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(54) **COLLAPSIBLE BOTTLE WITH BELLOWS PORTION CARRYING A SHRINK LABEL**

ZUSAMMENFALTBARE FLASCHE MIT MIT EINEM SCHRUMPFETIKETT BEDECKTER
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BOUEILLE COMPACTABLE AVEC SOUFFLET PORTANT UNE ETIQUETTE
THERMORETRACTABLE

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- **PATENT ABSTRACTS OF JAPAN vol. 017, no. 343 (M-1436), 29 June 1993 & JP 05 042946 A (HOUSE FOOD IND), 23 February 1993**
- **PATENT ABSTRACTS OF JAPAN vol. 097, no. 001, 31 January 1997 & JP 08 230857 A (YOSHINO KOGYOSHO), 10 September 1996**

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Description

[0001] The present invention relates to bottles having labels thereon.

[0002] Liquids are frequently supplied in bottles which can generally be of such materials as glass, ceramics and plastics. These bottles may be labelled by any suitable means, if desired. Labels typically comprise a paper or plastic layer in association with a logo, or information, and which is adhered to or wrapped about the bottle.

[0003] In some cases, it is desirable to provide the bottle in the form of a concertina, either for aesthetic reasons, or because it is desired to compress the bottle to eject the liquid. Such bottles will typically be made of flexible plastics material. However, in these instances, it is not possible to label the bottle by conventional means in any satisfactory manner, owing to the absence of any significant continuous surface area, so that the bottle will frequently be provided in a secondary container with a suitable label thereon, if labelling is desired.

[0004] In the instance where the bottle is intended for use in medicine, then it is important that the end-user knows what is in the bottle, and if the bottle is provided in a secondary container, perhaps together with several other bottles, then it is possible that the bottles will become separated from the container, with no indication as to their content.

[0005] Document US-A-4 790 361 discloses a bottle having a bellows portion whose bulges are provided with flattened surfaces for a label to be received and glued thereon. The design of the bellows portion is very complicated.

[0006] We have now, surprisingly, found that it is possible to label such bottles by shrink-sleeve wrapping them.

[0007] Thus, in a first aspect, the present invention provides a bottle having a bellows portion, at least the bellows portion being made from flexible plastics material, characterised in that at least a part of the bellows portion is shrink-wrapped.

[0008] Essentially, it has been discovered that it is possible to shrink-wrap a plastic bottle, provided that the bottle contains liquid in the area to be shrink-wrapped. Thus, although the necessary heating will serve to ensure contraction of the plastic used for the shrink-wrap, the liquid in the bottle serves as a heat sink to prevent melting of the bottle itself. This has not previously been recognised, but now provides a solution to the problem of labelling bottles with bellows portions.

[0009] Preferably, the shrink-wrap is a label, but a clear or monochrome film may be used, for example to protect the bottle from deformation or scratching. As used herein, the term "label" includes reference to such embodiments, unless otherwise indicated.

[0010] The bottle is typically made of one material, although it is possible that just the bellows portion is made of flexible plastic. Especially where the bottle is intended

for medical use, it is preferred that the plastic used for the bellows portion is polyethylene, although it is possible to use some grades of polypropylene. The preferred polyethylene is Lupolen (TM) 3040. Suitable thicknesses of polyethylene will be apparent to those skilled in the art but, in the event of using a low density polyethylene, such as Lupolen 3040, preferred thicknesses lie in the range of 500-1000µm, more preferably 650-850µm and especially about 750µm.

[0011] The label will typically comprise HPVC, suitable grades of which are well-known to those skilled in the art. Other suitable materials for shrink-wrapping will also be apparent to those skilled in the art, and may equally be used, although HPVC is preferred.

[0012] If desired, the PVC to form the label (PVC, as used herein, encompasses any suitable material to form the label) may be decorated with any desired indicia before or after application to the bottle, or may have no indicia at all. In addition, it is possible to provide a first label layer in the vicinity of the bellows portion of the bottle, over which the PVC is placed for shrink-wrapping. Thus, the first label layer may carry any suitable indicia.

[0013] Where such a first label layer is used, this may be loosely associated with the bottle, or there may be some adhesive used to help to keep it in place, for example, although, given the lack of substantial amounts of surface area, such adhesion tends to be unsatisfactory in the absence of the shrink-wrap.

[0014] The bellows portion of the bottle typically comprises a regular "concertina" shape, so that a bulging area will be associated with a concomitant waist, so that the whole can be resiliently deformed to eject any liquid in the bottle through a suitable aperture. The bulges will typically be regular and may be of rounded or angled outline.

[0015] Suitable bottles are known in the art, but will generally be of the blow-fill-seal type having an integral cap associated with the neck, wherein the cap is twisted off prior to use.

[0016] In general, the bottles will be intended for single usage, although there is no reason why such bottles could not be used for multiple usage. If desired, the label may be removed, prior to usage. This may be effected by cutting, for example, although this may damage the bottle. Accordingly, it is preferred to provide perforations in the label so that a user may tear the label along the perforations. However, it is generally preferred that the label does not need to be removed, so that the label will typically either crumple as the bottle is squeezed, or remain as a tube in which the bottle is compacted. In the latter case, it will be appreciated that at least one end of the label should not be adhered to the bottle, other than by the effects of the shrink-wrapping process, in order to allow disassociation of the bottle from the label.

[0017] It will be appreciated that the bottles of the present invention need not necessarily be bottles, as such, and may be other forms of liquid container, such

as vials or ampoules, provided that there is a bellows portion for dispensing liquid. Although it is not necessary, it is preferred that any bellows portion is resiliently deformable, so that release of the bellows portion once the liquid has been ejected will tend to result in reformation of the expanded bellows portion, and this may be used to draw any suitable substance, especially liquid, back into the bottle.

[0018] The present invention will now be illustrated further with respect to the accompanying drawing in which:

Figure 1 shows a preferred embodiment of the present invention.

In Figure 1 a bottle with a label on is generally shown at (10). The bottle (20) has, associated with it, label (30). The bellows portion of the bottle (20) is generally indicated at (40), and comprises a series of bulges (50) and waists (60).

The label (30) is secured over a number, but not necessarily all, of the bulges (50) by means of shrink-wrapping, so that label (30) is held in place, at least partially, by ends (70, 70') shrinking about shoulders (80, 80').

The label (30) may also be held in place by a degree of adhesion caused through a minor amount of melting of either the surface of the bottle (20) or the label (30) and, further, may also be held in place by being tightly associated with the bellows portion (40).

[0019] The bottle (20) has a neck (90) and a removable cap (100) which can be removed to expose aperture (110) to dispense liquid from the bottle. During the shrink-wrapping operation, the liquid in the bottle should be present in sufficient volume such that the label to be shrink-wrapped onto the bottle does not come into contact with any part of the bottle of the level of the liquid therein. Thus, it is generally preferred to apply the label with the bottle in the upright position. Preferably the volume of the liquid should be such that most, if not all, of the bellows portion is filled when the bottle is upright.

Claims

1. A bottle having a bellows portion, at least the bellows portion being made from flexible plastics material, **characterised in that** at least a part of the bellows portion is shrink-wrapped.
2. A bottle according to claim 1, wherein the shrink-wrap is a label.
3. A bottle according to claim 1 or 2, wherein bellows

portion of the bottle is formed from polyethylene.

4. A bottle according to any preceding claim, wherein the thickness of the bottle wall in the bellows portion is in the range of 500-100µm, more preferably 650-850µm and especially about 750µm.
5. A bottle according to any preceding claim, wherein the shrink-wrap comprises HPVC.
6. A bottle according to any preceding claim, which is a blow-fill-seal bottle.
7. A bottle according to any preceding claim, wherein the shrink-wrap does not need to be removed prior to usage.
8. A bottle according to any preceding claim, wherein the bellows portion is resiliently deformable.

Patentansprüche

1. Flasche mit einem Balgenabschnitt, wobei wenigstens der Balgenabschnitt aus einem flexiblen Kunststoffmaterial hergestellt wird, **dadurch gekennzeichnet, daß** wenigstens ein Teil des Balgenabschnitts schrumpfverpackt ist.
2. Flasche nach Anspruch 1, bei dem die Schrumpfverpackung ein Etikett ist.
3. Flasche nach Anspruch 1 oder 2, bei welcher der Balgenabschnitt der Flasche aus Polyethylen hergestellt wird.
4. Flasche nach einem der vorhergehenden Ansprüche, bei der die Stärke der Flaschenwand im Balgenabschnitt im Bereich von 500 bis 1000 µm, vorzugsweise von 650 bis 850 µm und insbesondere etwa 750 µm beträgt.
5. Flasche nach einem der vorhergehenden Ansprüche, bei der die Schrumpfverpackung HPVC umfaßt.
6. Flasche nach einem der vorhergehenden Ansprüche, bei der es sich um eine Flasche handelt, die blasgeformt, gefüllt und verschlossen wird ("blow-fill-seal").
7. Flasche nach einem der vorhergehenden Ansprüche, bei der die Schrumpfverpackung vor dem Gebrauch nicht entfernt zu werden braucht.
8. Flasche nach einem der vorhergehenden Ansprüche, bei welcher der Balgenabschnitt elastisch verformbar ist.

Revendications

1. Bouteille comportant une partie de soufflet, au moins la partie de soufflet étant composée de matériau plastique flexible, **caractérisée en ce qu'**au moins une partie de la partie de soufflet est conditionnée sous un film rétractable. 5
2. Bouteille selon la revendication 1, dans laquelle le film rétractable est une étiquette. 10
3. Bouteille selon les revendications 1 ou 2, dans laquelle la partie de soufflet de la bouteille est composée de polyéthylène. 15
4. Bouteille selon l'une quelconque des revendications précédentes, dans laquelle l'épaisseur de la paroi de la bouteille dans la partie de soufflet est comprise dans l'intervalle allant de 500 à 1000 μm , de préférence dans l'intervalle allant de 650 à 850 μm , et correspond tout particulièrement à environ 750 μm . 20
5. Bouteille selon l'une quelconque des revendications précédentes, dans laquelle le film rétractable est composé de HPVC. 25
6. Bouteille selon l'une quelconque des revendications précédentes, constituée par une bouteille formée par soufflage, remplie et scellée (« blow-fill-seal »). 30
7. Bouteille selon l'une quelconque des revendications précédentes, dans laquelle il n'est pas nécessaire d'enlever le film rétractable avant l'utilisation. 35
8. Bouteille selon l'une quelconque des revendications précédentes, dans laquelle la partie de soufflet est déformable élastiquement. 40

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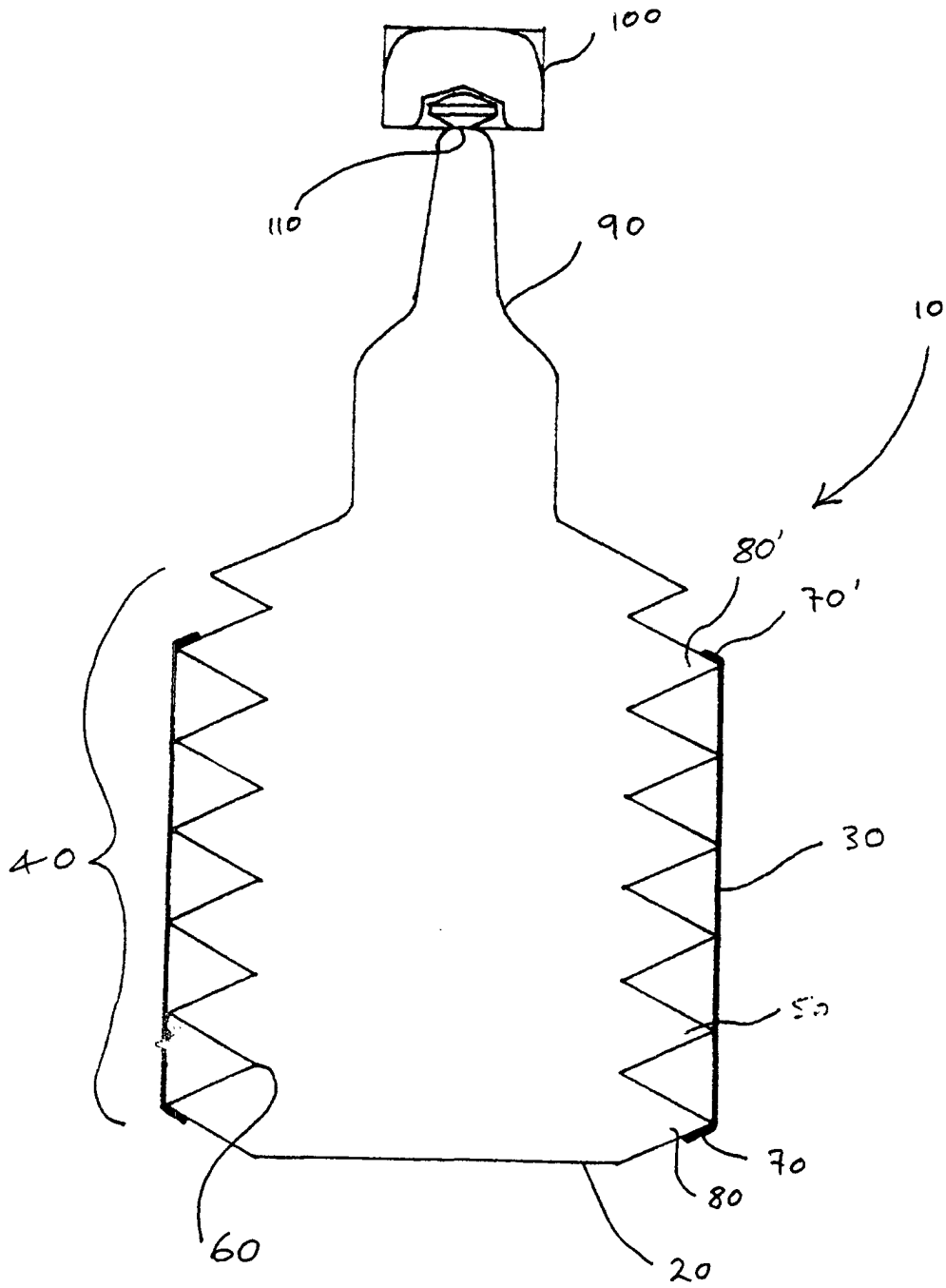


Fig. 1