Aug. 11, 1959 G. C. CURRIE, JR 2,899,123

CARTON

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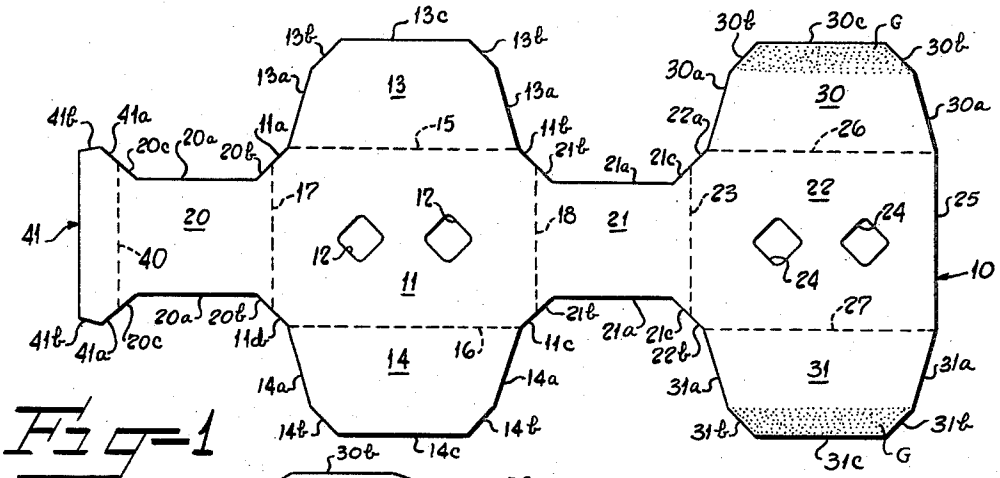


Fig-1

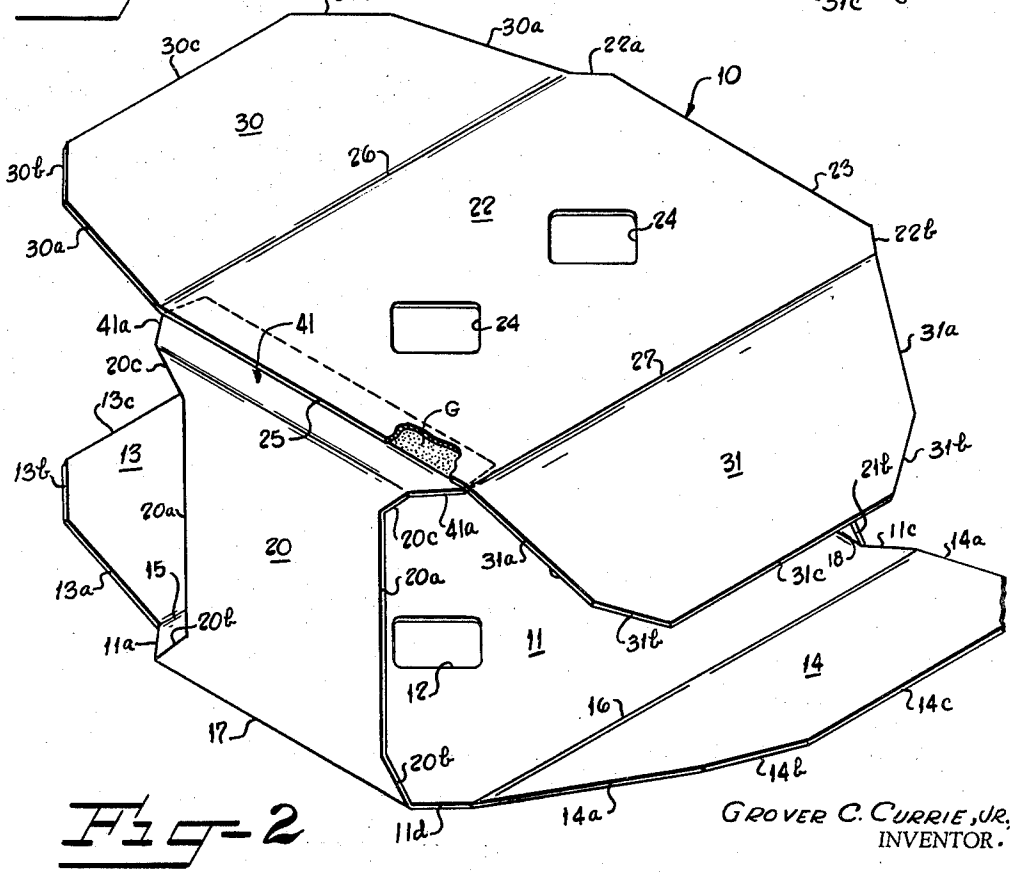


Fig-2

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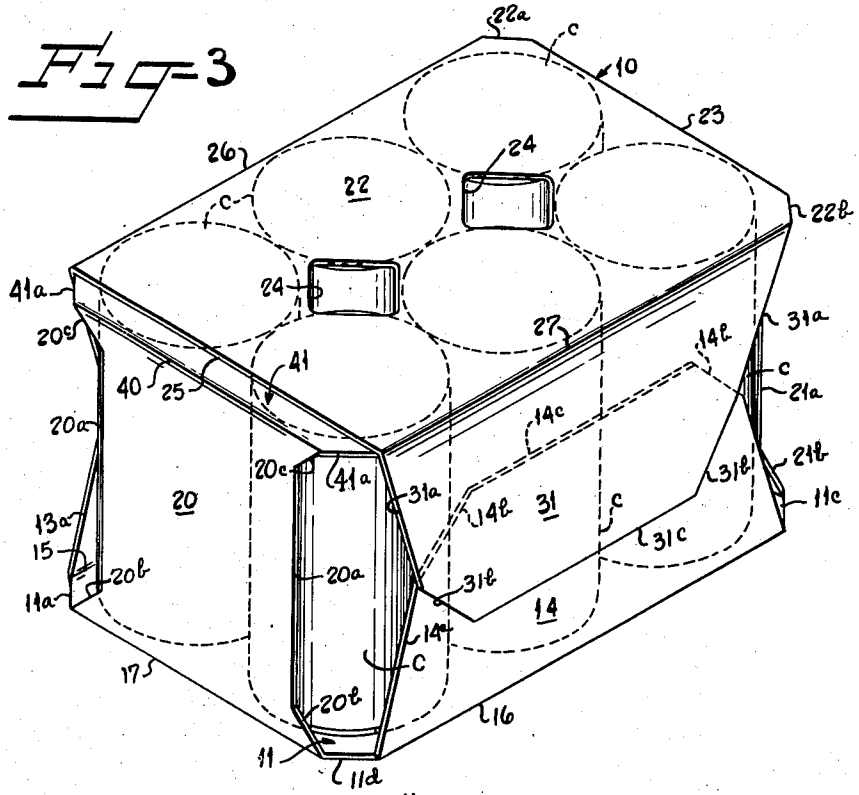
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Fig-3



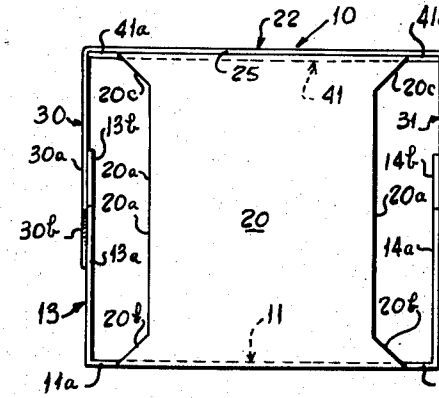


Fig-4

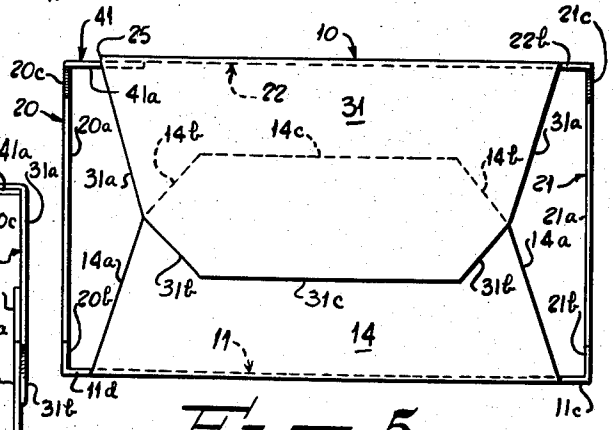


Fig-5

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2,899,123

CARTON

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1 Claim. (Cl. 229—40)

This invention relates to packages and more particularly to a package or carton formed from a single unitary blank of cardboard material.

Presently there are in wide use two basic types of cartons for containing cylindrical objects such as cans of beer, the first type being a completely closed carton and the second type being an open end carton wherein opposite ends are completely open. The first type of carton is expensive to manufacture since it entails the use of considerably more cardboard material and involves a more expensive operation for placing the cans therein. However, this type of carton has the desirable features of strength and rigidity and by completely enclosing the cans prevents the same from ever falling or being displaced therefrom.

The second type of carton, although having the desirable features of open ends to effect considerable savings in cardboard material and for displaying and aiding the cooling of the contents therein is considerably weakened by the provision of can engaging slots or can locking tabs for maintaining the cans in the carton. Also, when the cans are initially placed in this type of carton they are tightly engaged by the carton, but after handling the carton material sometimes stretches or tears to permit the cans to fall therefrom. It has also been found that due to rapid changes in humidity, particularly when the cartons are placed in a cooling unit, the cardboard material swells or stretches which permits the cans to be displaced therefrom.

With the above features of these two basic cartons in mind, it is the primary object of this invention to provide a carton having only the desirable features of both of these types, namely, a carton having considerable strength and rigidity formed from a single integral blank of cardboard material completely surrounding the contents therein with openings provided in the corner portions of the carton to display and to facilitate the cooling of the contents therein.

It is a more specific object of this invention to form a carton having open corners from a single unitary carton blank having upper and lower main walls connected together by end walls of reduced width and wherein the main walls are provided with spaced apart cut-out portions or openings in vertical alinement to permit a coolant to flow through the filled carton and wherein the upper and lower main walls are provided with overlapping flaps which form the side walls of the carton, which flaps have inwardly sloping edge portions to aid in providing the open corners of the carton.

It is a further object of the invention to provide a carton which is economical to manufacture and easily assembled and having a symmetrical or balanced appearance presenting a distinctive carton pleasing to the eye.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings, in which—

Figure 1 is a plan view of the carton blank for forming the carton therefrom;

Figure 2 is a perspective view, on a larger scale, with parts broken away for clarity and showing the carton partially assembled;

Figure 3 is a perspective view similar to Figure 2 and showing the carton fully assembled with cylindrical objects contained therein;

Figure 4 is an end view of the assembled carton of Figure 3 with the contents thereof removed;

Figure 5 is a side elevation of the carton shown in Figure 3 with the contents thereof removed.

Referring more specifically to the drawings, and particularly Figure 1, a carton blank formed from a single unitary piece of cardboard is shown for forming a carton broadly indicated at **10**. The carton blank comprises a lower main wall or bottom wall **11** having a pair of spaced apart substantially diamond-shaped openings or cut-out portions **12** provided in a medial portion which openings serve to permit cooling fluids to enter and flow through the assembled carton. The lower main wall **11** is substantially rectangularly shaped and is provided with cut away corner portions as defined by edge portions **11*a***, **11*b***, **11*c*** and **11*d***.

Side wall flaps **13**, **14** are hingedly connected to opposite sides of the lower main wall **11** along score or crease lines **15**, **16** respectively. It should be noted that the score or crease lines **14**, **15** have a length less than the length of the lower main wall **11** and have their outer extremities defined by the edge portions **11*a***, **11*b*** and **11*c***, **11*d***, respectively.

The side wall flaps **13**, **14** are substantially frustoconically shaped and each has a first pair of inwardly sloping side edge portions **13*a***, **14*a***, respectively, and a second pair of inwardly sloping side edge portions **13*b***, **14*b***, respectively, terminating at opposite ends of an outer edge portion **13*c***, **14*c***, respectively. It should be noted that the outer edge portions **13*c***, **14*c*** are substantially parallel to each other and to the crease or score lines **15**, **16** and each have a length of substantially greater than one-half the length of the score or crease lines.

Substantially I-shaped end walls **20**, **21** are hingedly connected to opposite ends of the lower main wall **11** along score or crease lines **17**, **18**, respectively. The end walls **20**, **21** are each provided with a reduced medial portion as defined by pairs of parallel opposite edge portions **20*a***, **21*a***, respectively. Outwardly sloping edge portions **20*b***, **20*c*** and **21*b***, **21*c*** extend from the opposite ends of each of the pairs of end wall edge portions **20*a***, **21*a***, respectively. It should be noted that the outwardly sloping edge portions **20*b***, **21*b*** form a straight line with opposite corner edge portions **11*a***, **11*d*** and **11*b***, **11*c*** of the lower main wall **11**.

An upper main wall or top wall **22** is hingedly connected to the end wall **21** along score or crease line **23**. The upper main wall **22** is provided with a pair of spaced apart openings or cut-out portions **24** having the same diamond-shaped configuration as the openings **12** in the bottom main wall **11**. The upper main wall **22** has a width of substantially the same as the width of the lower main wall **11** but has a length slightly less than the length of the lower main wall for reasons shortly to be explained. The wall **22** also has cut away corner portions, but only adjacent the score line **23**, as defined by the edge portions **22*a***, **22*b***. It should be noted that these edge portions **22*a***, **22*b*** form a straight line with the outwardly sloping edge portions **21*c*** provided on the end wall **21**. The outer edge of the top wall **22** is defined by the straight edge portion **25** which is positioned substantially parallel to the score or crease line **23**.

Score or crease lines **26**, **27** hingedly connect side wall flaps **30**, **31**, respectively, to opposite sides of the upper

main wall 22. Each of these side wall flaps 30, 31 are frusto-conically shaped and of the same size as the side wall flaps 13, 14. The flaps 30, 31 each have a first pair of inwardly sloping side edge portions 30*a*, 31*a* and a second pair 30*b*, 31*b*, respectively. Parallel outer edge portions 30*c*, 31*c* define the outermost limits of the side wall flaps 30, 31, respectively.

Hingedly connected along score or crease line 40 to the end wall 20 is an end wall securing tab or flap broadly indicated at 41. The flap 41 is defined by outwardly sloping edge portions 41*a* which serve as the equivalent of the edge portions 11*a*, 11*d* on the bottom wall 11 for presenting a symmetrical appearance to the assembled carton as will be readily understood upon an inspection of Figure 2. From the outermost limits of the edge portions 41*a* extend edge portions 41*b* which are inwardly sloped to facilitate the insertion of the flap 41 between the side wall flaps 30 and 31 when assembling the carton.

To assemble the carton blank of Figure 1, the end walls 20, 21 are folded into an upright or vertical position parallel to each other along their respective score lines 17, 18. Now, the upper main wall or top wall 22 is folded inwardly parallel to the lower main wall or bottom wall 11 along the score or crease line 23. The end wall tab or flap 41 is now folded inwardly into juxtaposed position to the top wall 22 with the edge portions 41*a* thereof exposed and vertically alined with the edge portions 11*a*, 11*d* on the bottom wall 11. Glue or cement G applied to the uppermost surface of the flap or tab 41 as viewed in Figure 2 secures the tab to the underside of the top wall 22.

Prior to the side wall flaps 13, 14, 30 and 31 being secured to each other to form the side walls of the carton, cylindrical objects or cans C are moved into the carton through both the open side walls. Now with the cans C positioned in the carton the flaps 13 and 14 are folded into an upright position along their score or crease lines 15, 16 respectively, after which the flaps 30, 31 are folded downwardly along their score or crease lines 26, 27, respectively to overlie the flaps 13 and 14. Glue or cement G applied to the inner surface of each of the downwardly folded flaps 30, 31 maintains the carton in closed position.

With the carton in assembled position it should be noted that the pair of cut-out portions or openings 24 provided in the upper main wall 22 are positioned in vertical alinement with the cut-out portions or openings 12 in the lower main wall 11 to permit cold air or a cooling media to flow through the carton to cool the contents therein. It should also be noted that the openings 24 and 12 are so positioned with respect to the cans C that the proximal walls of the cans form parallel passageways through the carton.

It should further be noted that the reduced width of the end walls 20, 21 as defined by the edge portions 20*a*, 21*a*, respectively, in conjunction with the inwardly sloping edge portions of the side wall flaps provide substantial openings in the corner portions of the carton to also aid in the circulation of a cooling fluid through the carton to rapidly cool the contents of the cans therein. The open corner portions also aid in displaying the contents of the carton since substantial portions of the cans positioned in the corner portions of the carton are readily visible.

The cut-out portions or openings 12 and 24 provided in the lower and upper main walls 11 and 22 in addition to serving as ingress and egress openings to permit the flowing of a coolant through the carton also serve as handles or finger engaging openings to aid in carrying the carton.

Although the side wall flaps 13, 14, 30 and 31 are shown as being substantially frusto-conically shaped and identical to each other, it is within the scope of the invention to provide the flaps with a different shape, for example, hemispherically shaped which would still provide substantial openings in the corner portions of the carton. Also, it is within the scope of the invention to reduce the size of the upwardly folded flaps 13, 14 as compared to the flaps 30, 31 or to increase the size of the downwardly folded flaps 30, 31 as compared to the upwardly folded flaps 13, 14. Such minor changes would still present a carton having all the desirable features above enumerated and a carton giving a symmetrical or balanced appearance.

It is also within the scope of the invention to form the end walls 20, 21 with inwardly curved smooth edge portions or in any other similar manner so long as substantial openings are provided in the corner portions of the carton.

It should be noted that the openings provided in the corner portions of the carton are substantially less than the diameter of the cylindrical objects or cans C therein to prevent the same from moving or falling out of the carton.

It is thus seen that there has been provided an improved package or carton having all the desirable features of strength and rigidity of a completely closed carton and all the desirable features of an open end carton.

In the drawings and specification there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being defined in the claim.

I claim:

A carton formed from a single blank of cardboard material comprising parallel upper and lower main walls, one of said main walls being of greater length than the other, a first end wall hingedly connecting proximal ends of said upper and lower main walls together, a second end wall hingedly connected to the opposite end of said longer main wall, a flap hingedly connected to said second end wall and having a free end extending inwardly in juxtaposition to the shorter main wall, a length of said flap equal to the difference in the length of said main walls being visible and serving to define an extension of said shorter main wall and adhesive securing the free end portions of said flap to said shorter main wall, and flaps hingedly connected to opposite sides of said main walls, said flaps extending from opposite sides of one main wall being secured to the flaps extending from the opposite sides of the other main wall to form carton side walls, at least a medial portion of the end walls being of a lesser width than said main walls, and the width of the flaps taken parallel to the longitudinal axis of the carton each being less at a medial portion thereof than the length of the main walls whereby substantial openings are presented at the corner portions of the carton.

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