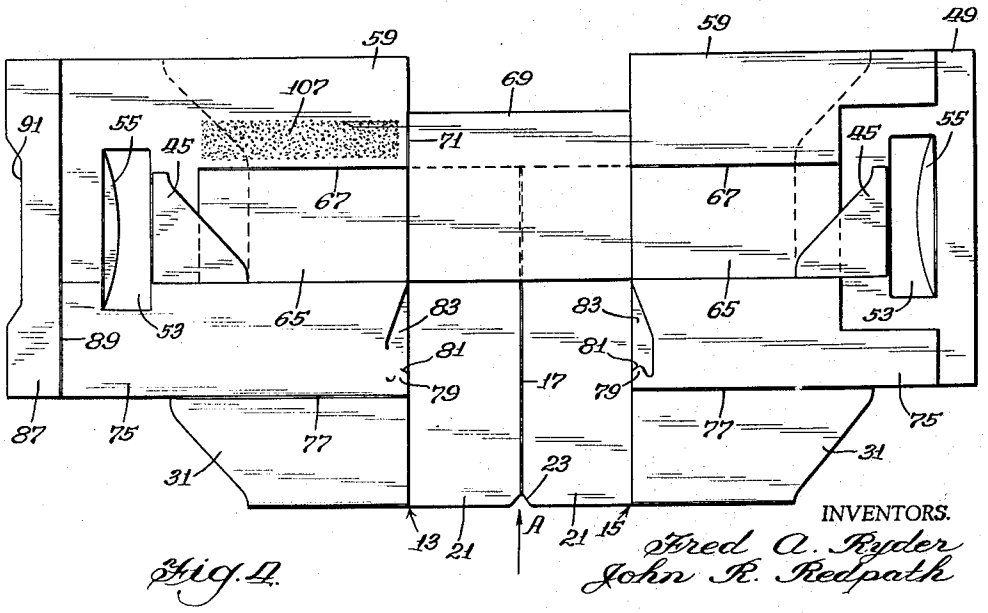


Fig. 4.

INVENTORS.
Fred A. Ryder
John R. Redpath

By Soans, Anderson, Luedeka & Fitch
Attorneys

Oct. 25, 1960 F. A. RYDER ET AL 2,957,602

CARRYING CARTON

Filed April 17, 1957 4 Sheets-Sheet 4

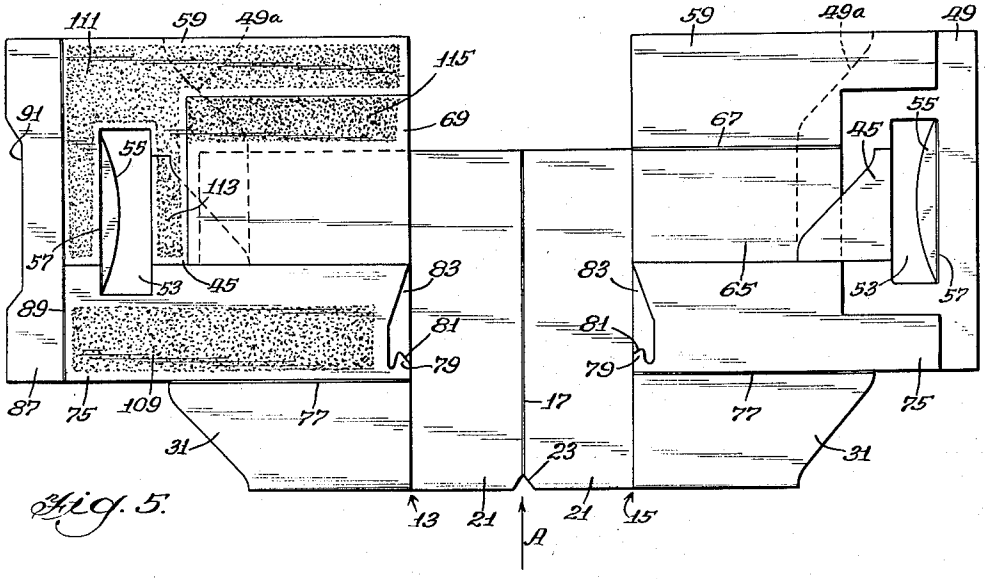


Fig. 5.

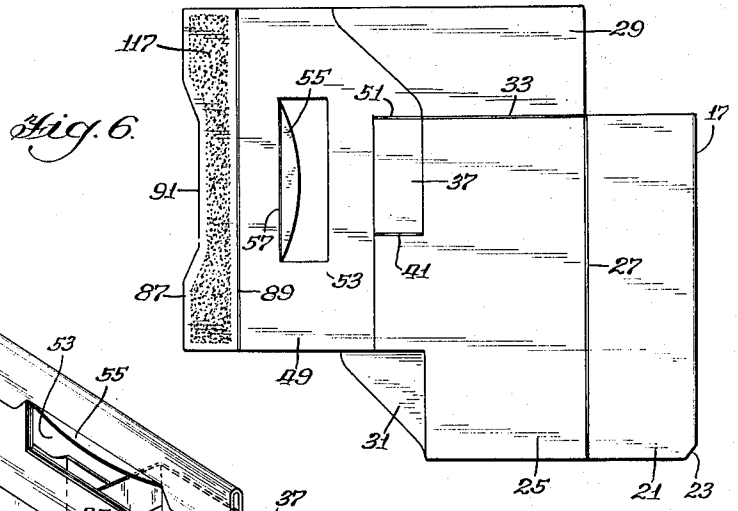


Fig. 6.

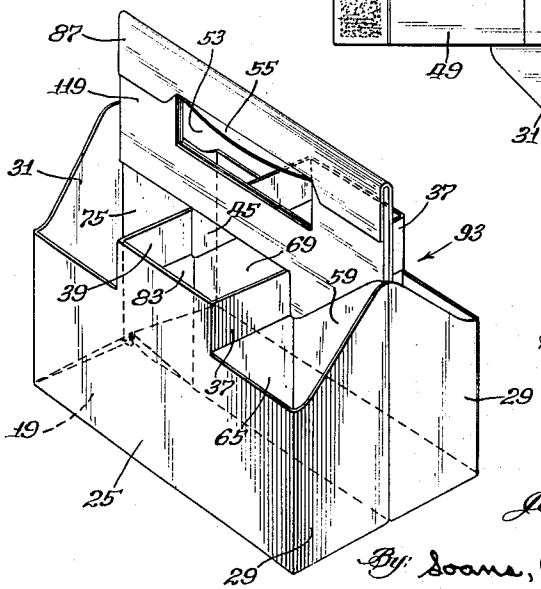


Fig. 7.

INVENTORS
Fred A. Ryder
John R. Redpath

By: Soans, Anderson, Ludeka & Fitch
Attorneys

United States Patent Office 2,957,602 Patented Oct. 25, 1960

2,957,602

CARRYING CARTON

Fred A. Ryder, Chicago, and John R. Redpath, Western Springs, Ill., assignors to Chicago Carton Company, a corporation of Delaware

Filed Apr. 17, 1957, Ser. No. 653,396

2 Claims. (Cl. 220—113)

This invention relates generally to carrying cartons, and more particularly to carrying cartons designed for storing or transporting a small number of bottles or other containers of beverage and the like.

The main objects of the invention are to provide a carrying carton of the type described having improved carrying strength and resistance to twisting and stretching so as to be able to withstand severe or rough treatment in the course of its use and reuse; to provide a strong and durable carrying carton which may be made from a blank of selected sheet material; to provide a carrying carton having a multi-ply partition wall and handle construction which is of generally uniform thickness and strength throughout; to provide a carrying carton having two parallel rows of compartments divided by a center wall and wherein all of the walls of each of the compartments are full walls which extend from the bottom of said compartments upwardly a distance sufficient to cover the major portion of the containers which are to be positioned within the compartments; and to provide a simple, inexpensive blank from which a carrying carton can be formed at high speed on conventional folding, carton-making machinery. In general, the object of the present invention is to provide an improved carrying carton of the aforesaid character.

Other objects and advantages of the invention will be understood by reference to the following specification and accompanying drawings wherein a selected embodiment of the invention is illustrated.

In the drawings:

Figure 1 is a plan view of one form of die-cut blank which may be fabricated into a carrying carton embodying various of the features of the present invention, the blank being illustrated in preliminarily creased, slitted, and glued condition;

Figures 2, 3, 4 and 5 are plan views illustrating the blank following further folding and gluing operations;

Figure 6 is a plan view illustrating the carrying carton formed from the blank shown in Figure 1 in its folded, collapsed condition, complete except for a handle reinforcing flap which is illustrated as glued but not folded; and

Figure 7 is a perspective view of the carrying carton formed from the blank shown in Figure 1 in its erected condition.

Referring to Figure 1 of the drawings, the reference numeral **11** designates a blank of flexible paperboard or cardboard stock of suitable thickness, which may be formed into a carrying carton embodying various of the features of the present invention. The blank **11** is generally subdivided into two main sections **13** and **15** which are, for the most part, symmetrical in respect to a central, longitudinally extending fold line **17**. In view of the symmetrical character of the two sections, the same reference numerals will be used to designate identical, but symmetrically positioned, portions of the blank.

The central fold line **17** extends medially of a generally rectangular bottom wall panel **19** of the blank, thereby

dividing the same into two similar bottom wall sections **21**. The bottom wall panel **19** is provided with a suitable notch **23** located at an end of the central fold line **17**. The purpose of the notch **23** will be explained hereinafter. The bottom wall panel **19** is connected to side wall panels **25** through fold lines **27** which extend parallel to the central fold line **17**. Each of the side walls **25** has an extension **25***a* in the middle one-third thereof. Each such extension is formed in an integral and uncreased relationship with respect to the associated side wall.

Each of the side wall panels **25** is connected to end wall panels **29** and **31** through fold lines **33** and **35**, respectively, the fold lines **33** and **35** being disposed at opposite ends of, and normal to, the fold line **27**. The side wall panels **25** are also connected to divider strips **37** and **39** through fold lines **41** and **43**, respectively, the fold lines **41** and **43** being disposed parallel to the fold lines **33** and **35**.

Each of the divider strips **39** is connected to an otherwise free center partition wall tab **45** through a fold line **47** which is in line with and forms an extension of fold line **35**. Each of the center partition wall tabs **45** has a straight edge portion **45***a* and a curved edge portion **45***b* which are contiguous with edges of adjacent reinforcing partition and handle panel **75** and end wall panel **31** respectively.

The divider strips **37** are connected to combined partition and handle panels **49** through fold lines **51**, the fold lines **51** being in line with and forming an extension of the fold lines **33**. Each of the partition and handle panels **49** is provided with a hand-gripping opening **53**. A conventional, bendable ear or tab **55** is connected to each of the panels **49** through a fold line **57** so as to depend within its opening **53**. Each of the combined partition and handle panels **49** has a curved edge portion **49***a* which is contiguous with an edge of the adjacent end wall panel **29** and a straight edge portion **49***b* which is contiguous with an edge of the adjacent divider strip **37** and edge of the adjacent side wall panel **25**.

Each of the end wall panels **29** is connected to a reinforcing partition and handle panel **59** through a fold line **61** which is parallel to the fold line **33**. One end of each of the reinforcing partition and handle panels **59** extends to a position adjacent an extension of the fold line **27** in the associated blank section. The reinforcing partition and handle panel **59** shown in the upper part of section **13** of the blank **11**, is provided with a suitable slot or hand-gripping opening **63** which is adapted to be aligned with portions of the opening **53** when the blank **11** is erected into a carton.

The reinforcing partition and handle panels **59** connect with generally rectangular divider panels **65** through fold lines **67**, which are parallel to the fold lines **33** and **61**. The reinforcing partition and handle panel **59** in the blank section **13** is also connected to a generally rectangular central partition panel **69** through a fold line **71** which is aligned with an extension of the fold line **27** in the blank section **13**. Each of the reinforcing partition and handle panels **59** is also connected to the adjacent partition and handle panel **49** through a fold line **61***a* which is in line with and forms a continuation of fold line **61**.

Referring now to the lower part of the blank **11** shown in Figure 1, each of the end wall panels **31** is connected to a generally rectangular, horizontally extending reinforcing partition and handle panel **75** through a fold line **77**, which is parallel to the fold line **35**. The reinforcing partition and handle panel **75** in the blank section **13** has a small cut-away portion **73** which is adapted to be aligned with portions of the opening **53** when the blank **11** is erected into a carton. Also, each of the other portions of the reinforcing partition and

handle panels 75 is cut so that it is adapted to be folded over onto the associated partition and handle panel 49 without overlapping the opening 53 therein. One end of each of the reinforcing partition and handle panels 75 extends to a position adjacent an extension of the fold line 27 in the associated blank section and is formed into a locking hook 79 having a suitably beveled lower edge 81. The locking hooks 79 are adapted for locking interengagement with the notch 23 in the bottom wall panel 19 when the blank 11 is erected into a carton as will be hereinafter explained. Each of the reinforcing partition and handle panels 75 is connected to a generally rectangular, horizontally extending divider panel 83 through a fold line 85 which is parallel to the fold lines 35 and 77. These divider panels 83 are generally similar to the divider panels 65 illustrated in the upper end of the blank.

The partition and handle panel 49 in the blank section 13 connects with a vertically extending handle reinforcing flap 87 through a fold line 89 which is parallel to the fold line 17. The left edge of the flap is suitably recessed as indicated at 91 so as not to interfere with the handle openings 53 when the blank 11 is erected into a carton.

The blank 11 illustrated in Figure 1 is adapted to be fabricated into the carton 93 illustrated in Figure 7 by a straight line type box-folding and gluing machine (not shown). This type of machine has a conveyor which propels the blank, means for applying adhesive to selected portions of the blank as it moves along the conveyor, and arms, folding rods, belts, etc. which act against selected portions of the blank to knock out removable portions of the blank or to fold them over other portions of the blank as the blank is carried along the conveyor.

The blank 11 is propelled on the box-forming machine in the direction of the arrow marked "A" in Figures 1 to 5. Glue or other adhesive is first applied to the areas 95, 97 and 99 of the upwardly facing surfaces of the divider panels 65 and reinforcing partition and handle panels 59. As the blank 11 moves along the machine, each of the reinforcing partition and handle panels 59 and the divider panels 65 and the central partition panel 69 are folded as a unit along fold lines 61. This folding continues so that the glued portions 97 and 99 of the reinforcing partition and handle panels 59 overly the adjacent partition and handle panels 49, and causes each of the glued portions 95 of the divider panels 65 to move to a position overlying and in contact with the associated divider strip 37. Each of the panels is maintained under pressure after it has been folded until the adhesive has had a chance to set. After the above-mentioned gluing and folding operations, the partially folded and glued blank 11 will have the general appearance illustrated in Figure 2.

Glue is then applied to the areas 101 of each of the center partition wall tabs 45 and the tabs 45 and divider strips 39 are folded as a unit about fold lines 43 so that the glued portion 101 in the blank section 13 overlies the associated reinforcing partition and handle panel 59 and the glued portion 101 in the blank section 15 overlies the associated partition and handle panel 49. Simultaneous with this last folding operation the divider panels 83 are folded about fold lines 85 so that each of the divider panels 83 overlies the adjacent reinforcing partition and handle panel 75. The blank now takes on the general appearance illustrated in Figure 3.

Glue is then applied to the areas 103 of the divider strips 39 and to the areas 105 of the partition and handle panels 49. The glued blank, partially folded, now appears as in Figure 3. The end wall panels 31, reinforcing partition and handle panels 75 and divider panels 83 are then folded as a unit about fold lines 35 so that portions of the reinforcing partition and handle panels 75 overly the glued areas 105 of the partition and handle panels 49 and portions of the divider panels 83 overly the glued areas 103 of the divider strips 39. After this folding operation, the partially glued and folded blank 11 will have the general appearance illustrated in Figure 4.

Glue is then applied to the area 107 of the reinforcing partition and handle panel 59 in the blank section 13. The partially glued and folded blank now appears as in Figure 4. The central partition panel 69 is then folded about fold line 71 so that it overlies the glued area 107 of the reinforcing partition and handle panel 59. The partially folded and glued blank 11 now takes on the general appearance shown in Figure 5.

Glue is then applied to the area 109 of the reinforcing partition and handle panel 75, to the area 111 of the reinforcing partition and handle panel 59, to the area 113 of the center partition wall tab 45, and to the area 115 of the central partition panel 69. The partially folded and glued blank now appears as illustrated in Figure 5. The blank is then folded along the central fold line 17 so as to bring the upwardly facing surfaces of the central partition panel 69, the reinforcing partition and handle panels 59 and 75, and center partition wall tab 45 in the blank section 13 into adhesive engagement with the upwardly facing surfaces of corresponding members in the blank section 15. The partially folded and glued blank 11 now takes on the general appearance shown in Figure 6.

Finally, adhesive is applied to a portion 117 of the upwardly facing surface of the reinforcing flap 87 and the flap 87 is folded about the fold line 89 so as to overly the upper adjacent end portion of the partition and handle panel 49 of the blank section 15. The blank is now completely formed into a collapsed carrying carton 93 in which form it may be shipped or stored until used. The collapsed carrying carton 93 with the handle reinforcing flap 87 illustrated as glued but not folded about the fold line 89, is illustrated in Figure 6.

To erect the carrying carton 93 from its collapsed or knocked-down condition to its fully erected condition (illustrated in Figure 7) wherein it is ready to receive its intended contents, one grasps the upper handle portion of the collapsed carrying carton between the fingers of one hand and presses upwardly against the bottom of the collapsed carrying carton adjacent the central fold line 17 with the other hand until the bottom 19 is pressing against the locking hooks 79. The compression force produced by this action causes the side wall panels 25 to move outwardly parallel to one another and at the same time causes each of the wall panels 29 and 31 and each of the divider strips 37 and 39 as well as the divider panels 65 and 83 which are adhesively attached to these divider strips 37 and 39 respectively, to move angularly towards a transverse position with respect to the side wall panels 25. As the side wall panels 25 move away from each other the central fold line 17 of the bottom wall panel 19 moves upwardly and laterally. As the end edges of the bottom wall panel 19 approach the lower edges of the end wall panels 29 and 31, one moves the handle portion of the carton laterally with respect to the bottom wall panel 19 so as to overfold the bottom wall panel 19 until the notch 23 passes the beveled lower edges 81 of locking hooks 79 after which the notch portion 23 of bottom wall panel 19 is guided along the beveled lower edges 81 and finally slips into the hooks 79 so that the notch 23 becomes engaged with the locking hooks 79. The bottom wall panel is now in locked position and may be released. The carton 93 is now in fully erected and locked position. The end wall panels 29 and 31 have a normal tendency to move in a direction which will cause the carton to move toward collapsed condition. This aids in maintaining the carton 93 in locked, erected condition since it tends to cause the end wall panel 31 to move inwardly into contact with the edges of the bottom wall sections 21, thereby insuring that the notch 23

is in locked interengagement with the locking hooks **79**. The described locking structure gives added rigidity and strength to the carton in addition to maintaining the carton in erected condition.

Whenever possible, the various walls, partition strips, etc. of the carrying carton **93** have been designated by the same reference numeral as the panels from which they have been formed. The carrying carton **93** includes a bottom wall **19**; a tubular, compartmentalized body comprising side walls **25** and end walls **29** and **31**; a central multi-ply partition wall and handle **119** formed from partition and handle panels **49**, reinforcing partition and handle panels **59** and **75**, center partition wall tabs **45** and central partition panel **69** which is centrally positioned in the multi-ply partition wall and handle **119**; and transverse divider strips **37** and **39**. The central multi-ply partition wall and handle **119** and the divider strips **37** and **39**, as well as the divider panels **65** and **83** which are adhesively attached to these divider strips **37** and **39** respectively, divide the carton into six compartments of substantially equal volume, the carton having two parallel rows of three compartments each, said rows being divided by the center wall **119**. It should be understood that the carrying carton could be formed with a greater or lesser number of divider strips and divider panels, thereby forming a greater or lesser number of compartments in the carrying carton.

It should be noted that a portion of the reinforcing partition and handle panels **59** and **75** extend centrally within the erected carrying carton **93** so as to provide a barrier between adjacent compartments on opposite sides of the central partition wall and handle **119**. This is of considerable importance since the barrier provides a separation between bottles or the like which are placed in the end compartments of the bottle carrier thereby preventing the bottles in the end compartments from striking against bottles in the end compartments on the opposite side of the central partition wall and handle **119**. The central partition panel **69** extends centrally within the erected carton **93** below the lower edges of the outer partition and handle panels **49** to substantially the bottom of the carton. This is also of considerable importance since it provides a barrier between bottles or the like which are placed in the central compartments of the bottle carrier, thereby preventing the bottles in the central compartments from striking against each other. It should further be noted that the divider panels **65** and **83** are full panels which extend vertically from a point adjacent the bottom of the carton upwardly to a point adjacent the top of the divider strips **37** and **39** respectively and which extend horizontally from a point adjacent the central partition wall and handle **119** to a point adjacent the adjacent side wall. This provides a barrier between bottles or the like in adjacent compartments on the same side of the center partition wall and handle **119** thereby preventing the adjacent bottles from striking against each other. Since the divider strips **37** are adhesively secured to an upper portion of the divider panels **65** and the partition strips **39** are adhesively secured to an upper portion of the divider panels **83**, there is a double thickness of blank material provided along the upper edges of the compartments between adjacent compartments on the same side of the center partition wall and handle thereby giving the carton additional strength.

A plurality of bottle carrier blanks such as is illustrated in Figure 1 can be stamped from the same sheet or strip of material with little wastage of material since the blanks have relatively few recesses.

It should be noted that all of the outer surfaces of the erected carton **93** are formed from one face of the blank. This is of some importance since the outer surfaces of the carrying cartons are usually printed with advertising indicia, and it is advantageous to be able to cover all of the outer surfaces of the carrying carton by printing on only one surface of the blank.

The above-described carrying carton is attractive in appearance; simple and economical in construction and readily set up from collapsed to erected condition. It has a central partition wall and panel extending from top to bottom of each of the compartments which keeps the bottles on opposite sides of the central partition wall and handle apart and it has divider panels extending substantially from top to bottom of the compartments thereby maintaining the bottles in the carton within adjacent compartments on the same side of the central partition wall and handle separate from each other; and it is strong and durable so as to withstand the rough treatment which it might expect to encounter during the normal course of its use and reuse.

Various changes and modifications may be made in the above-described carrying carton structure without departing from the principles or intended scope of the present invention.

Various of the novel features are believed to be new and are set forth in the following claims.

We claim:

1. A collapsible carrying carton formed from a single sheet of paper board material comprising a bottom wall, opposed side walls foldably connected to said bottom wall along opposite edges thereof, opposed end walls extending transversely between and foldably connected to said opposed side walls at opposite ends thereof, a central, multi-ply partition wall and handle located intermediate said side walls and having foldable connections with each of said end walls, said partition wall and handle extending the length of said carton from a position adjacent said bottom wall to a position above said side walls, a pair of spaced divider strips extending foldably between said partition wall and handle and the upper portion of each of said side walls, said central partition wall and handle including two panels extending the full length thereof, a pair of adjacent panels extending inwardly of the carton from each of said end walls, and an additional panel which extends foldably from one of said panels extending inwardly of said end walls and which is located centrally of said pairs of panels, each of said panels extending inwardly from said end walls having foldably extending therefrom a divider panel each of which is respectively secured to one of said divider strips, and all of said divider panels extend transversely from said partition wall and handle to adjacent said side walls and from adjacent said bottom wall upwardly to adjacent the upper edge of said divider strips to thereby effect complete compartmentalization of said carton, to reinforce said carton against compressive forces applied to said side walls, and to provide a double thickness of paper board material along the entire length of the upper edge of said divider strips to impart increased resistance to abusive treatment occurring incident to repeated loading of said carton.

2. A one piece carton blank which is erectable into a collapsible carrying carton having a bottom wall, opposed end walls, opposed side walls, a central partition wall and handle extending in parallel relation to the side walls, divider strips connecting the central partition wall and handle to the side walls, and dividers which extend from the partition wall and handle to adjacent the side walls to thereby fully compartmentalize the carton and reinforce the side walls against compressively applied forces and which are bonded to the divider strips to thereby reinforce the entire length of the divider strip upper edges in order to provide increased resistance to the abuse resulting from repeated loading of the carton, said blank comprising an elongated rectangular bottom wall panel having a longitudinally disposed medial fold line, a pair of generally identical rectangular side wall panels each of which is respectively, foldably connected along a longitudinally disposed edge thereof to one of the longi-

tudinal edges of said bottom wall panel, each of said side wall panels having a pair of transversely disposed edges which are in general alignment with the transversely disposed edges of the other of said side wall panels, and each of said side wall panels having an extension which projects from the central portion of the longitudinal margin opposed to said longitudinally disposed edge and which includes a pair of outwardly extending transversely disposed edges, an end wall panel foldably connected along one edge thereof to one of said aligned transversely disposed edges of each of said side wall panels, a partition wall panel foldably connected along a portion of one edge thereof to each of said end wall panels along an edge parallel to said one edge thereof, a handle panel foldably connected to each of said partition wall panels along an outwardly projecting portion of said one edge thereof, a divider strip panel extending foldably between an edge of each of said handle panels in alignment with said one transverse side wall edges and the adjacent of said transverse side wall extension edges, a divider panel extending foldably from each of said partition wall panels along an edge in parallel relation to said one edge thereof, a central partition wall panel foldably connected to one of said partition wall panels along a generally longitudinally disposed edge at the end of said one partition wall panel adjacent said bottom wall, an additional

end wall panel foldably connected along one edge thereof to the other of said transverse edges of each of said side wall panels, an additional partition wall panel foldably connected along one edge thereof to each of said additional end wall panels along an edge parallel to said one edge thereof, an additional divider panel extending from each of said additional partition wall panels along an edge parallel to said one edge thereof, an additional divider strip panel extending foldably from the other of said transversely disposed edges of each of said side wall extensions, and a partition wall tab extending foldably from each of said additional divider strip panels along an edge thereof in alignment with said other side wall panel transverse edges.

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