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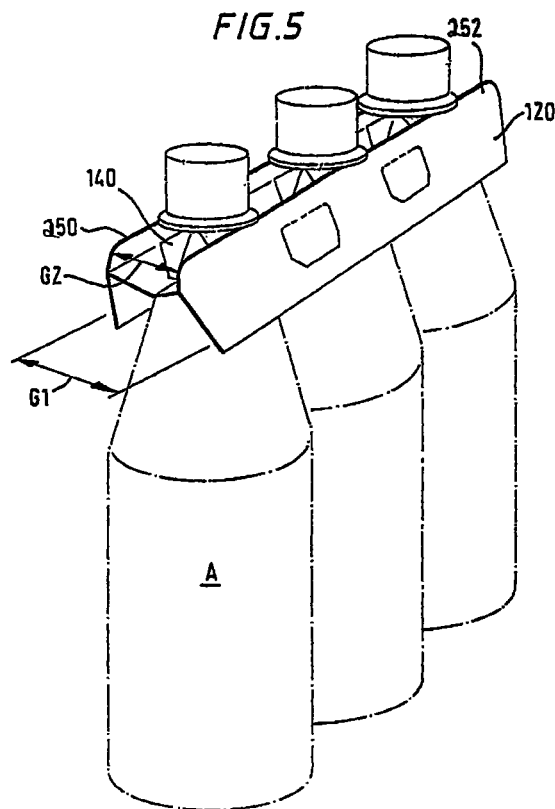
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(54) Top gripping carrier for bottles

(57) An article carrier of the top gripping type includes a main panel (20, 116) having a pair of opposed end edges (70, 72, 170, 172), a first fold line (32, 134) extending between said end edges (70, 72, 170, 172), and at least one aperture (44, 144) for receiving an article (A). The aperture (44, 144) is disposed astride the first fold line (32, 134) to interrupt it. A first tab (40, 140) is struck from the main panel (20, 116) and defining at least a part of the aperture (44, 144). The tab (40, 140) is hingeably connected to the main panel (20, 116) so that the tab (40, 140) is displaceable out of the plane of the main panel (20, 116) to operatively engage a part of the article (A) when the article (A) is in the aperture (44, 144). The tab (40, 140) is connected to the main panel (20, 116) by means of a pair of second and third spaced fold lines (60, 62, 160, 162) extending divergently from each other toward one of the end edges (70, 72, 170, 172) so that displacement of the tab (40, 140) out of the plane of the main panel (20, 116) causes the main panel to be folded about the first fold line (32, 134). A stress relieving cut line (64, 164) is provided to extend between the second and third fold lines (60, 62, 160, 162) to partially separate the tab (40, 140) from the main panel (20, 116). The cut (64, 164) line is disposed transversely of the first fold line (32, 134) such that the first fold line (32, 134) is interrupted at the cut line (64, 164).



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Description

[0001] The invention relates to an article carrier which is used for securing a plurality of articles such as bottles in a group. More particularly the invention relates to an article carrier of the top gripping type which attaches to the tops of articles thereby to secure the articles in an array.

[0002] It is known to provide top gripping carriers which comprise so-called "sun burst" type apertures having a series of circumferentially arranged tabs which enable the bottle top to pass through the aperture and in which the tabs engage from the underside of the bottle top or on a flange on the bottle neck to prevent removal of the bottle from the aperture.

[0003] EP 317, 379 (Gervais) illustrates a packaging device for individual containers comprising a blank, with a surface comprising apertures to receive articles, and two parallel panels which, after being folded, form two short parallel flaps with tongues emerging from cut-outs formed in the apertures. Containers are held in the apertures are supported by abutment of the flaps under an external projection of the containers.

[0004] A problem with top gripping carriers of this type is that the tabs need to be of sufficient thickness to provide support for the articles. At the point of connection with the panels, the tabs are prone to folding and losing their strength. The present invention seeks to overcome or at least mitigate the prior art by providing a carrier which can flex to relieve the load applied to the bottle neck support tabs.

[0005] One aspect of the invention provides a top-gripping article carrier for engaging and supporting at least one bottle at a bottle neck thereof, comprising a main panel having opposed side edges and at least one aperture for receiving said bottle, a pair of side wall panels hingedly connected to said side edges of said main panel respectively and extending to respective free uppermost edges located above said main panel so as to engage and support said bottle neck when said bottle is in said aperture characterised in that said carrier further comprises means for forcing said free uppermost edges toward each other in response to introduction of said bottle into said aperture so that said free uppermost edges are tightened on said bottle neck. Preferably, the means for forcing the free uppermost edges towards each other may include a lower portion of the side wall panels extending below the main panel so that upon the introduction of the article, the lower portions may be moved away from each other by the article to force the free upper edges toward each other. Optionally, each side wall panel may comprise an intermediate panel hingedly connected to a respective one of the side edges of the main panel, and a support panel secured to the intermediate panel in a face to face relationship. More preferably, the intermediate panel of each side wall panel may extend upward from the main panel to a respective one of the free uppermost edges,

and the support panel of each side wall panel includes a portion extending above the main panel to be secured to an adjacent one of the intermediate panels and a portion extending below the main panel to provide a respective one of the lower portions. More preferably, the intermediate and support panels of each side wall panel may be hingedly connected together along the respective free uppermost edge.

[0006] A second aspect of the invention provides a blank for forming a top gripping article carrier comprising a main panel having opposed side edges and at least one aperture for receiving the bottle, a pair of side wall panels hingedly connected to the side edges of the main panel respectively and wherein each side wall panel comprises an intermediate panel hingedly connected to a respective one of the side edges of the main panel, and a support panel secured to the intermediate panel in a face to face relationship. Preferably, the intermediate panel of the each side wall panel may be adapted to extend upwardly from the main panel to a respective one of the free uppermost edges in a set up condition, and the support panel of each side wall panel includes a portion extending above the main panel to be secured to an adjacent one of the intermediate panels and a portion extending below the main panel to provide a respective one of the lower portions in a set up condition.

[0007] Exemplary embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

FIGURE 1 is a plan view of the carrier blank according to the invention;

FIGURE 2 is a perspective view of a carrier formed from the blank as shown in Figure 1;

FIGURE 3 is a top-end perspective view of a carrier formed from the blank illustrated in Figure 1;

FIGURE 4 is a plan view of a carrier blank according to another embodiment of the invention; and

FIGURE 5 is a perspective view of a carrier formed from the blank as shown in Figure 3.

[0008] Referring to Figure 1, there is shown a carrier blank 10 for forming a top gripping carrier and made from paperboard or similar foldable sheet material. The blank comprises a series of panels hinged one to the next. Thus, end panel 12 is hingedly connected to side wall panel 14 along fold line 24; side wall panel 14 is connected by way of fold line 26 to a top panel 16, thereby enabling panels 14 and 16 to be placed in a substantially perpendicular relationship. Top panel 16 is connected along fold line 28 to side wall panel 18 thereby enabling panels 16 and 18 to be placed in a substantially perpendicular relationship such that side

wall panel 14 and side wall panel 18 form opposing sides in a set up carrier. The side wall panel 18 is connected to main panel 20 by way of fold line 30 thereby enabling panels 18 and 20 to be placed in a substantially perpendicular relationship such that top panel 16 and main panel 20 form opposed sides. The main panel 20 is connected to strengthening panel 22 by way of fold line 34, thereby enabling main panel 20 and strengthening panel 22 to be placed in a substantially perpendicular relationship whereby strengthening panel 22 and side wall panel 14 are placed in a face to face relationship when the carrier is in a set up condition.

[0009] As illustrated in Figure 1, main panel 20 is formed with a row of three hexagonal tab apertures 44, the opposing sides of which carry hinged gripping tabs 40. Each gripping tab 40 comprises three panels 50, 52, 54 connected one to the next along fold lines 56 and 58 respectively. Terminal panels 50 and 54 are further connected to main panel 20 along fold lines 60, 62 respectively, while cut line 64 separates middle panel 52 from main panel 20. Main panel 20 further comprises a central interrupted fold line 32 extending between the opposing free end edges of main panel 20 and aligned with the middle panels 52 of each tab 40. In a set up condition panels 50, 52 and 54 are moved out of alignment along fold lines 56 and 58 and co-act with fold line 32 to fold main panel 20. The middle one of the three said hexagonal tab apertures also has two oppositely positioned flaps 42.

[0010] A handle H is formed along top panel 16 provided by way of a pair of oppositely disposed semi-circular handle tabs 38 struck from the top panel 16 and separated by fold line 36. The carrier may be carried by folding back each handle tab 38. More specifically, a pair of spaced finger apertures are defined in the top panel 16 when handle tabs 38 are folded inwardly of the tubular carrier. The handle tabs 38 are connected to the top panel 16 along generally parallel fold lines 74, 76. The fold line 36 is disposed generally parallel to the opposed side edges of the top panel 16 and extends between the fold lines 74, 76. The portion of the top panel 16 between the fold lines 74, 76 folds upwardly about the fold line 36 when the carrier is lifted by the finger apertures. The fold line 36 functions to relieve the finger aperture area from stress, and thereby strengthen the handle.

[0011] In Figure 2 the carrier is in a substantially set up condition. Construction is achieved by folding all the panels in sequence so that panel 22 is face to face with panel 14 whereby a tubular structure is attained. More specifically, panels 14 and 16 are folded along fold line 26 to produce a perpendicular relationship then folding panels 16 and 18, 18 and 20, 20 and 22 are folded along fold lines 28, 30, 34 respectively to produce a perpendicular relationship between the respective panels. The carrier is maintained in a box like condition illustrated in Figure 2, by connecting together side wall panels 14 and 22 into a face to face relationship, by glue or

other suitable means.

[0012] As shown in Figure 3, said articles are inserted through apertures 44 thereby displacing the gripping tabs 40 out of their general plane until the distal edges of the tabs 40 come into contact with a radially protruding part of said articles. As the tabs 40 are displaced, the main panel 20 is caused to flex by folding along fold line 32, to allow the apertures to open to a greater extent and when the tabs engage a bottle neck the flexibility of the main panel gives additional support for tabs 40 which is enhanced by the provision of a stress relieving cut line 64.

[0013] In Figure 4 there is shown another embodiment of the invention which illustrates a carrier blank 110 for forming a top gripping carrier and first side wall panel made from paperboard or similar foldable sheet material. A top-gripping bottle carrier for engaging and supporting at least one bottle at a bottle neck thereof, comprising a main panel having opposed side edges and at least one aperture for receiving the bottle, a pair of side wall panels hingedly connected to the side edges of the main panel respectively and extending to respective free uppermost edges located above the main panel so as to engage and support the bottle neck when the bottle is in the aperture characterised in that the carrier further comprises pivoting means for forcing the free uppermost edges toward each other in response to introduction of the bottle into the aperture so that the free uppermost edges are tightened on the bottle neck.

[0014] More particularly, the blank comprises a support panel 112 hingedly connected to intermediate panel 114 along fold line 130 thereby enabling panels 112 and 114 to be placed in a face to face relationship. Intermediate panel 114 is hingedly connected to main panel 116 along fold line 132 thereby enabling panels 114 and 112 to be folded out of the plane of the blank. Main panel 116 is also hingedly connected to intermediate panel 118 along fold line 136. A second support panel 120 is foldably connected to intermediate panel 118 along fold line 138 thereby enabling panels 118 and 120 to form a face to face relationship. Fold line 136 enables panels 118 and 120 to be folded out of the general plane.

[0015] As illustrated in the embodiment of Figure 4, main panel 116 is formed with a row of three hexagonal tab apertures 144 the opposing sides of which are furnished with gripping tabs 140. Each gripping tab comprises three panels 150, 152, 154 connected one to the next along fold lines 156 and 158 respectively. Terminal panels 150 and 154 are further connected to main panel 116 along fold lines 160, 162 respectively, while cut line 164 separates middle panel 152 from main panel 116. Main panel 116 further comprises a central interrupted fold line 134 extending between the opposing free end edges of main panel 116 and aligned with the middle panels 152 of each tab 140. In a set up condition panels 150, 152 and 154 are moved out of alignment along fold

lines 156 and 158 and co-act with fold line 134 to fold main panel 116.

[0016] Finger apertures are formed along first support panel 120 provided by way of a pair oppositely disposed tabs 166 formed in the first side wall panel 120. The carrier may be carried by folding back each tab 166 to reveal the apertures.

[0017] Construction of the carrier is achieved by folding panels 112 and 114 along fold line 130 in a face to face relationship, and folding panels 118 and 120 along fold lines 138 in a face to face relationship. In this embodiment, panels 112, 114 are secured together by glue or other suitable means and thereby maintained in the face to face relationship to form a composite side wall panel. In like manner, panels 120, 118 are secured together to form another composite side wall panel. These side wall panels are folded along fold lines 132, 136 to be disposed generally perpendicularly to main panel 116.

[0018] To secure articles A together by the above carrier, articles A are inserted through apertures 144. By this means, the lower portions of the panels 112, 120 are thrust away from each other by the articles A, and thereby the gap G1 between the lower portions are increased to produce a pivotal effect. The result is to reduce the gap G2 between the upper portions of support panels 112 and 120 thus enabling the free uppermost edges 250, 252 to be tightened on the articles A so as to securely support radially protruding parts of the articles A as illustrated in Figure 5. The introduction of the articles A also move the tabs 140 out of their general plane until the distal edges of the tabs 140 come into contact with a radially protruding part of the articles. By moving the tabs 140 out of alignment, main panel 116 is caused to flex along fold line 134, to allow the apertures to open to a greater extent. When the tabs 140 engage the protruding part, such as a bottle neck flange, the flexibility of the main panels gives additional support for tabs 140 which is enhanced by the provision of a stress relieving cut line 164.

[0019] The present invention and its preferred embodiments relate to a bottle carrier which is shaped to provide satisfactory rigidity to hold the bottles securely but with a degree of flexibility so that load transferred to the aperture tabs can be better absorbed by the carrier. The shape of the blank minimises the amount of paperboard required. The carrier can be applied to an array of bottles by hand or by automatic machinery. It is anticipated that the invention can be applied to a variety of carriers not limited to those of the top gripping sort.

Claims

1. A top-gripping article carrier for engaging and supporting at least one bottle (A) at a bottle neck thereof, comprising a main panel (116) having opposed side edges and at least one aperture

(144) for receiving said bottle, a pair of side wall panels (112, 120) hingedly connected to said side edges of said main panel (116) respectively and extending to respective free uppermost edges (250, 252) located above said main panel (116) so as to engage and support said bottle neck when said bottle is in said aperture characterised in that said carrier further comprises means (132, 136) for forcing said free uppermost edges (25, 252) toward each other in response to introduction of said bottle (A) into said aperture (114) so that said free uppermost edges are tightened on said bottle neck.

2. The carrier according to claim 1 wherein the means for forcing said free uppermost edges towards each other includes a lower portion of said side wall panels (112, 120) extending below said main panel (116) so that upon said introduction of said article, said lower portions may be moved away from each other by said article to force said free upper edges toward each other.

3. The carrier according to claim 2 wherein said each side wall panel (112, 120) comprises an intermediate panel (114, 118) hingedly connected to a respective one of said side edges of said main panel, and a support panel secured to said intermediate panel (114, 118) in a face to face relationship.

4. The carrier according to claim 3 wherein said intermediate panel (114, 118) of said each side wall panel (112, 120) extends upward from said main panel (116) to a respective one of said free uppermost edges (250, 252), and said support panel of said each side wall panel (112, 120) includes a portion extending above said main panel (116) to be secured to an adjacent one of said intermediate panels and a portion extending below said main panel to provide a respective one of said lower portions.

5. The carrier according to claim 4 wherein said intermediate (114, 118) and support panels of said each side wall (112, 120) are hingedly connected together along said respective free uppermost edge (250, 252).

6. A blank for forming a top gripping article carrier comprising a main panel (116) having opposed side edges and at least one aperture (144) for receiving said bottle, a pair of side wall panels (112, 120) hingedly connected to said side edges of said main panel (116) respectively and wherein each said side wall panel comprises an intermediate panel (114, 118) hingedly connected to a respective one of said side edges of said main panel, and a support panel secured to said intermediate panel (114, 118) in a face to face relationship.

8. A blank as claimed in claim 7 wherein said intermediate panel (114, 118) of said each side wall panel (112, 120) is adapted to extend upwardly from said main panel (116) to a respective one of said free uppermost edges (250, 252) in a set up condition, and said support panel of said each side wall panel (112, 120) includes a portion extending above said main panel (116) to be secured to an adjacent one of said intermediate panels and a portion extending below said main panel to provide a respective one of said lower portions in a set up condition.

9. A blank for forming a carrier as claimed in any one of claims 1 to 5.

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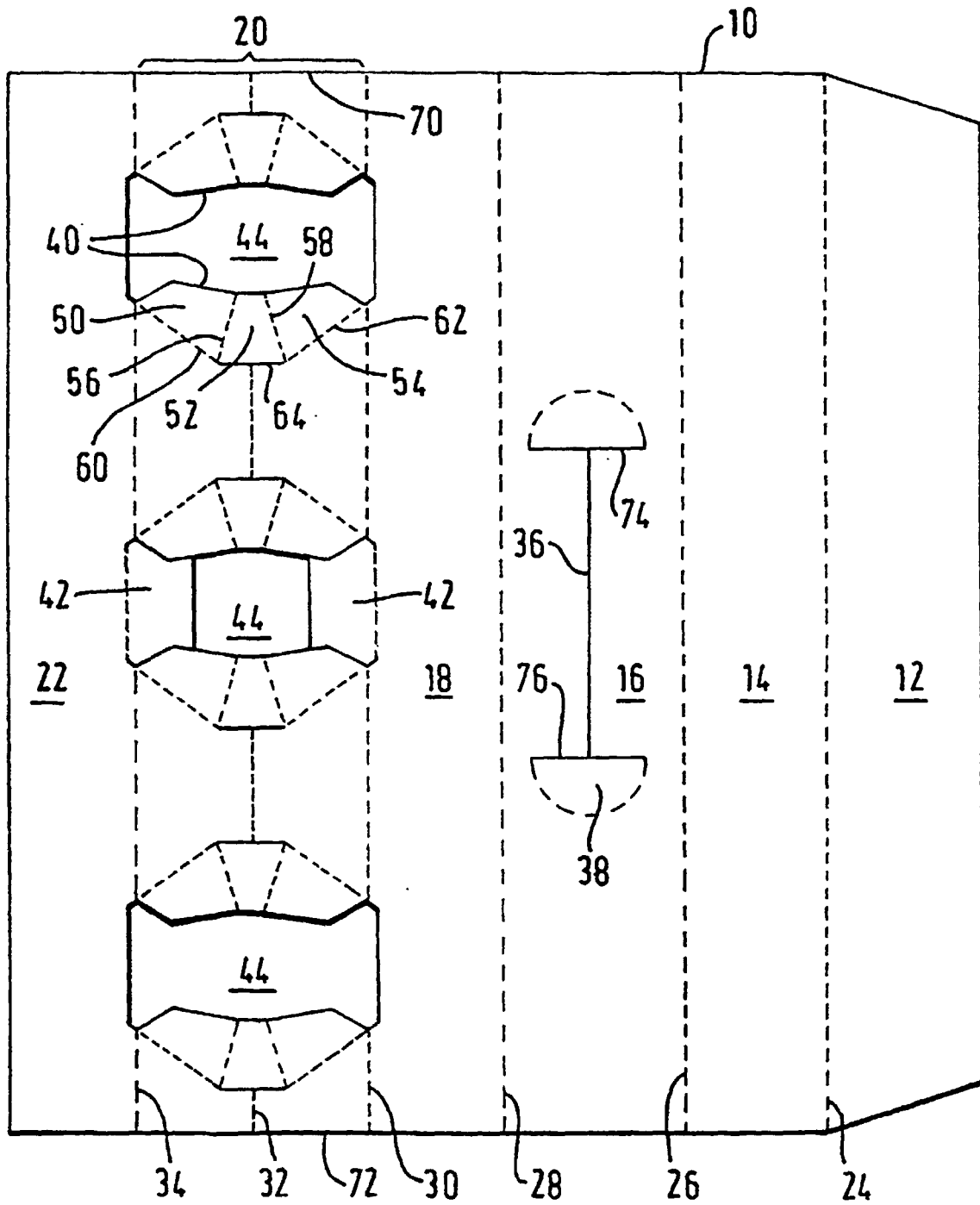
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FIG. 1



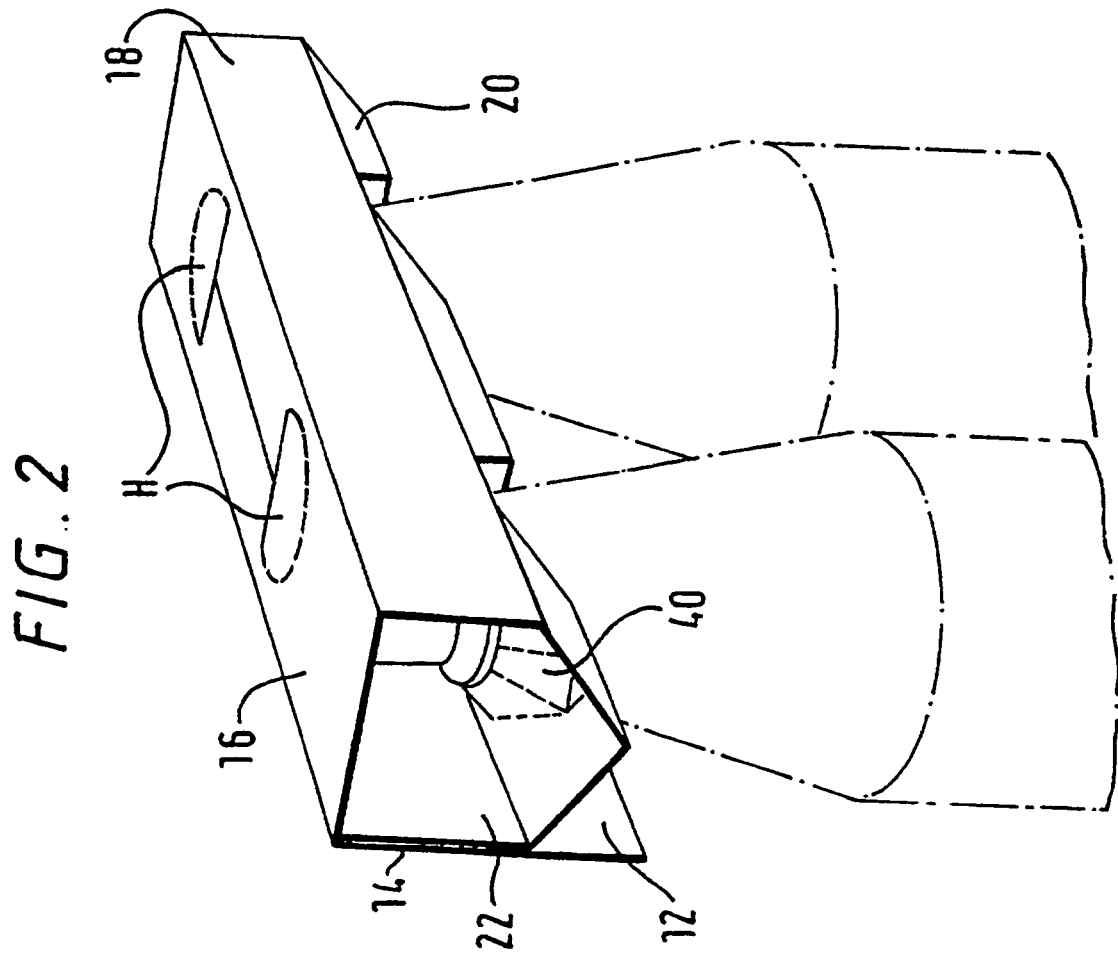
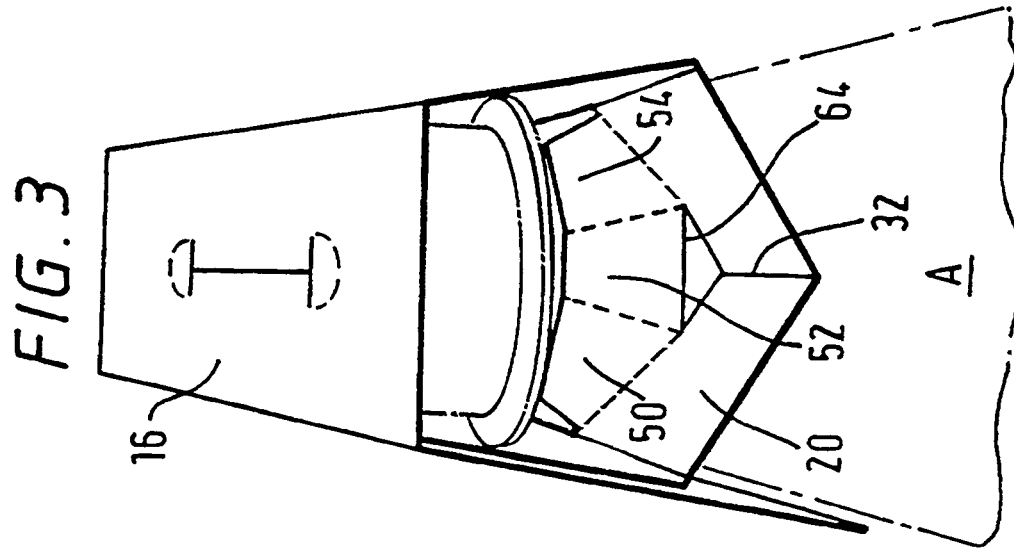


FIG. 4

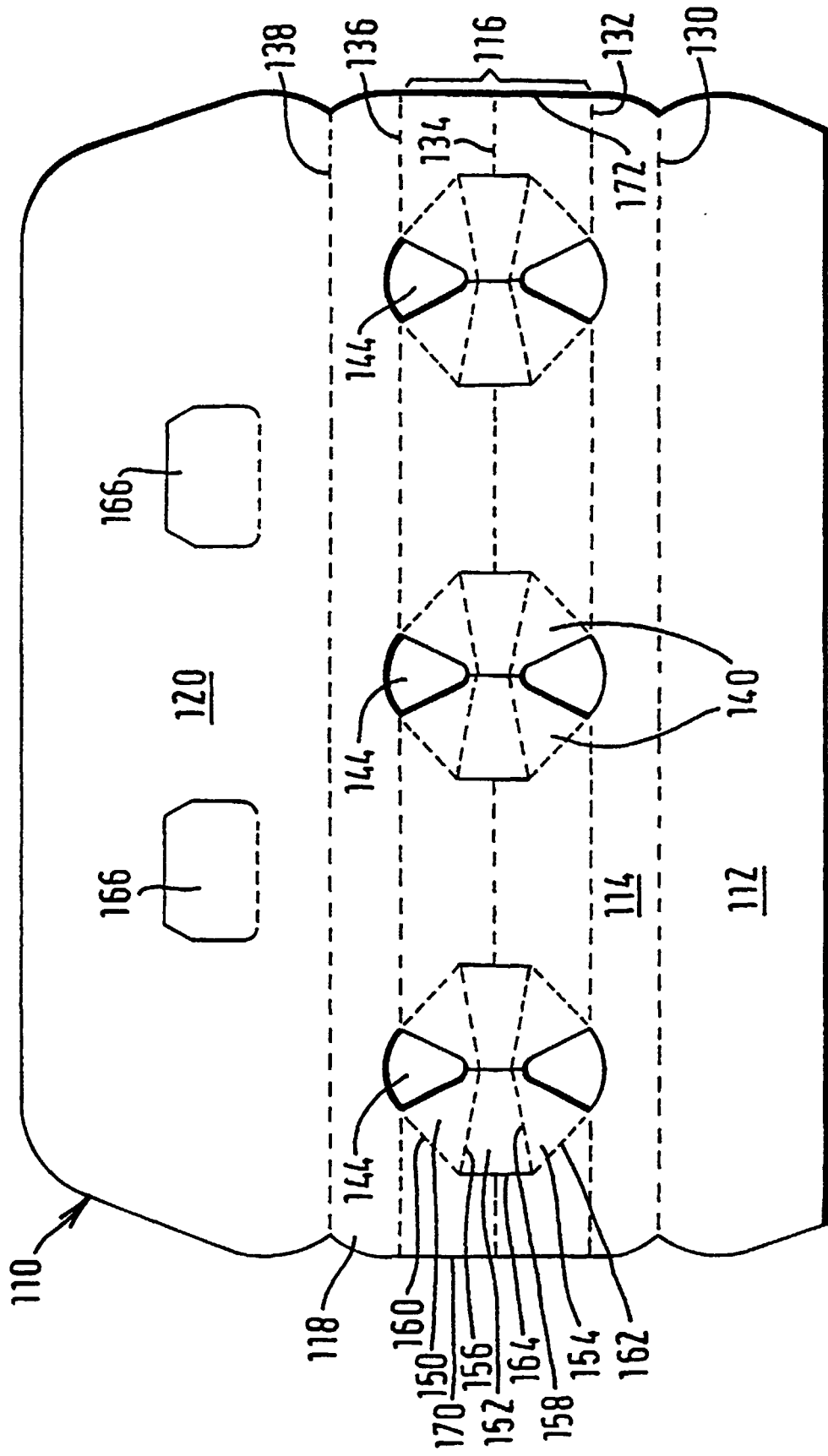
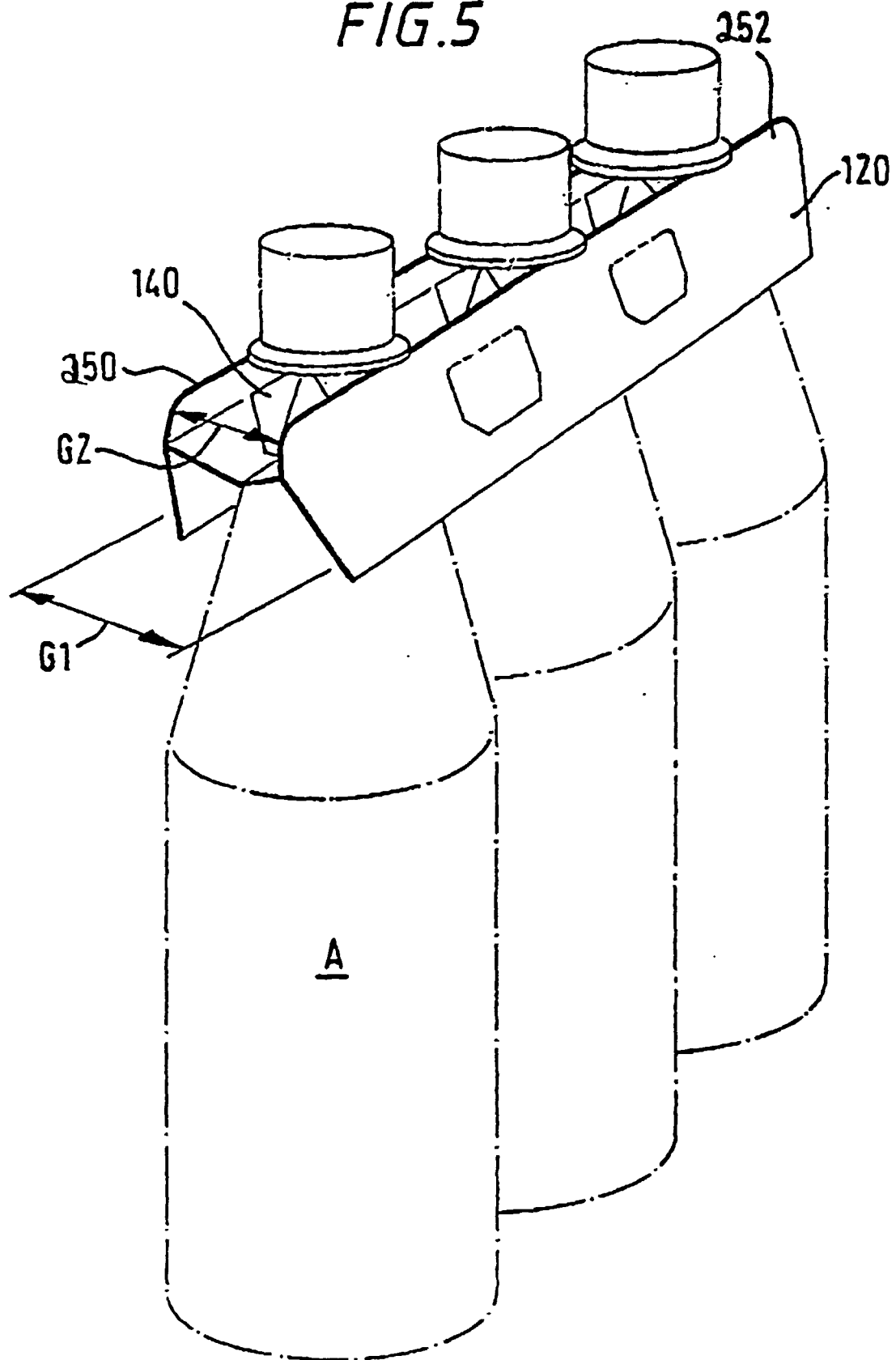


FIG. 5





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 99 12 4742

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 3 387 879 A (WOOD) 11 June 1968 (1968-06-11) * figure 5 *	6, 8, 9	B65D71/46 B65D71/48 B65D71/42
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 26 April 2000	Examiner Vollering, J
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	

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 99 12 4742

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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