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(54) Lid for oval shaped containers.

(57) A container with a lid both consisting of plastic material are of oval or similar shape with substantially semi-circular short sides (6) and long sides (8) which are straight or have a large radius of curvature in relation to the radius of curvature of the short sides. The edge portion of the lid has a peripheral edge flange which encloses an edge portion positioned at the mouth of the container and at its surface facing this edge portion has an inwardly directed continuous projection for releasably retaining the lid to the container. The downwardly directed edge flange of the lid is between the short sides and the long sides divided by means of vertical slots (40) for providing edge flange sections (36, 28) at the short sides and the long sides which are separated from each other. Above the inwardly directed projection the edge flange sections of the short sides have a hinge which allows that the projection is at the edge flange sections of the short sides displaced from the retaining position.

Fig.1a.

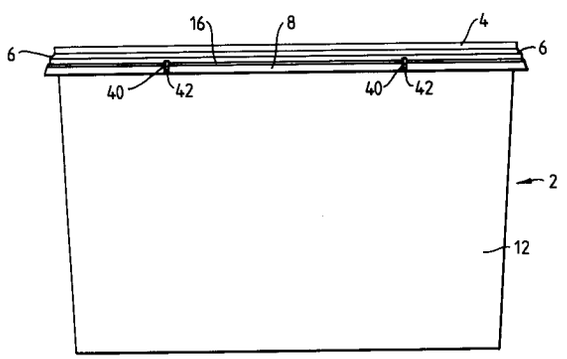
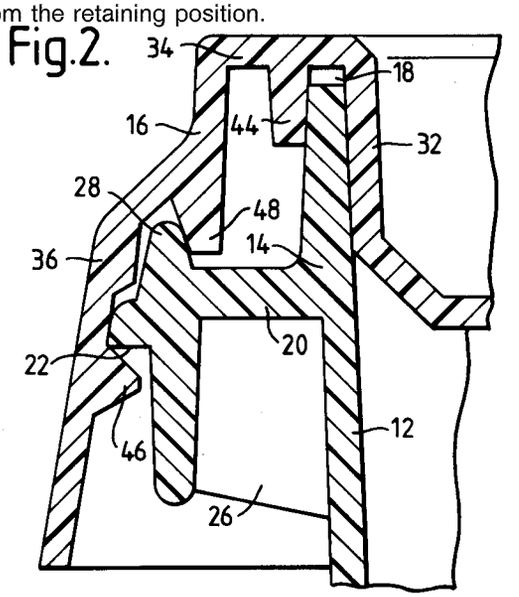


Fig.2.



EP 0 613 830 A1

The present invention relates to a container with a lid, the container as well as the lid consisting of plastic material.

Containers of different kinds and for different purposes, for example plastic containers for paint, food-stuffs and so on are usually closed by means of a lid of plastic material, the lid being forced over the edge portion of the container. Thereby it is usual that the edge portion of the lid has a continuous, downwardly directed edge flange enclosing the edge portion at the mouth of the container and having at its surface facing the edge portion an inwardly directed, continuous projection which for releasably retaining the lid to the container engages below a downwardly facing engagement surface of said edge portion of the container.

Especially at such containers which have an oval shape or the like, i.e. containers in which the mouth portion of the container and the lid have substantially semi-circular short sides and long sides which are straight or have a large radius of curvature in relation to the short sides it is a problem to design the lid and the edge portion of the container so that the lid tightly closes the container but in spite thereof is easily removable when the container shall be opened.

The object of the invention is to provide a container with a lid, both consisting of plastic material, wherein the mouth section of the container and the lid are of oval shape or the like and wherein said problems with regard to the tight closure of the container and the removal of the lid from the container have been solved.

In order to comply with this object the container with a lid according to the invention is characterized in that the downwardly directed edge flange of the lid is between the short sides and the long sides divided by means of vertical slots for providing separate edge flange sections at the short sides and the long sides and that the edge flange sections of the short sides have above the inwardly directed projection a hinge formed by means of material reduction allowing that the projection is at the edge flange sections of the short sides displaced from engagement with the downwardly facing engagement surface of the edge portion of the container by pivoting the edge portion of the flange sections of the short sides positioned below the hinge outwardly around the hinge.

In a preferred embodiment of the container with a lid according to the invention the edge portion of the edge flange sections of the short sides, which is positioned below the hinge forms bistable locking flanges which as a preparation for the removal of the lid from the container is adapted to be pivoted upwards to a stable position in which the projection at the edge flange sections of the short side is substantially out of engagement with the downwardly facing engagement surface of the edge portion of the container.

In a container with a lid according to the invention the lid can conveniently be removed by displacing the edge flange sections of the short sides from engagement with the engagement surface of the edge portion of the container without having any influence on the edge flange sections of the long sides. This is preferably provided by pivoting the edge portions of the edge flange sections of the short sides positioned below the hinge upwards to a stable position, whereupon the lid is retained on the container only by the fact that the edge flange sections of the long sides by means of their projections engage with the downwardly facing engagement surface of the edge portion of the container, said engagement being easily overcome when the lid shall be removed because of the fact that the edge flange sections of the long sides have a straight or only slightly curved shape.

The design of the container with a lid according to the invention allows that the lid is provided with such a pretension in relation to the edge portion of the container that the sealing of the container by means of the lid is guaranted.

Preferably the edge flange sections of the long sides are formed without any hinges provided by material reduction which provides for an additional security with regard to the tightness. In a preferred embodiment of the invention the flange portion of the container is constituted by an upwardly directed wall portion having a free upper edge surface and a radially outwardly directed lip forming at its outer edge said downwardly facing engagement surface of the edge portion of the container. Preferably the radially outwardly directed lip at the long sides of the container and the edge flange sections of the long sided of the lid are provided with cooperating engagement means positioned above the inwardly directed projection of the lid and the downwardly facing engagement surface of the edge portion of the container so as releasably to restrict outwardly directed deflection of the edge flange sections of the long sides to a position in which the inwardly directed projection is out of engagement with the downwardly facing engagement surface. The engagement means are suitably constituted by an upwardly directed projection on the radially outwardly directed lip and a downwardly directed projection on the edge flange of the lid. The downwardly directed projection on the edge flange of the lid can be designed so as to prevent that the lids are compressed to a position wherein it is difficult to separate the lids from each other when stacking several lids on each other.

The invention shall be described in the following with reference to the accompanying drawings.

Figs. 1a and 1b are a side view and a plan view, respectively, of an embodiment of an oval container with a lid according to the invention.

Fig. 2 is a section along line II-II of Fig. 1b on an enlarged scale.

Fig. 3 is a section along line III-III of Fig. 1b on an enlarged scale.

Fig. 4 is a section corresponding to Fig. 3 as the removal of the lid has been initiated.

Fig. 5 is a section showing the stacking of two lids on each other.

Figs. 1a and 1b show a container 2 having a lid 4. The container and the lid consist of plastic material. The container 2 and the lid 4 are of oval shape having two semi-circular short sides 4 and two straight long sides 8.

The container 2 has in a conventional way a bottom 10 and a continuous side wall 12. The side wall 12 has an edge portion 14 which is formed so as sealingly to engage an edge portion 16 of the lid 4.

The edge portion 14 of the container forms an upper sealing edge 18 and a radially projecting lip 20 positioned at somewhat distance below the sealing edge 18 and forming at its peripheral edge a downwardly facing engagement surface 22. Inside the engagement surface 22 the lip 20 has a downwardly directed peripheral wall portion 24 which is connected with the wall 12 of teh container by means of radially extending reinforcing ribs 26. At the long sides 8 shown in section in Fig. 2 the radially projecting lip 20 has an outwardly directed projection 28 while the lip 20 at the short sides 6 shown in section in Fig. 3 has a flat upper surface.

The edge portion 14 of the container is enclosed by the edge portion 16 of the lid, said edge portion 16 forming a downwardly open peripheral recess 30 defined by an inner wall 32, an upper wall 34 and an outer wall which forms an edge flange. At its long sides 8 the lid has an edge flange 36 while the lid has at its short sides 6 a somewhat differently designed edge flange 38. The edge flanges 36 and 38 are separated from each other by means of vertical slots 40 (see Figs. 1a and 1b). At their lower ends the slots 40 are provided with sealing means 42 constituted by easily breakable pins.

The upper wall 34 has at its inner surface a central, downwardly directed peripheral lip 44 which together with the wall 32 forms a groove sealingly engaged by the sealing edge 18 of the container.

The edge flange of the lid 4 forming edge flange portions 36 and 38 which are separated from each other has a continuous inwardly directed projection 46 engaging beneath the downwardly facing engagement surface 22 of the lip 20 so as to retain the lid to the container.

The edge flange sections 36 at the long sides 8 of the lid are provided with an inner, downwardly directed projection 48 engaging the upwardly directed projection 28 on the radially directed lip 20. The engagement between the projections 28 and 48 provides for an improved stability of the straight edge flange sections 36 and provides that the straight edge flange sections has to be subjected to a certain force for displacing the projection 46 out of engagement with the engagement surface 22. At the semi-circular short sides of the lid the edge flange portions 38 have immediately above the projection 46 an inner groove 50 forming a hinge providing that the lower portion of the edge flanges 38 will constitute bistable locking flanges 52 which are pivotable between a first stable position according to Fig. 3 and a second upwardly pivoted stable position according to Fig. 4. In the upwardly pivoted position according to Fig. 4 the inwardly directed projection 46 has been displaced from engagement with the engagement surface 22 providing that the lid can be removed from the container by the fact that the straight edge flange sections 36 are deflected from the position in which the projections 46 engage the engagement surfaces 22.

When the lid shall be removed from the container the bistable locking flanges 52 on the edge flange sections 38 are initially displaced to the outwardly pivoted position according to Fig. 4, the sealing means 42 in the vertical slots 40 between the edge flange sections 36 and the edge flange sections 38 being thereby broken. This provides an indication showing that the container has been open even if the lid is replaced on the container. After the bistable locking flanges 52 have been pivoted upwards the lid can be removed from the container by the fact that the straight edge flange sections 36 are pivoted outwardly from the position in which the projections 46 engages the engagement surfaces 22. This pivotal movement of the edge flange sections 36 does normally not require any other measure than pulling the lid from the container which provides that the edge flange sections 36 resiliently spring out to the releasing position.

In Fig. 5 there is shown the stacking of two lids on each other, the figure showing that the downwardly directed projections 48 on the edge flange sections 36 by engaging the upper surface of the wall 34 of a lid positioned below prevent the lids form being forced together to a position from which it is difficult to separate the lids.

The invention can be modified within the scope of the following claims.

Claims

1. A container with a lid, both consisting of plastic material, the mouth portion of the container (2) and the lid (4) being of oval or similar shape with substantially semi-circular short sides (6) and long sides (8) which are straight or have a large radius of curvature in relation to the short sides, the edge portion of the lid having a peripheral edge flange (36, 38) enclosing an edge portion (14) at the mouth of the container and having at its surface facing the edge portion (14) an inwardly directed, continuous projection (46) engaging beneath a downwardly facing engagement surface (22) on the edge portion of the lid for releasably retaining the lid to the container, **characterized** in that the downwardly directed edge flange of the lid is between the short sides and the long sides at least below the projection (46) divided by means of vertical slots (40) for providing at the short sides and the long sides edge flange sections (36, 38) which are separated from each other and that the edge flange sections of the short sides have above the inwardly directed projection a hinge (50) provided by material reduction and allowing that the projection is at the edge flange sections of the short sides displaced out of engagement with the downwardly facing engagement surface of the edge portion of the container by pivoting the edge portion of the edge flange sections of the short sides positioned below the hinge outwardly around the hinge.

2. A container with a lid according to claim 1, **characterized** in that the edge portion of the edge flange sections (38) of the short sides positioned beneath the hinge (50) form bistable locking flanges (52) which are adapted as a preparation to the removal of the lid from the container to be pivoted upwards to a stable position in which the projection at the edge flange sections of the short sides is substantially out of engagement with the downwardly facing engagement surface of the edge portion of the container.

3. A container with a lid according to claim 1 or 2, **characterized** in that the edge flange sections (36) of the long sides are formed without any hinge provided by material reduction.

4. A container with a lid according to any of the preceding claims, **characterized** in that the edge flange (36, 38) of the lid forms an outer wall of a downwardly open peripheral recess sealingly receiving the edge portion positioned at the mouth of the container.

5. A container with a lid according to any of the preceding claims, **characterized** in that the edge portion (14) of the container is formed by an upwardly extending wall portion having a free upper edge surface and a radially outwardly directed lip (20) which at its outer edge forms the downwardly facing engagement surface (22) of the edge portion of the container.

6. A container with a lid according to claim 5, **characterized** in that the radially outwardly directed lip (20) at the long sides of the container and the edge flange sections at the long sides of the lid are provided with engagement means (28, 48) which are positioned above the inwardly directed projection of the lid and the downwardly facing engagement surface of the edge portion of the container and are provided releasably to restrict outwardly directed deflection of the edge flange sections (36) of the long sides to a position in which the inwardly directed projection is out of engagement with the downwardly facing engagement surface.

7. A container with a lid according to claim 6, **characterized** in that the engagement means are constituted by an upwardly directed projection (28) on the radially outwardly directed lip (20) and a downwardly directed projection (48) on the edge flange of the lid.

8. A container with a lid according to any of the preceding claims, **characterized** in that the slots (40) are between the edge flange sections provided with sealing means (48) adapted to be broken as a consequence of the pivotal movement of the edge flange sections of the short sides.

Fig.1a.

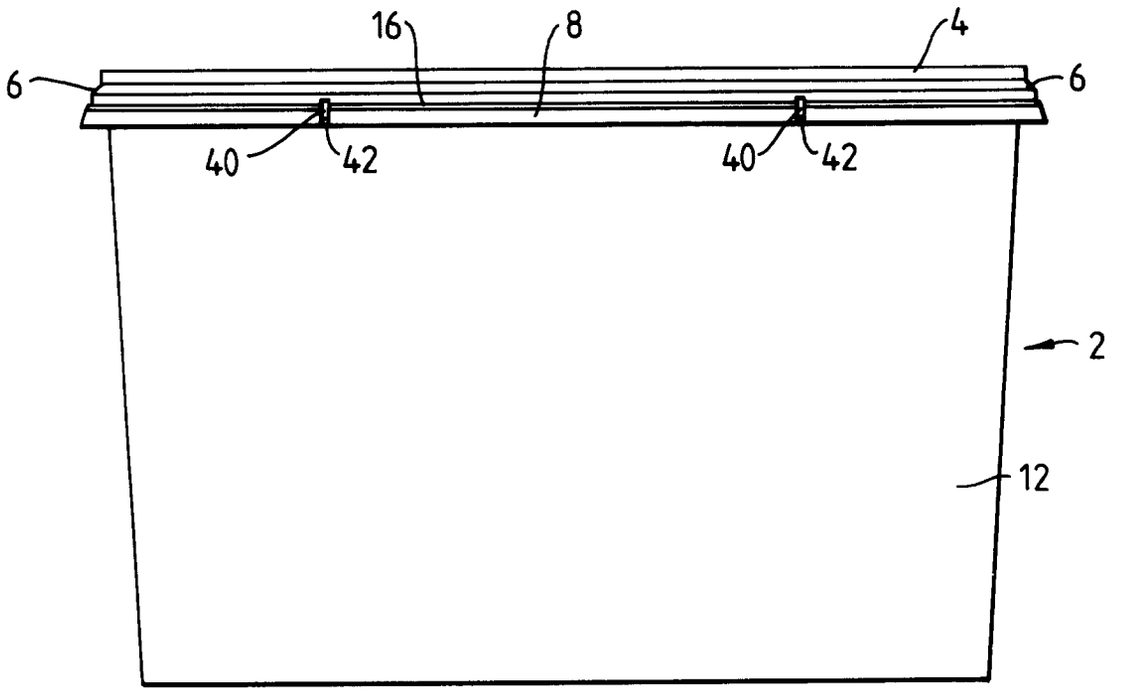


Fig.1b.

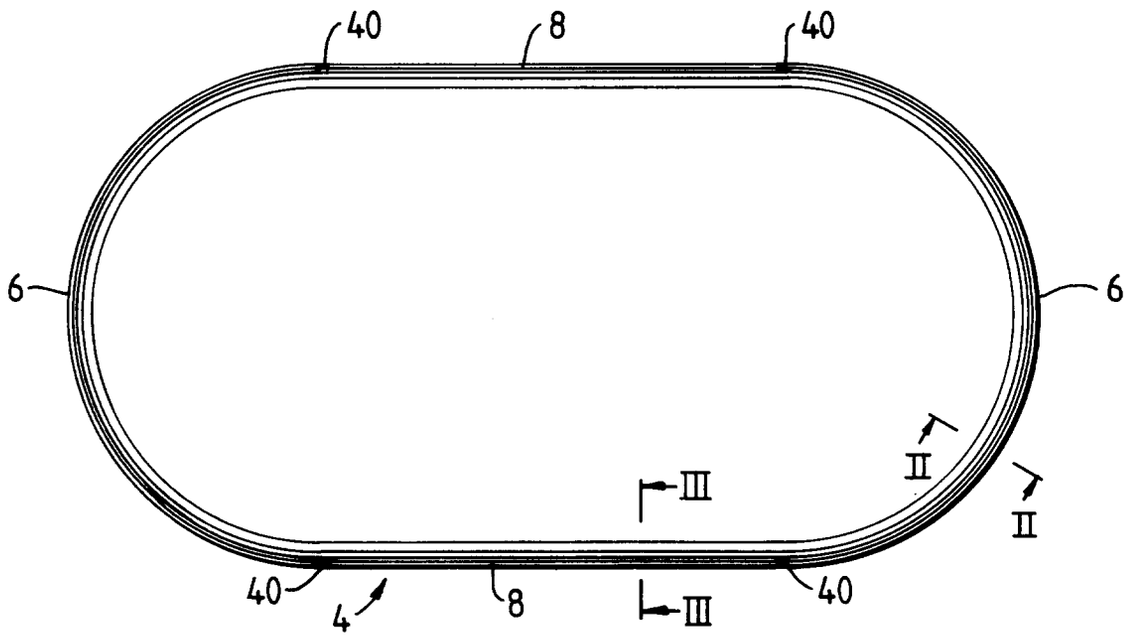


Fig.2.

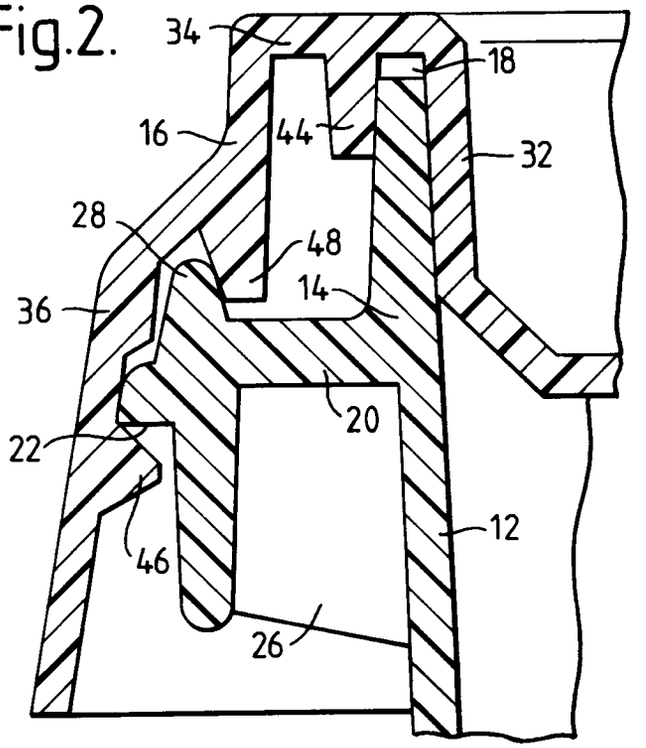


Fig.3.

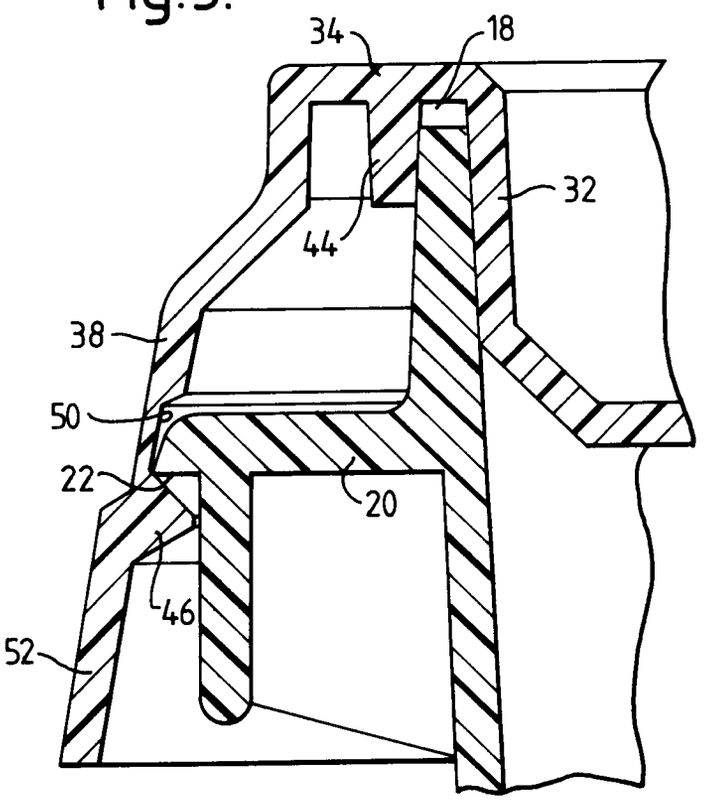


Fig. 4.

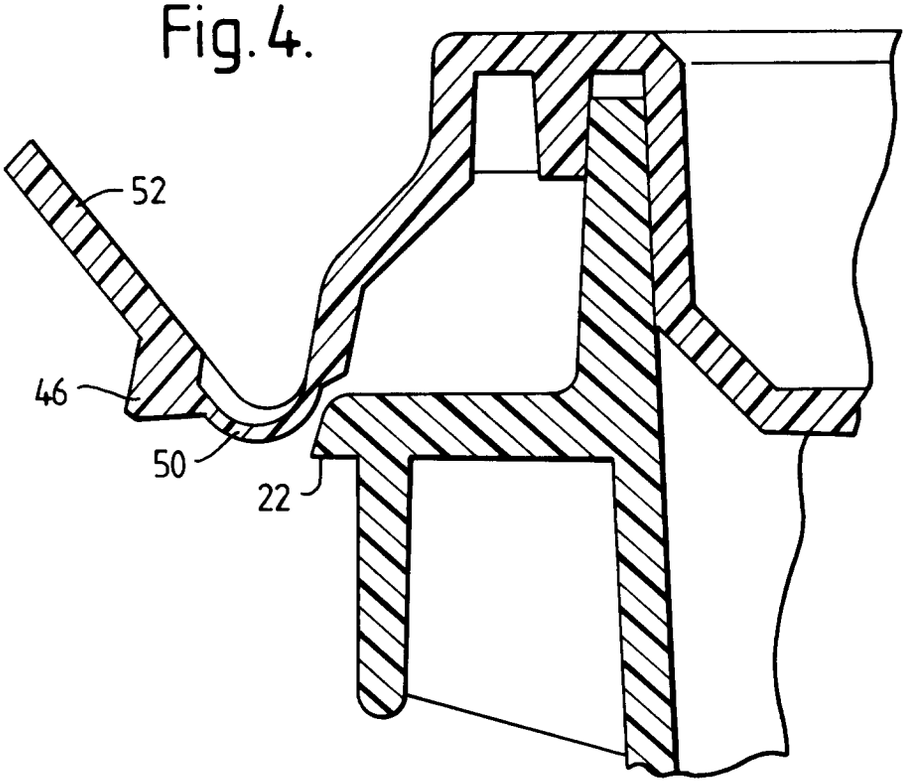
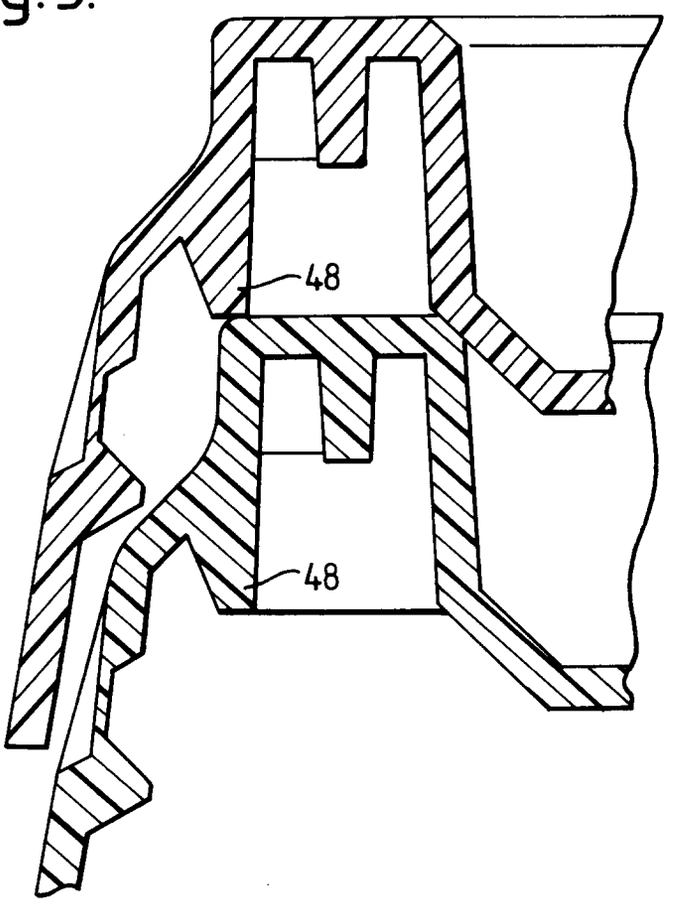


Fig. 5.



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EUROPEAN SEARCH REPORT

Application Number
EP 94 10 2275

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	EP-A-0 269 032 (LAGAN PLAST AB) * the whole document *	1-8	B65D43/06
Y	DE-U-88 00 906 (WESTFORM GMBH) * page 3, last paragraph - page 4, paragraph 1; figures 1-3 *	1-8	
A,P	EP-A-0 538 654 (LAGAN PLAST AB) * column 4, line 38 - column 6, line 6; figures 1-3,5 *	1-8	
A	US-A-3 688 942 (R. MITCHELL) * the whole document *	1-8	
A	EP-A-0 412 231 (E. SAIER GMBH) * the whole document *	1-8	
A	DE-U-92 00 670 (R. RASSBACH GMBH) * last paragraph; figure 1 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	9 June 1994	Pernice, C

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