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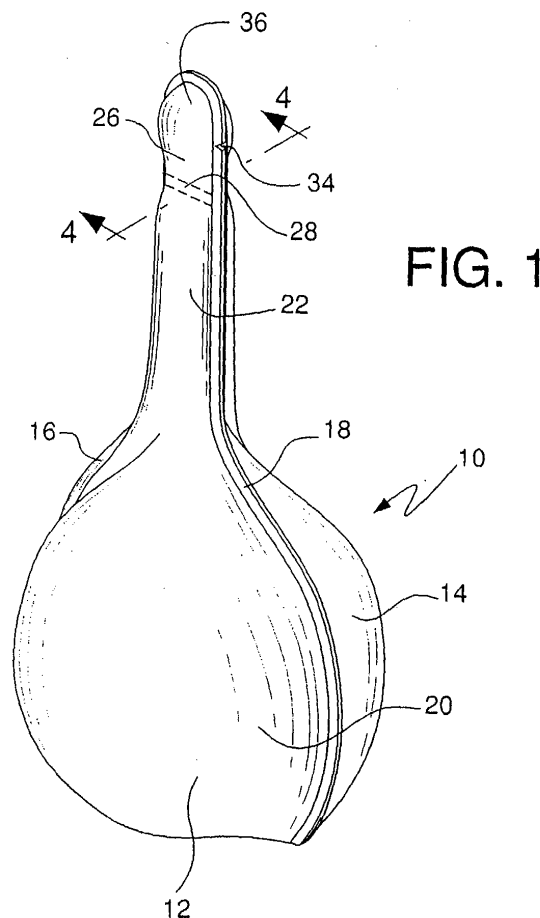
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(54) **Flexible pouch having dispensing nozzle and frangible seal**

(57) A collapsible pouch (10) for motor oil includes a bulb-shaped storage chamber (20) and an elongated dispensing nozzle (22). The storage chamber and the dispensing nozzle include first and second panels (12,14) of a flexible laminate material secured together along opposite sides. The pouch further includes a burstable closure seal (28) located in the dispensing nozzle including strips (30,32) of an adhesively bondable material. The strips are capable of forming a bond having sufficient strength to maintain closure of the dispensing nozzle in the absence of a predetermined pressure applied to the motor oil. The pouch may include a bottom panel (24) secured to the first and second panels to provide for self-support of the pouch when filled. The pouch may also include a removable end portion (36) connected to the dispensing nozzle opposite the storage chamber.



Description

Field of the Invention

[0001] The present invention relates to containers and more particularly to flexible pouches for containing liquids.

Background of the Invention

[0002] Conventional containers for engine lubricating oils include a molded plastic body defining a substantially rectangular storage volume. The conventional container further includes a circular discharge port closed by a threaded cap. Engine lubricating oil is dispensed from the conventional container, into an automobile engine for example, by removing the threaded cap and inverting the container. A funnel, or other dispensing accessory, however, is needed to limit spillage of the oil when the open container is inverted. Also, the discharge of the lubricating oil from the conventional container can be difficult to control.

[0003] The lack of venting provided by the relatively rigid conventional oil container causes a "chugging" form of delivery in which the oil is dispensed from the container in period bursts. The delivery of oil in bursts increases the probability that oil be spilled from the conventional container. In addition, the molded plastic containers maintain their shape when emptied. The volume occupied by the empty container creates bulky refuse to be disposed.

[0004] U.S. Pat. Nos. 4,949,857 to Russell and No. 4,938,390 to Markva disclose containers for engine lubricating oils made from molded plastic and having a body portion and a neck portion. The containers further include a frangible seal closing the neck portion to provide for inversion of the container following removal of the threaded cap without discharge of the oil. The body of the Russell '857 container utilizes the conventional rectangular shape. The body portion of the Markva '390 container is substantially cylindrical in shape. Application of pressure to body portions of the molded plastic containers of Russell '857 and Markva '390 causes the neck seals to rupture.

[0005] The molded plastic containers of Russell '857 and Markva '390, however, do not provide venting and, therefore, deliver oil in period bursts in the chugging manner described above. Each of the relatively rigid molded plastic containers of Russell '857 and Markva '390 also will maintain its shape when emptied creating inefficient bulky refuse to be disposed.

[0006] Flexible pouches are used to package a variety of products. The conventional flexible pouch includes front and rear panels of laminated foil or film materials that are heat sealed together along opposite sides of the pouch. U.S. Pat. No. 4,998,646 to Sherman discloses a flexible pouch for a liquid having a gusseted bottom wall for self support of the pouch. The Sherman pouch in-

cludes a rounded pour spout that is opened by cutting a corner of the pouch. Flexible pouches, such as the Sherman pouch, are collapsible such that the interior volume defined by the pouch is reduced as the liquid is discharged. As a result, the discharge of the liquid is not subject to the above described "chugging" associated with unvented containers that do not collapse as they are emptied. The collapsing nature of the flexible pouch construction also provides for less refuse volume for the packaging in contrast to containers that maintain their shape when emptied.

[0007] U.S. Pat. No. 5,238,157 to Gentile discloses a pouch for pastes and semi-solids that includes a removable cap portion designed to close the pouch following removal of the cap portion by tearing. It is not known, however, to include an elongated nozzle in a flexible pouch adapted for dispensing an engine lubricating oil from the pouch. It is also not known to provide a flexible pouch having a frangible closure that is adapted to burst when pressure is applied to the pouch contents.

Summary of the Invention

[0008] The invention provides a collapsible pouch for motor oil. The pouch includes a bulb-shaped storage chamber and an elongated dispensing nozzle. The storage chamber and the dispensing nozzle include first and second panels of a flexible laminate material secured together along opposite sides. The pouch further includes a burstable closure seal located in the dispensing nozzle including strips of an adhesively bondable material. The strips are capable of forming a bond having sufficient strength to maintain closure of the dispensing nozzle in the absence of a predetermined pressure applied to the motor oil. The pouch may include a bottom panel secured to the first and second panels to provide for self-support of the pouch when filled. The pouch may also include a removable end portion connected to the dispensing nozzle opposite the storage chamber.

Brief Description of the Drawings

[0009] For the purpose of illustrating the invention, there is shown in the drawings a form that is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

Figure 1 is a perspective view of a self-standing pouch according to the present invention;

Figure 2 is a side view of the pouch of Figure 1;

Figure 3 is a bottom view of the pouch of Figure 1;

Figure 4 is a sectional view taken along the lines 4-4 of Figure 1; and

Figure 5 is a perspective view of a pouch according to the present invention being used to dispense oil contained by the pouch.

Detailed Description of the Drawings

[0010] Referring to the drawings, where like numerals identify like elements, there is shown in Figures 1 and 2 a flexible pouch 10 according to the present invention providing packaging for an engine lubricating oil. The flexible pouch 10 includes front and rear panels 12, 14 that consist of film layers, or alternatively foil and film layers, that are adhesively bonded together to form a laminate. A preferred laminate for the panels 12, 14, from the inside surface to the outside, includes layers of polyethylene (PE), nylon, and polyethyleneterephthalate (PET).

[0011] The front and rear panels 12, 14 are secured along opposite sides 16, 18 preferably in a heat sealing process in which adjacent film layers are fused together. The present invention is not limited to heat fused film layers and could alternatively comprise laminates secured together using a heat seal adhesive that is pattern applied along the sides 16, 18 of the panels 12, 14. The panels 12, 14 of the pouch 10 could be made from any flexible material that is suitable for forming a flexible pouch.

[0012] The front and rear panels 12, 14 define a storage chamber 20 and an elongated dispensing nozzle 22 extending from the storage chamber 20. As shown in Figure 2, the storage chamber 20 of the pouch 10 is rounded to define a substantially bulb-like shape. Referring to Figure 3, the pouch 10 further includes a bottom panel 24 secured to the front and rear panels 12, 14, preferably by heat sealing. The pouch 10 includes folded portions of the front and rear panels 12, 14 that form gusset reinforcement at opposite sides of the pouch 10 in the known manner. The inclusion of the gusset reinforced bottom panel 24 in the oil pouch 10 provides for self-support of the pouch. Such self-support for the pouch 10 is desirable for presentation of the product on a store display shelf, for example. The self-supporting construction of pouch 10 also desirably results in the engine lubricating oil being downwardly directed by gravity forces away from a discharge end 26 of the dispensing nozzle, to be described in greater detail.

[0013] Referring to Figure 4, the pouch 10 includes a closure seal 28 that is located in the dispensing nozzle 22 between the front and rear panels 12, 14 adjacent the discharge end 26 of the dispensing nozzle. The closure seal 28 preferably includes strips 30, 32 of an adhesive material pattern applied onto the inner surfaces of the front and rear panels 12, 14, respectively. Each of the adhesive strips 30, 32 extends laterally between opposite sides 16, 18 of the discharge nozzle 22 as shown in phantom line in Figure 1. The adhesive strips 30, 32 are positioned on the panels 12, 14 such that the strips contact each other as shown in Figure 4, to seal

the chamber 20 and a portion of the discharge nozzle 22.

[0014] The adhesive strips 30, 32 of the closure seal 28 preferably provide sufficient bonding between the panels 12, 14 such that the closure seal 28 will not be break in response to relatively weak pressure applied to the contents of the package, as may be expected during shipping and handling, for example. The closure seal 28 is adapted, however, to provide for a limited bond between the adhesive strips 30, 32 such that the strips 30, 32 will separate as shown in Figure 5 in response to a predetermined, moderate, pressure. Such a moderate pressure would be that pressure applied to the oil contained in pouch 10 when an average user squeezes the bulb-shaped chamber 20 with the hand, for example, as shown in Figure 5 and described below, for example.

[0015] The adhesive strips 30, 32 of the closure seal 28 preferably consist of a cold seal adhesive material to provide the limited bond strength desired for separation of the strips when the bulb-shaped chamber 20 of the pouch 10 is squeezed by an average user of the pouch 10. Cold seal adhesives, per se known, will seal to themselves under compression without the need for heating of the adhesive.

[0016] The present invention, however, is not limited to the use of a cold seal adhesive for the strips 30, 32 of the closure seal 28. The strips 30, 32 could, alternatively, consist of a heat sealable adhesive material. It is known that, by reducing the temperature at which a heat sealable adhesive material is joined together, reduced bond strength will result. Furthermore, the present invention is not limited to the use of a separate adhesive material applied to the inner surfaces of the panels 12, 14 to form the strips 30, 32 of the closure seal 28. It is conceivable, for example, that the panels 12, 14 could include inner layers of a heat sealable material bonded together. To provide the limited bond strength required for the frangible seal of closure seal 28, the inner layers of the panels 12, 14 would be bonded together under a lower temperature than that used to join the opposite sides 16, 18 of the pouch 10.

[0017] The pouch 10 includes a tear notch 34 formed in side 18 between the closure seal 28 and an end portion 36 of the pouch 10. The tear notch 34 facilitates removal of the end portion 36 of the pouch 10 for exposure of the closure seal 28 to provide for discharge of the pouch contents. As shown in Figure 1, the panels 12, 14 are sealed together around the periphery of the end portion 36. In this manner, the end portion 36, prior to its removal from the pouch 10, will function as a cap to contain the contents of the pouch 10 in the event inadvertently applied pressure is sufficient to rupture the closure seal 28.

[0018] The delivery of the contained oil from the pouch 10 is achieved in the following manner. A user grasps the end portion 36 of the pouch 10 and removes the end portion by tearing the pouch between the opposite sides 16, 18 beginning at the tear notch 34 in side

18. The removal of the end portion 36 from the pouch forms a torn end 38, shown in Figure 5, exposing the closure seal 28. The closure seal 28, however, functions to contain the oil within the pouch 10 providing for spill-free inversion of the pouch 10 to position the nozzle 22 beneath the chamber 20 in position to dispense oil from the pouch 10.

[0019] The pouch 10 is shown in Figure 5 dispensing oil from the nozzle 22. Following removal of the end portion 36, pouch 10 is inverted and pressure is applied to the chamber 20 by hand 40 of a user, for example. The pressure applied to the contents of pouch 10 ruptures the closure seal 28 thereby opening the nozzle 22 for discharge of oil 42. As illustrated in Figure 5, the flexible pouch 10 collapses as the chamber 20 is squeezed by hand 40. As discussed previously, the collapsible construction of the pouch 10 facilitates spill-free discharge of the oil from the pouch 10 by preventing "chugging" discharge associated with rigid molded plastic container of the prior art in which oil is released in period bursts.

[0020] The collapsing of the pouch 10 upon removal of the oil also provides for much more compact refuse to be disposed of upon use of the pouch 10. The pouch 10 of the present invention is capable of being collapsed into a space that is up to 20 times smaller than that occupied by the relatively rigid and non-collapsing molded plastic containers of the prior art. Such reduction in refuse space would be highly desirable for an entity such as a gas station that may utilize large numbers of containers of oil during a given trash cycle.

[0021] While the present invention has been described in connection with the preferred embodiments of the various figures, it is to be understood that other similar embodiments may be used or modifications and additions may be made to the described embodiments for performing the same function of the present invention without deviating therefrom. Therefore, the present invention should not be limited to any single embodiment, but rather should be construed in breadth and scope in accordance with the recitation of the appended claims.

Claims

1. A collapsible pouch for engine lubricating oil comprising:

a storage chamber having a bulb shape when filled with an engine oil;

an elongated dispensing nozzle extending from the storage chamber, each of the storage chamber and the dispensing nozzle including first and second panels of a flexible laminate secured to each other along opposite sides; and

a burstable closure seal located in the dispensing nozzle, the closure seal including strips of

an adhesively bondable material secured to confronting surfaces of the first and second panels, the strips capable of forming a bond having sufficient strength to maintain closure of the dispensing nozzle in the absence of a pre-determined pressure applied to the engine lubricating oil.

2. The pouch according to claim 1 further comprising a removable portion connected to an end of the dispensing nozzle opposite the storage chamber, the removable portion including first and second panels of flexible laminate material secured to each other about a periphery of the removable portion such that the burstable closure seal is enclosed within the dispensing nozzle by the removable portion.
3. The pouch according to claim 2, wherein a notch is formed in one of the opposite sides of the dispensing nozzle adjacent the removable portion to facilitate tearing of the pouch.
4. The pouch according to claim 1, wherein the storage chamber further includes a bottom panel of a flexible laminate material secured to each of the first and second panels of the storage chamber, the bottom panel including opposite gusset folds to provide for self-support of the pouch when the pouch is filled with engine lubricating oil.
5. The pouch according to claim 1, wherein the flexible laminate material of the storage chamber and the dispensing nozzle comprises at least one layer of polyethylene.
6. The pouch according to claim 1, wherein the flexible laminate material of the storage chamber and the dispensing nozzle comprises at least one layer of nylon.
7. The pouch according to claim 1, wherein the flexible laminate material of the storage chamber and the dispensing nozzle comprises at least one layer of polyethyleneterephthalate.
8. The pouch according to claim 1, wherein the strips of the burstable closure include a cold seal adhesive material pattern applied to the respective first and second panels of the dispensing nozzle.
9. The pouch according to claim 1, wherein the first and second strips of the burstable closure seal include a heat sealable material pattern applied to the respective first and second panels of the dispensing nozzle.
10. A stand-up pouch for a liquid comprising:

first and second panels of a flexible laminate material each forming a portion of a storage chamber, the storage chamber having a generally rounded shape when filled with a liquid, the first and second panels further forming an elongated dispensing nozzle extending from the storage chamber, the first and second panels secured together along opposite sides of the panels;

a bottom panel of a flexible laminate material secured to each of the first and second panels to form a portion of the storage chamber, the storage chamber having a rounded shape when filled with a liquid, the bottom panel including gusset folds at opposite sides; and

a frangible seal located in the dispensing nozzle, the frangible seal including first and second strips of an adhesively bondable material respectively secured to the first and second panels, the strips positioned on confronting surfaces of the panels to provide for contact between the first and second strips and an adhesive bonding therebetween, the adhesive bond between the strips having a strength sufficient such that the contact between the strips will be maintained in the absence of a predetermined pressure applied to the pouch.

11. The stand-up pouch according to claim 10 wherein the first and second panels further form a removable portion of the pouch connected to an end of the dispensing nozzle opposite the storage chamber.
12. The stand-up pouch according to claim 11, wherein the pouch includes a notch formed in one of opposite sides of the dispensing nozzle adjacent the removable portion to facilitate tearing of the pouch.
13. The stand-up pouch according to claim 10, wherein the first and second strips of the frangible seal include a cold seal adhesive material pattern applied to the respective first and second panels.

14. A container for a liquid comprising:

a storage chamber made from a flexible laminate material;

an elongated nozzle connected to the storage chamber, the elongated nozzle including an interior having opposing surfaces, the elongated nozzle made from a flexible laminate material such that the nozzle can be closed by bringing the opposing surfaces of the nozzle into contact with each other; and

a burstable seal located within the interior of the nozzle, the burstable seal including a layer of an adhesive material applied to at least one of the opposing surfaces, the adhesive capable of

joining the opposing surfaces together with a sufficient bond such that the nozzle will remain closed in the absence of a predetermined pressure applied to the container.

15. The container according to claim 14, wherein the nozzle includes first and second panels secured to each other along opposite sides of the panels and wherein the adhesive material is a cold seal adhesive pattern applied to the first and second panels.
16. The container according to claim 14 further comprising a removable portion connected to the nozzle opposite the storage chamber, the removable portion including first and second panels of a flexible laminate material.
17. The container according to claim 14 wherein the storage chamber includes first and second panels of a flexible laminate material secured to each other along opposite sides of the panels, the storage chamber further including a third panel secured to the first and second panels to form a bottom of a self-supporting container when the container is filled with a liquid.

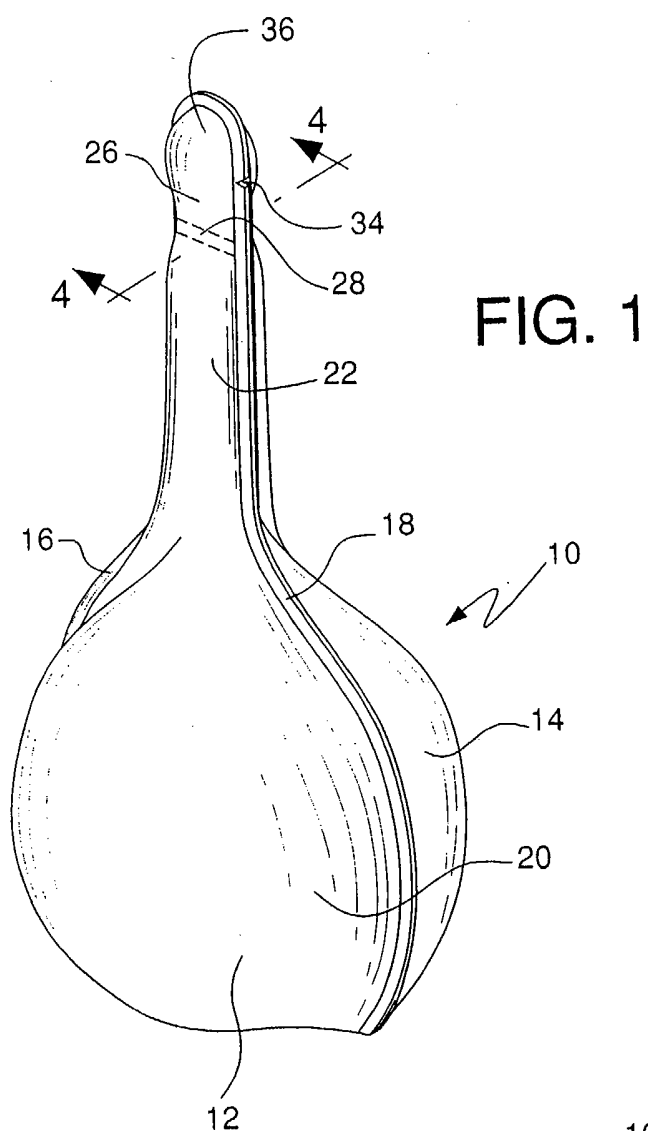
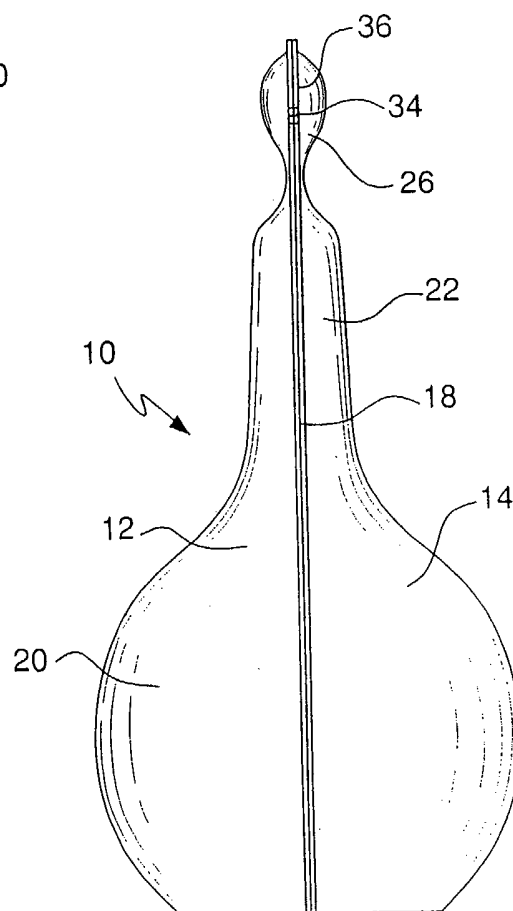


FIG. 2



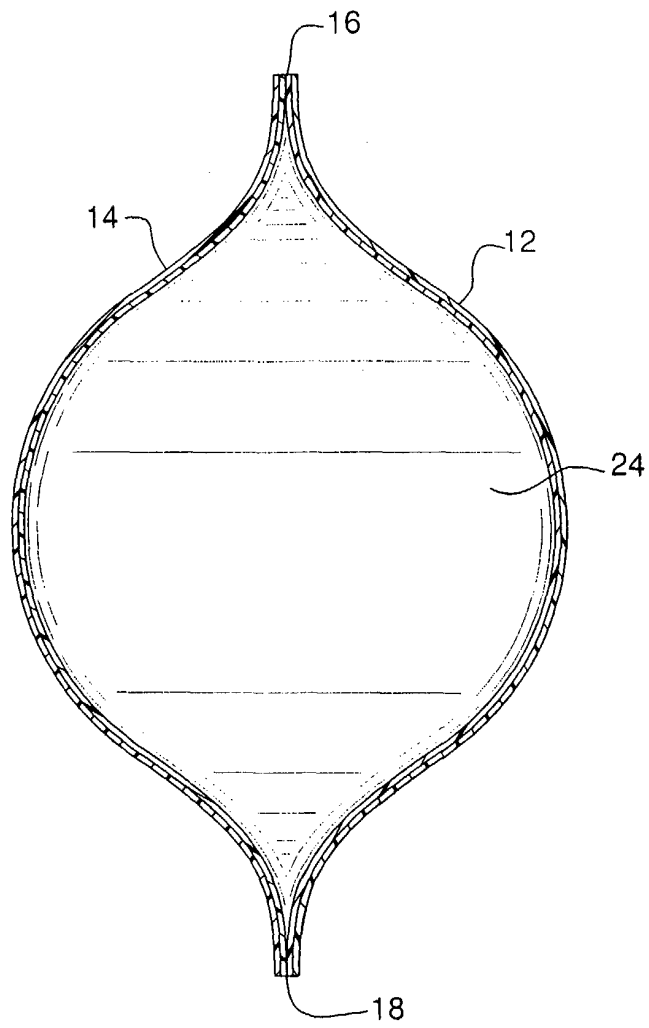


FIG. 3

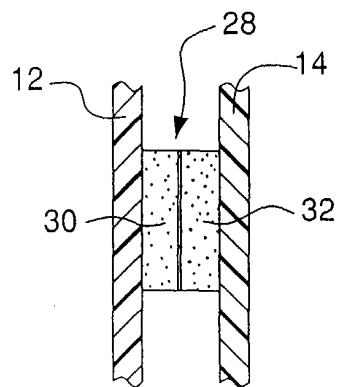


FIG. 4

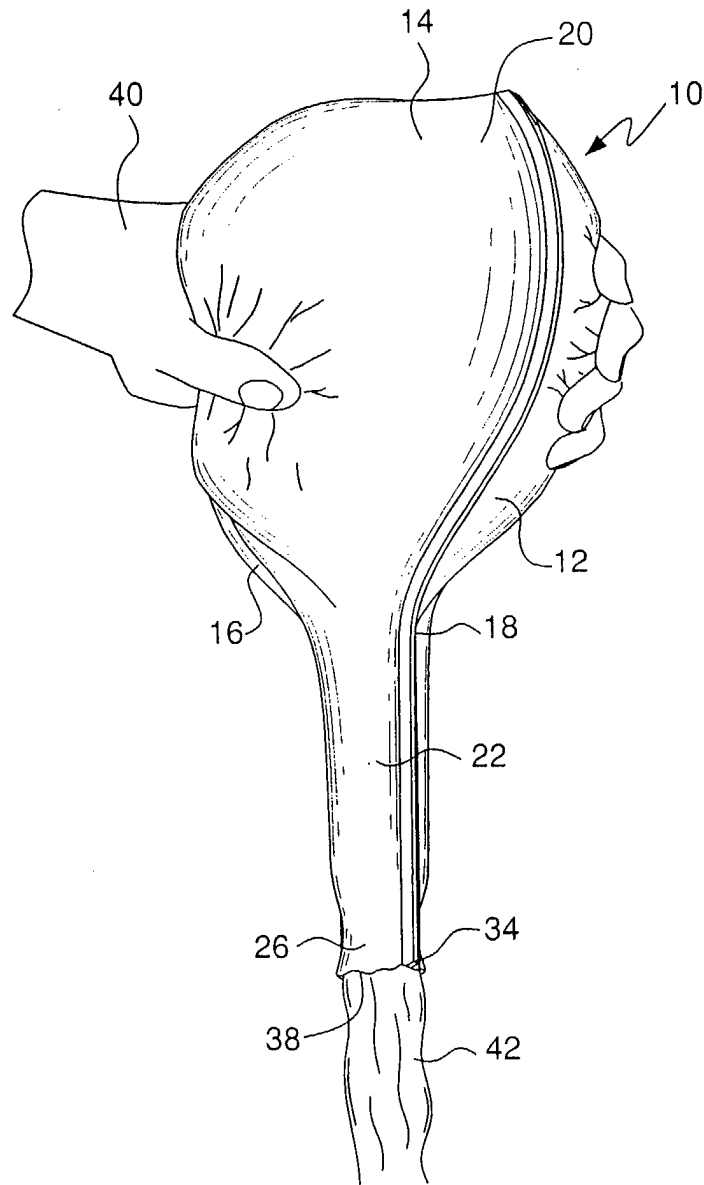


FIG. 5



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 25 2341

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.7)
P,X	EP 1 232 960 A (SONOCO DEV INC) 21 August 2002 (2002-08-21) * column 1, line 41 - line 50 * * column 2, line 25 - line 27 * * column 3, line 36 - line 57 * * claims 1-5 * * figures 1-3 * ---	1,4,5, 10,14,17	B65D75/58
A	FR 2 176 605 A (MESROUZE MICHEL) 2 November 1973 (1973-11-02) * claim 1; figures 1-3 * ---	1,10,14	
A	US 3 815 794 A (CARLISLE R) 11 June 1974 (1974-06-11) * column 1, line 15 - line 50 * * column 14, line 4 - line 12 * * figures 1-3 * ---	1,10,14	
A	US 5 195 658 A (HOSHINO TAKAHIRO) 23 March 1993 (1993-03-23) * column 1, line 64 - column 2, line 19; figures 1,7 * ---	1,10,14	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 26 June 2003	Examiner RODRIGUEZ GOMBAU, F
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 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 03 25 2341

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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