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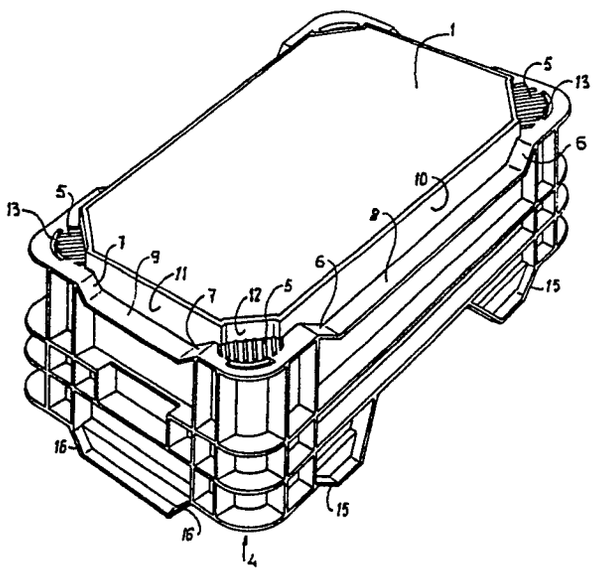
(54) Stackable tray.

(57) Tray, adapted for stacking comprising a bottom, two long side walls and two short side walls, the long and short side walls being connected to each other at the corners of the tray at which corners, along the bottom sides thereof, a horizontally extending supporting ledge (5) bounded at the inside by a vertically running border (12) being formed, and on either side of each corner an upward-running step (15,16) into the top edges of the tray is formed, said supporting ledge (5) being provided with a recess and the top edge of the tray being provided at each corner with a projection, the recess being able to accommodate the projection of a tray lying underneath. Preferably on either side of each corner an upward-running step (6,7) is formed in a supporting ledge (8,9) at the bottom side of the tray, said steps being able to accommodate the above-mentioned steps (15,16) in the top edges of a tray lying underneath.

Fig-2



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Stackable tray.

The invention relates to a crate or tray, a number of which can be stacked on top of each other into a stable stack, comprising a generally rectangular bottom, two long side walls standing at right angles to the bottom and connected to the longitudinal sides thereof, and two short side walls standing at right angles to the bottom and connected to the short sides thereof, the long and short side walls being connected to each other at the corners of the tray and being essentially the same height, and at least at these corners, along the bottom sides thereof, a horizontally running supporting ledge bounded at the inside by a vertically running border being formed, so that when a number of trays are stacked on each other a top tray always rests with its supporting ledges on the top sides of the walls of a tray lying underneath, the borders gripping behind said top sides. A tray of this type is generally known.

In addition, a stackable tray of a second type is known, having at each of the four corners a corner pillar, of which the top part projects beyond the top edges of the tray, and of which the bottom end forms a recessed supporting face at the bottom of the tray, so that the tray can rest with said supporting faces on the tops of the corner pillars of a tray lying underneath. This type of tray has in the bottom side horizontal ledges which run along the short and long sides, are bounded by vertical borders, and merge by means of steps into the above-mentioned lower-lying supporting faces.

The disadvantage of the known trays is that they cannot be stacked with trays of a different type, so that only trays of one and the same type can be stacked on top of each other into a stable stack.

The object of the invention is to produce a tray of which a number can be stacked on each other into a stable stack, and which can be stacked both with trays of the first type mentioned in the preamble and with trays of the above-mentioned second type.

This object is achieved through the fact that in the tray according to the invention the supporting ledge is enlarged inwards at the bottom side of each corner of the tray for the formation of supporting faces with which the tray can rest on the top sides of the corner pillars of a tray of the above-mentioned second type, while the vertically running borders bounding these supporting faces grip behind the top edges of the corner pillars, and on either side of each corner an upward-running step into the top edges of the tray is formed, said steps being able to accommodate the ledges, lying on either side of each corner and bounded by vertical borders, at the bottom of a tray of the above-mentioned second type placed on the tray, the above-mentioned supporting face at the bottom side of each corner being provided with a recess and the top edge of the tray at each corner being provided with a projection which can be received by the recess when a number of trays are stacked on top of each other.

An upward-running step is preferably formed on either side of each corner, in the supporting ledge at the bottom of the tray, said steps being able to receive the above-mentioned steps in the top edges of a tray lying underneath.

The steps in the top edges are advantageously of a width which is less than the width of the top edges.

The top sides of the steps in the top edges of the short sides of the tray preferably merge into each other.

The invention is explained in greater detail with reference to the drawing, in which:

Fig. 1 shows a tray according to the invention;

Fig. 2 shows this tray turned upside down;

Fig. 3 shows at top and bottom a part of the tray according to Figs. 1 and 2, with a part of a tray of the first known type mentioned in the preamble between them; and

Fig. 4 shows at top and bottom a part of the tray according to Figs. 1 and 2 with a part of a tray of the above-mentioned second known type between them.

As shown in Figs. 1 and 2, the tray has a bottom 1, two long side walls 2, and two short side walls 3, which are joined to each other at the corners 4 of the tray.

Supporting faces 5, which are provided with grooves and merge via steps 6, 7 into supporting ledges 8, 9, are formed at the bottom sides of the corners 4, the supporting ledges 8 and the supporting ledges 9 being bounded at the inside by a vertically running border 10, 11. The borders 10 and 11 are connected to each other at the corners 4 by means of the border parts 12.

Each supporting face 5 has formed in it an arch-shaped recess 13 which can accommodate a correspondingly arch-shaped projection 14 on the top edge of a tray lying underneath, so that a stable stack of trays can be built up.

On either side of each corner 4 of the tray, at the top edges of the tray, steps 15, 16, which can receive the steps 6, 7 of a tray lying above, are formed. The steps 15 and 16 are of a lower width than the top edges of the tray, while the top sides of the steps 16 merge into each other to form one

continuous top side 17.

As shown in Fig. 3, in the centre, the known tray of the first type has at the corners thereof supporting ledges 18 and 19 which are bounded at the insides by the vertical borders 20, 21. When this tray is stacked on a tray according to the invention, the ledges 18 rest on the top edges 15' of the steps 15 and the ledges 19 on the continuous top side 17 of the steps 16, while the borders 20 grip behind the steps 15 and the borders 21 behind the steps 16, so that a stable stack is obtained.

The top sides 22 of the corners of the tray of the known first type are designed as an angular bearing face on which the bearing face 5 of a tray according to the invention lying above can come to rest, while parts of the borders 10 and 11 and the entire border 12 grip behind the bearing face 22.

As shown in Fig. 4, in the centre, the tray of the second known type has at each corner a corner pillar 23 which projects beyond the top edge of the tray, and which forms a recessed supporting face 24 at the bottom end. This tray also has at the bottom side, on either side of the recessed supporting face 24, supporting ledges 25, 26 which are bounded by the borders 27, 28.

When a tray according to the invention is stacked on this known tray, the supporting faces 5 come to rest on the top sides of the pillars 23, the border parts 12 gripping behind said pillars, so that a stable stack is obtained.

During the stacking of this known tray on a tray according to the invention, the first-mentioned tray rests at 24 on the top sides of the corners of the tray according to the invention, the borders 27 and 28 gripping behind the steps 16, 15 of the tray according to the invention.

Claims

1. Crate or tray, a number of which can be stacked on top of each other into a stable stack, comprising a generally rectangular bottom, two long side walls standing at right angles to the bottom and connected to the longitudinal sides thereof, and two short side walls standing at right angles to the bottom and connected to the short sides thereof, the long and short side walls being connected to each other at the corners of the tray and being essentially the same height, and at least at these corners, along the bottom sides thereof, a horizontally running supporting ledge bounded at the inside by a vertically running border being formed, so that when a number of trays are stacked on each other a top tray always rests with its supporting ledges on the top sides of the walls of a tray lying underneath, the borders gripping behind said top sides, characterized in that the supporting ledge is enlarged inwards at the bottom side of each corner of the tray for the formation of supporting faces with which the tray can rest on the top sides of the corner pillars of a tray of another known type, while the vertically running borders bounding these supporting faces engage behind the top edges of the corner pillars, and on either side of each corner an upward-running step into the top edges of the tray is formed, said steps being able to accommodate the ledges, lying on either side of each corner and bounded by vertical borders, at the bottom of a tray of the above-mentioned other type placed on the tray, the above-mentioned supporting face at the bottom side of each corner being provided with a recess and the top edge of the tray being provided at each corner with a projection, the recess being able to accommodate the projection of a tray lying underneath.

2. Tray according to Claim 1, characterized in that on either side of each corner an upward-running step is formed in the supporting ledge at the bottom side of the tray, said steps being able to accommodate the above-mentioned steps in the top edges of a tray lying underneath.

3. Tray according to Claim 1 or 2, characterized in that the steps in the top edges are of a width which is less than the width of the top edges of the tray.

4. Tray according to Claims 1 - 3, characterized in that the top sides of the steps merge into each other in the top edges of the short sides of the tray.

Fig-1

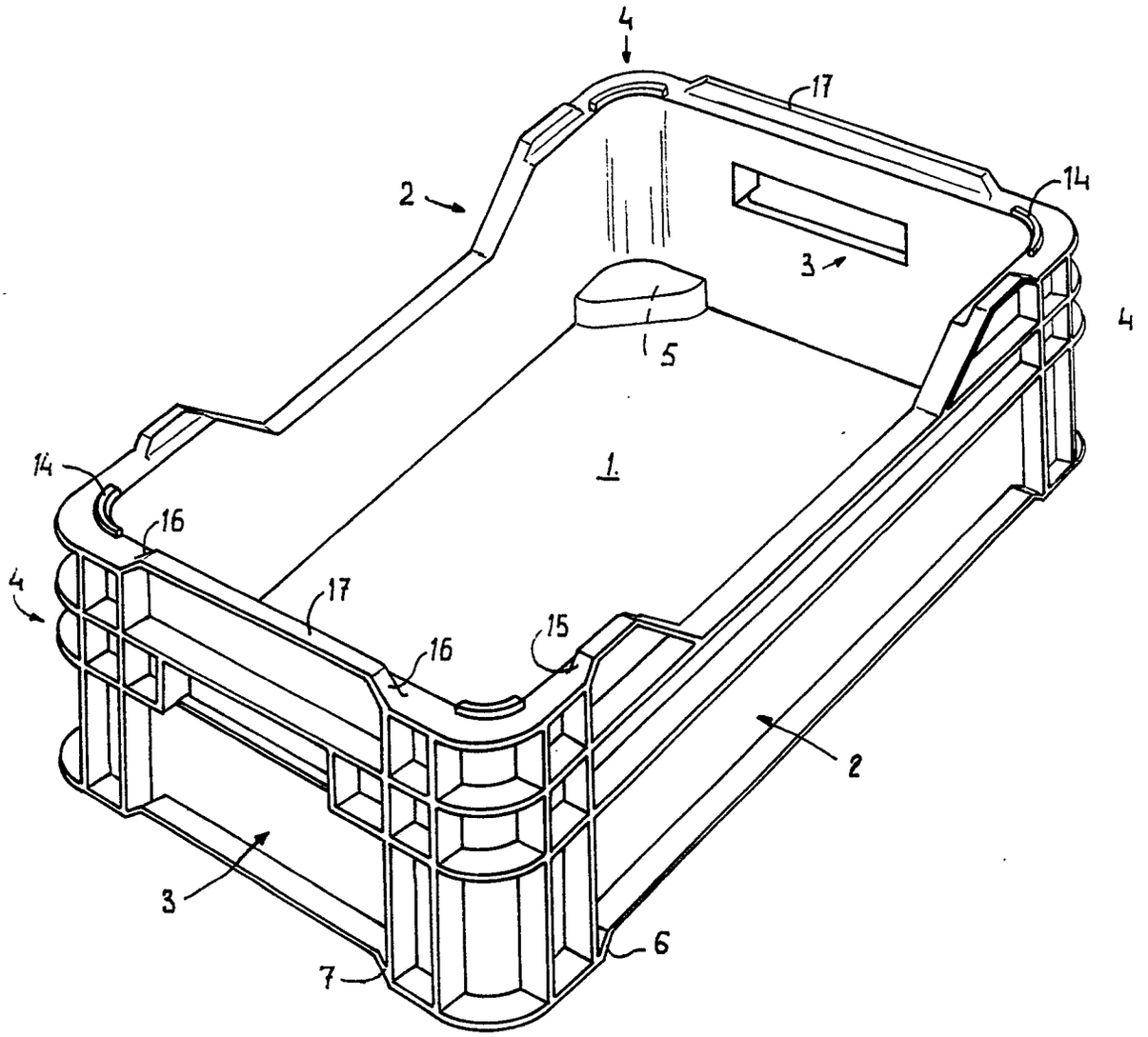


Fig-2

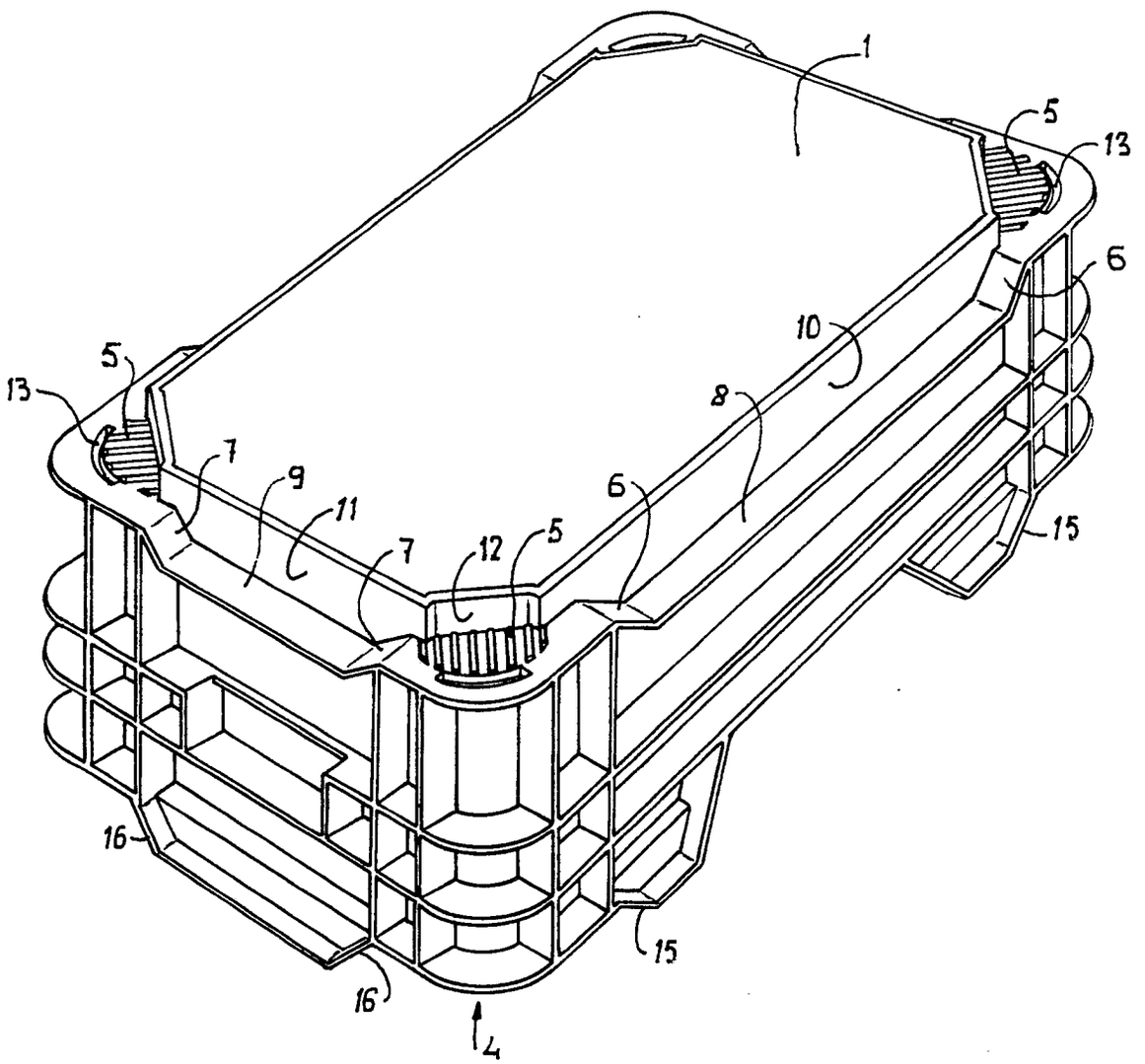
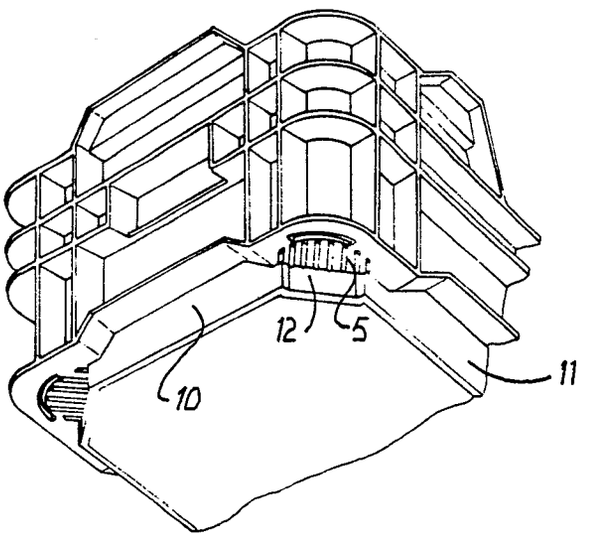
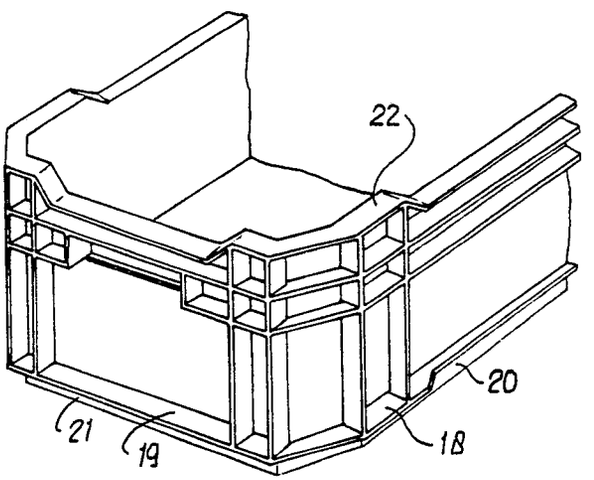


Fig - 3





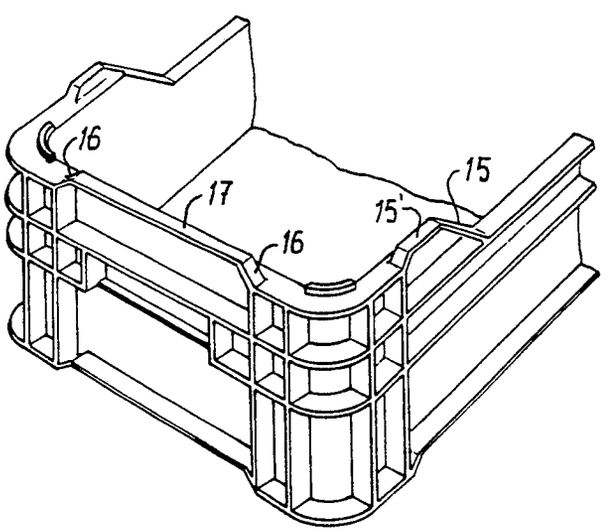
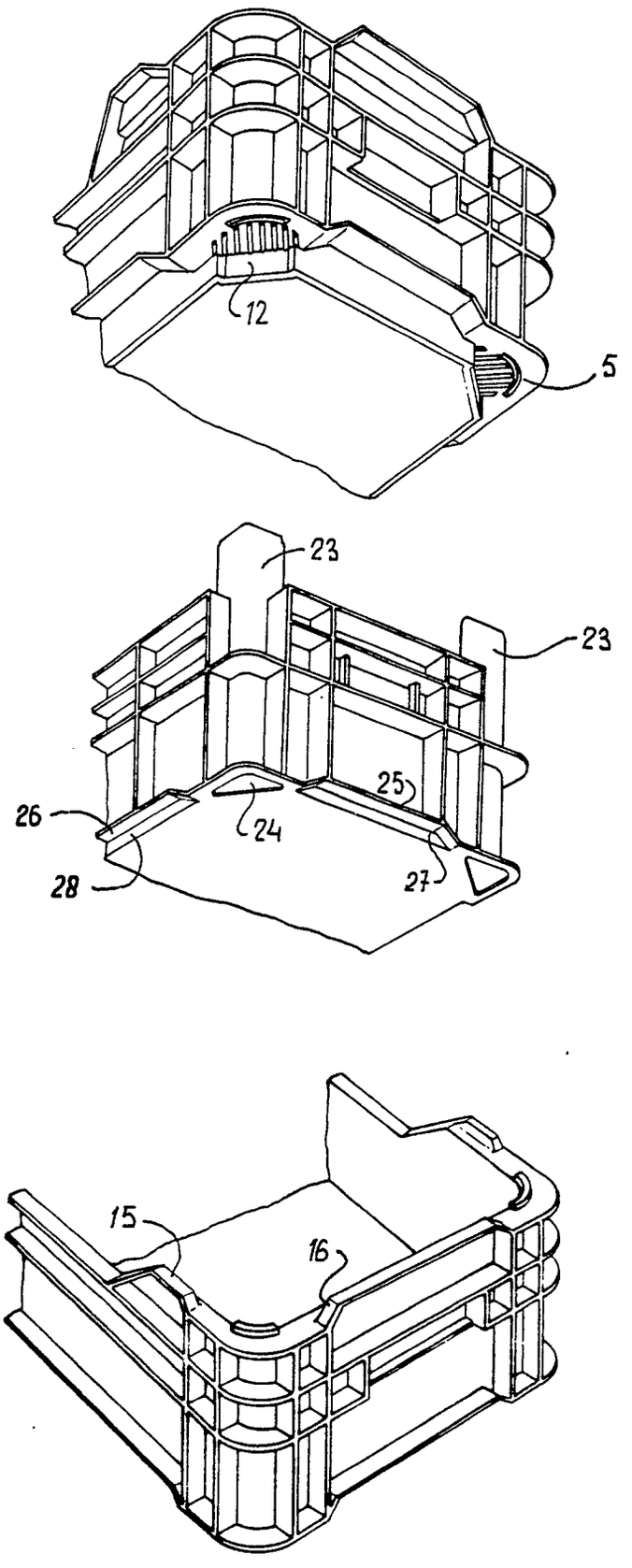


Fig-4



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EUROPEAN SEARCH REPORT

Application Number

EP 89 20 3024

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)
Y	FR-A-2 170 242 (G. UTZ AG) * Page 2, lines 1-23; figures 1-5 *	1,4	B 65 D 21/02 B 65 D 1/38
Y	DE-A-2 104 389 (VER. DEUTSCHE METALLWERKE AG) * Page 9, lines 12-21; figures 1-3 *	1,4	
A	GB-A- 952 979 (A. SCHOELLER) * page 2, line 123 - page 3, line 18; figures 1-4,10-12 *	1,3,4	
A	GB-A-2 204 021 (ELOPAK LTD) * Page 2, line 24 - page 3, line 4; figures 1-4 *	2	
A	EP-A-0 068 576 (WAVIN BV)		
A	US-A-3 303 965 (PARKER)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
B 65 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	19-02-1990	BERRINGTON N.M.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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