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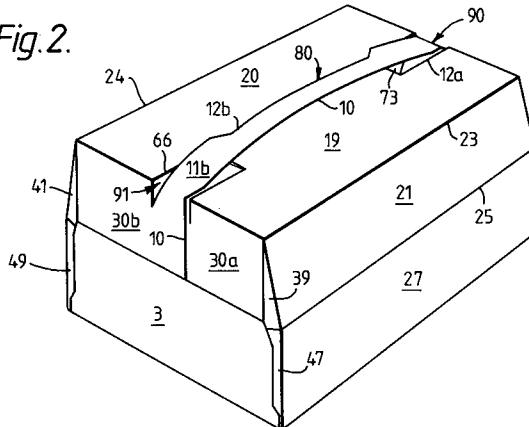
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④ Multi unit carton with integral strap handle.

⑤ A carton which accommodates a plurality of bottles in a group has a handle strap (80) overlying a wall (19,20) of the carton. The handle strap has end portions (90,91) overlying displacable parts (66a, 67a) of the carton which are displacable to allow movement of the handle strap away from the wall. The handle strap is manipulative from a flat stowed condition in which it closely overlies the carton wall, to a raised condition in which the end portions of the handle are displaced inwardly of the carton. The handle strap is formed from a pair of mutually hinged and superposed panel strips (11a, 11b) with the underlying strip (11b) hinged to an adjacent part of the wall (20) and the handle strap overlies said adjacent part when in its flat stowed condition.

Fig.2.



This invention relates to an article carrier, more specifically to a carton having a reinforced integral strap handle structure which can be manipulated from a flat stowed condition in which it overlies one of the wall panels of the carton into a raised condition in which it is extended outwardly above that wall of the carton. EP-A-89304604.5 relates to a carton having a reinforced handle structure in which end portions of the handle structure are displacable inwardly into the carton when the carton is lifted by the handle so as to shorten the distance between the opposite ends of a central handle strip of the handle so that it can be upwardly moved away from the adjacent carton wall.

The present invention also allows inward movement of end portions of the handle but the handle structure itself is altogether different.

The present invention provides a carton for accommodating a plurality of articles, such as bottles, in a group said carton comprising a handle structure overlying a wall of the carton and having end portions which are displacable inwardly of the carton to allow movement of portions of the handle structure intermediate its ends away from said wall, said handle structure thereby being manipulative from a flat stowed condition in which it closely overlies said carton wall, to a raised condition in which said end portions of the handle are displaced inwardly of the carton characterized in that said handle structure is formed from a pair of mutually hinged and superposed panel strips each of which is itself hinged to an adjacent part of said wall, said handle structure overlying one of said adjacent parts when in its flat stowed condition.

According to a feature of the invention, said end portions of the handle structure may overlie displacable parts of said carton wall.

According to another feature of the invention, said end portions of the handle structure may comprise parts of other carton walls which are hinged to said one carton wall so that, in use, the said end portions are disposed substantially vertically relative to a central part of said handle structure.

According to another feature of the invention, said handle structure may be in the form of a two-ply strap over the whole of its length.

According to yet another feature of the invention, said displacable parts of the carton may comprise hinged strips disposed beneath said handle structure when in its stowed position and located adjacent said end portions of the handle structure. In constructions where hinged strips are provided, said handle structure may be hinged to each of said hinged strips one end of each of the hinged strips remote from said end portions of the handle structure including a hinged tab which pivots upwardly as the handle structure is manipulated into its raised position thereby allowing the opposite

end of the hinged strip and overlying end portions of the handle structure to be displaced inwardly of the carton.

Preferably, the lowermost of said panel strips of the handle structure is hinged along one edge of each of said hinged strips intermediate the ends of the hinged strip.

According to yet another feature of the invention said hinged strips may comprise parts of other carton walls which are hinged to said one carton wall.

An embodiment of the present invention will now be described, by way of example only, with reference to the accompanying drawings of which:-

Figure 1 is a plan view of a blank from which the carrier is formed;

Figure 2 shows a completed carrier in accordance with the invention formed from the blank of Figure 1; and

Figures 3 and 4 show alternative embodiments of the invention.

Referring first to Figure 1, the blank 1 of paper-board or other suitable sheet material comprises a rectangular bottom panel 2 to the opposite end edges of which end closure flaps 3 and 4 are hinged along respective fold lines 5 and 6. One side edge of the bottom panel 2 is provided with an edging strip 7 hinged thereto along fold line 8. The remainder of the blank 1 is hinged to the other side edge of the bottom panel 2 along fold line 9, and comprises carrier side, top and upper end panel portions together with foldable carrier handle-forming portions in accordance with the present invention, as will now be described in greater detail.

In particular, said top panel comprises major top panel portions 19, 20 separated by a pair of central longitudinal handle-forming strips, 11a, 11b which are symmetrically hinged together along a longitudinal fold line 10. The central region of the pair of strips 11a, 11b is of reduced width being defined by respective cuts 12a, 12b which also define the adjacent edges of the adjoining major top panel portions 19, 20 respectively.

The ends of the top panel portions 19, 20 and of the strips 11a, 11b are defined by fold lines 15, 16 along which upper end panels 30 and 31 are hinged thereto. Each of these upper end panels 30, 31 comprises three sections 30a, 30b, 30c; 31a, 31b, 31c. Upper end panel sections 30a, 31a correspond in width to, and essentially form extensions across fold lines 15, 16, of top panel portion 19 and strip 11a combined. Similarly, upper end panel sections 30b, 31b correspond in width to top panel portion 20 and essentially form extensions thereof across fold lines 15, 16. The smaller central upper end panel sections 30c, 31c correspond in width to the adjoining ends of strip 11b and essentially form extensions thereof across fold lines 15,

16. Top panels 19, 20 are each hinged along their outer edges to respective upper side panels 21, 22 along fold lines 23, 24. Finally, these upper side panels 21, 22 are hinged to respective lower side panels 27, 28 along respective fold lines 25, 26. As with the other pairs of panels described above, lower side panel 28 is identical in size and shape to, but a mirror image of, the other lower side panel 27, and is additionally formed with a longitudinal fold line 28c which divides it into two panel portions 28a, 28b.

Each of the side panels 21, 22 and 27, 28 is provided at each end with a tuck flap hinged thereto. In particular, upper side panels 21 and 22 are provided with tuck flaps 39, 40 and 41, 42 hinged thereto along respective fold lines 43, 44 and 45, 46; and lower side panels 27 and 28 are provided with tuck flaps 47, 48 and 49, 50 hinged thereto along respective fold lines 51, 52 and 53, 54. Each of the tuck flaps 39, 40, 41, 42 and 47, 48, 49, 50 is formed with an integral triangular tuck flap segment identified in the drawings by the associated tuck flap reference number with the sub-script "x". These are defined by respective fold lines similarly designated in the drawings by the sub-script "y". To facilitate folding during erection of the carrier, the tuck flap segments for tuck flaps 39, 40, 41, 42 and 47, 48, 49, 50 are truncated at their ends adjoining the associated panels 21, 22 and 27, 28 by triangular apertures indentified in the drawings by the same reference number as the associated tuck flap with the sub-script "z".

The tuck flaps of adjacent panels 21, 27 and 22, 28 are hinged to one another along extensions of the same fold lines 25 and 26 and divide the panels from one another. Likewise the tuck flap segments of tuck flaps 39, 40; 41, 42 are hinged to the adjacent upper end panel portions 30a, 31a; 30b, 31b along extensions of the fold lines 23, 24 along which the panels 19, 21 and 20, 22 are hinged to one another respectively. Each of the upper end panel portions 30a, 30b; 31a, 31b is provided with a respective end strip 32a, 32b; 33a, 33b hinged thereto along a fold line 34a, 34b; 35a, 35b. As described above, the outer edges of the handle-forming strips 11a, 11b are defined by cuts 12a, 12b which are indented towards one another to provide the strips 11a, 11b with a central region of reduced width. This indentation in the cuts 12a, 12b also serves to define corresponding edge flaps 13a, 13b along the adjacent edges of the top panels 19, 20.

The cut 12a extends fully across the top panel 19 and projects at each end a short distance across score lines 15, 16 into each of the adjoining upper end panel portions 30a, 31a. Cut 12b is substantially the same as cut 12a in mirror image except that sections of the cut 12b, extending from

5 a short distance inside the fold lines 15, 16 and ending a short distance from the central indented region of the cut, are replaced by fold line sections 60, 61 thereby leaving short, isolated cut sections 62, 63 bridging the fold lines 15, 16. Aligned with, and extending from the cut sections 62, 63 to the outer edges of upper end panels 30, 31 respectively, are fold line sections 62a, 63a along which upper end panel sections 30b, 30c and 31b, 31c are hinged to one another. Cut sections 64, 65, similar to cut sections 62, 63, are formed in fold line 10 in the regions thereof which bridge fold lines 15, 16.

10 Top panel 20 is further formed with a pair of aligned cuts 66, 67 which are parallel to cuts 62, 63 and spaced therefrom by a distance corresponding to the full width of strip 11b. These cuts 66, 67 extend into respective upper end panels 30 the same distance as cuts 12a, 62, 63, 64 and 65 and define short strips 66a, 67a adjacent the full-width end sections of strip 11b. The ends of the strips 66a, 66b which lie in top panel 20 are terminated by a respective fold line 68, 69 which extend perpendicularly from the ends of the respective cuts 66, 67 to the points on the cut 12b at which it becomes indented towards the cut 12a to define the central reduced-width section of strips 11a, 11b. Further fold lines 70, 71 extending parallel to fold lines 68, 69 across the strips 66a, 67a from the respective end of the cut 12b to cut 66, 67, define rectangular tabs 72, 73 at these ends of the strips 66a, 67a.

15 The first step in the erection of the carrier, which is sized to hold twenty four bottles, is to apply glue to the inner surfaces (shown hatched in Figure 1) of the edge flap 13a, and of the strip 11a together with the portions of the upper end panels 30, 31 which are aligned with it. The blank is then folded about fold line 10 to bring the inner surfaces of strips 11a, 11b, along with the portions of the upper end panels 30, 31 that are aligned therewith, into face - to - face contact with one another whereupon they are bonded together to provide a strong two-ply structure forming a handle structure of the carrier. This two-ply carrier handle structure is then folded about fold lines 60, 62a, 61, 63a so as to lie flat against the outer surface of the top panel 20. This brings the glued inner surface of edge flap 13a into overlapping relationship with the outer surface of edge flap 13b to which it is adhesively bonded. Also the outer surfaces of the strip 11b and aligned portions of upper end panels 30, 31 are brought into face-to-face contact with the adjacent surfaces of top panel 20, including strips 66a, 67a, and end panel sections 30c, 31c.

20 25 30 35 40 45 50 55 Adhesive is applied to the outer surface of the edging strip 7 and the edging strip 7 is brought into engagement with the inner surface of the free edge

of side panel 27 to which it is then glued. The partially assembled carrier can then be set up into an open-ended sleeve for loading whereby twenty four bottles are end loaded upright into the sleeve to stand upon the inner surface of bottom panel 2. Assembly of the carrier is then completed by securing the end closure panels as follows. Tuck flaps 47, 48 and 49, 50 at the ends of side panels 27, 28 respectively are folded inwardly along fold lines 51, 52, 53, 54 to a position perpendicular with their associated side panels 27, 28, a procedure which is facilitated by folding of tuck flap segments 47x, 48x, 49x, 50x along fold lines 47y, 48y, 49y, 50y. This is followed in turn by similarly folding tuck flaps 39, 40, 41, 42 of upper side panels 21, 22 inwardly along fold lines 43, 44, 45, 46 while simultaneously folding tuck flap segments 39x, 40x, 41x, 42x along respective fold lines 39y, 40y, 41y, 42y into flat engagement with the tuck flaps themselves. Upper end panels 30, 31 are then folded downwardly about respective fold lines 15, 16 to bring the inner surfaces of the end regions thereof into partially overlapping engagement with tuck flaps 39, 41, 47, 49 and 40, 42, 48, 50 respectively.

Glue is then applied to the external surfaces of the end strips 32a, 32b; 33a, 33b and the end closure flaps 3, 4 are folded upwardly along respective fold lines 5, 6 to bring the inner surface of their free edges into overlapping contact with said end strips 32a, 32b; 33a, 33b to which they are adhesively bonded. The end closure panels thus formed by the combination of the upper end panels and the end closure flaps 3, 4 overlap the outer surfaces of the folded tuck flaps 47, 48, 49, 50; 39, 40, 41, 42 and thereby hold them in place at each end of the carrier. This completes the secure and complete enclosure of the bottles as shown in Figure 2.

In this configuration, the glued-together strips 11a, 11b provide a convenient handle structure by means of which the fully loaded and erected carrier can be lifted and carried. The handle structure is in the form of a two-ply strap 80 anchored at each end in the integral two-ply region of the upper end panels 30, 31 formed by adhesively bonding end panel sections 30a, 31a to sections 30c, 31c respectively. Because these anchorages for the ends of the handle strap 80 are disposed substantially vertically in use, they are capable of supporting the full load of the carrier with considerably reduced risk of tearing.

It will be noted also, that the manner in which cuts 66, 67 and the ends of cut 12a extend into upper end panels 30, 31 provides recesses 90, 91 at the edges of the top panel into which the ends of the strap 80 can engage, in use, to provide greater handroom between the top panel 20 and the strap 80. Thus, as the tension on the strap 80

increases during lifting, and the strap 80 engages deeper into the recesses 90, 91, the strips 66a, 67a are drawn inwardly causing the tabs 72, 73 to fold along fold lines 68, 70; 68, 71 respectively into an increasingly vertical position. This 'toggle' action of tabs 72 and 73 ensures that stresses occurring during lifting and carrying are progressively, rather than suddenly, taken up, thereby further reducing the risk of rupture or tearing.

It will be appreciated that the blank so far described has been specifically designed for application to packaging of bottles, which, because of their specific shape, gives rise to the particular configuration of side panels, end closure panels and tuck flaps most clearly seen in Figure 1. Obviously a wide variation in the number and configuration of panels and tuck flaps is possible within the scope of the present invention depending upon the size, shape and number of articles to be packaged. For example, in the simple case of a box of square or rectangular cross-section, the fold lines defining the tuck flaps along each side edge of the blank would be in a straight line, and only one side panel and one top panel on each side of the central handle-forming strip portions would be required. Indeed, it will be appreciated that other package configurations could similarly be used in conjunction with the two-ply strap handle feature of the present invention. Examples of these are shown in Figures 3 and 4 in which parts corresponding to those referenced in Figures 1 and 2 bear the same reference numbers.

Claims

1. A carton for accommodating a plurality of articles, such as bottles, in a group said carton comprising a handle structure overlying a wall of the carton and having end portions which are displacable inwardly of the carton to allow movement of portions of the handle structure intermediate its ends away from said wall, said handle structure thereby being manipulative from a flat stowed condition in which it closely overlies said carton wall, to a raised condition in which said end portions of the handle are displaced inwardly of the carton characterised in that said handle structure is formed from a pair of mutually hinged and superposed panel strips each of which is itself hinged to an adjacent part of said wall, said handle structure overlying one of said adjacent parts when in its flat stowed condition.
2. A carton according to Claim 1, wherein said end portions of the handle structure overlie displacable parts of said carton wall.

3. A carton according to claim 1 or Claim 2, wherein said end portions of the handle structure comprise parts of other carton walls which are hinged to said one carton wall so that, in use, the said end portions are disposed substantially vertically relative to a central part of said handle structure. 5

4. A carton according to any of the preceding claims, wherein said handle structure is in the form of a two-ply strap over the whole of its length. 10

5. A carton according to Claim 2 wherein said displacable parts of the carton comprise hinged strips disposed beneath said handle structure when in its stowed position and located adjacent said end portions of the handle structure. 15

6. A carton according to claim 5 wherein said handle structure is hinged to each of said hinged strips one end of each of the hinged strips remote from said end portions of the handle structure including a hinged tab which pivots upwardly as the handle structure is manipulated into its raised position thereby allowing the opposite end of the hinged strip and overlying end portions of the handle structure to be displaced inwardly of the carton. 20 25

7. A carton according to claim 6, wherein the lowermost of said panel strips of the handle structure is hinged along one edge of each of said hinged strips intermediate the ends of the hinged strip. 30 35

8. A carton according to claim 6 or claim 7, wherein said hinged strips comprise parts of other carton walls which are hinged to said one carton wall. 40

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Fig. 1.

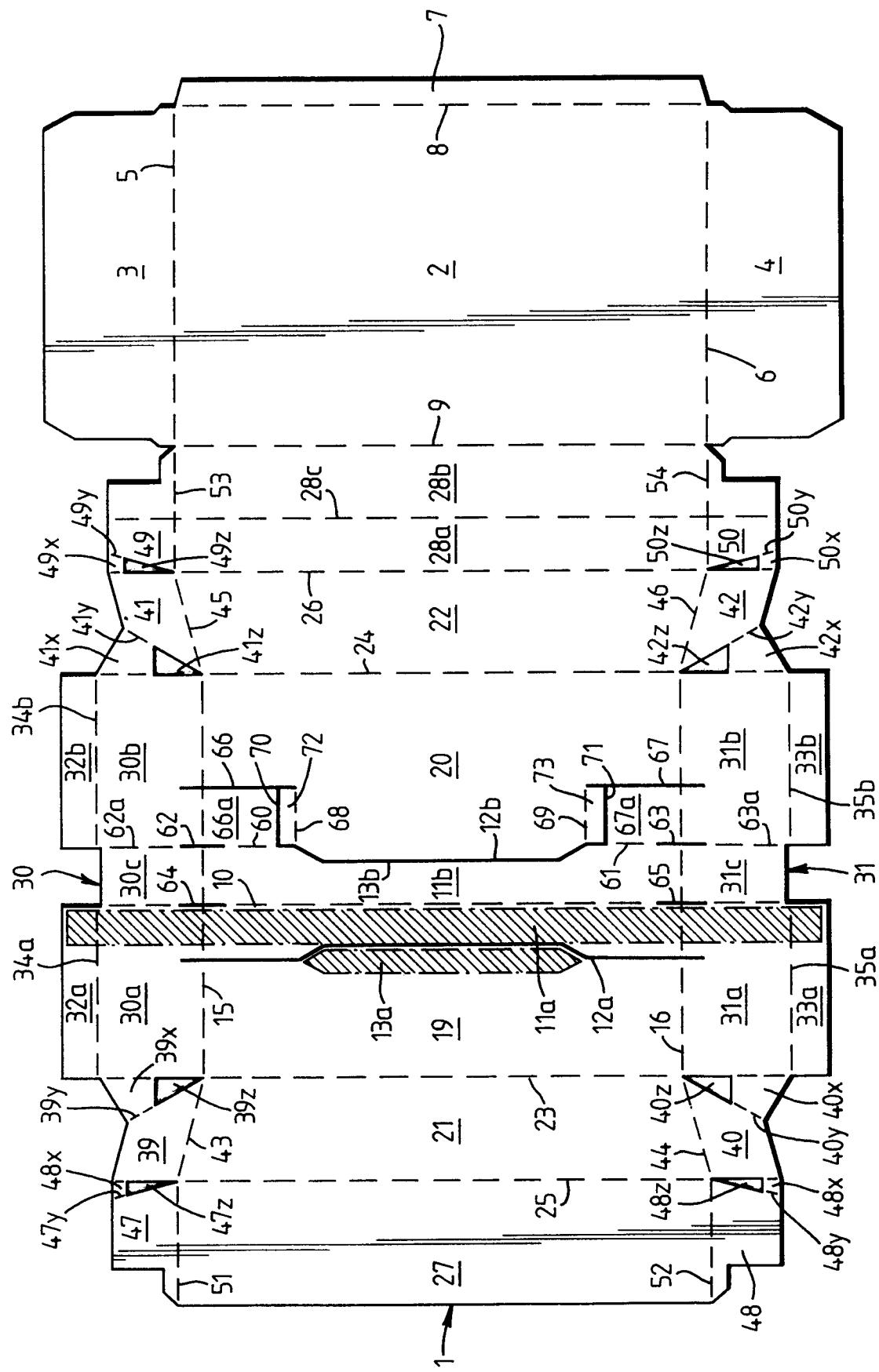


Fig. 2.

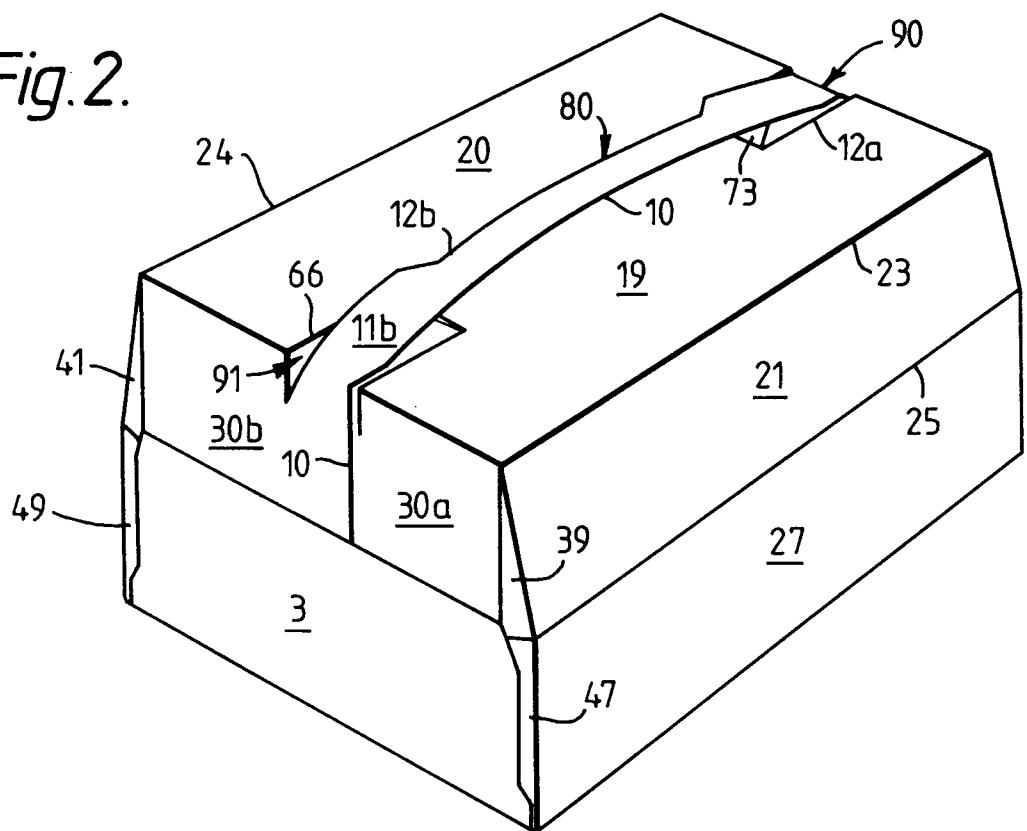


Fig. 3.

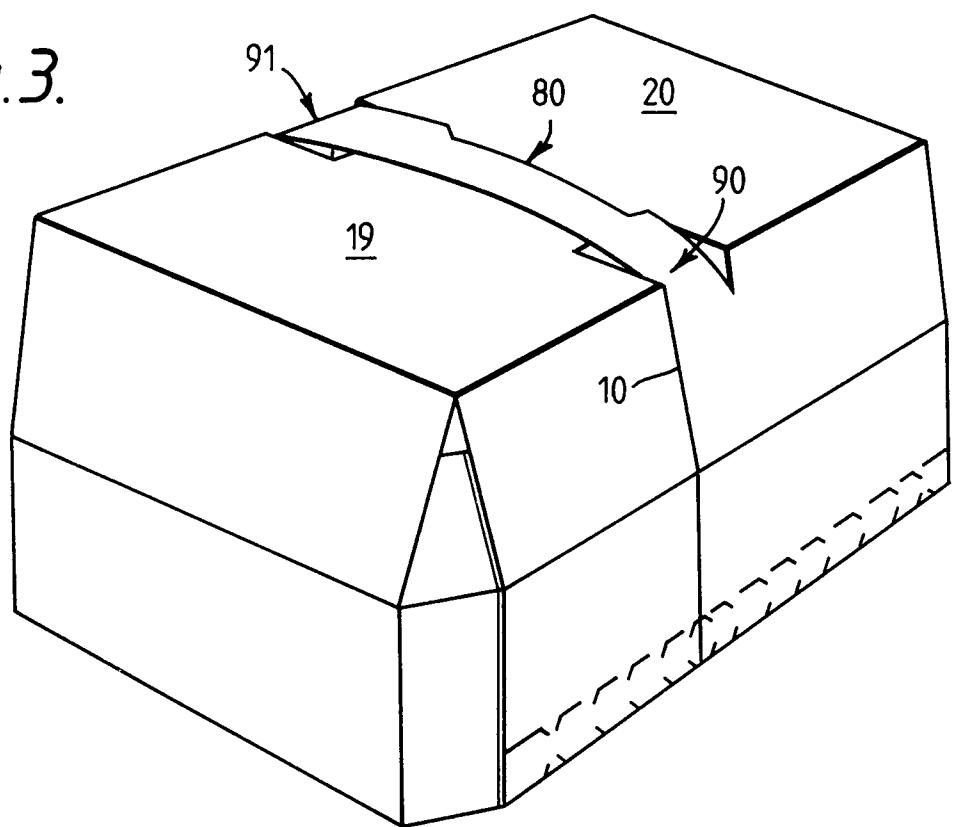
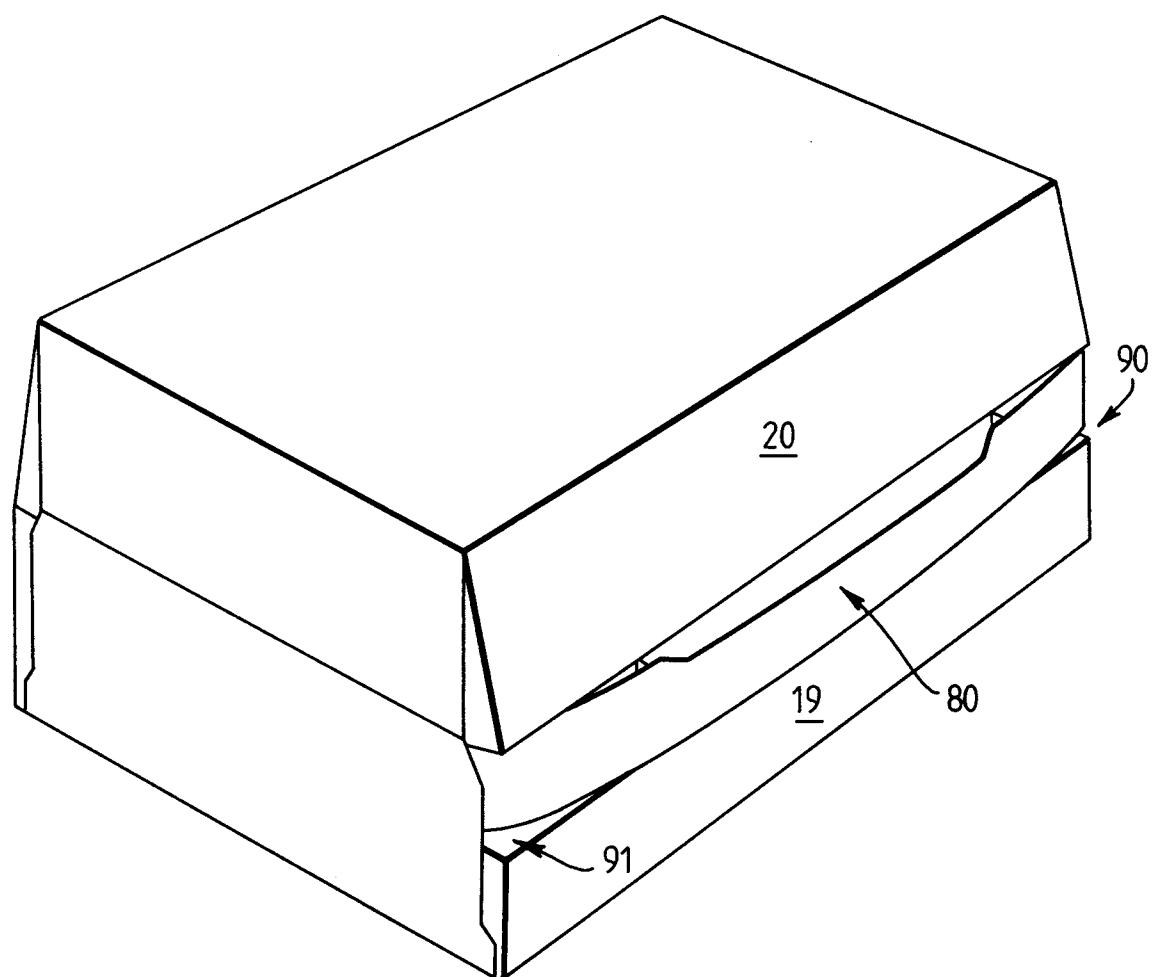


Fig. 4.





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EUROPEAN SEARCH REPORT

Application Number

EP 91 30 6422

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.5)		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)		
A,D	EP-A-0 341 089 (THE MEAD CORP.) * the whole document * * - - -	1--5	B 65 D 5/46 B 65 D 71/28		
A	US-A-2 955 739 (COLLURA) * the whole document * * - - -	1,3,4			
A	US-A-3 300 119 (CHAUSSADAS) - - - - -				
			B 65 D		
The present search report has been drawn up for all claims					
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