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R. T. ELIAS

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SQUEEZE OPEN POUR SPOUT FOR A CARTON

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Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

INVENTOR

Robert T. Elias

BY

Masum, Porter, Miller & Stewart

ATTORNEYS
This invention relates to a novel carton for fluids or granular substances and more particularly, to a novel carton including a squeeze-open pour spout for dispensing the fluids or granular substances from the carton.

An object of this invention is to provide a novel carton having a pour spout which opens when the carton is squeezed in the vicinity of the pour spout and automatically closes when the pressure is released.

A further object of this invention is to provide a novel carton including a top panel, a bottom panel, a front panel, a rear panel and a pair of opposed side panels, a horizontal score line in the top panel of the carton being co-planar with a vertical score line in one side panel of the carton and both score lines being parallel to the front and rear panels such that a self-closing squeeze-open pour spout is provided in the carton.

A further object of this invention is to provide a novel carton including a body having protruding flanges at all edges thereof which protect the body against damage caused by rough handling, and in addition, to provide the carton with a normally sealed squeeze-open pour spout which lies within the confines of the carton defined by the protruding flanges.

Another object of this invention is to provide a novel carton of the type hereinafter described and in addition, to provide various types of removable seals for securing the squeeze-open pour spout but being removable prior to opening the squeeze-open pour spout and dispensing the substance from the carton.

Still another object of this invention is to provide a novel composite blank constructed from at least three separate pieces of sheet material from which a carton constructed in accordance with the above objects can be erected.

With the above objects in view, and others that will hereinafter appear, the invention will be more clearly understood by reference to the following detailed description, the appended claims and the various views illustrated in the accompanying exemplary drawing.

In the drawing:

FIGURE 1 is a side perspective view of a novel carton constructed in accordance with this invention, and shows a top panel, a side panel and a pair of identical opposed front and rear panels, a closed squeeze-open pour spout at an intersection of the top and side panels, and a score line in each of the top and side panels.

FIGURE 2 is a side perspective view of the carton of FIGURE 1 with a portion thereof broken away for clarity and shows the squeeze-open pour spout being opened by the application of force to the front and rear panels adjacent the squeeze-open pour spout, and the construction of one of a plurality of reinforcing flanges of the carton.

FIGURE 3 is a fragmentary vertical sectional view taken along line 3-3 of FIGURE 1, and shows a flap of the top panel of the carton underlyingly secured to a lip portion of the side panel.

FIGURE 4 is an exploded plan view of a novel three-piece composite blank from which the carton of FIGURES 1 and 2 is erected, and illustrates a pair of substantially identical rectangular front and rear panel blanks and a substantially narrow elongated body forming blank having a plurality of transverse, longitudinal and oblique fold lines.

FIGURE 5 is a fragmentary schematic vertical sectional view of a carton, similar to the carton of FIGURES 1-3, and shows a top panel and a side panel having a lip-member thereof fixedly connected together by a staple.

FIGURE 6 is a fragmentary schematic vertical sectional view of a carton similar to the carton of FIGURE 5, and shows a thin label or tape seal fixedly connecting a lip member of a side panel of the carton to a top panel of the carton.

FIGURE 7 is a fragmentary schematic vertical sectional view of a carton, and shows a side panel having a lip member, and a top panel which is extended to provide a wrap-around portion which is connected to the lip member and is provided with a pull tab.

Referring to the drawing in detail, there is shown in FIGURE 4 a composite blank 8 from which a carton 9 of FIGURES 1, 2 and 3 is erected. The composite blank 8 comprises a rectangular front panel 10, an identical rectangular rear panel 11 and a substantially elongated rectangular body forming member 12.

The body forming member 12 comprises a top panel portion 13, a first side panel portion 14, a bottom panel portion 15 and a second side panel portion 16. A pair of parallel longitudinal fold lines 17 are each spaced inwardly from an adjacent one of two parallel longitudinal edges 18 of the body forming member 12 and extend along the length thereof to provide longitudinal flange forming portions 19.

The top panel portion 13 has a transverse fold line 20 extending between the longitudinal edges 18 and a transverse fold line 21 extending between the pair of longitudinal fold lines 17 to define a rectangular top panel 22. A transverse flap member 23 has a free edge 24, and is attached to the top panel 22 along the fold line 21 between the pair of longitudinal fold lines 17. A first score line 25 extends longitudinally of the top panel 22 for substantially more than one-half the length of the top panel 22 and completely across the flap member 23 for a purpose to be later described.

The first side panel portion 14 has a transverse fold line 26 extending between the edges 18 of the body forming member 12 and a transverse fold line 27 which extends between the pair of longitudinal fold lines 17. A pair of identical oblique fold lines 28 extend from the associated intersections of fold lines 17 and 27 to the intersection of the fold line 20 with the edge 18-18 of the body forming member 12.

A first edge flange member 29 lies transversely of the body forming member 12 between the fold lines 20 and 27 and comprises a rectangular portion 30 extending transversely between the pair of fold lines 17 and a triangular portion 31 at each end of the rectangular portion 30 disposed between the associated longitudinal fold line 17 and the edge 16 of the body forming member 12.

A rectangular first side panel 32 is equal in width to the top panel 22 and is bounded by the pair of longitudinal fold lines 17 and the transverse fold lines 26 and 27. The first edge flange member 29 is disposed between the top panel 22 and the first side panel 32 for a purpose to be later described.

A rectangular bottom panel 33 is formed in the bottom panel portion 15 and is defined by the pair of longitudinal fold lines 17 and a pair of transverse fold lines 34 and 35 which extend between the fold lines 17.

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The bottom panel portion 15 is separated from the first side panel portion 14 by a second edge flange member 36 which comprises a rectangular portion 37 and a pair of triangular portions 38, and is bounded by the transverse fold lines 26 and 34 and a pair of oblique fold lines 39 which extend from the respective intersection of fold lines 17 and 34 to the intersections of fold line 26 and edges 18.

The bottom panel portion 15 is separated from the second side panel portion 16 by a pair edge flange member 40 which comprises a rectangular portion 41 and a pair of triangular portions 42. The edge flange member 40 is bounded by a transverse fold line 43 which extends between edges 18, the fold line 35 and a pair of oblique fold lines 44 which extend from the intersections of fold line 26 and 35 to the intersections of fold line 43 and edges 18. A rectangular second side panel 45 is formed in the second side panel portion 16 and is bounded by the pair of fold lines 17, the fold line 43 and a transverse fold line 46 which extends between the fold lines 17. A second score line 47 is disposed longitudinally of the second side panel 45 in the central alignment with the score line 25 in the top panel portion 13, and extends from the fold line 46 for substantially more than one-half of the length of the side panel 45.

A rectangular lip member or portion 48 is attached to the second side panel 45 along the fold line 46 and disposed between the pair of fold lines 17. The lip member 48 has a free edge 49 and a longitudinal slit or notch 50 which is aligned with the score line 47 of the second side panel 45. A pair of triangular portions 51 are disposed adjacent to the lip member 48 along the fold lines 17 and are bounded by portions of the free edge 49, fold lines 17 and a pair of oblique fold lines 52 which extend from the ends of fold line 46 to the intersections of free edge 49 and edges 18.

In erecting the carton 9 of FIGURES 1, 2 and 3 from the composite blank 8 of FIGURE 4, the body forming 12 is folded into the form of a rectangle along the fold lines 20, 26 and 43 with the flange forming portions 19 being outwardly folded along the pair of longitudinal fold lines 17. The rectangular portion 20 of the first edge flange member 29 is folded along fold lines 20 and 27 and is disposed in abutting relationship with the top panel 22. The rectangular portions 37 and 41 of the edge flange members 36 and 40 are folded along the respective fold lines 26, 34 and 35, 43 and lie in abutting relationship with the top and side panels 32 and 45, respectively. The lip member 48 is bent along fold line 46 and is disposed outwardly and horizontally, as seen in FIGURE 3, and is overlapped by the flap member 23 which is folded along the fold line 21.

During the outward folding of the flange forming portions 19, as described above, the triangular portions 31, 38, 42 and 51 are folded into overlying relationship to the pair of flange forming portions 19, thus positioning these flange forming portions normal to the panels 22, 32, 33 and 45. Thereafter, the flange forming portions 19 are adhesively secured by gluing, heat sealing, or any other similar bonding operation to the front panel 10 and rear panel 11.

The erection of the carton 9, as described above, results in the score lines 25 and 47 being disposed in coplanar relationship centrally of the top panel 22 and second side panel 45 respectively. By applying a squeezing force to a portion P of the front and rear panels along the arrow E in FIGURE 2, the top panel 22 is bowed outwardly along score line 25, and the second side panel 45 is bowed outwardly along score line 47 such that the lip member 48 and the flap member 23 form a pour spout 53. Upon release of the above mentioned squeezing force, the pour spout 53 is substantially self-closing because the top panel 22 and second side panel 45 spring back due to the natural resiliency of the unscored portions of the aforesaid panels.

As is shown in FIGURE 3 of the drawing, the carton 9 is closed by folding the flap member 23 under the lip member 48 in abutting relationship therewith. The flap member 23 is fixed to the lip member by a staple or a small seal strip, or by using glue, or a heat-sealable coating. It should be noted that the flap member 23 and the lip member 48, when in sealed relation, provide a reinforcing flange which is within the confines of the carton 9.

The pour spout 53, of FIGURE 1, could also be formed in various other ways such as exemplified in FIGURES 5, 6 and 7.

FIGURE 5 shows a carton 59 similar to the carton 9 of FIGURES 1–3. A lip member 60 is integrally connected to a side panel 61 and is fastened in sealed relation to a top panel 62 by a staple member 63.

FIGURE 6 shows a carton 65, similar to the carton 59 of FIGURE 5. A lip member 66 is integrally connected to a side panel 67 and is fastened in sealed relation to a top panel 68 by a thin label or tape seal 69.

FIGURE 7 shows another carton 75, similar to the carton 9 of FIGURES 1–3. A top panel 76 and a flap member 77 are integrally joined along a line 78, which may be a regular fold line or may be a weakened perforated line. A pull tab 79 is connected to the flap member 77 at a line 80. The flap member 77 is fixed to the underside of a lip member 81 by a staple (not shown), or by using glue or a heat-sealable coating, and thus connects the top panel 76 to a side panel 82 which is integral with the lip member 81.

It will be apparent from the foregoing that there has been provided a novel carton which is protected by flanges at the top, bottom and sides thereof, and the carton is provided with a novel squeeze-open pour spout which lies within the confines of the carton when the pour spout is closed.

The herein disclosed carton and various means for sealing the pour spout are not meant to be restrictive, and it is understood that the invention is limited only by the scope of the appended claimed subject matter.

1. A carton including a body portion comprising front, rear, top, bottom and side panels; said front, rear and side panels extending below the bottom panel and providing depending flanges around the entire circumference of said bottom panel; said side panels including a first side panel and a second side panel, each of said front rear and side panels having a horizontal upper edge and a horizontal lower edge, the lower edges of said front, rear and side panels being in coplanar relationship, the upper edges of said front and rear panels being disposed above the upper edges of said side panels; a lip member attached to the upper edge of said first side panel and having a slit therein, a first score line in said first side panel and a second score line in said top panel, said slit and said first and second score lines being in coplanar relationship in a plane parallel to the plane of said front and rear panels, and means for sealing said top panel to said lip member.

2. A carton comprising a one-piece folded body forming member including opposed side panels and opposed top and bottom panels, means connecting said top panel and one of said side panels together adjacent free edges thereof to provide an openable pour spout, separate front and rear panels attached to said folded body forming member, said front and rear panels each being uniplanar and projecting beyond said side and top panels.

3. A carton as defined in claim 2 further characterized in that said top panel is larger than said bottom panel, said bottom panel being disposed between said side panels, and said top panel being disposed in overlying relation to said side panels and extending outwardly therebeyond, said front and rear panels attached to said top panel along the entire length thereof, whereby said
side panels are nestled inwardly from the edges of said top, front and rear panels and protected thereby.

4. A carton as defined in claim 2 further characterized in that at least said side panels and said top panel have outwardly turned flanges thereon, and means securing said flanges to said front and rear panels along the portions thereof which project beyond said top and side panels.

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