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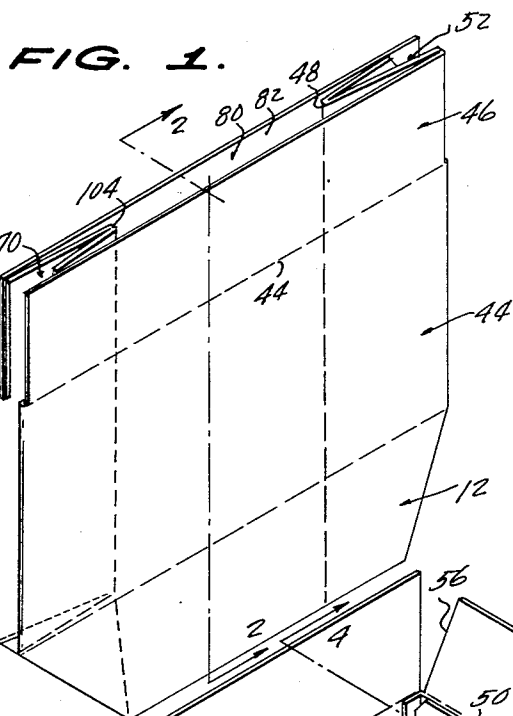
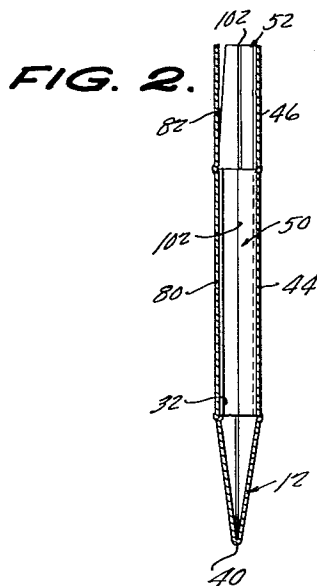
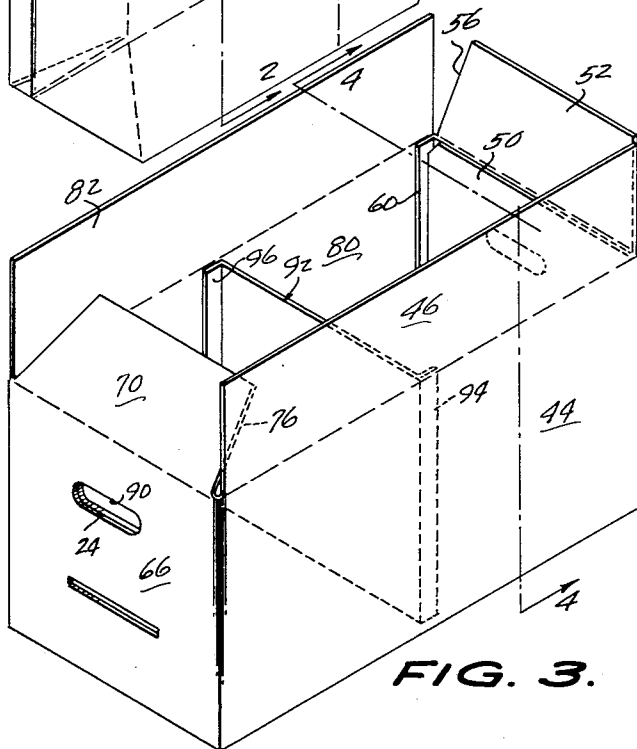
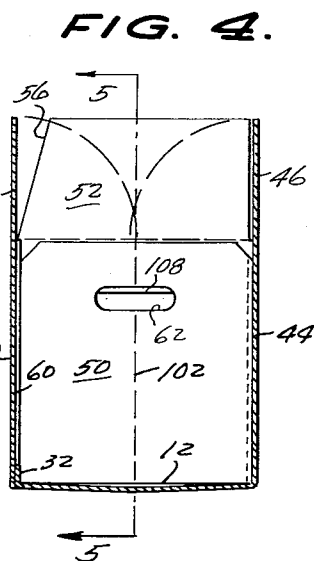
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3,003,680

FOLDING AND COLLAPSIBLE CARTON

Filed May 22, 1959

2 Sheets-Sheet 1



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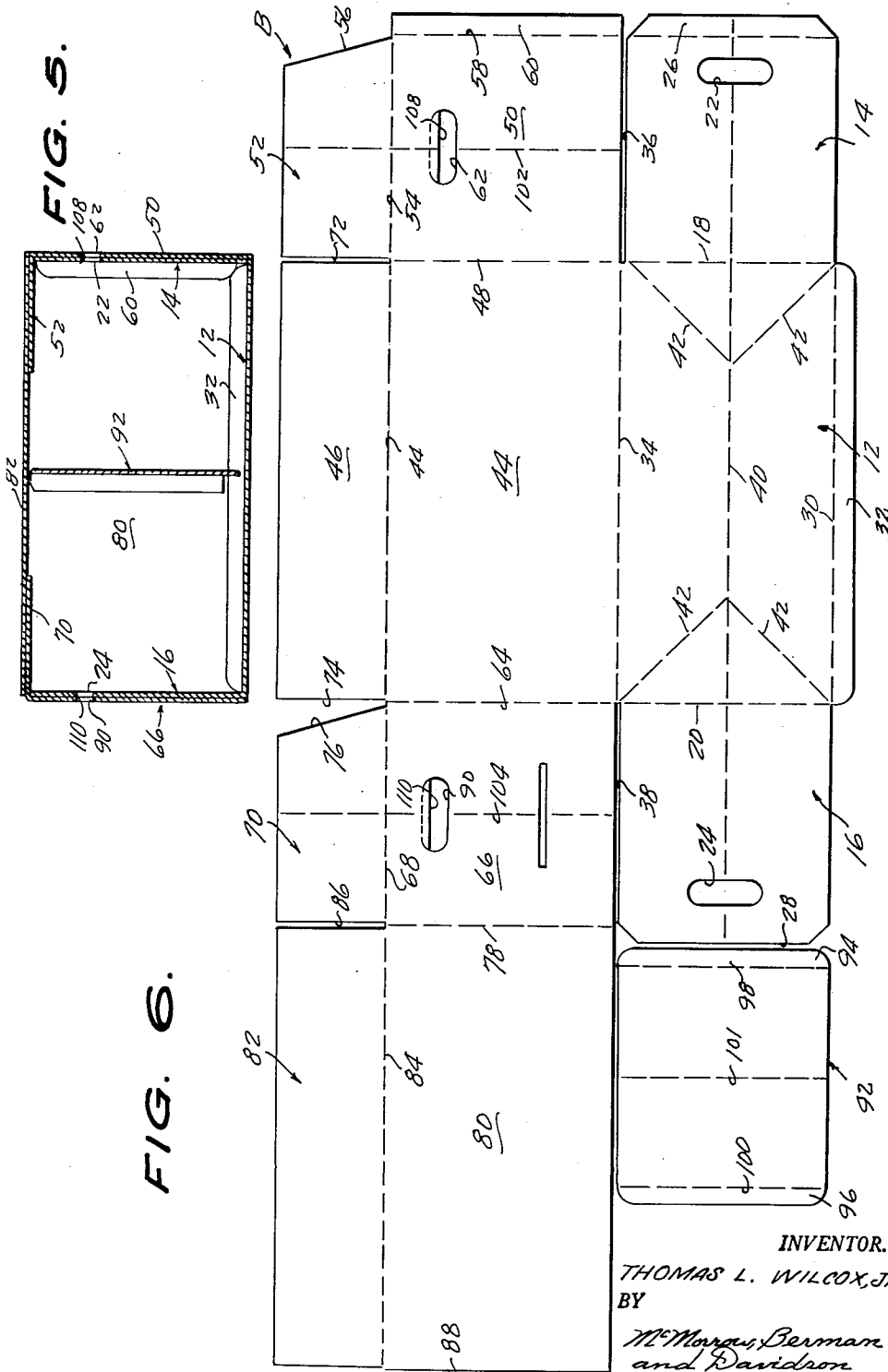
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2 Sheets-Sheet 2



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3,003,680
FOLDING AND COLLAPSIBLE CARTON
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This invention relates to an improved folding and collapsible carton.

The primary object of the invention is to provide a simple, inexpensive, and efficient carton of the character indicated, which, when its constituting blank is unfolded and secured in assembled condition, can be collapsed to a flat compact form, for storage and transportation, and which can be easily and instantly expanded or uncollapsed from collapsed condition, simply by resting its lower end on a supporting surface and pressing the bottom of the carton downwardly thereon, so as to flatten the bottom and thereby push the walls of the carton away from each other.

Another object of the invention is to provide a carton of the character indicated above, which can be easily and economically made from a single piece or blank of relatively rigid sheet material, such as corrugated paper or paper-board, and is easily assembled simply by securing together related ends of the blank, as by stapling or gluing.

Other important objects and advantageous of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

FIGURE 1 is a perspective view of a carton of the invention in folded and collapsed condition;

FIGURE 2 is a vertical transverse section taken on the line 2-2 of FIGURE 1;

FIGURE 3 is a perspective view of said carton in expanded condition;

FIGURE 4 is a vertical transverse section taken on the line 4-4 of FIGURE 3;

FIGURE 5 is a vertical longitudinal section taken on the line 5-5 of FIGURE 4; and

FIGURE 6 is a plan view of the blank from which the carton is formed, and of a partition available for the carton.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the illustrated carton is formed from a horizontally or longitudinally elongated blank B of the mutilated rectangular form shown in FIGURE 6, which has a longitudinally elongated rectangular bottom panel 12 to whose opposite end shorter, similar first and second inner rectangular end panels 14 and 16 are connected by first and second transverse fold lines 18 and 20 respectively. The end panels 14 and 16 have transverse hand-hold slots 22, 24 near their upper edges 26, 28 which are opposed to and parallel with the fold lines 18 and 20, respectively, and are beveled at their ends for clearance purposes. On and along a first or free edge of the bottom panel 12 and connected thereto by a longitudinal fold line 30, is a relatively narrow longitudinal flap 32 for securement to a carton side wall. In line with a fold line 34 which connects the opposite or second longitudinal edge of the bottom panel to the blank B, are longitudinal slits 36, 38 which separate the inner end panels 14 and 16, respectively, from the blank B.

There is a longitudinal fold line 40 which extends centrally along the first end panel 14, the bottom panel 12, and the second end panel 16, and bisects the first and second transverse fold lines 18 and 20. The bottom panel 12 has converging fold lines 42 which extend from

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the central longitudinal line 40 to each of the first and second transverse fold lines 18 and 20.

The blank B further comprises a longitudinally elongated rectangular first side wall panel 44, of the same length as the bottom panel 12, which has connected to its upper edge, by a longitudinal fold line 44, a first closure side flap 46. Connected to one end of the first side panel 44 by a vertical fold line 48 is a first rectangular outer end wall panel 50, of the same height as the side panel 44, and on whose upper edge is a first end closure flap 52 which is connected thereto by a longitudinal fold line 54. The outer side edge 56 of the flap 52 is cut off at an inward angle to provide for clearance, and a vertical fold line 58 along the outer side edge of the flap 52 connects thereon a narrow vertical attaching flap 60. In the upper part of the panel 50 is formed a horizontal hand-hold slot 62 to register with the slot 22 of the first inner end panel 14 in the expanded condition of the carton.

Connected by a vertical fold line 64 to the other end of the first side wall panel 44 is a second outer side wall panel 66, similar to the first outer side wall panel 50, which has connected to its upper edge by a fold line 68 a second end closure flap 70. The end closure flaps 52 and 70 are separated from the first side closure flap 46 by slits 72 and 74, the resultant edge 76 on the second side closure flap 70 being cut away at an angle for clearance purposes.

It will be observed, upon reference to FIGURE 6, that the two or first and second side wall panels 44 and 80 and the two end wall panels 50 and 66, and the attaching flap 60, are serially connected. It will also be observed from FIGURE 6 that the end panels 14 and 16 and the end wall panels 50 and 66 are substantially of the same size.

Connected by a vertical fold line 78 to the second end edge of the second outer end wall panel 66 is a second side wall panel 80, similar to the first side wall panel 44, on and along whose upper edge a second side closure flap 82, similar to the first side closure flap 46, is connected by a fold line 84, which is separated from the second end closure flap 70 by a vertical slit 86. The flap 82 and the second side wall panel 80 have in common a vertical free edge 88. The second end wall panel 66 has in its upper part a longitudinal hand-hold slot 90, with which the hand-hold slot 24 of the second end wall panel 16 is registrable.

Where a partition panel 92 is desired, the same is rectangular and of a width and height to extend across the interior of the carton between the side wall panels and reach to their upper edges, and has vertical attaching flaps 94, 96 connected on its end edges by vertical fold lines 98, 100, respectively. A central vertical fold line 101 is provided in the partition panel 92. This partition panel 92 is nested with the above-described foldable blank B.

The first and second outer end panels 50, 66 and their end closure flaps 52, 70, respectively, are formed with central vertical fold lines 102, 104, respectively. The side closure flaps 46 and 82 are of widths only slightly greater than half the distance between the side wall panels, so that the edges only of these flaps meet in their closed positions, and the end closure flaps 52 and 70 are of the same vertical width as the side closure flaps.

There is a transverse fold line 102 which extends centrally along and from the first end closure flap 52 to and across the one end wall panel 50, and also, a transverse fold line 104 which extends centrally along and from the second end closure flap 70 and across the other end wall panel 66. It is to be noted that the transverse fold lines 102 and 104 extend at right angles to the central longitudinal fold line 40.

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The blank B is optionally assembled or formed into a carton by swinging the first and second inner end panels 14 and 16 upwardly on the fold lines 18 and 20, respectively, folding the resultant assembly on the fold line 34 toward the first side wall panel 44, swinging the outer end wall panels 50, 66 up on the fold lines 48, 64, respectively, to engage the outer sides of the inner end wall panels, then folding the second end wall panel 80 on the fold line 78 so as to put the second side wall panel's free edge 88 in line with the attaching flap 60 on the first outer end wall panel 50, and then securing the flap 60 to the inward side of the panel 80, by suitable means, as by stapling or gluing. The hand-hold slots 62 and 90 of the outer end wall panels have flaps 108, 110, respectively, along their upper edges, to be deflected into the slots 22 and 24 of the inner end wall panels 14 and 16, so as to provide comfortable holds along the upper edges of the registered slots. The attaching flap 32 along the lower edge of the bottom panel 12 is in due course secured along the inward side of the second side wall panel 80, by suitable means, so that the carton is fixed in assembled condition. The flaps 94 and 96 of the partition panel 92, where such panel is used, are then secured, by suitable means to the inward sides of the side wall panels 44 and 80.

The arrangements of the transverse fold lines 192 and 104 in the end wall panels, and the center fold line 40 and diagonal fold lines 42 of the bottom panel 12, provide for inward collapsing of the halves of the end panels, simultaneously with downward collapsing of the halves of the bottom panel 12, accompanied by longitudinally inward-collapsing of the segments of the bottom panel defined by the diagonal fold lines 42, so that, as shown in FIGURES 1 and 2 the collapsed carton is in a flat and compact form.

Although there has been shown and described herein a preferred form of the invention, it is to be understood that the invention is not necessarily confined thereto, and that any change or changes in the structure of and in the relative arrangements of components thereof are contemplated as being within the scope of the invention as defined by the claims appended hereto.

What is claimed is:

1. A foldable one-piece blank for a carton comprising a rectangular bottom panel having first and second longitudinal edges and first and second end edges, a first rectangular end panel extending along the first end edge of said bottom panel and connected along the first end edge of said bottom panel by a first transverse fold line, a second rectangular end panel extending along said second end edge of said bottom panel and connected along said second end edge of said bottom panel by a second transverse fold line, there being a longitudinal fold line

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extending centrally along said first end, bottom, and said second end panels, and bisecting said first and second fold lines, said bottom panel having converging fold lines extending from said central longitudinal line to each of said first and second transverse fold lines, a longitudinal flap extending along and foldably connected along said first longitudinal edge of said bottom panel, a first rectangular side wall panel having a pair of longitudinal edges and two end edges, said first side wall panel having one of its longitudinal edges extending along and foldably connected along said second longitudinal edge of said bottom panel, a rectangular end wall panel extending along each of the two end edges of said first side wall panel and foldably connected along the adjacent end edge of said side wall panel, said end panels and said end wall panels being substantially of the same size, a first closure side flap extending along and foldably connected along the other of the longitudinal edges of said first side wall panel, an attaching flap extending along one of said end wall panels and foldably connected thereto, a first end closure flap foldably connected to said one end wall panel, a second end closure flap foldably connected to the other of said end wall panels, a second rectangular side wall panel extending along said other end wall panel and foldably connected to the latter-named end wall panel, and a second side closure flap foldably connected to said second side wall panel, said two side wall panels and said two end wall panels and the attaching flap being serially connected, there being a transverse fold line extending centrally along and from said first end closure flap to and across said one end wall panel, and another transverse fold line extending centrally along and from said second end closure flap to and across said other end wall panel, said two last-mentioned transverse fold lines extending at right angles to said central longitudinal fold line.

2. The blank according to claim 1 which includes in addition a one-piece rectangular partition panel having opposed end edges, and an attaching flap extending along and foldably connected to each of the end edges of said partition panel, said partition panel nesting with said blank.

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