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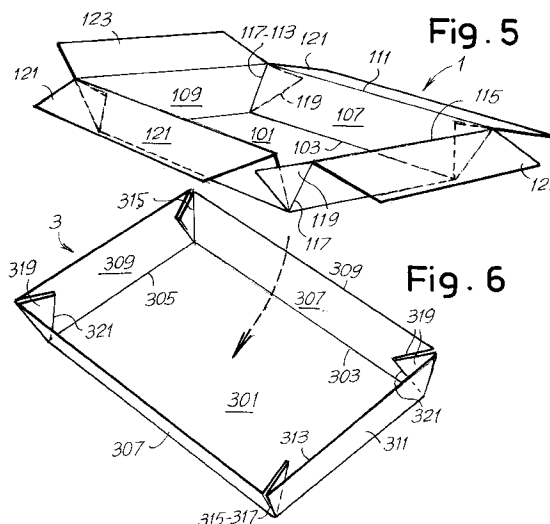
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(54) **A tray structure for packaging foodstuff and other products, made of cardboard which may be surface treated.**

(57) The package is made up of two components in laminar material ; a first inner component (1) makes up an inner tray having inclined side walls (107, 109) with extending end regions (121, 123) which can be folded along the edges (111, 115) of the side walls ; a second outer component (3) makes up an external tray (307, 311) which matches the internal tray formed by the inner component (1) and is engaged therewith by means of the end regions (121, 123) which are bent down and glued against the outer surfaces of said side walls (307, 311) of said external tray.



The invention refers to a tray structure for packaging bulk or small-size products and, particularly, but not exclusively, for foodstuff. The invention has the object to provide a tray which has such specific characteristics as stability, heat insulation, possibility of stiffening the side walls to withstand for long times the presence of products with high level of humidity, and also products which can give rise to separation of liquids, or anyway the presence of liquid, in the product to be packaged. Another object is to provide an article easy to assemble and substantially economical to produce and, in particular, which makes use of economical starting materials. These and other objects and advantages will be apparent from the following description.

The tray-like package according to the invention, for bulk products, especially foodstuff, is substantially made up of two components in laminar material:

- a first inner component makes up an internal tray having inclined side walls with extending end regions which can be folded along the edges of the side walls;
- a second outer components makes up an external tray with side walls;

the tray of the second component matches the internal tray formed by the first inner component and is engaged therewith through the end regions which are bent down and glued against the outer surfaces of the side walls of said external tray.

Advantageously, the side walls and the bottom of the internal tray make up dihedrals which are larger than those formed by the side walls and the bottom of the external tray. Thus, when the two trays are matched together, side walls having substantially triangular section and with three thicknesses of laminar material are formed, which side walls are therefore particularly rigid.

Edges between adjoining side walls converging towards a same corner of one or each tray may consist of triangular or bellow-shaped elements joined together by glueing them to one of the side walls.

The first laminar component may be made of a material suited for contact with foodstuff, whereas the other component may be of a different type and able to be treated for typographical printing or the like without difficulty.

The dimensions of the two matched trays are such as to form an interspace apt to provide a heat insulation and to allow for accumulating any liquids to be separated from the content of the internal tray formed by the first component; to this end, the latter may be provided with a suitable perforation.

The invention will be better understood by following the description and the attached drawing, which shows a practical, not limiting example of the invention. In the drawing:

Figs. 1 and 2 show in plane development the two components of the tray;

Figs. 3 and 4 show detailed perspective views of the corner of each of the two already assembled components of Figs. 1 and 2, respectively;

Figs. 5 and 6 show in perspective views the two components during the assembly step;

Fig. 7 is a perspective view of an already completed tray; and

Fig. 8 shows a section taken on line VIII-VIII of Fig. 7.

According to what is shown in the attached drawing, a first component 1, which is the one intended to define the tray surface in contact with the product to be packaged, and which is shown in particular in Fig. 1, comprises a rectangular bottom 101 delimited by folding lines 103 and 105 which are opposed two-by-two. Beyond the folding lines 103 are regions 107 having elongated, substantially trapezoidal development, while regions 109, which are also trapezoidal but have a smaller development, extend beyond the folding lines 105. Each of the regions 107 is delimited by the folding line 103 forming the minor parallel side of the trapezium, by a folding line 101, forming the major parallel side, parallel to line 103, and by two inclined cuts 113. The trapezoidal regions 109 are delimited by the folding lines 105 forming the minor parallel sides, by folding lines 115 defining the major parallel sides and by inclined folding lines 117. The trapezoidal regions are shaped as an isosceles trapezium. Beyond the folding lines 117 triangular elements 119 are provided, which are delimited by said folding lines 117 and said cuts 113. Alternatively, provision may be made so that the die-cut material which forms the **component 1** will have folding lines equivalent to lines 117 rather than cuts 113, in order to maintain the continuity of said material. In this case, a folding line will be formed along the bisecting line of the vertex which is turned towards the bottom 101 in order to create bellows-like portions, instead of portions which are superimposed upon assembly, as indicated below. Beyond lines 111 further end regions 121 are formed, which are trapezoidal as well and symmetrical with respect to regions 107; correspondingly, further end regions 123 are formed beyond the folding lines 115 as well, such regions 123 being also trapezoidal and similar to regions 109. In practice, the end regions 121 and 123 are substantially symmetrical with respect to the folding lines 111 and 115 which define the major parallel sides.

Fig. 2 shows the development of a second component 3 which defines the outer surface of the finished tray. This component 3 has a rectangular bottom substantially equivalent to bottom 111 and delimited by folding lines 303 along the longer sides and 305 along the shorter sides. Formed beyond the folding lines 303 are external trapezoidal regions with the minor parallel side extending along the line 303, and the major parallel side being delimited by a cut 309 parallel to the folding line 303. Similarly formed be-

yond the folding lines 305 are external trapezoidal regions 311 whose major parallel sides are formed by end cuts 313 parallel to the folding lines 305. The external trapezoidal regions 307 and 311 have an isosceles trapezium shape and are delimited by inclined lateral folding lines 315 and 317 for the regions 307 and 317 respectively. Pairs of triangles 319 symmetrical with respect to the folding line 321 develop between the folding lines 315 and 317 which converge to the same corner of bottom 301.

For the formation of the tray, each of the two components is assembled in the manner described below, and the two components assembled to form the tray are matched always in the manner described below. The component 1, once bent along lines 103 and 105, makes up an internal tray with side walls formed by the regions 107 and 109 which have inclined development. The triangles 119 are matched against the outer surface of side walls 107 and glued thereto. In the embodiment in which the triangles 119 are not delimited by cuts 113 but by folding lines provided in the same position and by folding lines provided along the bisecting line, the triangular elements 119 are folded twice along the bisecting line and moved against the outer surface of one of the adjoining side walls 107 and 109 to stabilize the tray formed by the element 1. The trapezoidal end regions 121 and 123 remain movable along the edges defined by the folding lines 111 and 115, as can be seen in particular in Fig. 5.

To shape the external tray with the element 3, the side walls 307, 311 are folded, and the bellows-like triangles 319 are also folded along lines 321 and along lines 315, 317 as well, so that the two triangles 319 between the two adjoining side walls 307 and 311 will be located inwardly and be matched along lines 315 and 319 which are brought close to each other, while one of the two triangles is preferably glued against one of the adjoining side walls 311 and 307.

When the two components 1 and 2 are shaped, the side walls formed in each of them by regions 107, 109 and by regions 307, 311, respectively, have slightly different inclinations and, in particular, the side walls formed by the regions 107, 109 are a bit more inclined than those formed by the trapezoidal external regions 307 and 311, the bottom 301 being slightly larger than bottom 101. Consequently, by matching the two components 1 and 3 for the assembly thereof in the manner indicated above and illustrated in Figs. 5 and 6 and in details in Figs. 3 and 1, the cut edges 309 and 313 of the external tray formed by the element 3 will correspond to the folding lines 111 and 115 of the inner element 1, so that said edges 309 and 313 will be between the side walls 107, 121 and respectively 109, 123. Once the two trays formed by the components 1 and 3 have been matched, the outer side walls 121 and 123 are folded against the external surface of side walls 307 and 311 and made

to adhere thereto by glueing.

As a consequence, a tray structure is thus formed which has perimetrical side walls of triangular cross-section with three thicknesses 109, 309 and 123 and respectively 107, 311 and 121. These side walls are particularly stiffened by their conformation and also thermally insulated owing to the presence of an inside interspace. After assembly thereof, the two bottoms 101 and 103 - owing to the dimensions chosen for the side walls and for the folding lines 115 and 111 - will be slightly spaced apart one from the other, thus giving rise to a limited inter-space also in the bottom, the latter consisting of the two portions of components 1 and 3, i.e. of the two bottom portions 101 and 301.

Besides the above mentioned stiffening, due to the thicknesses and spacings, i.e. to the formation of the interspaces, and the heat insulation, there is also achieved the possibility of percolating any liquid held by the tray formed by the component 1 into the interspace defined between the side walls and between the bottoms of the assembled unit. This is particularly suitable for the packaging of certain products, especially foodstuff, which is likely to produce liquid substances in the long run, whose separation from the product may be particularly useful.

It should be noted that, when assembling the tray, the only surface entering in direct contact with the tray-packaged foodstuffs is the inner upper surface of component 1. Accordingly, the surface treatment required for foodstuff containers may be limited to the component 1 only and, in particular, to the face thereof which forms the inner surface of the tray. When cuts 113 are provided as shown in Fig. 1, the only possible contact of the foodstuff with the material of component 1 whose surface is not treated, is limited only to the thickness of the same material remained uncovered along the cuts 113. This may be avoided (likewise in the arrangement 315, 317, 319, 321) by providing triangles 119 with folding lines which replace cuts 113, and with folding lines along the bisecting line of the angles which converge towards the bottom 101 of triangles 119. In this case any contact between the foodstuff and the glue fixing the angles and the side walls defined by component 1 is also avoided.

As an aid in the separation of any liquid to be stored in the interspace between the two matched trays, holes 130 may be provided in the bottom and/or the lower part of the side walls defined by regions 107 and 109.

It is understood that the drawing shows an exemplification given only as a practical demonstration of the invention, as this may vary in the forms and dispositions without nevertheless coming out from the scope of the idea on which the same invention is based. The possible presence of reference numbers in the appended claims has the purpose of facilitating

the reading of the claims, reference being made to the description and the drawing, and does not limit the scope of the protection represented by the claims.

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Claims

1. A tray package for bulk products, such as foodstuff, characterized in that it is made up of two components in laminar material: a first inner component (1) making up an internal tray having inclined side walls (107, 109) with extending end regions (121, 123) which can be folded along the edges (111, 115) of the side walls a second outer component (3) making up an external tray (307, 311) matching the internal tray formed by the inner component (1) and being engaged therewith through the end regions (121, 123) which are bent down and glued against the outer surfaces of said side walls (307, 311) of said external tray.

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2. Package according to the preceding claim, characterized in that the side walls (107, 109) of the internal tray and the bottom (101) thereof form dihedrals which are larger than those formed by the side walls (307, 311) and the bottom (301) of the external tray, thus giving rise - when the two trays are assembled - to side walls of substantially triangular cross-section and with three thicknesses of laminar material.

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3. Package according to any preceding claim, characterized in that the edges between adjoining side walls which converge to a same angle are defined by triangular elements (119) or bellows-like elements (319) joined by glueing.

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4. Package according to any preceding claim, characterized in that the first laminate component is made of a material suited for being in contact with foodstuff.

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5. Package according to any preceding claim, characterized in that the two matched trays form an interspace apt to provide heat insulation and to allow the storing of liquid to be separated by the content of the internal tray formed by the first component (1); wherein the latter can be provided with a suitable hole (130) for this purpose.

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6. A tray structure for packaging foodstuff and other products, made of cardboard which may be surface treated; all as above described and represented for exemplification in the attached drawing.

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Fig. 1

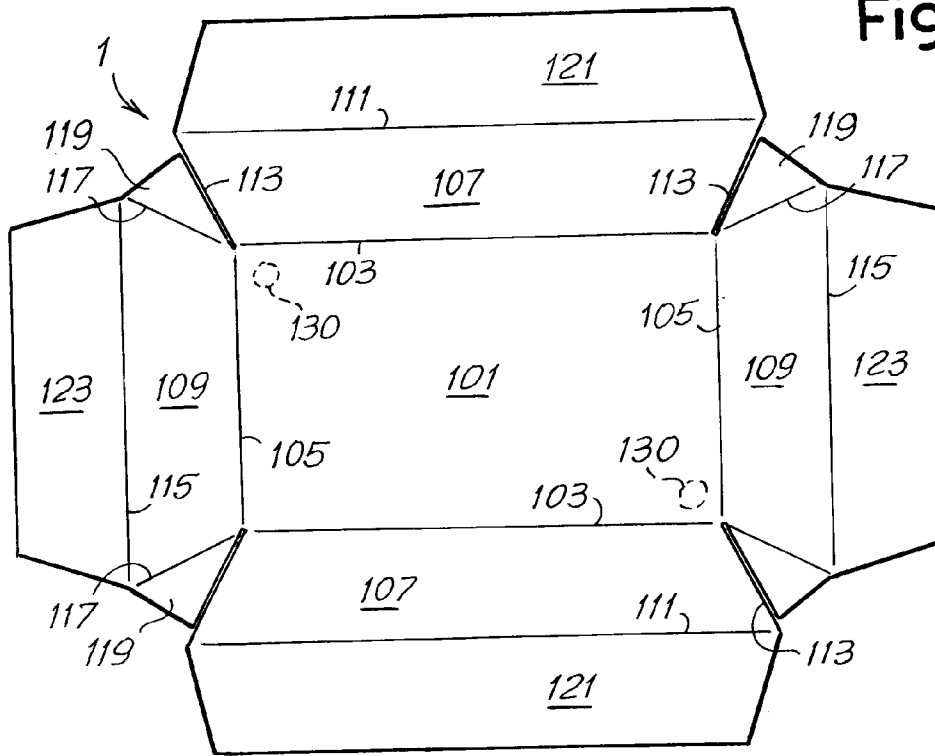


Fig. 3

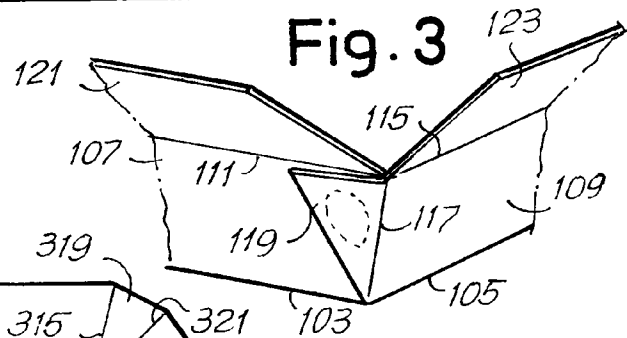


Fig. 2

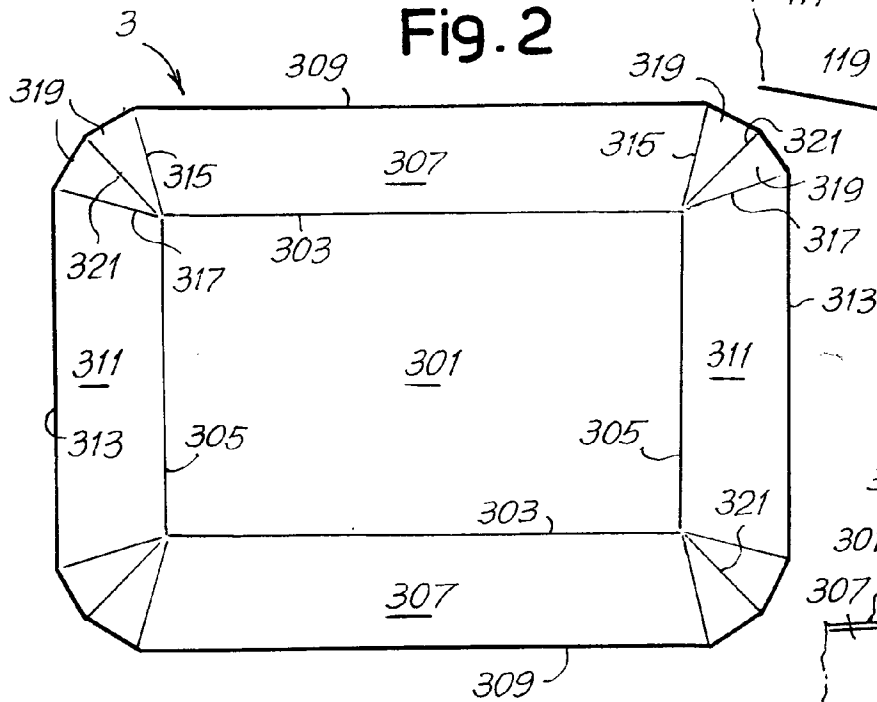
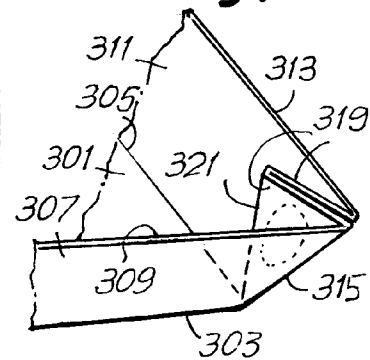


Fig. 4



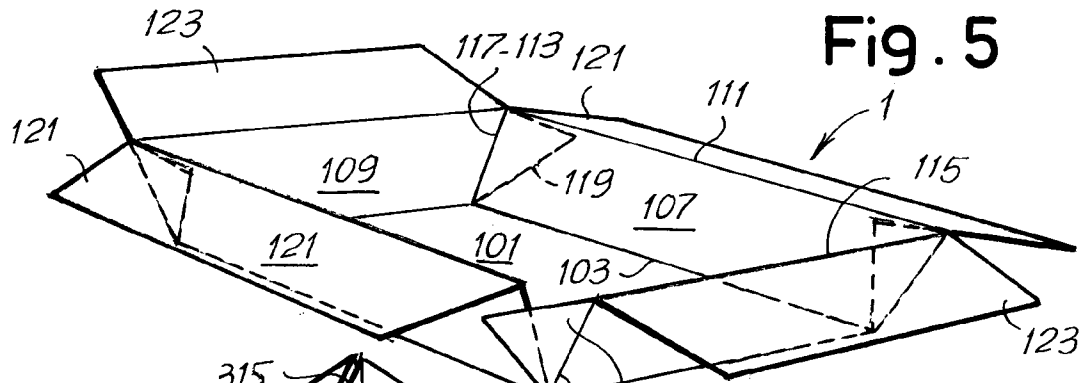


Fig. 5

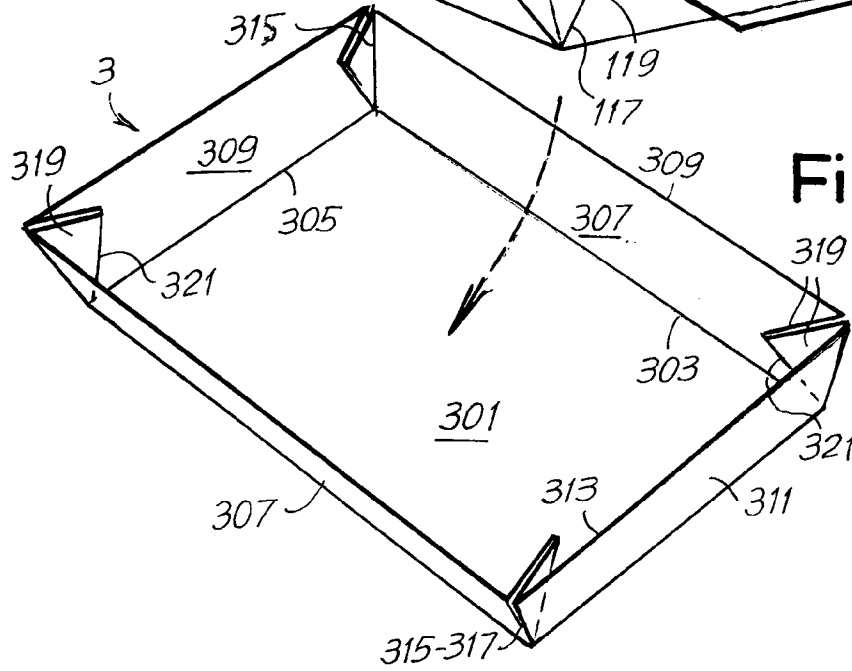


Fig. 6

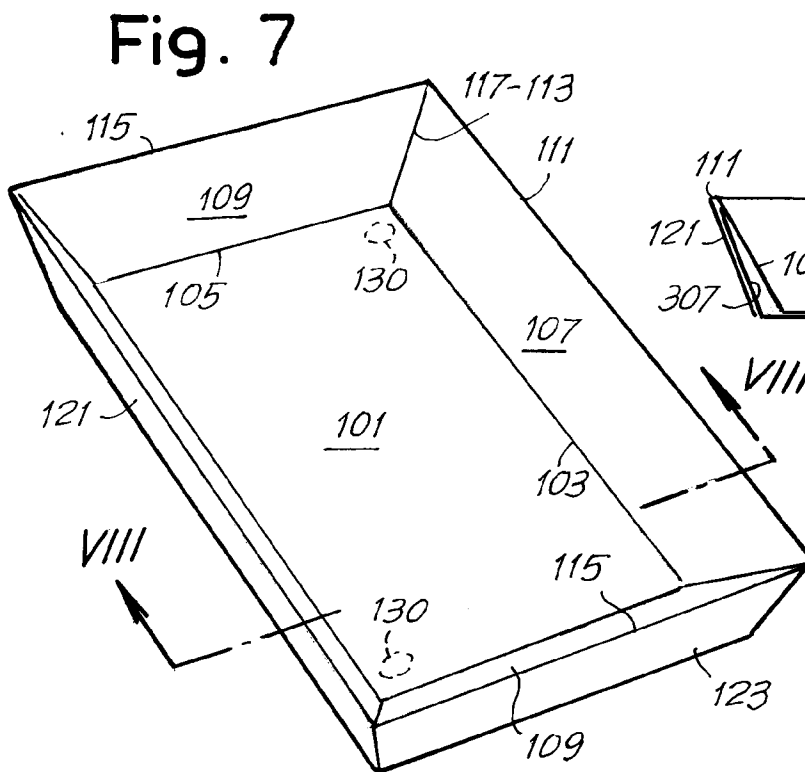


Fig. 7

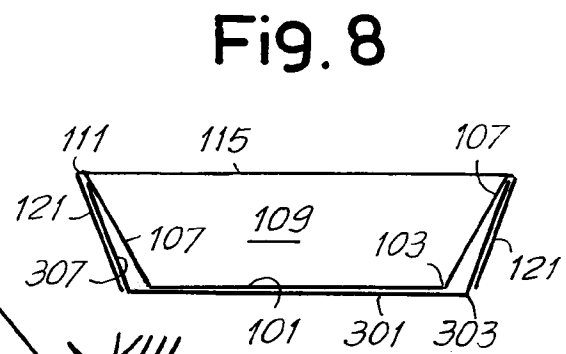


Fig. 8



European Patent
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EUROPEAN SEARCH REPORT

Application Number

EP 92 83 0556

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)
X	GB-A-1 490 701 (BOWATER PACKAGING LIMITED) * the whole document *	1-4, 6	B65D5/56
X	US-A-4 202 465 (MCLAREN) * the whole document *	1-4, 6	
A	US-A-2 893 617 (GEORGE) * the whole document *	1-4	
A	FR-A-2 579 175 (SOCIÉTÉ CONTINENTALE DU CARTON ONDULE SOCAR) * page 5, line 18 - page 7, line 26; figures 1-6 *	1-4	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 04 FEBRUARY 1993	Examiner ELMEROS C.
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			

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