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2,687,247

COLLAPSIBLE PAPERBOARD CARRIER

Filed Nov. 14, 1950

3 Sheets-Sheet 1

Fig. 1

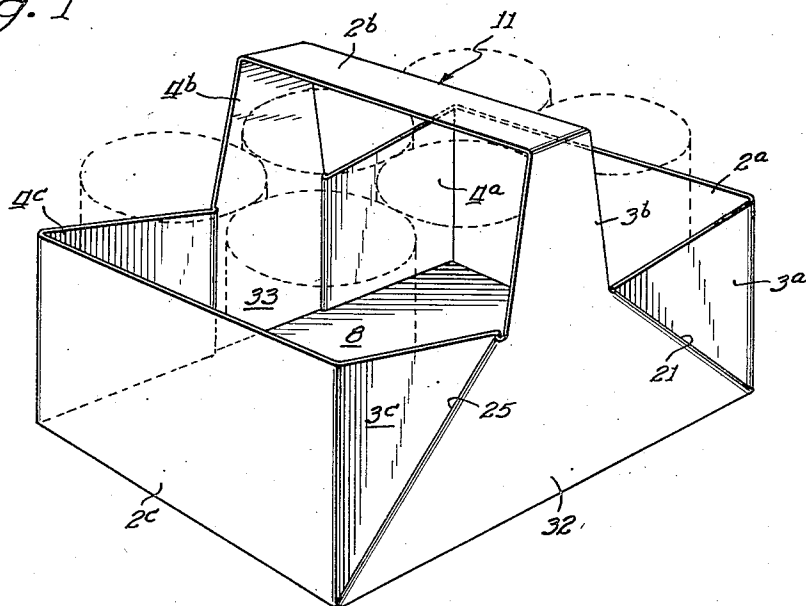
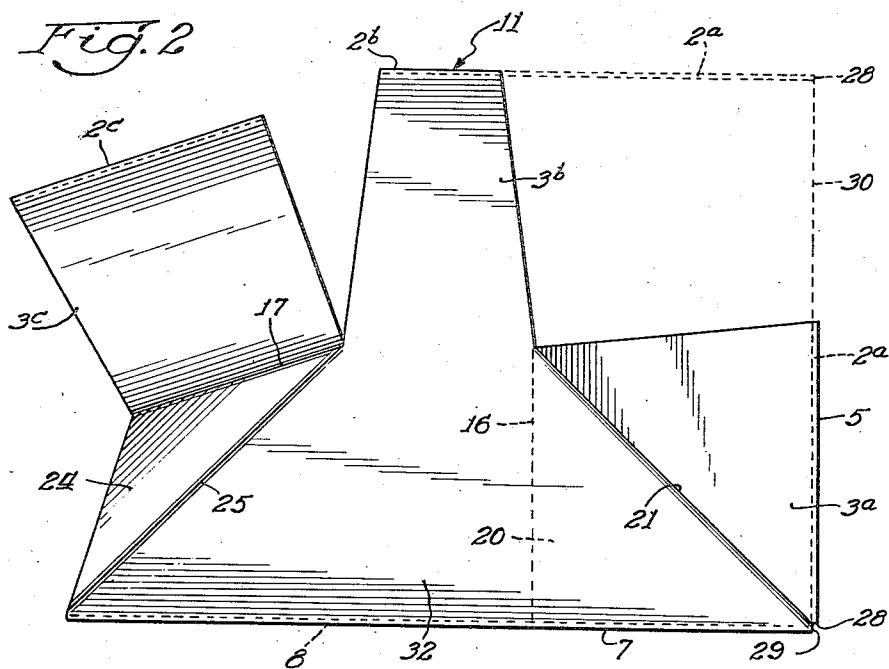


Fig. 2



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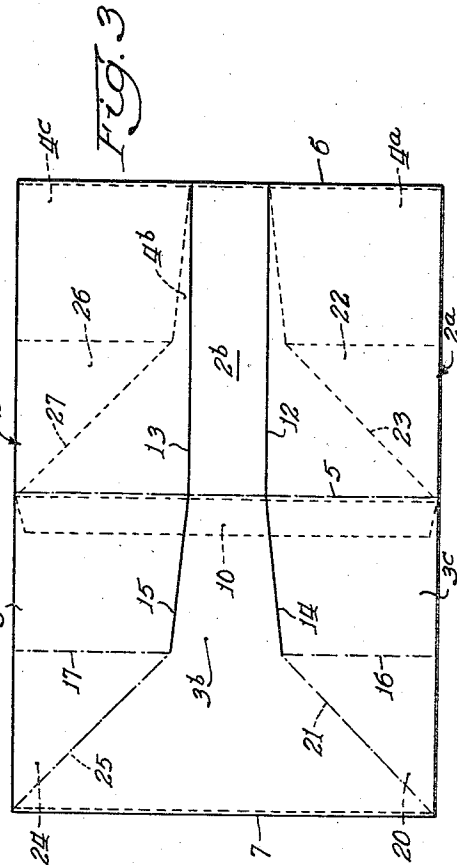
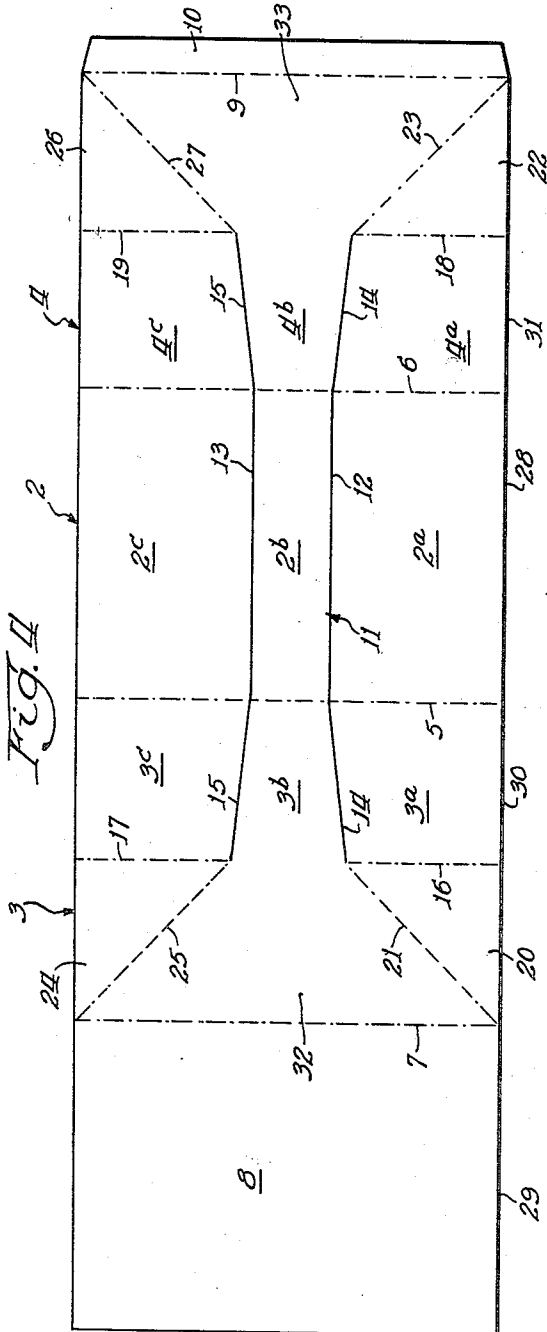
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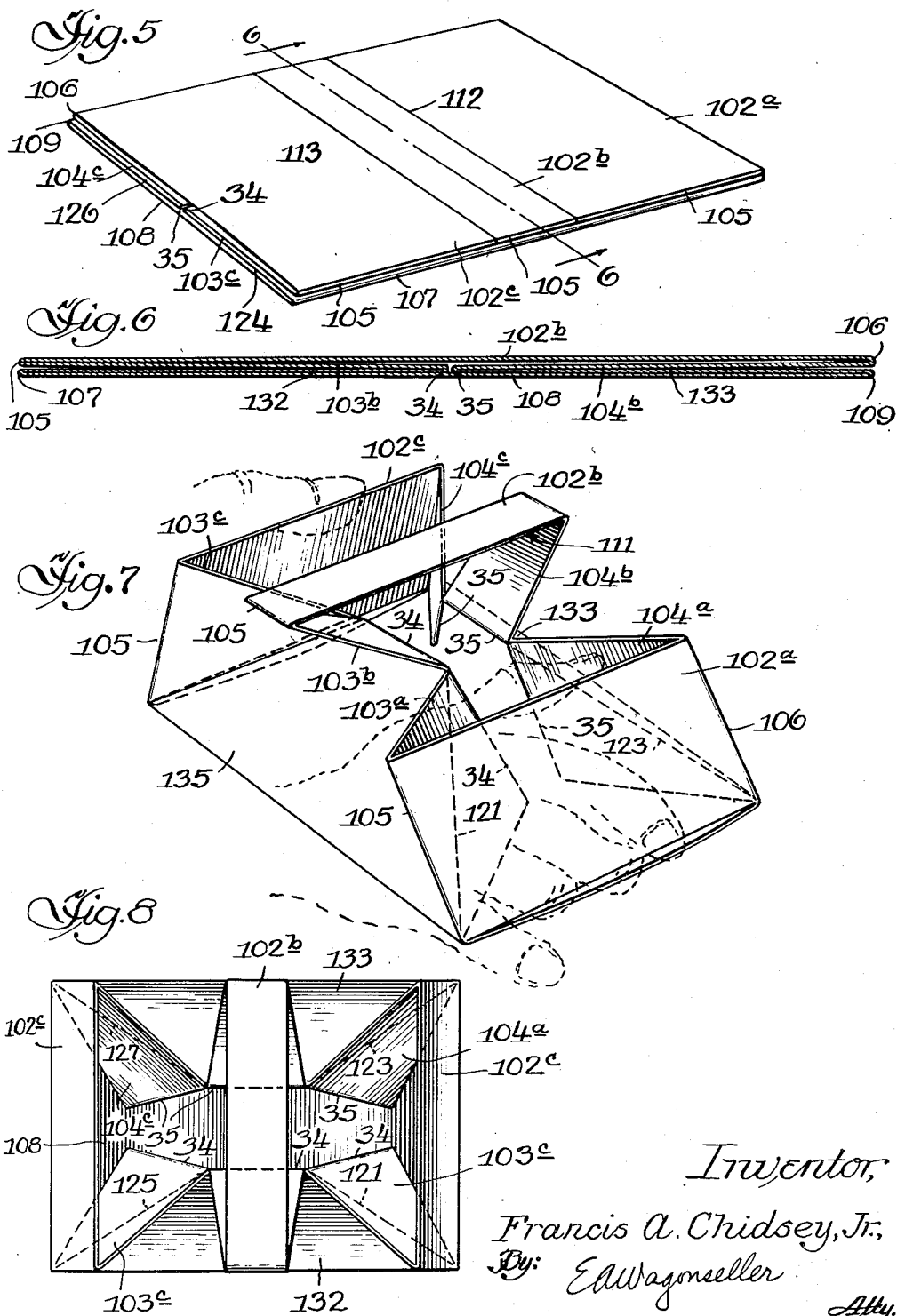
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COLLAPSIBLE PAPERBOARD CARRIER

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3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

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COLLAPSIBLE PAPERBOARD CARRIER

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4 Claims. (Cl. 229-41)

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The present invention relates to a one-piece collapsible paperboard carrier for cans or the like and is particularly concerned with a carrier of this type having an integral handle that is set up automatically when the carrier is folded from collapsed condition to the set-up form in which it serves as a carrier.

It is an object of this invention to provide a simple inexpensive rectangular blank that may be glued or stapled into open-ended, collapsed tubular form and may be shipped and stored in flat condition, and then easily and quickly converted into set-up form by merely folding portions of the blank. Another object is to provide an integral handle structure that is set up automatically when the carrier is folded from flat to set-up form.

Other and further objects and advantages of the invention will become apparent upon reading the following description, taken in conjunction with the accompanying drawing showing two preferred illustrative embodiments of the invention, in which:

Fig. 1 is a perspective view of a carrier embodying the present invention;

Fig. 2 is a side elevational view showing one end wall of the carrier in partially folded position and the other end wall before the start of the folding movement;

Fig. 3 is a plan view of the carrier in the flat shipping position;

Fig. 4 is a plan view of the blank from which the carrier is made;

Fig. 5 is a perspective view of a slightly different embodiment of the invention, showing the carrier in flat shipping position;

Fig. 6 is a cross sectional view, taken along the line 6-6 of Fig. 5;

Fig. 7 is a perspective view of the embodiment of Fig. 5 in partially open position; and

Fig. 8 is a top elevational view of the carrier in the partially open position of Fig. 7.

Referring to the drawings the reference numeral 2 indicates a top panel having a side wall panel 3 on one side and a similar side wall panel 4 on its opposite side. Transverse fold lines 5 and 6 extend between the top panel and side wall panels 3 and 4, respectively. A fold line 7, parallel to fold lines 5 and 6, extends transversely between side wall panel 3 and a bottom wall panel 8. Another transverse fold line 9 extends between side wall panel 4 and glue flap 10.

A handle 11 is defined by cut lines 12 and 13 which extend through top panel 2 and through the upper portion of each side wall panel. The

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cut lines 12 and 13 are substantially parallel through the top panel, but diverge towards the mid-section of each side wall panel, as indicated at 14 and 15, so that the handle will be wider at its base than at its center portion. The cut lines 12 and 13 divide the top panel 2 into three separated transverse sections 2a, 2b, and 2c, and also divide the upper portions of side wall panels 3 and 4, respectively, into sections 3a, 3b, 3c, and 4a, 4b, and 4c.

The side wall panel 3 is provided with a pair of intermediate fold lines 16 and 17, each extending parallel to fold lines 5, 6, 7 and 9 and in line with the other of the pair from one edge of the base of the handle to the closest outer edge of the side wall to which it is perpendicular. Similar intermediate fold lines 18 and 19 are formed in side wall panel 4. The lower portion of side wall panel 3 is provided with a triangular edge portion 20 defined by fold line 16 and a diagonal fold line 21 extending from the intersection of fold line 16 with the cut line 12 at the base of the handle to the closest bottom outer edge of the side wall panel. A similar triangular edge portion 22 is formed in the lower portion of side wall panel 4 and defined by fold line 18 and a diagonal fold line 23. The sections 2a, 3a, and 4a are completely separated from the other sections of the top panel and the upper portions of the side wall panels. They function as an end wall unit in the set-up carrier, and constitute an integral extension extending from the triangular edge portion 20 to the triangular edge portion 22.

The side wall panel 3 is provided with another triangular edge portion 24 at its opposite edge. This portion is defined by the horizontal fold line 17 and a diagonal fold line 25 extending from the inner end of fold line 17 to the closest bottom outer edge of the side wall panel. A similar triangular edge portion 26 is in the lower portion of side wall 4 at the opposite edge from triangular edge portion 22, is defined by horizontal fold line 19 and a diagonal fold line 27 extending from the inner edge of fold line 19 to the closest outer bottom edge of side wall panel 4. The sections 2b, 3b, and 4b also function as an end wall unit in the set-up carrier, and constitute an integral extension extending from the triangular edge portion 24 to the triangular edge portion 26.

The blank from which the carrier is made is folded along the parallel fold lines 5, 6, 7, and 9, the ends being carried back and under the center parts, viewing Fig. 4, and glue flap 10 is adhered to bottom wall panel 8 to form an open-ended tubular member. The tubular member is flattened into the form shown in Fig. 3 along fold

lines 6 and 7 and is shipped to the retailer in this condition.

Both ends of the carrier are formed in exactly the same manner, so the folding movement will be described only in connection with the end wall unit comprising sections 2a, 3a, and 4a. When the retailer wants to set up a carrier he expands it from the flattened condition in which it was received by him into tubular form, and pulls downwardly and outwardly on outer top panel sections 2a and 2c. This folds the end wall unit comprising sections 2a, 3a and 4a inwardly about diagonal fold lines 21 and 23 and simultaneously outwardly about horizontal fold lines 16 and 18 which assume a vertical position during the folding movement because of the inward movement of triangular edge portions 20 and 22 about the diagonal fold lines 21 and 23.

When the folding movement progresses through a 90° angle the top panel section 2a is in vertical position with its outer edge 28 adjacent the outer edge 29 of bottom wall 8. The sections 3a and 4a are each horizontally disposed with their outer edges 30 and 31 positioned parallel to and adjacent the fold lines 7 and 9, respectively. The triangular edge portion 20 is positioned between the side wall 32 and the section 3a. The section 3a extends past the diagonal fold line 21 which defines the outer edge of the side wall 32 and serves as a side wall between the diagonal fold line 21 and the edge 5 of top panel section 2a which serves as an end wall for the carrier. Similarly, the triangular edge portion 22 is positioned between the side wall 33 and the section 4a and the section 4a serves as a side wall extending from diagonal fold lines 23 to the edge 6 of top panel section 2a.

The handle sections 3b and 4b are not crossed by any fold lines so that they project upwardly from the upper edges of side walls 32 and 33, respectively, when the carrier is set up. The upper edges of sections 3b and 4b are connected by the integral section 2b. These sections are not moved during the folding of the end wall units, and, accordingly, remain upstanding to serve as an integral handle for the carrier.

The embodiment of the invention illustrated in Figs. 5, 6, 7 and 8 differs structurally from the embodiment previously described in only one particular, but the single structural difference is important because it simplifies the setting up operation, making the conversion of the carrier from the flat shipping position to the carrying position both easier and faster than with the embodiment previously described. The structure difference between the two embodiments comprises the replacement of fold lines 16 and 17 with a fold line 34 extending across the entire width of the carrier, and the replacement of fold lines 18 and 19 with a fold line 35 similar to 34. In Figs. 5 to 8, the reference numerals designating the same structure as shown in Figs. 1 to 4 are the same as the reference numerals used in Figs. 1 to 4, except that 100 has been added to each reference numeral.

The fold lines 34 and 35 enable the carrier to be folded into flat shipping condition as shown in Fig. 5 instead of being folded as shown in Fig. 3. It is not necessary to expand the carrier from the flat position of Fig. 5 into tubular form and then fold each end separately. Both end flaps 102a and 102c are grasped and their inner edges are simultaneously moved outwardly and upwardly along the diagonal fold lines 121, 125, 75

123 and 127. This single operation is all that is required, and the carrier practically snaps into carrying position.

While the present description sets forth two preferred embodiments of the invention, certain changes may be made in the construction without departing from the spirit of the invention, and it is therefore desired that the present embodiments be considered in all respects 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.

I claim:

1. An open-ended tubular structure capable of being folded to provide an open top carrier for cans, said structure comprising a single blank of paperboard folded at right angles along four parallel lines to provide a top panel, a bottom panel and a pair of opposed side wall panels, a pair of spaced transverse cut lines extending completely across the top panel and continued through the upper portion of each side wall, each side wall having a pair of fold lines intermediate its height and parallel to the fold lines defining its upper and lower edges, said intermediate fold lines extending in opposite directions each from one end of one of the cut lines to the adjacent outer end edge of the side wall, and another pair of fold lines each extending diagonally downwardly from the end of each of the cut lines to the adjacent lower corner of the side wall, whereby each side wall may be folded about both of its intermediate fold lines and both of its diagonal fold lines simultaneously to swing the outer portions of the top panel outwardly and downwardly through a 90° angle to form oppositely disposed end walls for the carrier, the portions of each side wall and the top panel positioned between the cut lines remaining in place to serve as an integral handle for the carrier.

2. An open-ended tubular structure capable of being folded to provide an open top carrier for cans, said structure comprising a single blank of paperboard folded at right angles along four parallel lines to provide a top panel, a bottom panel and a pair of opposed side wall panels, a pair of spaced transverse cut lines extending completely across the top panel and continued through the upper portion of each side wall, the cut lines being substantially parallel through the top panel and diverging from the upper edge of the side walls towards the mid-section thereof, each side wall having a pair of fold lines intermediate its height and parallel to the fold lines defining its upper and lower edges, said intermediate fold lines extending in opposite directions from one end of one of the cut lines to the adjacent outer end edge of the side wall, and another pair of fold lines each extending diagonally downwardly from the end of each of the cut lines to the adjacent lower corner of the side wall, whereby each side wall may be folded about both of its intermediate fold lines and both of its diagonal fold lines simultaneously to swing the outer portions of the top panel outwardly through a 90° angle to form oppositely disposed end walls for the set up carrier with the portions of each side wall and the top panel positioned between the cut lines remaining in place to serve as an integral handle for the carrier and with the base portions of the handle being wider than its top portion by virtue of the divergence of said cut lines.

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3. An open-ended tubular structure capable of being folded to provide an open top carrier for cans, said structure comprising a single blank of paperboard folded at right angles along four parallel lines to provide a top panel, a bottom panel and a pair of opposed side wall panels, a pair of spaced transverse cut lines extending completely across the top panel and equally spaced from the central transverse plane of the tubular structure and on opposite sides of the latter, said cut lines being continued downwardly through the upper portion of each side wall, each side wall having a pair of fold lines intermediate its height and parallel to its upper and lower edges, said pair of fold lines extending in opposite directions each from the lower end of one of the cut lines to the outer adjacent end edge of the side wall, and a second pair of fold lines extending diagonally downwardly from the end of each of the cut lines to the adjacent lower corner of the side wall panel, said side walls each being foldable about said diagonal fold lines simultaneously to swing the outer portions of the top panel outwardly and downwardly through a 90° angle to form opposed end walls in the set up carrier.

4. An elongated paperboard blank foldable into the form of an open-top carrier for cans or the like, said blank comprising a generally rectangular sheet of the paperboard material scored transversely of its length along four spaced lines to provide a bottom wall panel, a first side wall and handle forming panel, an end wall and handle forming panel, a second side wall and handle forming panel, and a glue flap panel, sequentially in the order named, a pair of spaced parallel

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longitudinally extending cut lines projecting completely across said end wall and handle forming panel and continued at its ends in opposite directions into the adjacent first and second side wall and handle forming panels and projecting approximately half way thereacross, a fold line extending from the end of each cut line diagonally outwardly to the edge of the blank and intersecting said edge at its juncture with the outer edge of one of said side wall and handle forming panels, and a fold line extending transversely of the blank from the end of each cut line to the edge of the blank, adjacent fold lines defining therebetween a series of triangular sections foldable into face-to-face contact with the side wall and handle forming panel in which they are located when the blank is folded to produce the set up carrier.

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