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(54) **Easy-open/reclosure device for flat top carton having deformable pour spout.**

(57) The present invention pertains to easy-open/reclosure devices (20) for containers, and more particularly to easy-open/reclosure devices that are intended to be applied to the top lid (12) of a beverage container (10) having a flat top. In particular the easy-open/reclosure device will form a concave trough-shaped pouring spout by deformation of an essentially flat pouring lip (32) upon application to the container.

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TECHNICAL FIELD

The present invention pertains to easy-open/reclosure devices for containers, and more particularly to easy-open/reclosure devices that are intended to be applied to the top lid of a beverage container having a flat top. In particular the easy-open/reclosure device will form a concave trough-shaped pouring spout by deformation of an essentially flat pouring lip upon application to the container.

BACKGROUND TO THE INVENTION

For the user's convenience, most beverage containers are provided with some type of easy-opening feature, examples of which include a pre-scored pull tab in the container's lid or an adhesive tape covering a pre-cut dispensing aperture. These types of easy-open beverage containers are generally acceptable if the container's contents are entirely consumed or dispensed shortly after opening. However, in instances where the container's contents are only partially consumed and stored, these containers are objectionable and inconvenient because they cannot be reclosed. The absence of a reclosing feature not only makes it difficult to keep the container's contents fresh and foreign matter such as dirt and dust from entering the container, but also makes it very difficult and awkward

Recent attempts to provide an easy-open beverage container with reclosing means have only achieved partial success. One such attempt is generally shown in U.S. Patent Nos. 4,164,303 and 4,232,797, both to Waterbury. Waterbury discloses several embodiments of an articulated closure element that is hingedly attached to the top lid of a container having a peripheral rim. The closure element has a depending plug or bead on its undersurface that is shaped complementarily to a pre-cut dispensing aperture in the container's lid. After the container is initially opened and a portion of its contents dispensed, the container may be reclosed by returning the closure element to its original position such that the depending plug or bead enters the dispensing aperture.

Although Waterbury's articulated closure element does allow a beverage container to be reclosed after it is initially opened, consumers nevertheless find this general type of reclosable container to be objectionable. Specifically, when a portion of the beverage is dispensed, some of the beverage inevitably becomes trapped between the container's dispensing aperture and upstanding rim or runs down its side walls if there is no rim. After the container is returned to its upright position, this residual tends to spread out over the container's lid and side walls and, if the beverage is sweet such as fruit juice, dries to a sticky mess that attracts dust, dirt, insects and other foreign matter.

Commonly assigned U.S. Patent No. 4,582,216 to Byrd illustrates a pouring/reclosing device that is intended to be attached to a container's top lid after the container has been opened. In addition to having a reclosing feature, Byrd's device includes a downwardly-projecting, U-shaped flange in the base portion that receives and snugly engages the container's upstanding rim when the device is applied to the container's top lid, and a pouring lip/drain surface integrally formed between the base portion's dispensing aperture and the downwardly projecting U-shaped flange. After Byrd's device is secured to a beverage container's lid and the container is tipped, the integral pouring lip/drain surface channels the container's contents up and over the top lid's peripheral edge. Then, when the container is returned to its upright position, the integral pouring lip/drain surface channels any residual product remaining between the top lid's peripheral edge and dispensing aperture back into the container, thereby avoiding the messiness problems discussed above.

Although consumers generally approve of the Byrd reclosing device, it has been found that it is fairly expensive since the pouring/draining surface has to be formed as a stiff construction and hence uses large amounts of raw material. This is not acceptable to many environmentally conscious consumers today.

European application EP-A-291112 discloses a deformable easy-open/reclosure device for rimmed cartons which upon insertion in the top lid of a rimmed carton forms a trough-shaped pouring surface extending beyond the rim and being trough-shaped with the aid of the rim itself. This pouring spout is only useful in the context of rimmed containers. The forming of the trough-shaped pouring surface depends on the rim of the carton and the flexibility, deformability of the pouring spout lip itself. However, this document does not disclose or suggest how to utilize the beneficial deformability, which is associated to low material consumption and the ability to form a trough-shaped pouring surface in situ as well as easy manufacturing of the overall package, in the context of a flat top container.

In light of the above, a principal object of the present invention is to provide a flat top container with an attachable device that can be used to reclose an easy-open container for subsequently storing any remaining beverage and, if applicable, allow the container to be shaken in order to evenly redistribute solids such as fruit pulp.

Another principle object of the present invention is to provide a flat-top container with a device

that channels the container's contents up and over the container's top lid periphery when the container is tipped and also channels any residual product remaining on the pouring/draining surface into the container when the container is returned to its upright position.

A further object of the present invention is to provide a flat-top container with a reclosing device that has a flexible pouring lip which, when the device is applied to the container's top lid, deforms into a trough-shaped pouring/drainback surface that is independent of the location and orientation of the container's dispensing aperture with respect to the top lid's peripheral edge.

Another object of the present invention is to provide a container having a pre-scored dispensing aperture with a device that can be used to initially open the container.

Other objects, advantages, and novel features of the present invention will become apparent to those skilled in the art from the following detailed description, drawings and appended claims.

SUMMARY OF THE INVENTION

In a particularly preferred embodiment of the present invention, an easy-open/reclosable device is provided for a container having an essentially flat top lid, in particular not having an upstanding peripheral rim. The device includes a base portion and a moveable portion preferably hingedly attached thereto. The base portion has a dispensing aperture, a depending flange encircling the aperture and a deformable pouring lip/drain surface. The deformable pouring lip/drain surface has depending from its lower side a deformation rim. The device's moveable portion has a plug member depending therefrom which is shaped complementary to the aperture in the base portion. When the device is applied to the container and the moveable portion is in its closed position, the plug member enters and snugly fits within the base aperture, thereby reclosing the container.

In applying the device to the container's top lid, the flange depending from the base member is pushed through a prescored dispensing aperture in the container's top lid, or snugly pressed into a pre-cut dispensing aperture that was initially covered by, for example, an adhesive tape. As the device is further pressed onto the container's top lid, the deformation rim comes into contact with the container's flat top lid surface and bends the deformable pouring lip upward and inward such that it assumes an inclined, trough-shaped configuration. This resultant shape provides an excellent surface for channeling product up and over the container's peripheral edge when the container is tipped. In addition, the deformed pouring lip/drain surface channels any residual product remaining on this surface back into the container when the container is returned to its upright position.

BRIEF DESCRIPTION OF THE DRAWINGS

While specification concludes with claims that particularly point out and distinctly claim the present invention, it is believed that the present invention will be better understood by reading the following detailed description with reference made to the following drawings in which:

Figure 1 is a perspective view of the top portion of a rimmed container and an easy-open/reclosure device of the present invention shown before it is applied to the container's top lid;

Figure 2 is an enlarged side view of the easy-open/reclosure device shown in Figure 1;

Figure 3 is a front view of the base portion of the easy-open/reclosure device of Figure 2;

Figure 4-6 are front views of the base portion of alternative embodiments of the easy-open/reclosure device according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

As used herein in describing the nature of a dispensing aperture in a container's top lid, the term "pre-cut" generally means an aperture that was cut completely through the top lid at the point of manufacture and initially covered or sealed by, for example, an adhesive tape tab. The term "pre-cut" is also intended to include an aperture that was cut in the outer stiff layer of a lid of laminate construction while one or more inner barrier layers are left intact such as that disclosed in commonly-assigned U.S. Patent No. 4,562,936 (Deflander), which is incorporated herein by reference. The term "pre-scored" generally means that a line of weakness was formed in the top lid by, for example, scoring the lid or the lid's outer layer if of laminate construction. It is to be understood that the present invention can be readily applied to either type of lid aperture.

Figure 1 shows the top portion of a container generally indicated as 10, and an easy-open/reclosing device of the present invention generally indicated as 20 shown before it is applied to container 10. In this exemplary embodiment, container 10 has a generally square or rectangular cross-section with rounded corners. However, container 10 may have other cross-sectional configurations such as circular, oval, polygonal, etc.

Briefly, container 10 comprises a top lid 12 having a pre-scored or pre-cut aperture 18, a body portion 14 and a bottom lid (not shown). In a

particularly preferred embodiment, container 10 is of laminate construction as shown and described in commonly-assigned U.S. Patent No. 4,562,936 to Deflander, which is incorporated herein by reference. The top and bottom lids are attached to body portion 14 by any of several operations known to those skilled in the art of container manufacturing such as single or double seaming or is folded from an integral part of the material forming the body portion 14. Regardless of the type of manufacturing operation device 20 of the present invention is intended to be applied to a container having a flat peripheral edge 16 running around the top lid 12.

Referring to Figures 1 and 2 easy-open/reclosing device 20, generally comprises a base portion 22, a moveable portion 24 and a hinge 26 connecting the two. Alternatively hinge 26 can be eliminated thereby making moveable portion 24 separable from base portion 22.

However, the hingedly attached version of the present invention is preferred to avoid losing or mudslinging moveable portion 24.

Base portion 22 includes a dispensing aperture 28 and a flange 30 encircling dispensing aperture 28 shaped complementary to lid aperture 18,and projecting downwardly from base portion 22. When device 20 is applied to top lid 12, flange 30 breaks pre-scored lid aperture 18 partially or totally along the line of weakness (the unbroken portion serving to keep the broken-out section from falling into the container), enters lid aperture 18, and tightly engages the aperture due to the friction fit between the two. Alternatively a separable transport closure may cover lid aperture 18 and have to be removed prior to application of the easy-open/reclosure device 20. As indicated above this may be an adhesive tape with or without a prescored or pre-cut lid aperture 18. Preferably, flange 30 has a step 31 (Figure 2) or a snap bead (not shown) projecting therefrom that snaps through lid aperture 18 to even more firmly secure device 20 to lid 12. The bottom edge of flange 30 may be provided with sharp teeth or serrations to reduce the amount of force necessary to press the flange through top lid 12 along the line of weakness.

Still referring to Figures 1 and 2, moveable portion 24 includes a plug member 34 depending downwardly therefrom and a grasping tab 36 that provides a convenient means for a consumer to grasp and lift up on moveable portion 24 when it is in its closed position. Plug member 34 is shaped complementary to base aperture 28. When moveable portion 24 is in its closed position, plug member 34 enters and tightly engages base aperture 28, thereby providing a convenient means to reclose container 10 after the initial opening thereof.

Base portion 22 of device 20 also includes a deformable pouring lip/drain surface 32 that initially projects outwardly from base dispensing aperture 28 in substantially the same plane as base portion 22 as shown in Figures 1 and 2. From the deformable pouring lip/drain surface 32 depends downwardly a deformation rim 48 as shown in Figure 2. When device 20 is first applied to top lid 12 as shown in Figure 1, the deformation rim 48 comes into contact with the top lid 12 of container 10. Then, as device 20 is further pressed onto the top lid 12, the deformation rim 48 start to bend pouring lip 32 upward. Finally, when device 20 is firmly seated on lid 12, rim 48 pushes the side edges of lip 32 up and preferably closer to one another, which gives pouring lip 32 a trough-shaped, upwardly inclined configuration. So shaped, pouring lip 32 not only provides an ideal surface for channeling product up and over peripheral edge 16 when container 10 is tipped to dispense the product therein, but also one for draining any beverage remaining on pouring lip 32 back into the container when it is returned to its upright position.

Since integral pouring lip/drain surface 32 is deformable, the location and orientation of top lid aperture 18 with respect to peripheral edge 16 are not critical except that the pouring lip/drain surface 32 is always intended to extend clear of the peripheral edge 16 of container 10. In fact, this relationship can vary considerably and yet device 20 will nevertheless fit well on top lid 12. To be deformable, base portion 22 and integral pouring lip/drain surface 32 can be made from a wide variety of deformable materials such as a thermoplastic, examples of which include polyethylene, polypropylene, polycarbonate, polyvinyl chloride and polystyrene. Preferably, device 20 is of one piece construction made, for example, by using an injection molding technique and apparatus. The present invention hence provides a trough-shaped pouring lip/drain surface 32 after the device 20 has been applied to container 10. Alternative details on the easy-open/reclosure device as disclosed in the prior art as mentioned above are expressly contemplated herein as useful in the context flat-top cartons 10.

Figure 3 shows the depending rim 48 from a front perspective not showing the movable portion 24. As can be seen from Figure 4-6 alternative shapes like simple knobs 42 or different extensions of the deformation rim 44,46 in longitudinal and (perpendicular thereto) to lateral direction are also possible.

Further multiple deformation rims instead of the two symmetrically depending deformation rims 42,44,46,48 are possible or even a single deformation rim may be considered as long as it provides the pouring-lip/drain surface with the desired trough-shape on a flat-top carton.

While several particularly preferred embodiments of the present invention have been described and illustrated, it will be apparent to those skilled in the art that various changes and modifications can be made without departing form the spirit and scope of the present invention. Accordingly the following claims are intended to embrace such changes and modifications that are within the scope of the present invention.

Claims

1. An easy-open/reclosure device (20) for application to the top lid (12) of a container (10) having along its peripheral edge (16) an essentially flat top surface, said top lid (12) having a pre-cut or pre-scored dispensing aperture (18) therein, said device (20) comprising:
   a) a base portion (22) having a dispensing aperture (28) therethrough and a bottom surface;
   b) a flange (30) depending downwardly from said bottom surface of said base portion (22) and encircling said base dispensing aperture (28), said flange (30) having inner and outer surfaces and a bottom edge, said flange being shaped complementary to said pre-cut or pre-scored dispensing aperture (18) in said top lid (12), whereby said flange (30) enters said pre-cut dispensing aperture (18) or breaks through said pre-scored aperture (18) when said device (20) is applied to said top lid (12);
   c) a moveable portion (24) having a bottom surface and open and closed positions, said bottom surface having a plug member (34) having an outer surface and being shaped complementary to said base dispensing aperture (28) whereby said plug member (34) will readily enter and snugly engage said base aperture (28) when said moveable portion (24) is in its said closed position; and
   d) a deformable pouring lip/drain surface (32) extending outwardly from said base portion (22) and initially, in its relaxed state, lying substantially in the same plane as said base portion (22):
   said device (20) being characterized in that
   said deformable pouring lip/drain surface (32) has a downwardly depending deformation rim (42, 44, 46, 48), said deformation rim coming into intimate contact with said flat top surface of said top lid 12) and thereby bends said deformable pouring lip/drain surface (32) into an upwardly-inclined, trough-shaped configuration when said device (20) is applied to said top lid (12) of said container 10).

2. The easy-open/reclosure device (20) recited in claim 1 whereby said moveable portion (24) is hingedly attached to said base portion (22).

3. The easy-open/reclosure device (20) recited in any of the preceding claims wherein said outer surface of said depending flange (30) includes means for tightly securing said device (20) to said top lid 12) of said container (10).

4. The easy-open/reclosure device (20) recited in Claim 3 wherein said means for tightly securing comprises a snap bead projecting outwardly from said outer surface of said flange (30) or a step (31) projecting inwardly from said outer surface of said flange (30).

5. The easy-open/reclosure device (20) recited in any of the preceding claims wherein said outer surface of said plug member (34) and said inner surface of said depending flange (30) include cooperating means for securing said plug member (34) within said base dispensing aperture (28).

6. The easy-open/reclosure device (20) recited in Claim 5 wherein said cooperating means for securing comprises a step projecting outwardly from said outer surface of said plug (34) and a step projecting inwardly from said inner surface of said depending flange (30), or a snap bead projecting outwardly from said outer surface of said plug (34) and a groove in said inner surface of said depending flange (30).

7. The easy-open/reclosure device (20) recited in any of the preceding claims wherein said deformation rim (42, 44, 46, 48) comprises two parts following the contour of said pouring lip/drain surface (32) essentially to the extend to which said pouring lip/drain surface (32) overlaps with said top lid (12).

8. The easy-open/reclosure device (20) recited in any of the preceding claims wherein said deformation rim (42, 44, 46, 48) has a height perpendicular to said pouring lip/drain surface (32) which is increasing in proportion to the distance from said dispensing aperture (28).

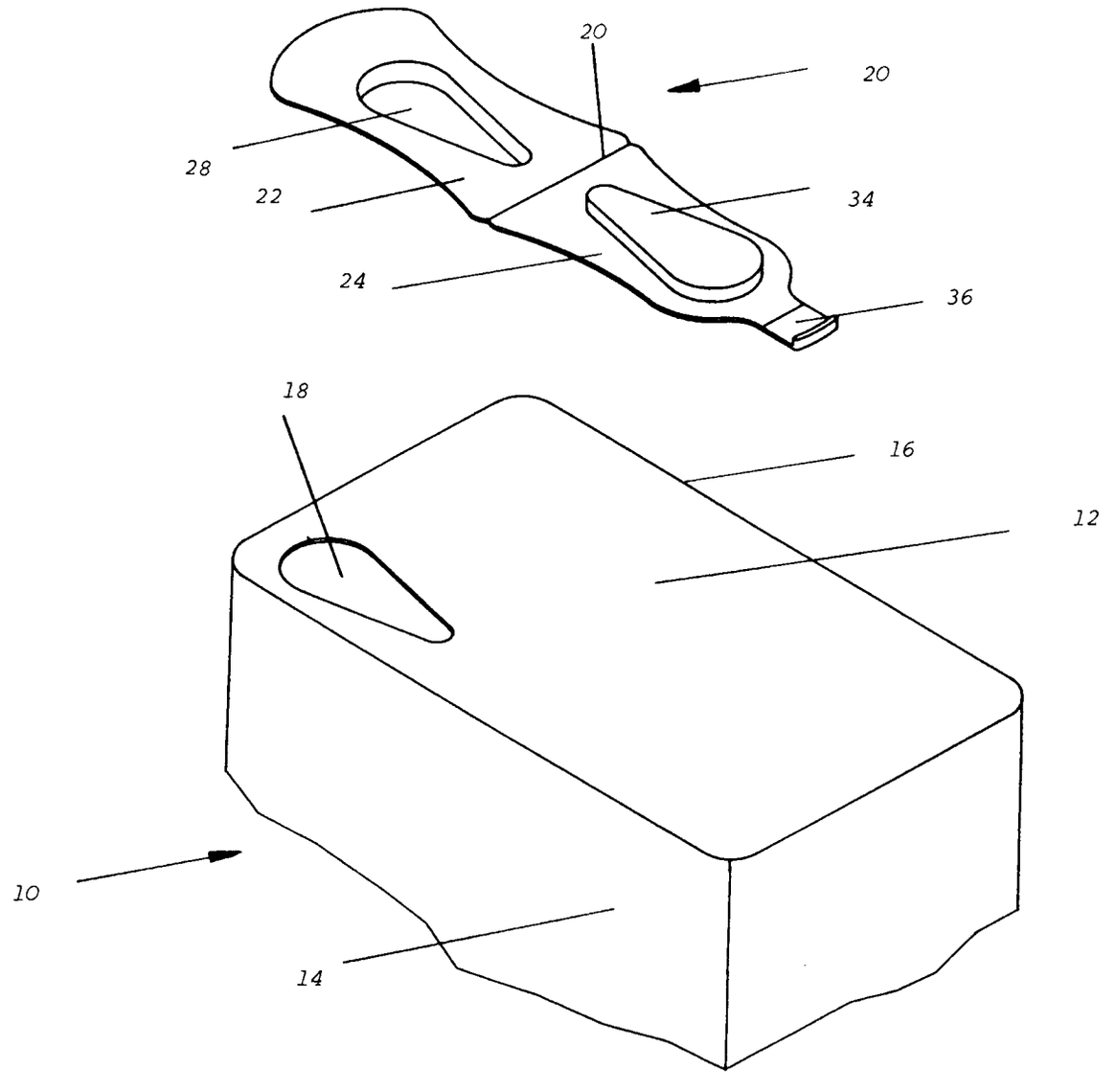

Figure 1

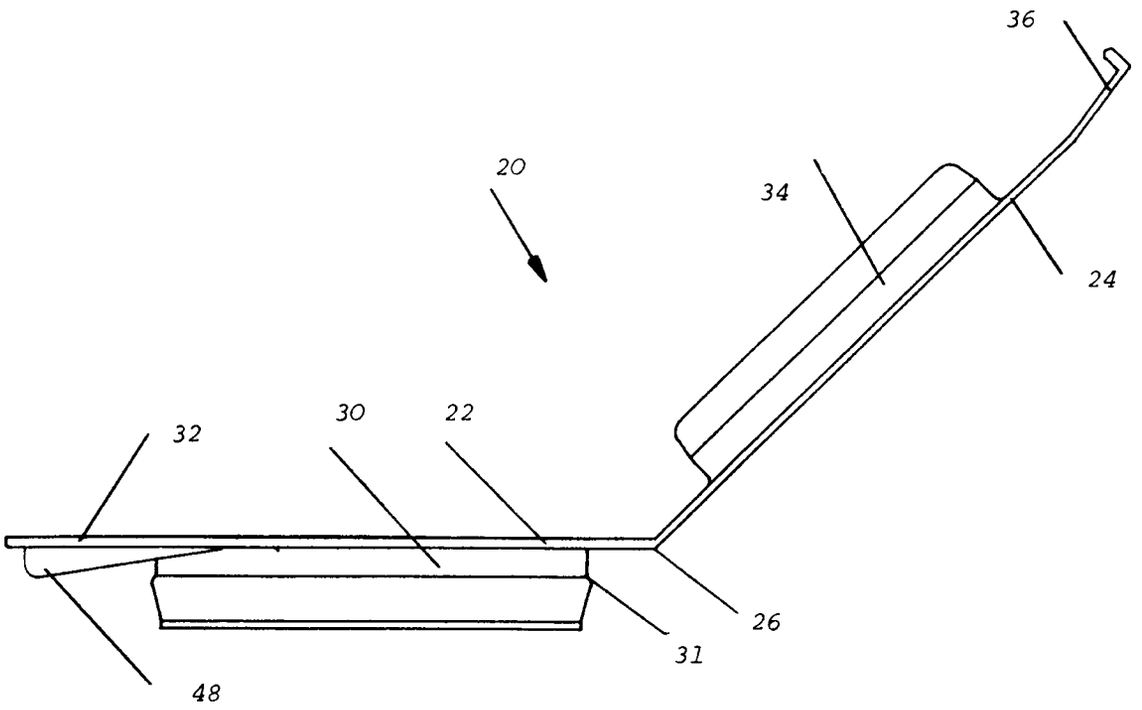

Figure 2

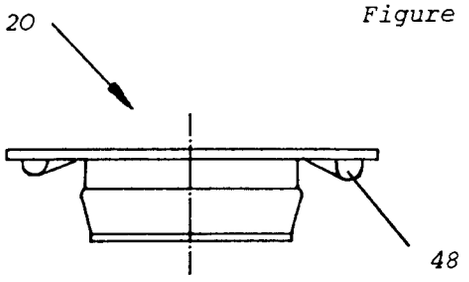

Figure 3

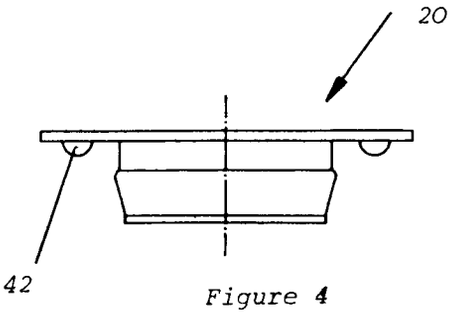

Figure 4

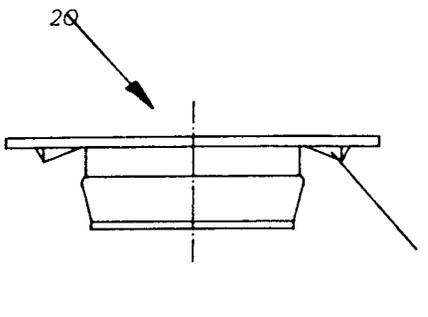

Figure 5

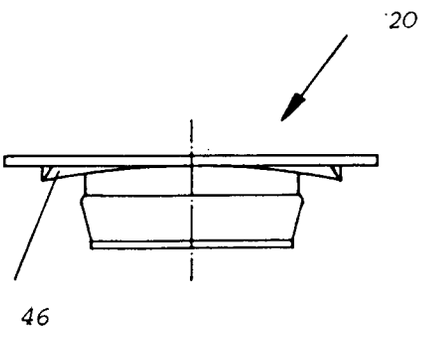

Figure 6

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 93 87 0189

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.6)
D,A	EP-A-0 291 112 (PROCTER AND GAMBLE) * column 4, line 50 - column 7, line 15; figures 1-4 *	1	B65D5/74 B65D17/50
A	US-A-2 321 050 (SEYMER) * page 1, column 2, line 44 - page 3, column 1, line 10; figures 1-8 *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	25 February 1994	Martens, L

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
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