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London, WC2 1AT(GB)(54) **Packaging.**

(57) A blank for forming a spouted gable-topped carton consists of paperboard coated on both faces with thermoplastics and is provided with a strawhole device including a tear strip located centrally of a pair of top closure sub-panels 42 and 52 and bounded by two incision lines 6. The lines 6 penetrate only partly through the thickness of the blank from the carton outside surface. Formed in the carton inside surface of the sub-panel 42 at a location between the lines 6 is a circular closed loop of incision 7 which penetrates only partly through the blank from that surface. In the free edge of the sub-panel 52 are formed two notches 8 leading into the lines 6. The bottoms of the notches 8 have a third line of incision 9 extending between them, which penetrates only partly through the blank from the carton inside surface. Formed centrally in the free edge of the alternate top closure sealing sub-panel 54 is a recess 10 the base of which is straight and co-linear with the line 9.

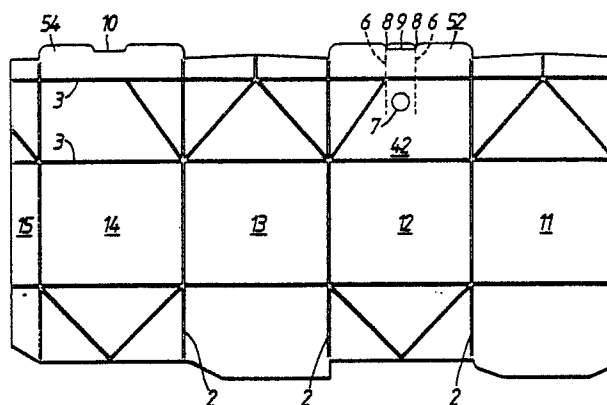


Fig.2

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"PACKAGING"

This invention relates to a packaging blank and to a container.

United States Patent 3770185 discloses the use of a blank, for example consisting of fibreboard coated on both faces with paraffine or polyethylene, to form a unitary folded beverage containing carton having a gable top closure with a tear strip to provide a strawhole. The tear strip is formed by two spaced-apart score lines in an outside surface of a gable top forming wall and the strawhole is formed by a closed-loop score line formed in the inside surface of the same wall, at a position beneath and between the spaced apart score lines. The score lines are cut to a substantial overlapping depth (viz., 40 to 75 percent of the wall thickness) from opposite sides of the gable forming wall. The spaced apart score lines extend from the top edge of the sealing fin of the top closure, in an initially convergent and then parallel manner, across one of the sealing sub-panels of the gable top closure and into the directly inward one of the obturating sub-panels of the closure. The converging portions of the spaced apart score lines are substantially tangential to respective end portions of an arcuate recess formed in the top edge of the opposite sealing sub-panel, which recess is to facilitate gripping of the top end of the tear strip by the consumer. The intention of this design is that, upon pulling the tear strip, a layer of material between the spaced apart score lines separates from the gable wall together with the entire thickness of the wall contained within the closed-loop score line. However, the strip does not reliably tear in the intended manner. A first reason is that it relies upon the coating of the fibreboard shearing at the base of the arcuate recess, which may not occur. A second reason is that the shape of the recess provides a stronger attachment and greater support for the tear strip at its edges than at its centre, thus promoting tearing at its centre, rather than at its edges as intended. A third reason is that, although the spaced apart score lines extend to the very top edge of the fin, such feature does not provide a very good indication to the consumer of the fin portion to be gripped nor does it provide a very good lead-in for the tearing action.

According to a first aspect of the present invention, there is provided a blank for forming a flowable-substance-containing carton and formed with strawhole means at an edge zone of said blank, said strawhole means comprising a tear strip bounded by two lines of incision extending transversely of said edge zone and penetrating through one surface of said blank which is to be the outside surface of said carton but not through the other

surface thereof, a loop of incision situated between said two lines of incision, but penetrating through said other surface though not through said one surface, and a third line of incision extending adjacently to the blank edge of said edge zone from the zone of one of said two lines of incision to the zone of the other of said two lines of incision and penetrating through said other surface but not through said one surface.

According to a second aspect of the present invention, there is provided a flowable-substance-containing carton formed from sheet material and formed with strawhole means at an edge zone of said material, said strawhole means comprising a tear strip bounded by two lines of incision extending transversely of said edge zone and penetrating through the outside surface of said material but not through the inside surface thereon, a loop of incision situated between said two lines of incision but penetrating through said inside surface though not said outside surface, and a third line of incision extending adjacently to the edge of said edge zone from the zone of one of said two lines of incision to the zone of the other of said two lines of incision and penetrating through said inside surface but not through said outside surface.

These two aspects of the invention promote correct tearing, particularly the commencement of the tearing of the material of the tear strip from within the material itself.

According to a third aspect of the present invention, there is provided a blank for forming a flowable-substance-containing container and formed, at a first edge zone, with a tear strip bounded by two lines of weakness extending transversely of said edge zone, and a recess in the blank edge of a second edge zone of said blank which is to be sealed face-to-face to said first edge zone, the innermost boundary of said recess being substantially a straight line extending along said second edge zone, and said recess being of such a dimension along said second edge zone and so situated as to extend at least from one to the other of the respective zones of said two lines of weakness in the sealed container.

According to a fourth aspect of the present invention, there is provided a flowable-substance-containing container formed from sheet material and formed, at a first edge zone of said material, with a tear strip bounded by two lines of weakness extending transversely of said edge zone, and a recess in the edge of a second edge zone of said material which is sealed face-to-face to said first edge zone, with the first and second edge zones directed outwards in a common direction, the inner-

most boundary of said recess being substantially a straight line extending along said second edge zone, and said recess extending at least from one to the other of the respective zones of said two lines of weakness.

These two aspects of the invention also promote correct tearing, particularly tearing of the tear strip over its whole width.

In order that the invention may be clearly understood and readily carried into effect, reference will now be made, by way of example, to the accompanying drawings, in which:-

FIGURE 1 shows a plan view of a carton outside surface of a blank for forming a liquid-containing carton,

FIGURE 2 shows a plan view of the carton inside surface of the blank,

FIGURE 3 shows a perspective view of the carton from one side, and

FIGURE 4 shows an elevation of the carton from the other side.

Referring to the drawings, the blank 1 is for forming a gable-top carton for containing milk or orange juice, for example. The blank consists of paperboard coated on both faces with respective layers of suitable thermoplastics. The blank is formed with four parallel score lines 2 which divide the blank into five panels 11 to 15, of which the panel 15 is a corner-sealing panel. Score lines 3 perpendicular to the score lines 2 divide the row of panels 11 to 15 into a row of flat bottom closure panels 21 to 25, a row of main sub-panels 31 to 35, a row of top closure obturating sub-panels 41 to 45, and a row of top closure sealing sub-panels 51 to 55 for forming the sealing fin of the gable top closure. Other score lines 4 provide for folding-in of the flat bottom closure and the gable top closure by the packer and for the folding-out of a spout of the gable top closure by a consumer. Alternatively to using the spout, the consumer may use a strawhole device provided in the carton top edge zone. This device includes a tear strip 5 provided centrally of the sub-panels 42 and 52 and bounded by two incision lines 6 which extend perpendicularly to the score lines 3, across the sub-panel 52 and into the sub-panel 42. The incision lines 6 penetrate through the plastics layer at the carton outside surface of the blank, but their penetration stops short of the plastics layer forming the carton inside surface of the blank. Formed in the carton inside surface of the sub-panel 42 is a circular closed loop of incision 7. It penetrates through the plastics layer of the carton inside surface but stops short of the plastics layer of the carton outside surface. It is situated between the two lines 6. In the free edge of the sub-panel 52 are formed two notches 8 which lead into the lines 6. The bottoms of the notches 8 have a third line of incision 9

extending from one to the other of them parallelly to the lines 3, in other words across the width of the tear strip 5. This line 9 penetrates through the plastics layer of the carton inside surface but stops short of the plastics layer of the carton outside surface. The notches 8 each have rounded sides. Formed centrally in the free edge of the sub-panel 54 is a recess 10, the sides of which are rounded correspondingly to the outer sides of the notches 8 and the base of which is straight and co-linear with the line 9.

After the carton has had its bottom closure folded and heat-and pressure-sealed, has been filled with the liquid, and has had its top closure folded and heat-and pressure-sealed, it takes the appearance shown in Figures 3 and 4. In this, the line 9 is at the level of the base of the recess 10 and the curved sides of the recess 10 are aligned with the curved outer sides of the notches 8. Thus, upon the consumer seizing that part of the strip 5 projecting above the base of the recess 10 and pulling that part away from the sealing fin (51-55), the presence of the line 9 and the fact that all of the strip 5 above the line 9 remains unsealed to the sub-panel 54, have the result that the tearing of the strip 5 commences over the whole width of the strip 5 and in the middle of the paperboard of the strip 5 at the level of the line 9. Continued pulling of the strip 5 causes the paperboard to tear over the whole width of the strip 5 down between the lines 6 until the plug of material encircled by the loop 7 has been pulled out with the strip 5 to provide a strawhole in the sub-panel 42.

Claims

1. A sheet material blank for forming a flowable-substance-containing carton and formed with strawhole means (5-7) at an edge zone of said blank, said strawhole means (5-7) comprising a tear strip (5) bounded by two lines (6) of incision extending transversely of said edge zone and penetrating through one surface of said blank which is to be the outside surface of said carton but not through the other surface thereof, a loop (7) of incision situated between said two lines (6) of incision, but penetrating through said other surface though not through said one surface, characterized in that a third line (9) of incision extends adjacently to the blank edge of said edge zone from the zone of one of said two lines (6) of incision to the zone of the other of said two lines (6) of incision and penetrates through said other surface but not through said one surface.

2. A flowable-substance-containing carton formed from sheet material and formed with strawhole means (5-7) at an edge zone of said

material, said strawhole means (5-7) comprising a tear strip (5) bounded by two lines (6) of incision extending transversely of said edge zone and penetrating through the outside surface of said material but not through the inside surface thereof, a loop (7) of incision situated between said two lines (6) of incision situated between said two lines (6) of incision but penetrating through said inside surface though not said outside surface, characterized in that a third line (9) of incision extends adjacently to the edge of said edge zone from the zone of one of said two lines (6) of incision to the zone of the other of said two lines (6) of incision and penetrates through said inside surface but not through said outside surface.

3. A blank according to claim 1 or a carton according to claim 2, characterized in that said third line (9) of incision is a straight line (9) substantially perpendicular to said two lines (6) of incision.

4. A blank according to claim 1 or 3, or a carton according to claim 2 or 3, and further comprising a recess (10) in the sheet material edge of a second edge zone of said sheet material which is to be sealed face-to-face to the first mentioned edge zone, the recess (10) being of such a dimension along said second edge zone and so situated as to extend from one to the other of the respective zones of said two lines (6) of incision in the sealed carton, characterized in that the innermost boundary of said recess (10) is substantially a straight line extending along said second edge zone.

5. A blank or a carton according to claim 4 as appended to claim 3, characterized in that said innermost boundary of said recess (10) is substantially co-linear with said third line (9) of incision in the sealed carton.

6. A blank as claimed in claim 1, 3, 4, or 5, or a carton as claimed in claim 2, 3, 4, or 5, characterized in that respective notches (8) in the sheet material edge of the first-mentioned edge zone lead to said lines (6) of incision.

7. A blank for forming a flowable-substance-containing container and formed, at a first edge zone, with a tear strip (5) bounded by two lines (6) of weakness extending transversely of said edge zone, and a recess (10) in the blank edge of a second edge zone of said blank which is to be sealed face-to-face to said first edge zone, said recess (10) being of such a dimension along said second edge zone and so situated as to extend at least from one to the other of the respective zones of said two lines (6) of weakness in the sealed container, characterized in that the innermost boundary of said boundary of said recess (10) is substantially a straight line extending along said second edge zone.

8. A flowable-substance-containing container formed from sheet material and formed, at a first edge zone of said material, with a tear strip (5) bounded by two lines (6) of weakness extending transversely of said edge zone, and a recess (10) in the edge of a second edge zone of said material which is sealed face-to-face to said first edge zone, with the first and second edge zones directed outwards in a common direction, said recess (10) extending at least from one to the other of the respective zones of said two lines (6) of weakness, characterized in that the innermost boundary of said recess (10) is substantially a straight line extending along said second edge zone.

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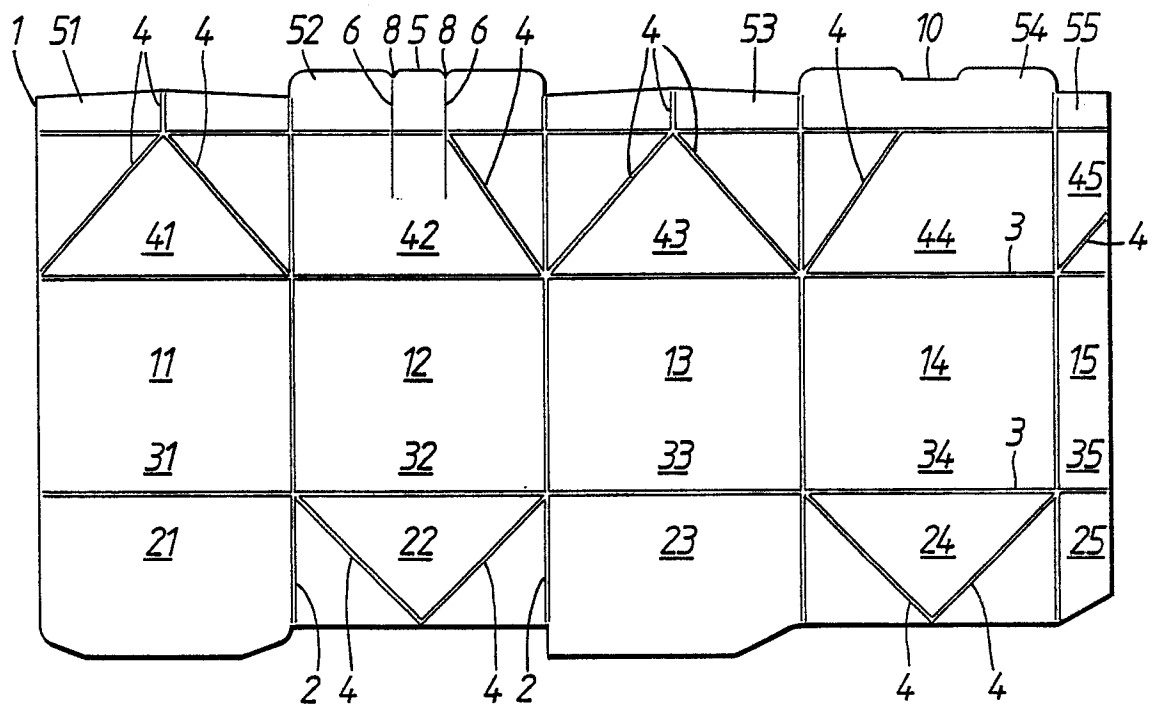


FIG. 1.

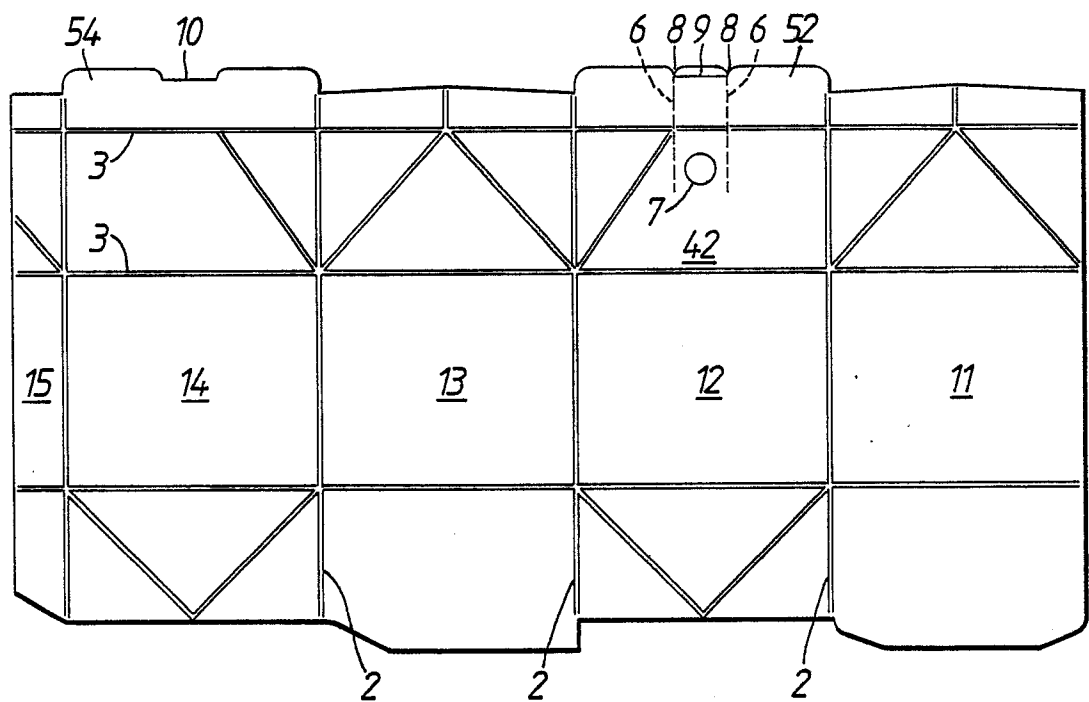


FIG. 2.

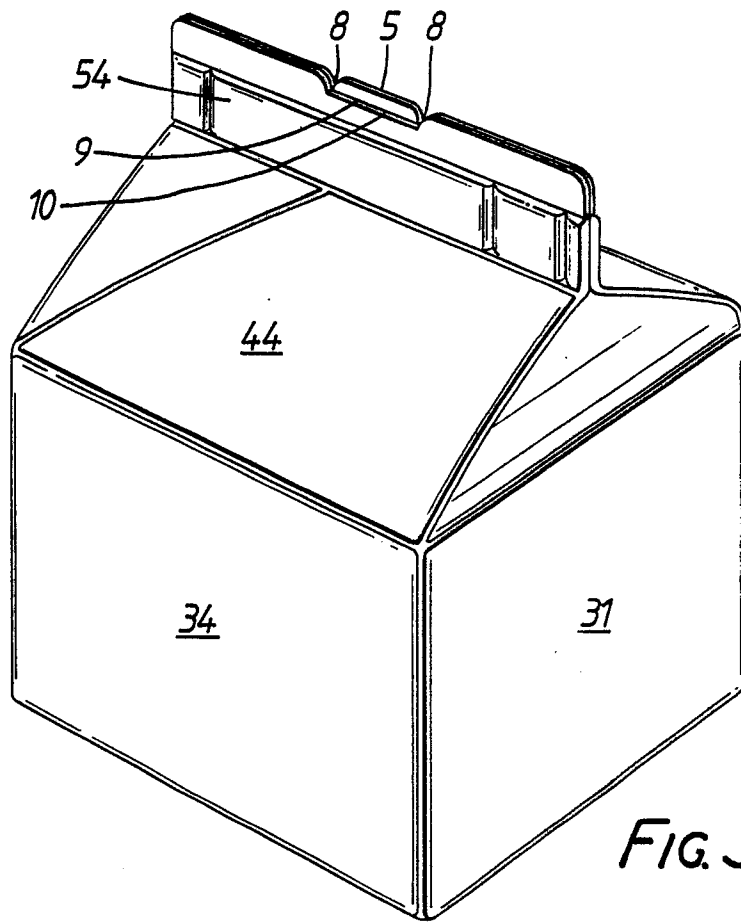


FIG. 3.

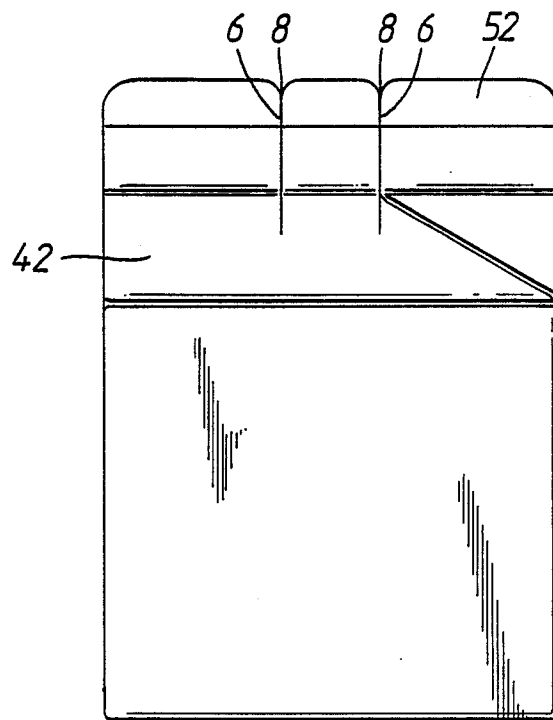


FIG. 4.



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EUROPEAN SEARCH REPORT

Application Number

EP 88 30 0628

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
D,A	US-A-3 770 185 (REEVES) * Column 2, line 23 - column 4, line 32; figures 1-7 *	1-8	B 65 D 5/06
A	US-A-3 178 089 (TOBIAS) * Column 3, lines 36-44; column 3, line 60 - column 4, line 12; figures 1-7 *	1-8	
A	DE-A-1 486 416 (INTERNATIONAL PAPER CO.) * Page 7, line 29 - page 8, line 18; figures 1-7 *	1,7	
A	US-A-3 039 668 (KUCHENBECKER) * Column 2, lines 23-40; column 3, lines 43-59; figures 1-4 *	1-8	
A	DE-A-1 761 225 (EX-CELL-O) * Page 6, line 2; figures 1-2 *	1-8	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			B 65 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 02-05-1988	Examiner VANTOMME M.A.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	