June 2, 1970 W. G. ATKINSON 3,515,335

FOLDED BLANK CARTON WITH HANDLE BODILY SHIFTABLE VERTICALLY

Filed May 27, 1968 3 Sheets-Sheet 1

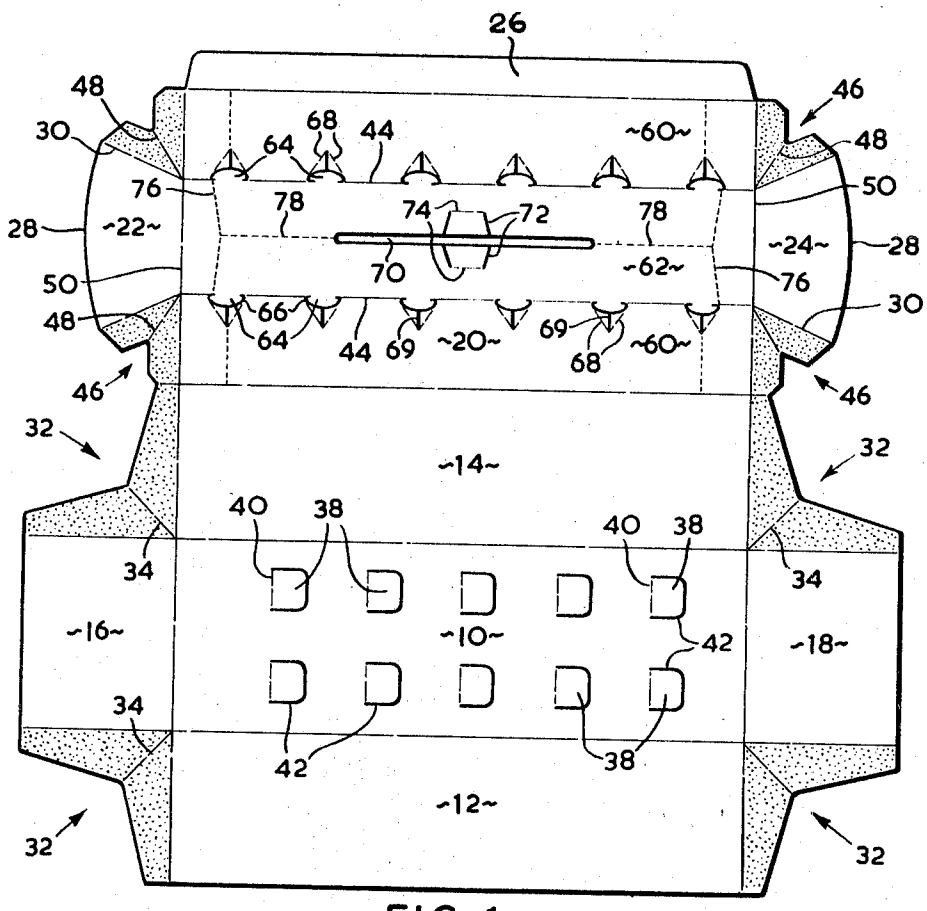


FIG. 1

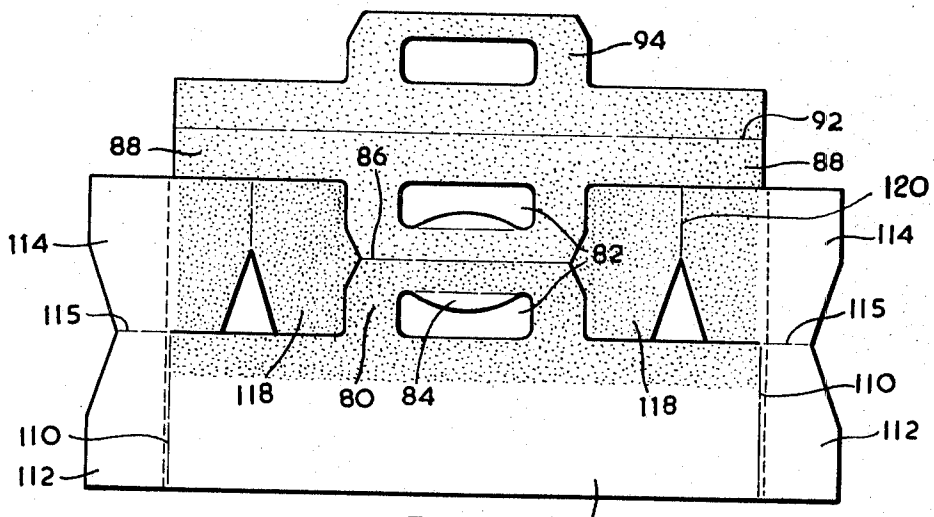


FIG. 2

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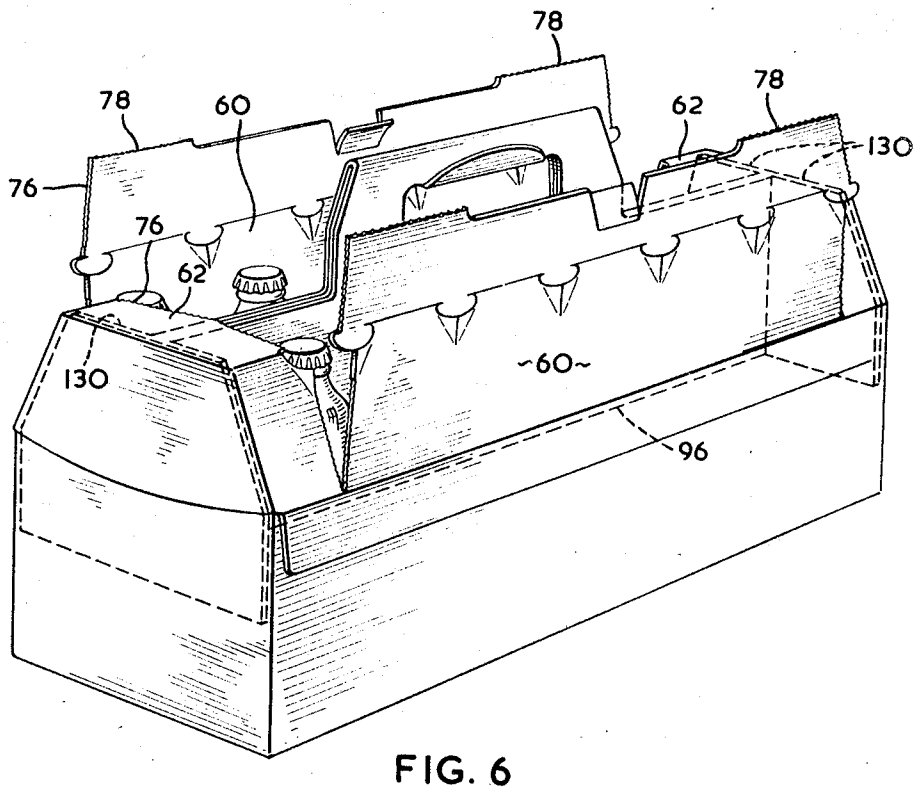


FIG. 6

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FOLDED BLANK CARTON WITH HANDLE BODILY SHIFTABLE VERTICALLY

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U.S. Cl. 229—52 7 Claims

ABSTRACT OF THE DISCLOSURE

This invention relates to a paperboard carton of the type commonly used to package bottles or cans. It has a top formed with weakened lines that can be severed to make a top opening and leave a flange at each end portion. A handle member within the carton has bearing members adjacent the end walls and is adapted to be raised when the top is opened to permit the bearing members to engage with the flange portions left by the tearing open of the top at the weakened lines.

This invention relates to a novel carton blank and to cartons constructed therefrom.

By "weakened" in relation to a line in blank material I include not only lines weakened by scoring or slotting, but also lines completely severed, usually by continuous cuts.

It is an object of this invention to provide a carton blank and cartons constructed therefrom, having side, end, top and bottom walls for the enclosure of containers wherein separators for interpositioning between containers are foldable up from the bottom thereof.

It is an object of this invention to provide a carton blank and cartons made therefrom, having side, end, top and bottom walls for the enclosure of containers wherein the top wall of such container is provided with weakened lines defining tear strips allowing the easy opening of the carton top, by tearing along such strips to provide access to said containers.

It is an object of this invention to provide a carton blank and cartons made therefrom, having side, end, top and bottom walls wherein said top wall is provided with a central portion operable to allow access to the containers, and end portion designed to support a handle member, the latter being formed with means to engage said end portions, and a manual engagement member connected to said engaging means.

It is an object of this invention to provide a carton blank and cartons made therefrom, having side, top, end and bottom walls wherein said top wall is constructed having side portions sloping upwardly from the upper edge of the side walls to a central panel.

It is an object of this invention to provide a carton as defined in the preceding paragraph wherein means are provided for removing the centre part of the top wall, leaving end portions adjacent each end well, and wherein manual engagement means are provided attached to bearing members at each end adapted to engage the end portions of said top wall, said bearing members forming bearing shoulders to allow said carton to be carried by said manual engagement means with said bearing shoulders in engagement.

It is an object of this invention to provide a carton as defined in the preceding paragraph and having manual engagement means retractable and extendable beyond said top walls.

It is an object of this invention to provide a handle for a carton having side, top, bottom and end walls, wherein said handle may be formed from folded carton material and wherein the materials forming the handle are designed to achieve a saving of such material.

It is an object of this invention to provide blanks and cartons constructed therefrom having side, end, top and bottom walls wherein portions of said top wall are sloping and deformations are provided to allow the projection of a portion of containers through said sloping portion whereby such deformation and projection aids in the positioning of said containers.

In drawings which illustrate a preferred embodiment of the invention,

FIG. 1 shows a blank for the formation of a carton in accordance with the invention;

FIG. 2 shows a blank for the handle forming member;

FIG. 3 shows a step in the assembly of the carton;

FIG. 4 shows the assembled handle forming member;

FIG. 5 shows the assembled carton with the top closed; and

FIG. 6 shows an assembled carton with the top open to allow removal of the containers.

In FIG. 1 is shown a blank separated by crease lines into panels, including bottom wall **10**, to which are attached on each side, side walls **12** and **14** and on each end are lower end walls **16** and **18**. On the side of side wall **14** remote from bottom wall **10** is the panel defining top wall **20**, while on each end of top wall **20** are upper end walls **22** and **24** of a shape to be discussed hereafter. On the side of top **20** remote from side wall **14** is a closure flap **26**. All the panels described are substantially rectangular in shape, with the exception of top end panels **22** and **24**, which are straight along the crease line which separates them from top **20** and on the opposite side **28** are curved convexly away from said crease line and on the other two sides **30** are provided with diverging sides extending outwardly from the crease line **50** to the outer edge. Otherwise, adjacent free edges of the bottom end walls **16** and **18** on the one hand and adjacent side walls **12** or **14** on the other hand are provided with extensions to form V-shaped members **32** pointing into the intersection of the crease lines for such side and bottom end walls. A crease line **34** extending across the V-shaped member at 45° to the intersection of the crease lines allows the V-shaped member to be folded upon itself in the erection of the carton, as indicated in FIG. 3. The V-shaped members and a strip of wall **12** remote from wall **10** are provided with glue for use in the assembly of the carton.

Along the bottom **10** are provided container separator members **38** formed by a straight crease line **40** on one side and by cuts or otherwise weakened lines **42** on the other side, for use in rotation upwardly to act as spacers between the containers, as indicated in FIG. 3. The carton shown is provided to have containers arranged on the bottom in two rows extending lengthwise of the carton, that is, between the end walls. The crease lines **40** of the separator members **38** are hence adjusted to be located on the boundaries between the adjacent containers in a row. Hence, in the erected position of the carton, the erection of the separator members **38** leaves a hole in the bottom **10**, and it will be obvious that to prevent accidental loss of containers the dimensions, or at least one of the dimensions of the area of a separator member **38**, must be less than the area of the container.

The top **20** is divided by a pair of longitudinal crease lines **44** extending at each end to the inward end of the diverging upper end walls crease lines **30**. Adjacent the intersection of lines **44** and at the crease lines **50** between the top and the upper end walls, the top wall otherwise free edges nearest the side edges of the top end flap **22** or **24** and the corresponding edges of the top end flap **22** or **24** are provided with joined glueing flaps **46** or V form, which join along the line **48** approximately bisecting the

angle between the top wall crease line **50** and the diverging edges **30** of the top end wall. The V-shaped members **46** are preferably symmetrical about lines **48**. As will be seen from FIG. 3, the design therefore provides that, when the top wall member is assembled by attaching the glued areas separated by such crease lines **48**, it causes, since the angle between the end crease line of the top wall and the diverging lines of the top end walls is less than 90°, the two outside panels **60** of the top wall **20** to slope upwardly towards the central panel **62** in one case from the closure flap **26** and in the other case from the side wall **14**. The two longitudinal crease lines **44** on the top wall are at spaced intervals curved outwardly to provide outward projections **64** from the central panel in convex outward form, as indicated in FIG. 5, covers for containers whose tops are, when resting on the bottom of the container, just lower in height than the central panel of the top wall, but on one side intersect the normal plane of the sloping panels **60**. Such projections are defined preferably by cuts **66**, although this could be performed by weakened lines of other types. A cut **69** is provided extending outwardly through the outside panel material **60** from the outside panel material bounding the central portion (looking transversely relative to the carton) of the convexity and perpendicular or substantially perpendicular to the top wall crease lines **44**. From the outer end of each cut **66**, which is provided to allow material from the sloping panels **60** to deflect upwardly to allow the outer part of the top of the container to emerge to the outer panel, crease lines **68** are provided, diverging to be approximately tangent to the outer part of the convexity of cut **66**. Longitudinally extending across the centre of the central panel is a slot **70** to allow the projection of manual engagement means. On each side of the central portion of slot **70** are a pair of laterally extending cuts or other weakened lines **72** with their ends remote from the slot joined by a fold line **74** to allow insertion of the fingers for retraction of the manual engagement means.

On the top wall, spaced inwardly from each end **50**, are provided weakened lines **76** extending transversely across the top wall, and in the preferred embodiment the weakened line **76** leads in to the cut **66** leading to the convexities **64** corresponding to the end containers, and then the weakened line **76** extends between the opposed cuts **66** for the convexities **64**. At about the central portion of the transversely extending lines **76**, a weakened line **78** leads longitudinally of the central panel to join the two end weakened lines **76**, and in the preferred embodiment, such weakened lines **76** extend to each end of the slot **70**. The material of the top panels **60** and **62** between opposed lines **76** forms tear strips for a purpose to be hereinafter discussed.

The carton so far described can be assembled in the manner indicated in FIG. 3 but before this is completed, the handle member must be inserted to take in its retracted position the positions shown in FIG. 5. A blank for the handle member means is shown in FIG. 2. This comprises a pair of manual engagement members **80**, each defined by a substanitally rectilinear aperture **82** for insertion of the fingers with what is to be the upper portion of the aperture **82** supplied with convex outward tabs **84**. The two manual engagement means are symmetrical and also symmetrical with relation to the fold line **86** between them; and longitudinal extensions **88** are attached thereto running parallel to the central fold line **86** and to the intended longitudinal orientation of the handle member in the box. These longitudinal extensions extend in such direction in each side of the manual engagement members **80** to provide in all a length of approximately the length of the carton with the manual engagement means **80** substantially centered in the longitudinal extension **88**. On one of the longitudinally extending members there is provided, on the side remote from the manual engagement means, a fold line **92** parallel to line **86**, and on the other

side of said fold line **92** there is provided a third replica **94** of one of the symmetrical manual engagement means **80** and extension **88** and, as will be seen from FIG. 4, the replica is in assembly folded inward about its defining crease line **92** toward the symmetrical crease line **86**, and the material is then folded about the symmetrical crease line **86** to form a laminar manual engagement means and extensions. In order to achieve a proper fit, the edge of the third manual engagement means remote from extension **88** is shortened slightly compared to the two symmetrical members since the third member is folded inside the other. On one of the symmetrical members remote from the symmetrical fold line **86** is provided an extension **96** for attachment of bearing members projecting at right angles thereto, as indicated in FIG. 4. As shown in FIG. 4, at each end of the extension **96** are means for forming laminated bearing members **98**, each having three upper edges **100**, **102** and **104** to bear at the same time against the panels **60**, **62** and **60**, respectively, of the top member (adjacent the ends thereof) and to have two side edges **106** and a bottom edge **108**.

Hingedly attached to the extension **96** (as shown in FIG. 2) for folding at right angles thereto along a line **110** perpendicular to the line symmetry of the two members **86** is a member **112** having the form of half the laminated bearing member **98**, when the member **98** is considered as divided along a vertical line in the assembled position of the handle. Hinged to the member **112** is a further half **114**, and this is hinged along a line **115** to be horizontal in the assembled position of the carton to supply a double half. Continuously extending therefrom into the space between the symmetrical longitudinal extensions **88** is a piece of carton material **116** shaped to form the other half of the member, while hingedly attached across line **120**, designed to be vertical in the assembled carton, is a further half **118** for folding to the half **116**. The four halves, designed to form a double thickness across the expanse of the bearing member **98**, are folded thusly: member **118** 180° about line **120**; members **118**, **116** and **114** 180° about line **115**, and members **118**, **116**, **114** and **112** 90° about line **110**, to bring the now assembled bearing member **98** into position shown in FIG. 4, and glued material is provided to cause adherence of mutually facing half members, as indicated. In the assembled members there are thus formed bearing edges **130**, being the upper edges of the members. Glueing is also provided on the surface of the symmetrical members **88** and **80**, which are to be facing and on one side of the member **94**. Accordingly, the handle may be assembled by folding the third member **94** 180° to join a symmetrical member (about line **92**) and then folding the members about the line of symmetry **86** and forming the bearing members as indicated. It will be appreciated that this handle member may then be placed in position in the box before the cover is attached by flap **26** and that the handle will rest in a position shown in FIG. 5. With the assembled carton, it will be seen that the handle in its retracted position, and, to some extent, in its extended position, acts as a divider between the adjacent central rows of the containers, while the bearing portions **130** slide between the end containers of rows and the end walls **16** or **18**. With the carton closed as indicated in FIG. 5 to extend the handle with the cover closed, then it is merely necessary to depress the material between weakened lines **72** in order to get the fingers into the aperture **82** in the manual engagement member and to withdraw the manual engagement member, which may be slid outwardly through slot **70** to allow carrying the carton without the necessity of opening it. At this time the bearing member **130** is bearing the portions of the top wall between the pair of weakened lines **76** in such top wall and the end walls **16** and **18**, and thus the presence of weakened lines **76** and **78** does not jeopardize the carrying of the carton by the handle.

To open the container it is merely necessary to grasp portions of the central top panel **62** on each side of the slot **70** and pull them outwardly relatively to each other whereby tearing first takes place along the central longitudinal weakened lines **78** in the centre part of the top panel **62** and next takes place along the opposed weakened line **76** spaced from each end of the container. In this way, as is shown in FIG. 6, the top wall member may be opened and the containers withdrawn at will. Because the bearing members **130** of the handle bear upwardly on the portions of the top wall spaced outside of the torn lines **76**, it will be noted that the handle may be used to carry a container even when the latter is opened.

What I claim as my invention is:

1. In a paperboard carton comprising side, end, top and bottom walls, wherein a spaced pair of weakened tear lines extend across said top wall and weakened tear lines extend from each of said pair of tear lines intermediate the ends thereof towards the other of said pair of tear lines intermediate the ends thereof adapted to form a line of severence that extends between said pair of tear lines when torn, each of said pair of weakened tear lines being spaced from and adjacent an opposed end of said top wall running generally in the direction parallel to its respective end of said top wall, in combination with a handle member comprising bearing members adapted to engage the top wall at each end thereof, outwardly of the adjacent one of said pair of tear lines, said bearing members being connected by a junction member provided with a manual engagement means.

2. A paperboard carton as claimed in claim **1**, wherein said carton and said handle have a height that said handle, including said manual engagement means, may be received beneath said top wall.

3. A paperboard carton as claimed in claim **2**, wherein said top wall and said manual engagement means is designed to be movable upwardly.

4. A paperboard carton as claimed in claim **3**, wherein said handle member has a height that said bearing members bear up on the portions of said top wall spaced outwardly of said pair of tear lines when said manual engagement means is extending upwardly.

5. A paperboard carton as claimed in claim **1**, wherein said carton is designed to support a plurality of rows of containers resting on the bottom wall of said carton, and said junction member is designed to extend between adjacent rows of containers.

6. A paperboard carton as claimed in claim **5**, wherein said bearing members are designed to slide between the end containers of said rows and the adjacent end wall.

7. In a paperboard carton as claimed in claim **1**, wherein said top wall is foldably attached to one of said side walls and is attachable to the other of said side walls.

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