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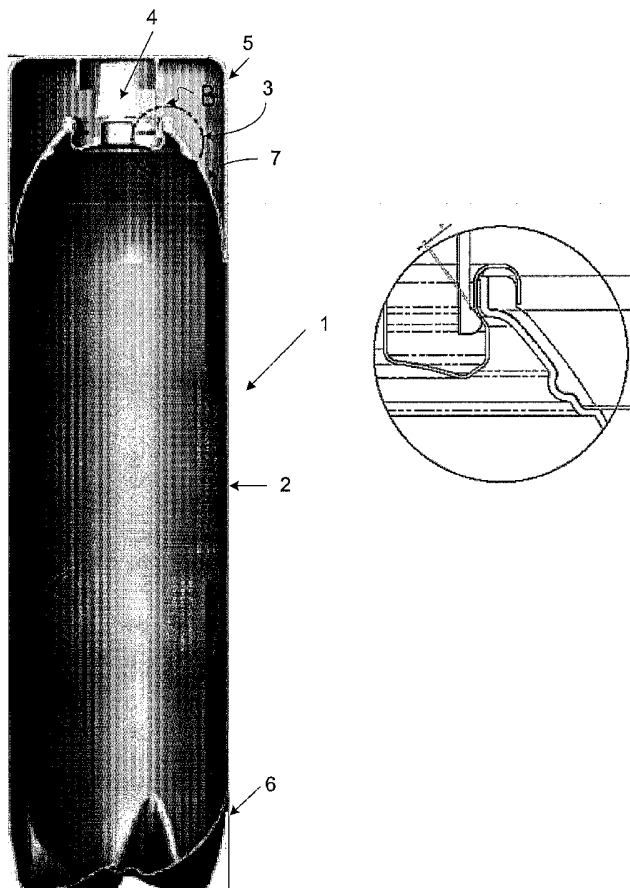
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(57) Abstract: A container (1) for dispensing a pressurised product and a method for manufacturing the container. The container (1) includes a body (2), a collar (3) and a dispensing valve (4). The body (2) is moulded from PET or like plastics, and has a shaped neck (7) surrounding an opening. The collar (3) is also moulded of plastics material, and is shaped to be snap fitted to the shaped neck (7) of the body (2). The dispensing valve (4) is attached to the neck/collar (7,3), and has an outer flange (11) which is formed of malleable material and is shaped to fit about and be retained by the collar (3).

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## PLASTIC AEROSOL CONTAINER AND METHOD OF MANUFACTURING SAME

### Background of the Invention

5           The present invention relates to a container formed of plastics material, preferably PET, and which is adapted to dispense pressurised or aerosol products. The present invention also relates to a method of manufacturing such a container.

### Description of the Prior Art

10           Containers for dispensing pressurised products have been, to date, primarily constructed of metal. In particular, a metal body, of substantially cylindrical shape, is formed having a seam along its length. Metal end closures, one having a manually actuable valve device, are affixed to the ends of the cylindrical shape container, and crimped thereto.

15           Such metal containers have a number of inherent shortcomings. They are prone to rust when in contact with water and are prone to internal corrosion unless provided with an appropriate coating which is compatible with the product to be dispensed or the formulations to be dispensed are prepared in such a way as to prevent corrosion. In use, they are liable to become easily damaged, and/or, damage a substrate surface if they may be accidentally  
20           dropped thereon. This is particularly a problem when such containers are commonly used in household applications, and can be easily dropped on tiled surfaces, which may then be easily chipped or damaged.

          The deficiencies of such prior art metal containers have resulted in some relatively  
25           unsuccessful efforts to replace the metal container with a container formed of plastics.

          For example, US Patent No. 6390326 discloses an aerosol container in which is of plastics material, having a body and a shaped neck, formed by blow moulding a plastics preform. A metal collar is then mounted to the neck, and a valve device is engaged with the  
30           collar. The drawback of using such an arrangement is that, prior to supply of the product to be dispensed within the container body, the metal collar is required to be carefully placed to

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rest about the neck. As the container is transported to the packaging plant and/or along the assembly line for supply of a product thereinto, the metal collar is prone to be very easily bumped from its desired position, with the consequence that the valve device cannot then be properly attached thereto.

5

This therefore identifies a need for an improved aerosol container which has the advantage of being fabricated of plastics material, but which overcomes the disadvantages such known prior art plastic containers.

## 10 Summary of the Invention

The present invention seeks to provide a plastics aerosol container which overcomes the disadvantages of prior art aerosol containers.

15 The present invention seeks to overcome the disadvantages of the prior art by providing a collar which is formed of plastics material and which is snap-fitted to the neck of the body such that it does not become dislodged from its position during transport or during the filling process of the aerosol product, as happens with the device of US 6390326.

20 The present invention also seeks to provide a plastics aerosol container which is substantially formed of recyclable plastics material, such as polyethylene terephthalate (PET).

The present invention also seeks to provide a method of manufacturing such a plastics aerosol container.

25 In one broad form, the present invention provides a container for dispensing a pressurised product, said container including:

a body, stretch blow moulded from polyethylene terephthalate (PET) or like plastics material, said body having a shaped neck surrounding an opening;

30 a collar, injection moulded from plastics material, shaped to be snap-fitted to said shaped neck of said body about said opening; and,

a dispensing valve for attachment to said neck/collar, said valve including an outer

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flange which is formed of malleable material and which is shaped to fit about and be retained to said collar by being compressed therearound.

Preferably, said shaped neck includes an annular recess therearound, and, said collar  
5 includes an annular lip protruding inwardly therefrom, whereby said lip is adapted to cooperate with said recess such that said collar is snap-fitted to said neck of said body.

Alternatively or additionally, said neck may preferably include an outwardly disposed  
protrusion therearound, whereby said collar is adapted to be snap-fitted over said protrusion  
10 and be retained on said container.

In this preferred form, said protrusion is any one or more of a defined lip, an outward  
taper, or a gradual enlargement of diameter of said neck towards the upper portion thereof.

15 Preferably, the dispensing valve further includes a seal, formed of rubber or like material, positioned intermediate said neck and said flange, to prevent leakage of said product.

Also preferably, said body is provided with lid engaging means, for releasable  
engagement of a lid.  
20

Also preferably, said body is provided with base engaging means, for a base to be  
attached thereto.

Also preferably, the container incorporates at least one strengthening rib therearound  
25 to provide structural rigidity to the container.

Preferably, said body is provided with a substantially cylindrical intermediate portion  
for application of a label thereto.

30 In a further broad form, the present invention provides a preform for making a container for dispensing a pressurised product, said preform being injection moulded from

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polyethylene terephthalate (PET) or like plastics material, said preform having a shaped neck, the extremity of which is adapted such that it can be supported in both a blow mould apparatus, and, in a cutting apparatus at a later stage of manufacture.

5 Preferably, said preform is thereafter used to be stretch blow moulded, have an injection moulded plastics collar, and, a dispensing valve attached thereto and be used to dispense a pressurised product.

In a further broad form, the present invention provides a method for manufacturing a  
10 container of the type for dispensing a pressurised product, said method including the steps of:  
injection moulding a preform from polyethylene terephthalate (PET) or like plastics material, said preform including a shaped neck, the extremity of which is adapted to be supported in a stretch blow mould apparatus and later in the manufacturing process in said cutting apparatus;

15 stretch blow moulding said preform such that a container extends from said shaped neck;

cutting the extremity of said neck from said container such that said neck surrounds an opening;

20 snap-fitting an injection moulded plastics collar to said neck of said container in a position which surrounds said opening; and,

installing a dispensing valve to said neck/collar, said valve including an outer flange which is formed of malleable material and which is shaped to fit about and be retained to said collar by being compressed therearound.

25 Preferably, said neck is tapered outwardly, such that, when the extremity of the neck is cut, it acts to assist in the snap-fitting of said collar thereto.

30 Preferably, prior to said valve installing step, said product is provided within said container, and then, after said dispensing valve is installed, said product is pressurised within said container.

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Also preferably, the method further includes one or more of the steps of:  
releasably attaching a lid to an upper portion of said body;  
engaging a base to a lower portion of said body; and,  
applying a label to an intermediate portion of said body.

5

### **Brief Description of the Drawings**

The present invention will become more fully understood from the following detailed description of a preferred but non-limiting embodiment thereof, described in connection with the accompanying drawings, wherein:

10 Figure 1 illustrates, in Figure 1(a) thereof, a cross-sectional view of a plastics aerosol container, formed in accordance with the preferred embodiment of the present invention, whilst Figure 1(b) illustrates an enlarged view of the encircled portion marked B in Figure 1(a);

15 Figure 2 illustrates elevational views of the body of the container, Figure 2(a) showing the container prior to the neck trimming step, and, Figure 2(b) showing the container after the neck trimming step;

Figure 3 illustrates an elevational view of the collar;

Figure 4 illustrates an elevational view of the dispensing valve;

20 Figure 5 illustrates, in Figure 5(a) thereof, an elevational view of the container with its closure installed, whilst Figure 5(b) shows a cross-sectional detail along lines A-A of Figure 5(a), and Figure 5(c) details the portion labelled B in Figure 5(b);

Figure 6 illustrates a detailed views of the collar of in Figure 3, Figure 6(a) showing a detailed cross-sectional view, whilst Figure 6(b) shows an isometric view of the collar;

25 Figure 7 illustrates various arrangements of caps or closures, Figures 7(a)(i), 7(b)(i) and 7(c)(i) showing elevational views of the various caps or closures, Figures 7(a)(ii), 7(b)(ii) and 7(c)(ii) showing sectional views along lines D, E and F, whilst Figures 7(a)(iii), 7(b)(iii) and 7(c)(iii) show details of portions H, I and J;

Figure 8 illustrates a pre-form, prior to stretch blow moulding of the body of the container; and,

30 Figure 9 illustrates, in various arrangements of the base of the container, Figures 9(a) and 9(b) showing a champagne base with cap, whilst Figure 9(c) shows a ribbed champagne

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base, Figures 9(a)(i) and 9(b)(i) showing elevational views, Figures 9(a)(ii) and 9(b)(ii) showing underside views, Figures 9(a)(iii) and 9(b)(iii) detailing cross-sectional views along lines K-K and M-M of Figures 9(a)(i) and 9(b)(i) respectively, and, Figures 9(a)(iv) and 9(b)(iv) show detailed enlargements of portions L and N of Figures 9(a)(iii) and 9(b)(iii),  
5 respectively.

### Detailed Description of Preferred Embodiment

Throughout the drawings, like numerals will be used to identify similar features, except where expressly otherwise indicated.

10

As shown in Figure 1, a container, generally designated by the numeral 1, is formed of plastics material and has a body portion 2, a collar 3, a valving mechanism 4, and a cap or closure 5.

15

The body portion 2 is formed to have a base 6 at a first end thereof, and a neck portion 7 at a second end thereof. The body 2, including its base and neck portion, are all integrally formed by stretch blow moulding plastics material, such as polyethylene terephthalate (PET) from a preform, such as shown in Figure 8.

20

Figure 2(a) shows the container after blow moulding but before the neck is trimmed, whilst Figure 2(b) shows the same container after the neck is trimmed. It will be noted from the elevational view of the body portion 2, illustrated in Figure 2, that the upper or neck portion 7 of the body of the container is formed having various discrete features including a rebated portion 8 to which the cap 5 may be neatly fitted to the container, an annular recess  
25 9 to which the collar 3, shown in Figure 3, is adapted to engage, and one or more ribs 19 (either outwardly or inwardly protruding) which may act as alternative engagement points for the cap or closure or other components and/or as strengthening ribs to provide structural rigidity to the container, particularly when pressurised. An opening 10 is formed in the top of the neck 7, to receive the dispensing valve (described hereinafter).

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The collar, illustrated by reference numeral 3, in Figures 3 and 6, is formed by injection moulding from plastics material, and is shaped to preferably be snap-fitted to the shaped neck of the body 2 about the opening 10. This is formed by the provision of an annular recess 9 on the neck of the body, which is adapted to engage an annular lip protruding inwardly from the inner surface of the collar 3, perhaps best illustrated in Figure 6(a). The collar is preferably formed of plastics material and has the characteristics of being strong and rigid with some degree of flexibility, such that it provides strength to the neck 7 of the body 2, which is important when housing a pressurised product, whilst having some degree of flexibility to enable it to be snap-fitted to the neck 7 of the body 2. Suitable materials will become apparent to persons skilled in the art.

Once the collar 3 is positioned about the neck 7, a dispensing valve 4, as illustrated in Figure 4, may be attached by being compressed therearound. The dispensing valve is of the conventional type of dispensing valve used in prior art metal aerosol containers. It is preferably formed of metal or like malleable material, and provided with an outer flange 11 which is shaped to fit about and be retained to the collar 3 by being compressed therearound. The lower portion 12 of the dispensing valve is adapted to fit within the opening 10 of the container 2.

It should be noted that the upper portion 13 of the neck of the container 2 may be provided with an outwardly disposed protrusion, formed by a defined lip, an outward taper and/or gradual enlargement of the neck, such that, when it is cut (as shown in Figure 2(b), there is a slight outward protrusion, which the collar 3 can ride over in a manner to cause fitting of the collar 3 to the neck 13. In one embodiment, the upper portion of the neck may be cut from the preform in a way in which it slightly protrudes and the outer portion of the flange 11 can fit about the protruding neck 13. An annular recess 9 may alternatively or additionally be provided about the neck of the container 2, adapted to cooperate in snap-fitting engagement with the annular protrusion 15 provided on the inner surface of the collar 3.

A seal 14 is also preferably provided between the engaging portions of the neck 13 and the dispensing valve 4, such as illustrated by reference numeral 14. This is provided to prevent



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leakage of the product between the collar and the neck. More detailed views of the body and the collar are shown in Figure 5.

Figure 7 illustrates various embodiments of caps, closures or lids 20, which may be engaged with an upper portion of the container 2. Figure 7(a)(i), 7(b)(i) and 7(c)(i) illustrate elevational views of various forms of caps which are of slightly different diameters and which engage slightly differently to the container. Specifically, the cap 20 of Figures 7(a) is of equivalent diameter to the container 2, and is engaged by finger(s) 21 contacting the neck of the container, whilst Figures 7(b) and 7(c) show how the cap 20 may engage a rib 19 provided on the upper portion of the container by an appropriately positioned lip 21.

Figure 8 illustrates a preform, from which the container 2 of the present invention may be stretch blow moulded. It has a pair of annular protruding rings 16 and 17 therearound which are used for gripping purposes. Once the container is stretch blow moulded, the container shown in Figure 2(a) is cut off at a position approximately indicated by reference numeral 18 to achieve the container shown in Figure 2(b), the upper portion of the blow moulded preform then being discarded or recycled.

Figure 9 illustrates, in Figures 9(a) and 9(b), various alternative arrangements for the base 6 of the container 1. Figure 9(a) shows a champagne base with a cap 22 being attached, by, for example, snap fitting to a suitable attachment, as best illustrated in Figure 9(a)(iv). Figure 9(b) illustrates an alternative arrangement, whereby the base is more simply formed as a ribbed champagne base, with strengthening ribs 23 appropriately positioned therearound.

It will be appreciated that the container described in the present invention has advantages over conventional type metal aerosol containers. It will also be appreciated that whilst particular embodiments have been hereinbefore described, variations and modifications may be made to the shape and configuration thereto, still achieving advantages to the invention. Such variations and modifications should be considered to be within the scope of the invention as hereinbefore described.

It would also be appreciated that the method of manufacturing the container has significant advantages over prior art methods of manufacturing aerosol type containers.

5 In the assembly of the container, it will be appreciated that firstly, a preform, such as shown in Figure 8, is made by the process of injection moulding. The container is then stretch blow moulded from the preform, to achieve the container shown in Figure 2(a). The top of the preform, that is, the extremity of the neck, can be cut, using a laser cutter, rotary knives or any other cutting mechanism. The cut portion may be discarded or recycled. The container  
10 with the extremity of the neck cut therefrom is shown in Figure 2(b). A collar, such as shown in Figure 3, may then be attached by snap fitting the collar to the top of the container. By the snap fitting of the collar to the container, the collar is not prone to be easily bumped off the top of the container during the on-going manufacturing/assembling process. This was a significant disadvantage of the metal collared prior art product shown in the aforementioned  
15 US Patent. That is, the metal collar of the afore mentioned US Patent simply rests atop the neck of the container and is liable to be easily bumped or removed during the filling/ assembly process.

Once the collar is attached to the top of the container, product may be supplied into the  
20 container, and the dispensing valve, such as shown in Figure 4, may be attached and compressed around the collar for securement thereto. A closure 20 may then be applied to the top of the container, such as shown in Figure 7, as may a base, as shown in Figure 9, and any associated labelling may then be applied to the plastics aerosol container.

25 Obviously the plastics aerosol container of the present invention will be capable of dispensing a variety of products, including all products known to be currently dispensed from metal aerosol containers. The plastics aerosol container, formed of PET material, however, has the significant advantage that it can be readily recycled, and is thus more environmentally friendly.

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It will be appreciated that numerous variations and modifications may also be made to the *method of manufacture of the plastics aerosol container, and the filling of the plastics aerosol container.* All such variations and modifications should be considered to fall within the scope of the invention as broadly hereinbefore described and as hereinafter claimed.

## THE CLAIMS

1. A container for dispensing a pressurised product, said container including:  
a body, stretch blow moulded from polyethylene terephthalate (PET) or like plastics material, said body having a shaped neck surrounding an opening;  
5 a collar, injection moulded from plastics material, shaped to be snap-fitted to said shaped neck of said body about said opening; and,  
a dispensing valve for attachment to said neck/collar, said valve including an outer flange which is formed of malleable material and which is shaped to fit about and be retained to said collar by being compressed therearound.  
10
2. The container as claimed in claim 1, wherein said shaped neck includes an annular recess therearound, and, said collar includes an annular lip protruding inwardly therefrom, whereby said lip is adapted to cooperate with said recess such that said collar is snap-fitted to said neck of said body.  
15
3. The container as claimed in claim 1 or 2, wherein said neck includes an outwardly disposed protrusion therearound, whereby said collar is adapted to be snap-fitted over said protrusion and be retained on said container.
- 20 4. The container as claimed in claim 3, wherein said protrusion is any one or more of a defined lip, an outward taper, or a gradual enlargement of diameter of said neck towards the upper portion thereof.
5. The container as claimed in any one of claims 1 to 4, wherein the dispensing valve  
25 further includes a seal, formed of rubber or like material, positioned intermediate said neck and said flange, to prevent leakage of said product.
6. The container as claimed in any one of claims 1 to 5, wherein said body is provided with lid engaging means, for releasable engagement of a lid.
- 30 7. The container as claimed in any one of claims 1 to 6, wherein said body is provided

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with base engaging means, for a base to be attached thereto.

8. The container as claimed in any one of claims 1 to 7, wherein the container incorporates at least one strengthening rib therearound to provide structural rigidity to the container.
9. The container as claimed in any one of claims 1 to 8, wherein body is provided with a substantially cylindrical intermediate portion for application of a label thereto.
10. A preform for making a container for dispensing a pressurised product, said preform being injection moulded from polyethylene terephthalate (PET) or like plastics material, said preform having a shaped neck, the extremity of which is adapted such that it can be supported in both a blow mould apparatus, and, in a cutting apparatus at a later stage of manufacture.
11. The preform as claimed in claim 9, wherein said preform is thereafter used to be stretch blow moulded, have an injection moulded plastics collar, and, a dispensing valve attached thereto and be used to dispense a pressurised product.
12. A method for manufacturing a container of the type for dispensing a pressurised product, said method including the steps of:
- injection moulding a preform from polyethylene terephthalate (PET) or like plastics material, said preform including a shaped neck, the extremity of which is adapted to be supported in a stretch blow mould apparatus and later in the manufacturing process in said cutting apparatus;
  - stretch blow moulding said preform such that a container extends from said shaped neck;
  - cutting the extremity of said neck from said container such that said neck surrounds an opening;
  - snap-fitting an injection moulded plastics collar to said neck of said container in a position which surrounds said opening; and,
  - installing a dispensing valve to said neck/collar, said valve including an outer flange

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which is formed of malleable material and which is shaped to fit about and be retained to said collar by being compressed therearound.

13. A method as claimed in claim 12, in which said neck is tapered outwardly, such that,  
5 when the extremity of the neck is cut, it acts to assist in the snap-fitting of said collar thereto.

14. A method as claimed in claim 12 or 13, wherein, prior to said valve installing step, said product is provided within said container, and then, after said dispensing valve is installed, said product is pressurised within said container.

10

15. A method as claimed in any one of claims 12 to 14, further including one or more of the steps of:

releasably attaching a lid to an upper portion of said body;

engaging a base to a lower portion of said body; and,

15 applying a label to an intermediate portion of said body.

16. A container for dispensing a pressurised product, substantially as herein described with reference to the accompanying drawings.

20 17. A method of manufacturing a container of the type for dispensing a pressurised product, substantially as herein described.

18. A preform, substantially as herein described with reference to the accompanying drawings.

25

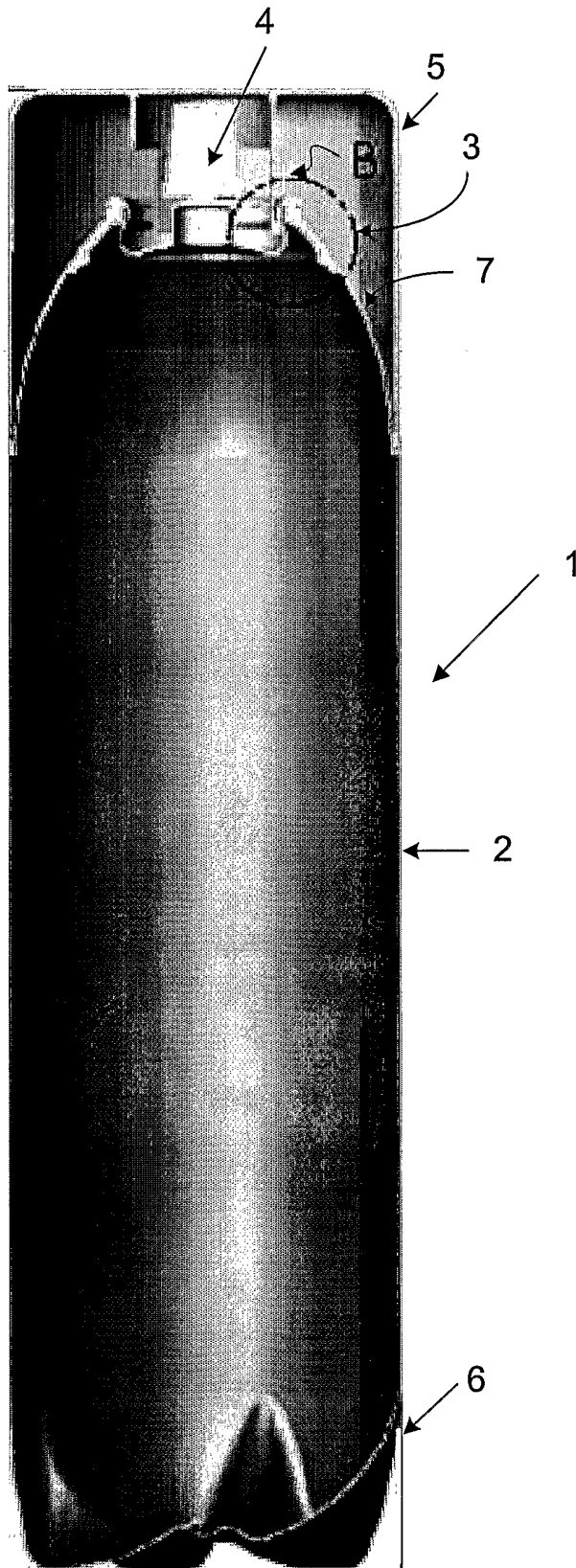


FIGURE 1(a)

FIGURE 1

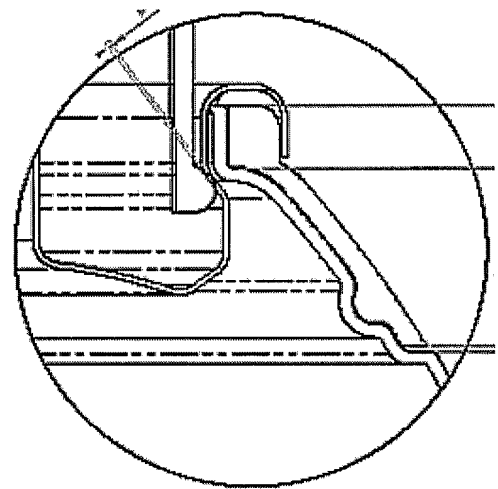


FIGURE 1(b)

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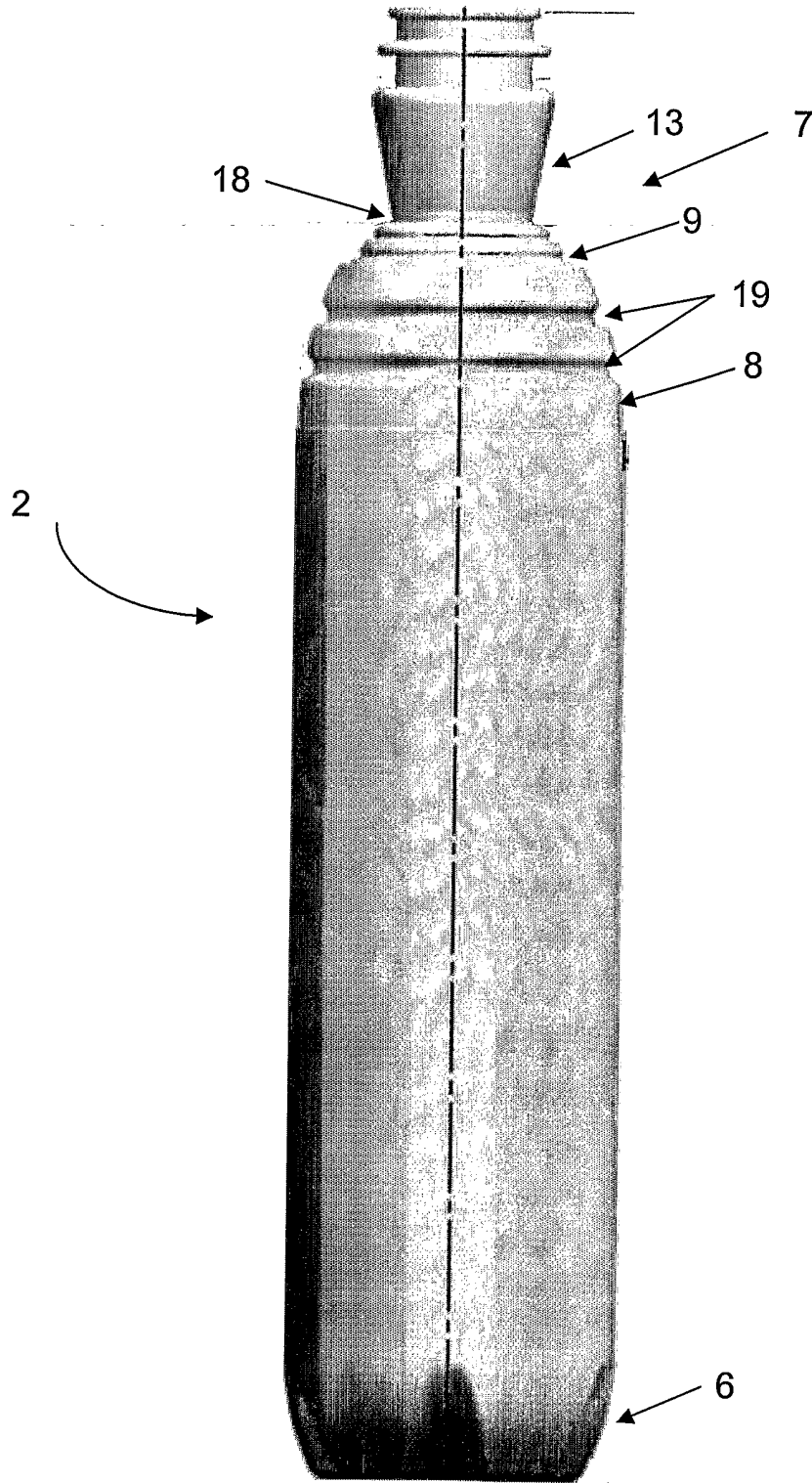


FIGURE 2(a)



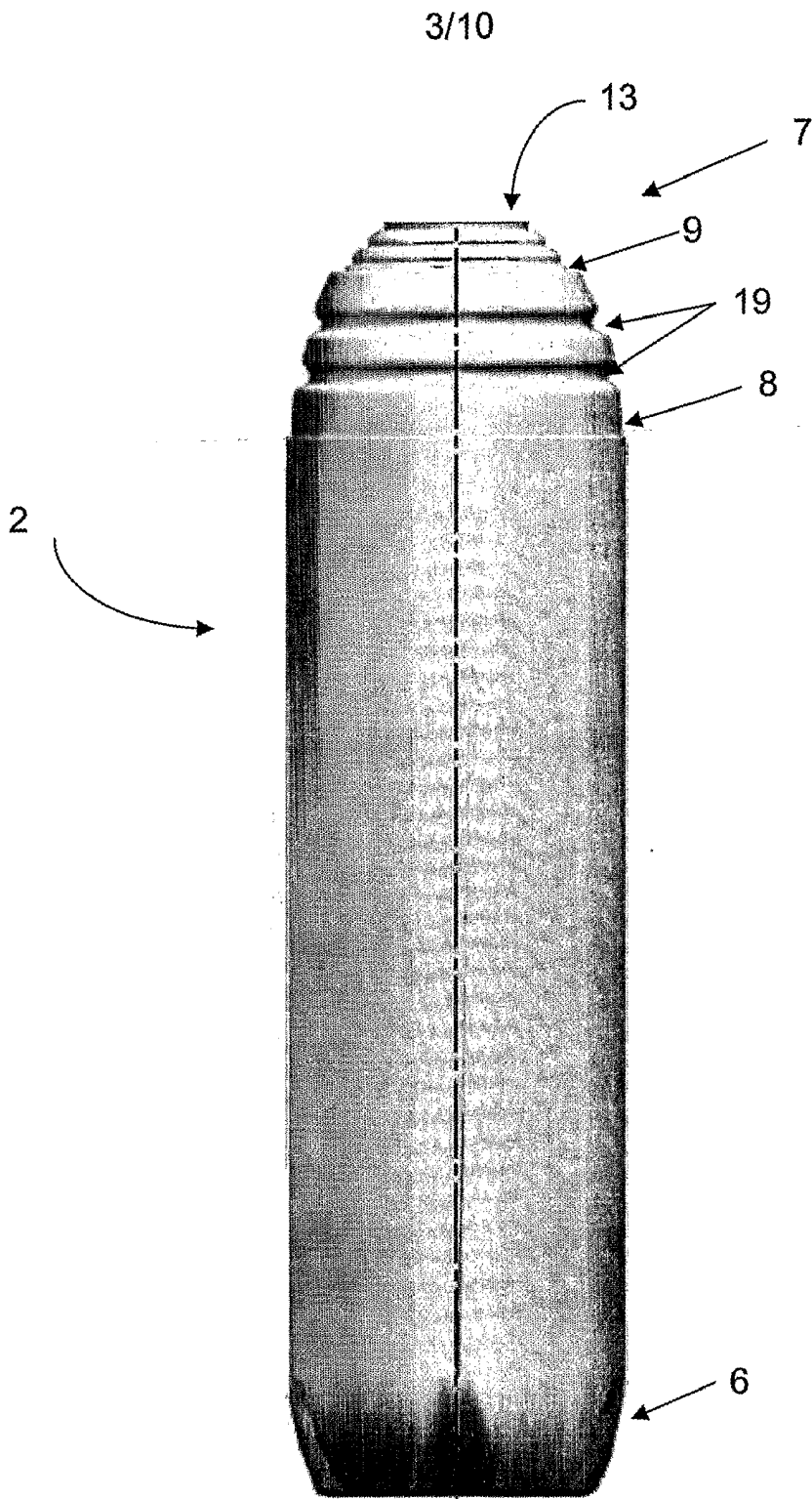


FIGURE 2(b)

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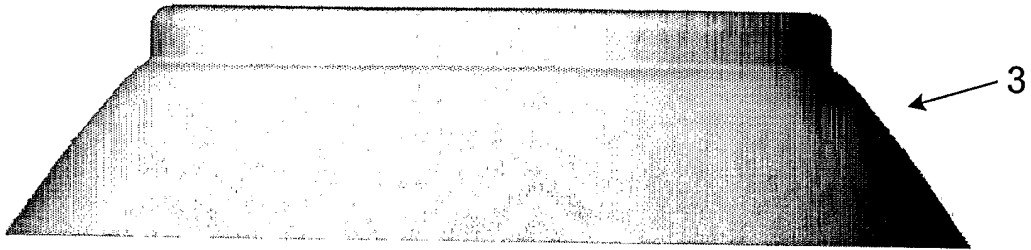


FIGURE 3

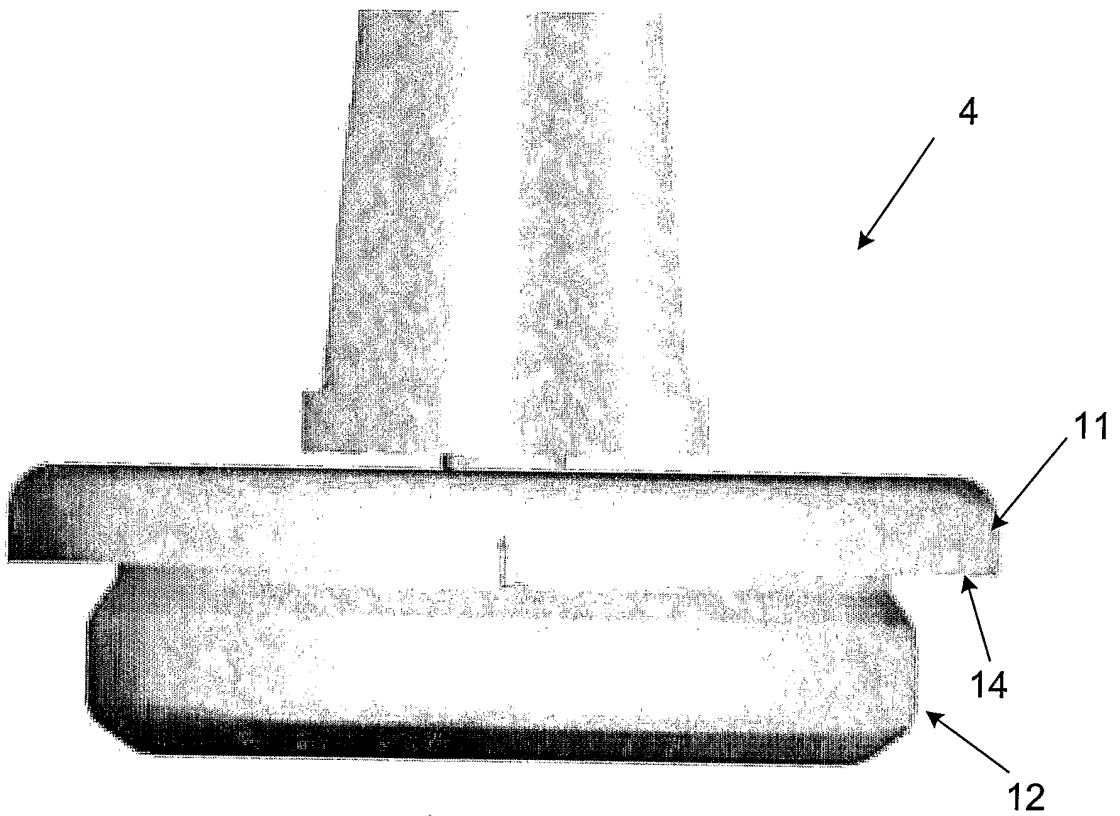


FIGURE 4

FIGURE 5

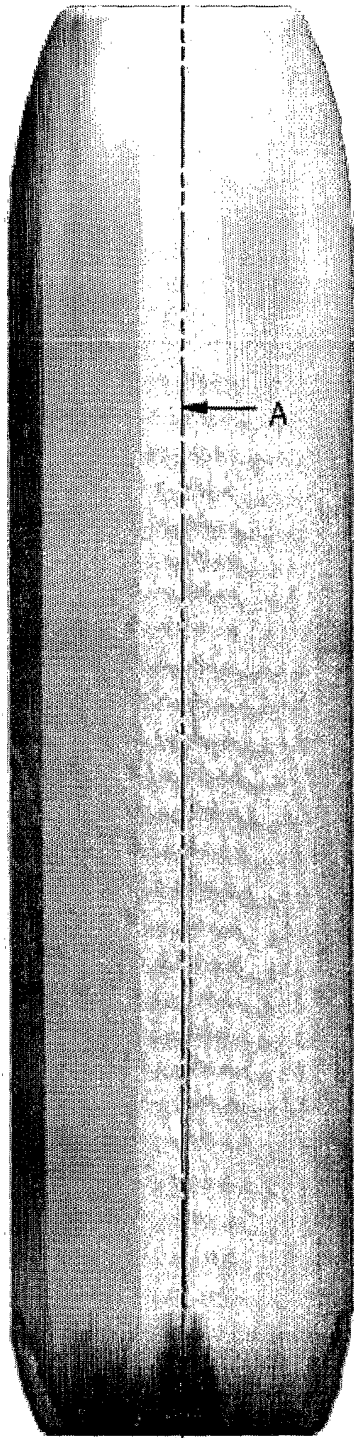
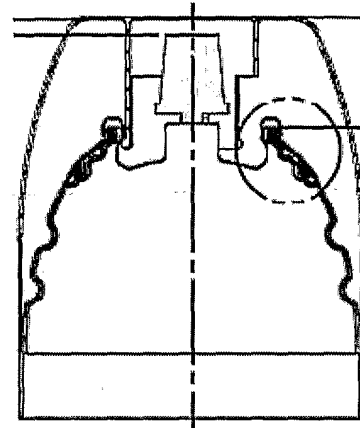


FIGURE 5(a)



SECTION A-A

FIGURE 5(b)

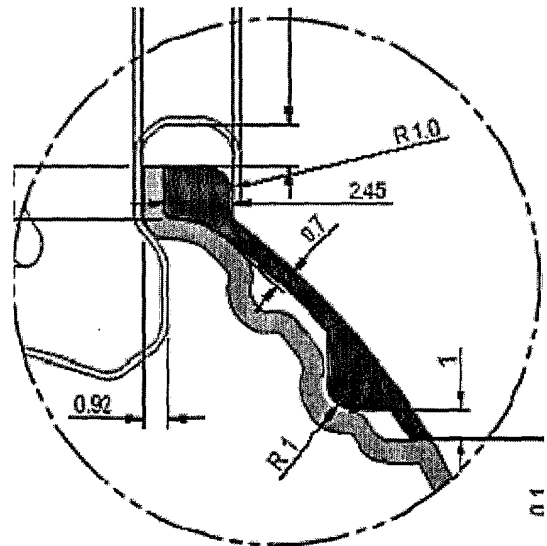


FIGURE 5(c)

FIGURE 6

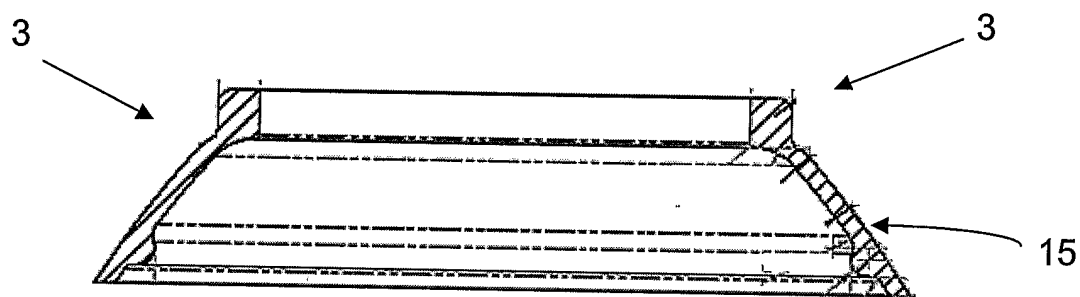


FIGURE 6(a)

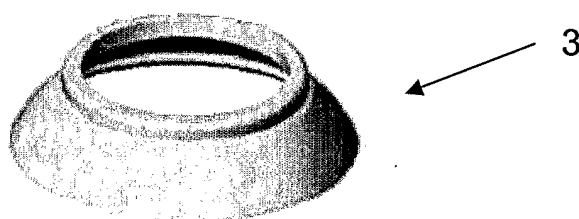


FIGURE 6(b)

FIGURE 7

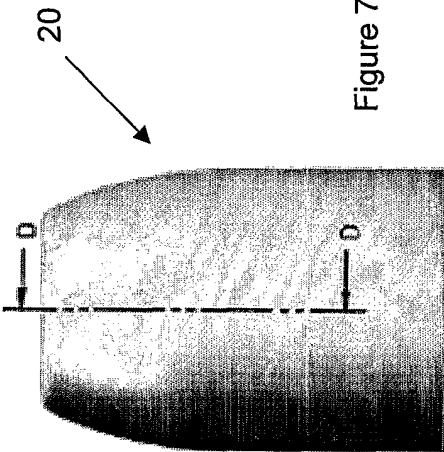


Figure 7(a)(i)

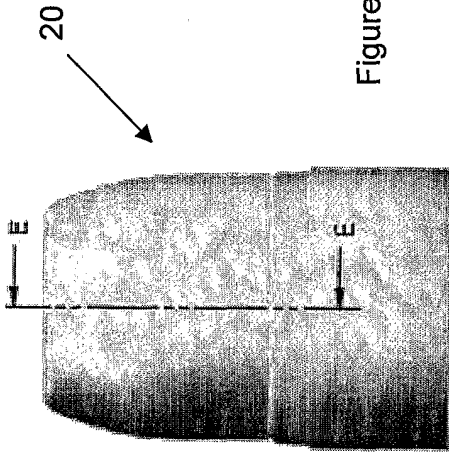


Figure 7(b)(i)

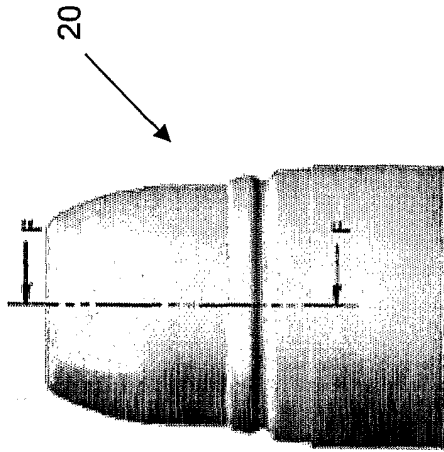


Figure 7(c)(i)

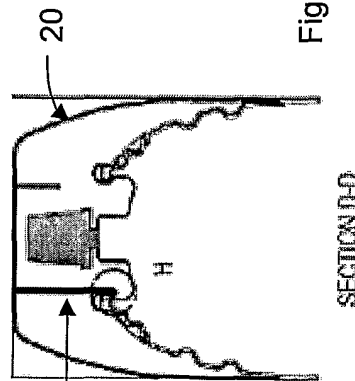


Figure 7(a)(ii)

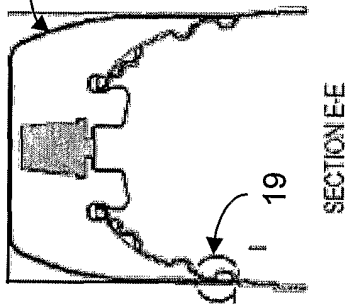


Figure 7(b)(ii)

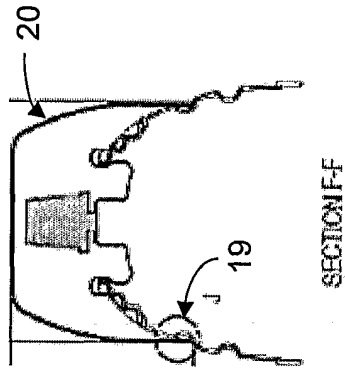


Figure 7(c)(ii)

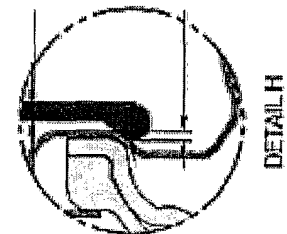


Figure 7(a)(iii)

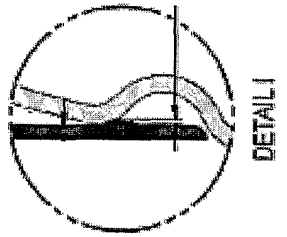


Figure 7(b)(iii)

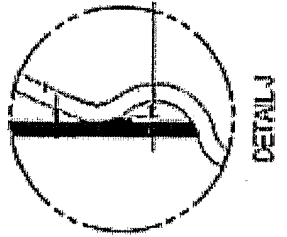


Figure 7(c)(iii)

FIGURE 7(a)

FIGURE 7(b)

FIGURE 7(c)

FIGURE 8

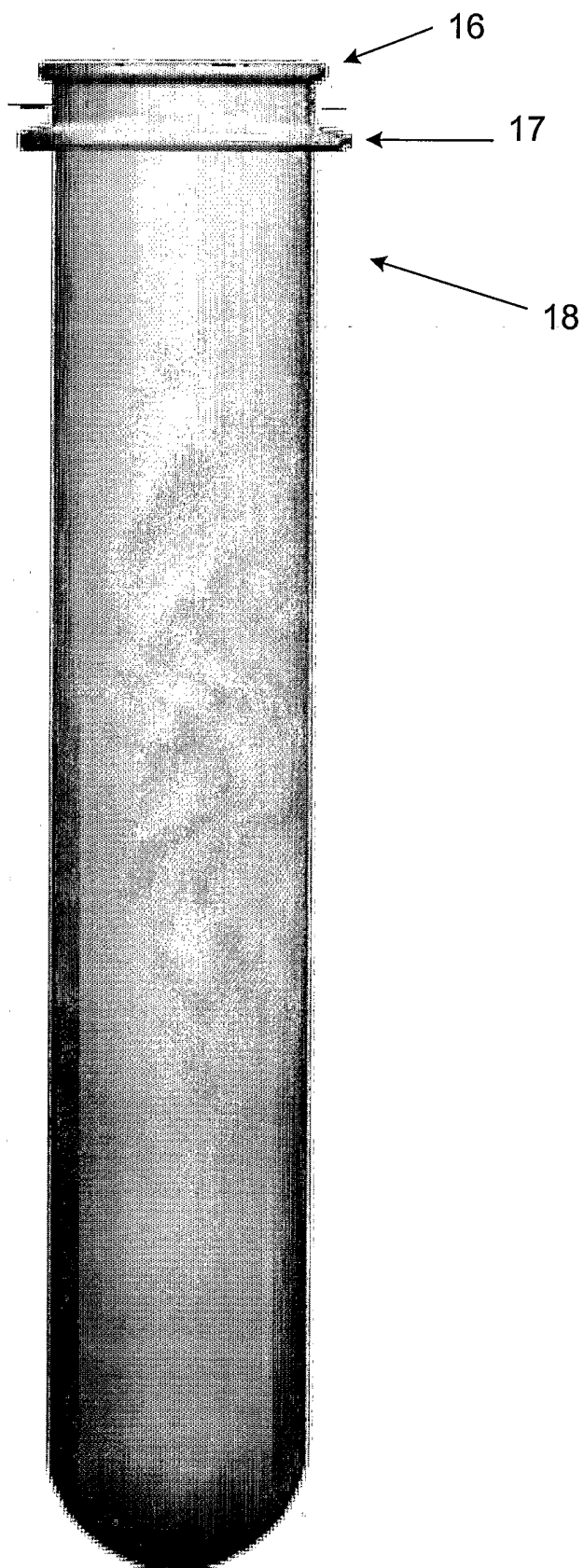


Figure 9(a)(i)

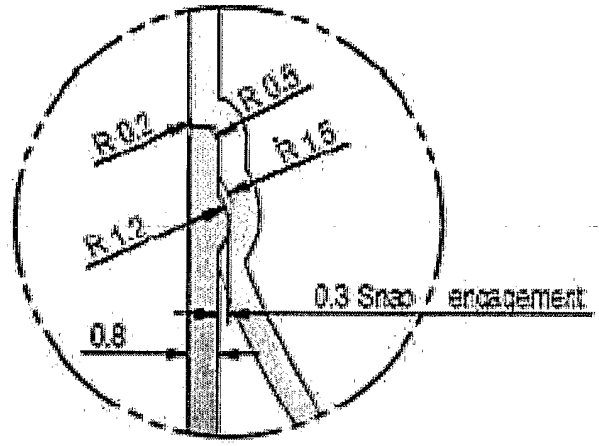
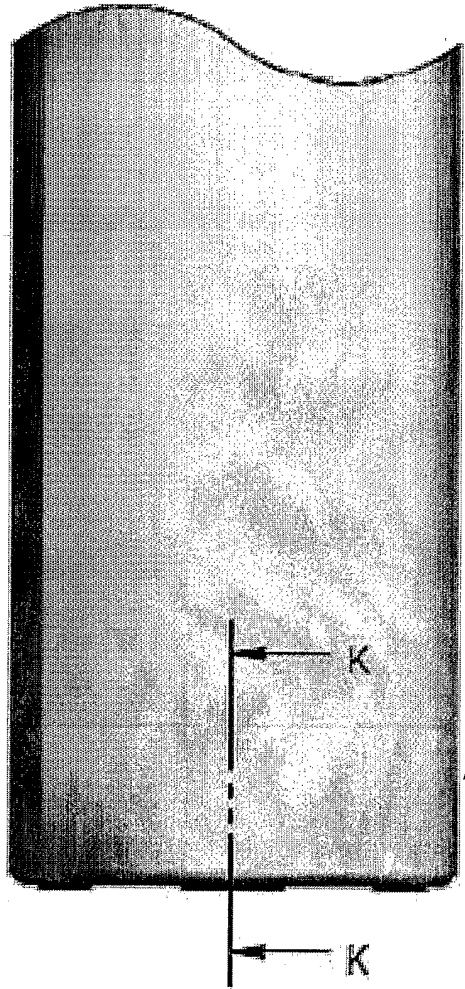


Figure 9(a)(iv)

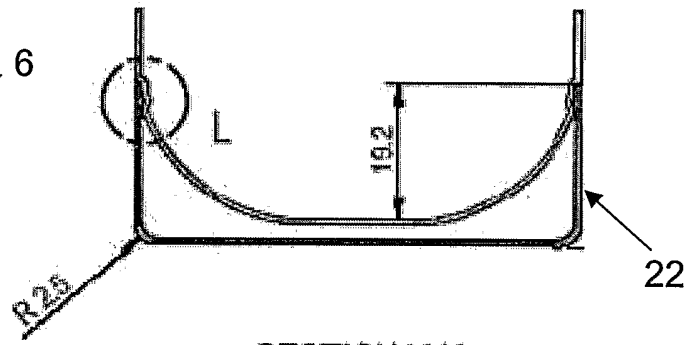


Figure 9(a)(iii)

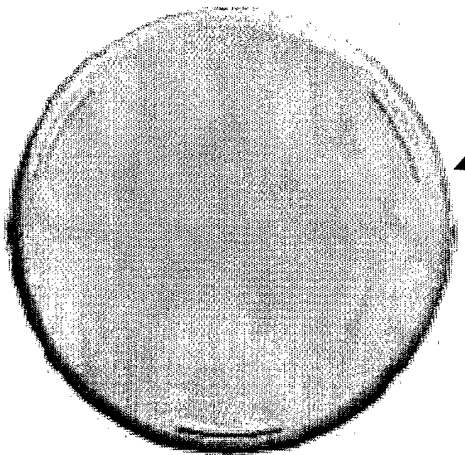
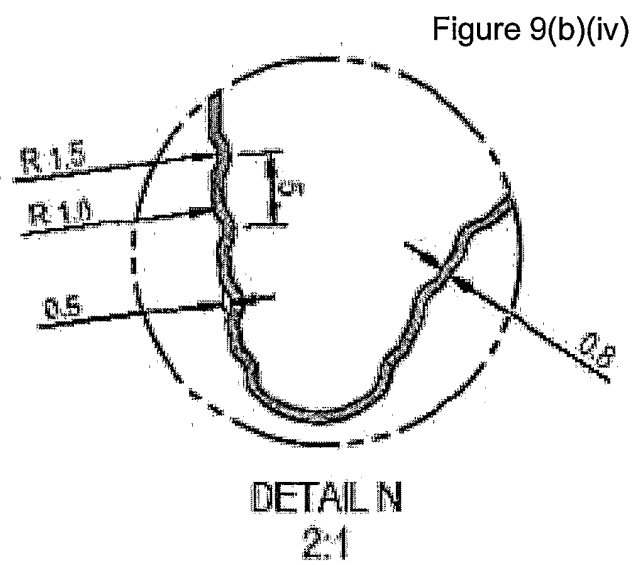
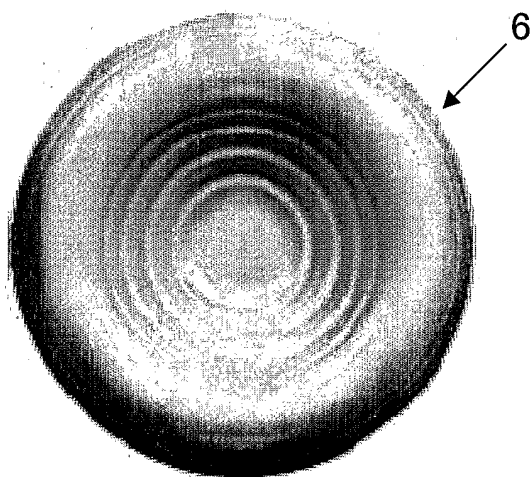
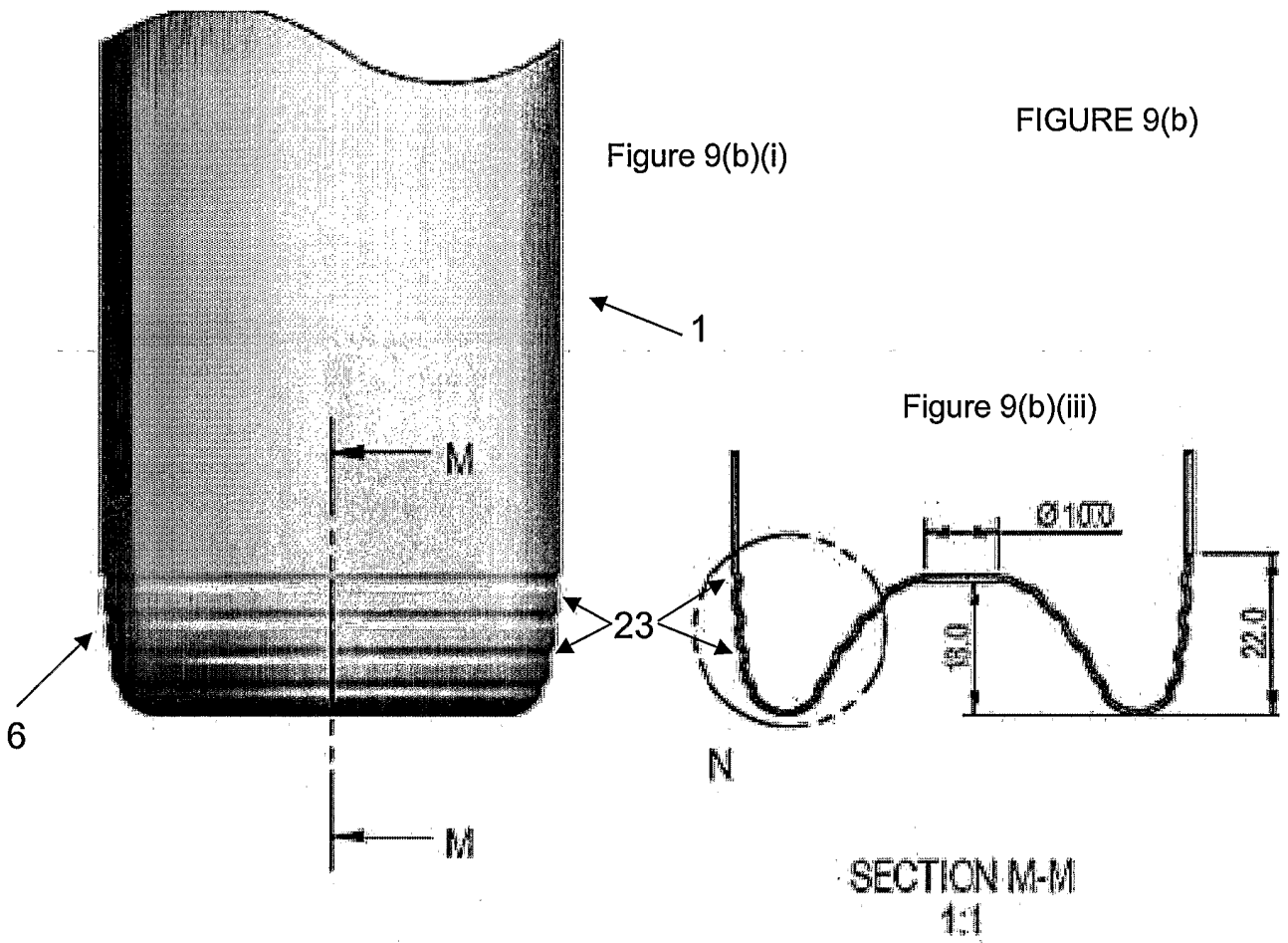


Figure 9(a)(ii)

FIGURE 9(a)





## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2005/001474

## A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

**B65D 83/38** (2006.01)      **B65D 8/04** (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
DWPI IPC B65D 83/-, 1/-, 8/- and keywords: POLYETHYLENE, PET, PLASTIC, AEROSOL, COLLAR, RING, VALVE, ACTUATOR, SNAP, PRESS and similar terms

DWPI and keywords: PREFORM, MOLD, MOULD, POLYETHYLENE, PET, PLASTIC, POYMER, SHAPE, CURVED, NECK and similar terms

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6390326 B1 (HUNG) 21 May 2002 See whole document – eg collar (50) (Document cited in present application)	1-18
A	US 5031384 A (REBEYROLLE et al.) 16 July 1991 See whole document – eg figures 6 and 7	1-18
A	US 5183188 A (REBEYROLLE et al.) 2 February 1993 See whole document – eg collar (52) in figure 10	1-18

 Further documents are listed in the continuation of Box C See patent family annex


* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search  
19 December 2005

Date of mailing of the international search report 3 JAN 2006

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2005/001474

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4211344 A (STOODY) 8 July 1980 See whole document – eg collar (45) and figure 6	1-18
A	US 5865337 A (DIAMOND et al.) 2 February 1999 See whole document – eg plastic collar (10) in figure 1	1-18
X	GB 2278802 A (A K TECHNICAL LABORATORY INC) 14 December 1994 See whole document – PET blow moulded bottle from preform (24)	9, 10, 18
X	WO 2001/008868 A2 (LIMANJAYA) 8 February 2001 See whole document - PET blow moulded bottle from preform (4)	9, 10, 18
X	US 2003/0132187 A1 (FERGUSON et al.) 17 July 2003 See whole document - PET blow moulded bottle from preform (11)	9, 10, 18
X	EP 073151 B1 (YOSHINO KOGYOSHO CO., LTD.) 22 April 1987 See whole document - PET blow moulded bottle from preform (P)	9, 10, 18

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

See Supplemental Sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**Supplemental Box**

(To be used when the space in any of Boxes I to VIII is not sufficient)

**Continuation of Box No III:**

This International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept.

In assessing whether there is more than one invention claimed, I have given consideration to those features which can be considered to potentially distinguish the claimed combination of features from the prior art. Where different claims have different distinguishing features they define different inventions.

This International Searching Authority has found that there are different inventions as follows:

- Claims 1 to 9 and 12 to 17 are directed to a container, and an associated method of manufacture, for dispensing a pressurised product. The container includes a body of stretch blow moulded polyethylene terephthalate having a shaped neck surrounding an opening; a collar of injection moulded plastics material shaped to be snap-fitted to the shaped neck of the body about the opening; and a dispensing valve for attachment to said neck and collar, wherein the valve includes an outer flange which is formed of malleable material and which is shaped to fit about and be retained to said collar by being compressed therearound. It is considered that features defining the container comprise a first distinguishing feature.
- Claims 9, 10 and 18 are directed to a preform for making a container. The preform is injection moulded from polyethylene terephthalate or like plastics material and has a shaped neck. There is an "extremity" of the preform which can be supported in both a blow mould apparatus and in a cutting apparatus at a later stage of manufacture. It is considered that features of the preform comprise a second distinguishing feature.

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features.

PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

The only feature common to all of the claims is a container made from polyethylene terephthalate or like plastics material and having a shaped neck. However this concept is not novel in the light of the prior art documents cited in the international search report such as:

- (a) GB 2278802 A (A K TECHNICAL LABORATORY INC) 14 December 1994
- (b) WO 2001/008868 A2 (LIMANJAYA) 8 February 2001
- (c) US 2003/0132187 A1 (FERGUSON et al.) 17 July 2003
- (d) EP 073151 B1 (YOSHINO KOGYOSHO CO., LTD.) 22 April 1987

This means that the common feature can not constitute a special technical feature within the meaning of PCT Rule 13.2, second sentence, since it makes no contribution over the prior art.

Because the common feature does not satisfy the requirement for being a special technical feature it follows that it cannot provide the necessary technical relationship between the identified inventions. Therefore the claims do not satisfy the requirement of unity of invention *a posteriori*.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2005/001474

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	6390326	NONE					
US	5031384	DK	364089	EP	0354137	FI	893546
		FR	2634466	FR	2642699	JP	2092523
		NO	893016	PT	91260	US	5123571
US	5183188	CA	2028976	EP	0426580	FR	2653757
		IE	903938	NO	904751	PT	95767
US	4211344	NONE					
US	5865337	AU	65065/96	BR	9610056	CA	2226840
		CN	1196022	EG	21116	EP	0885155
		EP	1034860	HK	1016139	HU	9903429
		PL	324659	US	5676512	US	5704513
		WO	9705022	ZA	9606194		
GB	2278802	CA	2073083	CN	1062878	EP	0498123
		EP	0785146	GB	2251844	HK	114696
		HK	114796	JP	4270628	MX	9102692
		US	5297686	US	5783138		
WO	2001/008868	AU	57556/99	EP	1278626		
US	2003132187	AU	2002346461	CA	2416077	EP	1472076
		US	6666346	US	6692682	US	6696010
		US	6866499	US	2003132186	US	2003132557
		US	2003185929	WO	03059753		
EP	0073151	AU	87472/82	CA	1184717	HK	8690
		JP	58036420	US	4589559		

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX