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(71) Applicant: **Procter & Gamble European Technical Center**
Temselaan 100
B-1820 Strombeek-Bever(BE)

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(71) Applicant: **THE PROCTER & GAMBLE COMPANY**
One Procter & Gamble Plaza
Cincinnati Ohio 45202(US)

(84) Designated Contracting States:
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(72) Inventor: **Mac Gilp, Neil Archibald**
avenue de Tancarville 18
B-1410 Waterloo(BE)

(72) Inventor: **Maes, Paul**
Max Haverlaarlaan 36
B-1850 Grimbergen(BE)

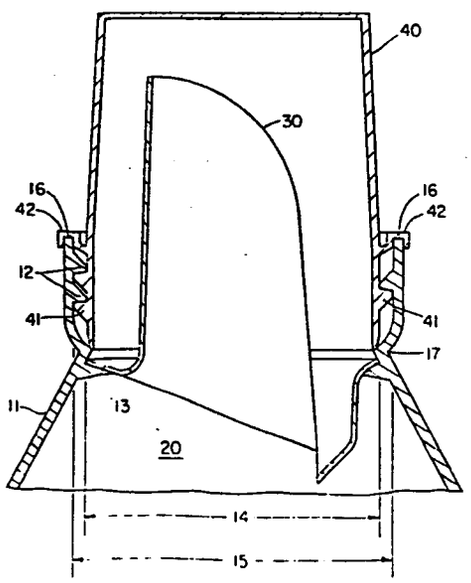
(72) Inventor: **Meyer, Eric Walter**
623 Burns avenue Apartment 2
Cincinnati Ohio 45215(US)

(72) Inventor: **Vandebroek, Marcel**
Max Havelaarlaan 3
B-1850 Grimbergen(BE)

(74) Representative: **Suslic, Lydia et al,**
Procter & Gamble European Technical Center Temselaan 100
B-1820 Strombeek-Bever(BE)

(54) **Blow molded container having a first and a second internal attachment means.**

(57) A thermoplastic container, e.g., a bottle, having a neck portion comprising a first and a second internal attachment means is disclosed. The second attachment means may be used for a dispensing device, e.g. a pour spout. The first attachment means may be adapted to accept a closure cap.



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BLOW MOLDED CONTAINER HAVING A FIRST AND A SECOND INTERNAL ATTACHMENT MEANS

Neil A. MAC GILP
Paul MAES
Eric W. MEYER
Marcel VANDEBROEK

Technical Field

The present invention relates to an improved blow-molded container having internal attachment means. More particularly, the invention relates to a blow-molded container having a body-portion and a neck-portion, said neck-portion having a first and a second internal attachment means, the second being located closer to the body-portion and having a smaller diameter than the first.

Blow-molded containers having a neck portion with internal attachment means have been disclosed. Such internal attachment means is particularly suitable for use with a closure cap, especially when the closure cap is intended to be used as a measuring cup. When the cap is attached to the inside of the container neck, fluid which may have stayed behind in the cap can drain back into the container without causing messiness.
It is oftentimes desirable to provide the container with a device to facilitate drain-back and/or pouring. Such a device is to be attached internally in the neck portion of the container, at a point "below", i.e. closer to the body-portion than the internal attachment means. Moreover, the design of this device must be such that inserting it into the neck-portion does not cause damage to the internal attachment means.

Furthermore, it has been discovered that applying a container cap to a container having internal attachment means may cause an over-pressure in the container.

It has also been discovered that the neck-portion of such a container tends to radially expand, due to relaxation, after the closure cap is applied. This expansion occasionally prevents the container neck/closure cap seal from remaining liquid tight over time.

It is therefore an object of the present invention to provide a blow-molded container having internal attachment means which is adapted to having a device inserted and affixed into its neck portion without damage to the internal attachment means or the device.

It is a further object of this invention to provide a container, having a neck portion with internal attachment means, from which air can escape when the closure cap is applied to it.

It is another object of this invention to provide a closure cap for a container having internal attachment means which reduces radial relaxation of the container neck after the closure cap has been applied.

Summary of the Invention

The present invention relates to a blow-molded container, having a body-portion and a neck-portion, being provided with a dispensing device, characterized in that said neck portion has a first internal attachment means and a second internal attachment means, the second internal attachment means being located between the first internal attachment means and the body-portion of the container, the orifice diameter being significantly smaller at the position of the second internal attachment means than at the position of the first internal attachment means.

Brief Description of the Drawing

Fig. 1 depicts a cross sectional view of the neck portion of a container having a first and a second internal attachment means.

Detailed Description of the Invention

Blow-molded containers, frequently having the shape of a bottle, are widely used as a low-cost package for liquids. In many applications it is desirable to provide the neck of such a bottle with an internal, rather than external, attachment means (e.g., a screw thread). This need arises, for example, when the closure-cap of the bottle is to be used as a measuring cup for dosing the liquid contained in the bottle. Heavy duty liquid detergents and rinse-added fabric softeners are examples of liquids that require measured dosing. Having a bottle with internal, attachment means and a cap having corresponding external attachment means allows use of the cap as a measuring cup and a no-mess drain back after the cap has been re-applied to the bottle. Methods for making blow-molded containers having internal attachment means have been disclosed.

It is frequently desirable to provide a container featuring a pouring spout or some other dispensing device. Typically, such a dispensing device is manufactured separate from the container (e.g., by injection molding), and then inserted into and affixed in the neck of the container.

As the dosing device is to remain in the bottle neck after the cap has been removed, the device is to be affixed to the bottle neck at a point located between the internal attachment means and the body portion of the bottle. Yet, it must be possible to insert the device into the bottle neck without causing damage to the internal attachment means or the device itself.

The blow-molded container of the present invention succesfully addresses this dilemma. To this end, the neck of the container comprises a second internal attachment means, the second being located at a point in the container neck between the first internal attachment means and the body portion of the container. The second attachment means has a diameter which is smaller than the neck-diameter at the point of the first attachment means. This permits a dosing device which has a diameter small enough to freely pass the first internal attachment means, to be securely affixed to the bottle neck.

The nature of the first and second internal attachment means is not critical. Suitable examples include screw threads, snap fitments, twist lock arrangements, and the like. Also, the first and second internal attachment means may be the same or different. A preferred embodiment of this invention is a blow-molded bottle having a screw-thread as the first internal attachment means and a snap ring as the second.

As mentioned hereinbefore, the first internal attachment means preferably is adapted to accept a closure cap. The closure cap then has an external attachment means designed to be accepted by the first internal attachment means of the container neck portion. This arrangement makes it possible to use the closure cap as a dosing device for the liquid contained in the container, and subsequently reapply it to the container without messiness.

It has been discovered that this arrangement presents a serious disadvantage. When the closure cap is applied to the container neck, the forces necessary to engage the

internal attachment means and obtain a liquid tight seal cause relaxation of the thermoplastic material which tends to radially expand the container neck. As a result, it is very difficult to maintain a leakage free closure of containers of this type over time.
Therefore, as a preferred embodiment, the container of the present invention has a closure cap having an external ring which is adapted to be fitted over the circumference of the neck portion of the container. This ring supports the neck portion of the container when the cap is being applied to it, thus preventing the neck portion from being deformed as a result of relaxation.

In a highly preferred embodiment of the container the first internal attachment means has interruptions substantially parallel to the neck portion's axis. These interruptions permit air to escape from the container when the closure cap is being applied.
Optionally, the container neck has one or more circular indentations or ribs to increase the rigidity of the neck.

Fig. 1 depicts a preferred embodiment of a container of the present invention. Shown is neck portion 11 of a blow molded container having screw thread 12 as a first internal attachment means, and snap ring 13 as a second internal attachment means. Snap ring 13 is located between screw thread 12 and body portion 20 of the container.
Neck portion 11 has a diameter 14 at the position of the snap ring 13, and a diameter 15 at the position of the screw thread 12. Diameter 14 is smaller than diameter 15. Snap-fitted in snap ring 13 is pour spout 30. Since diameter 14 is smaller than diameter 15, pour spout 30 can be inserted into the bottle neck past screw thread 12 without damaging the screw threads or pour spout.

Screwed into the bottle neck is closure cap 40. Cap 40 has external screw thread 41 designed to mesh with screw thread 12. External ring 42 of cap 40 fits over the circumference 16 of neck portion 11.
The circular indentation 17 gives additional strength to the bottle neck.

CLAIMS

1. A blow-molded container having a body-portion and a neck-portion being provided with a dispensing device, characterized in that said neck portion has a first internal attachment means and a second internal attachment means, the second internal attachment means being located between the first internal attachment means and the body-portion of the container, the orifice diameter being significantly smaller at the position of the second internal attachment means than at the position of the first internal attachment means.

2. A blow-molded container according to Claim 1 which is a thermoplastic bottle.

3. A blow-molded container according to Claim 1 or 2 wherein the first internal attachment means is adapted to accept a closure means.

4. A blow-molded container according to any of the preceding claims wherein the first internal attachment means is a screw thread.

5. A blow-molded container according to any of the preceding claims wherein the second internal attachment means is adapted to accept a pour spout.

6. A blow-molded container according to any of the preceding claims wherein the second internal attachment means is a snap-ring.

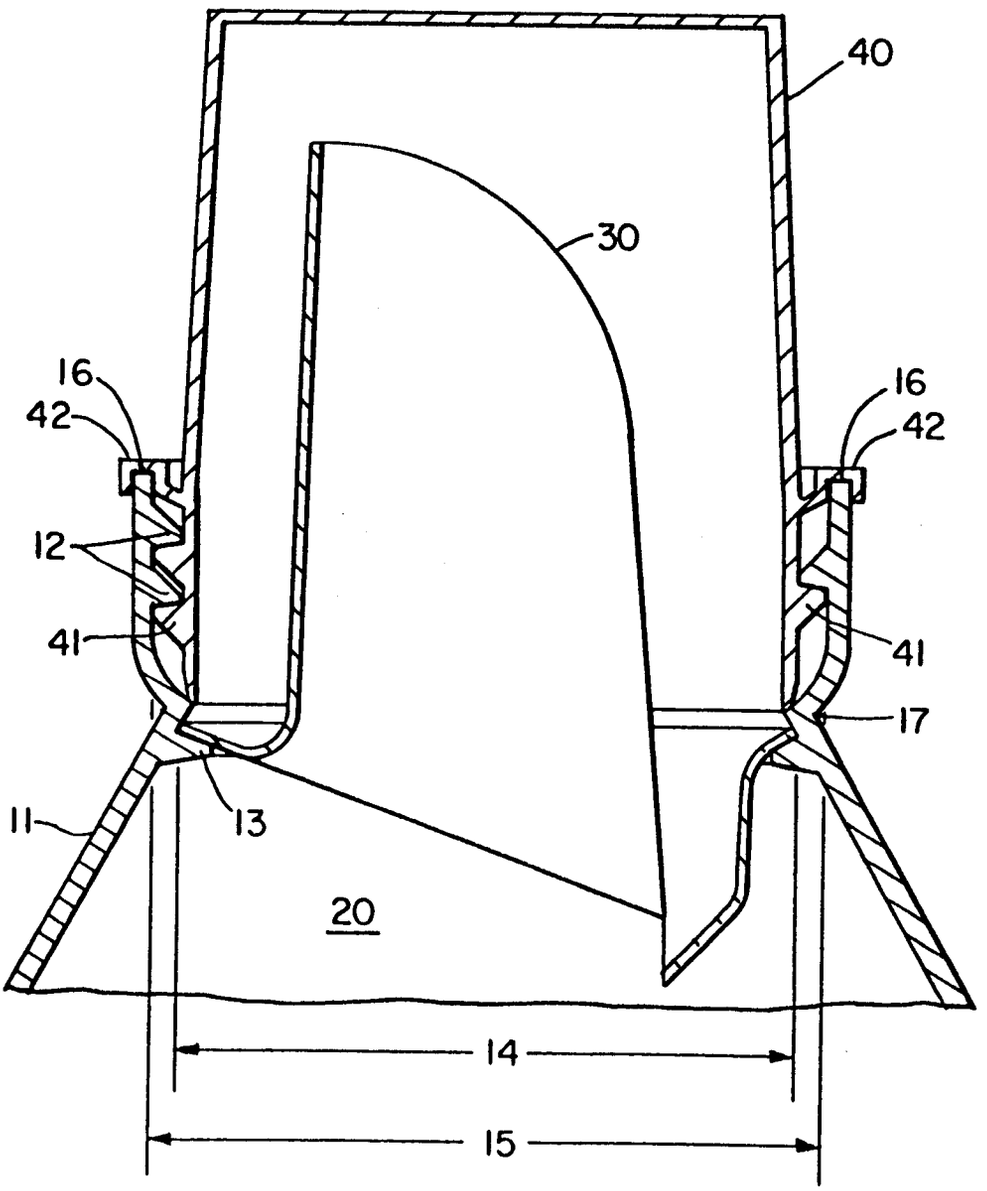
7. A blow-molded container according to any of the preceding claims further comprising a closure cap adapted to be accepted by the first internal attachment means.

8. A blow-molded container according to Claim 7 wherein the first internal attachment means is provided with interruptions substantially parallel to the neck-porton's axis, designed to permit air to escape from the container when the closure cap is applied.

9. A blow-molded container according to Claim 7 wherein the closure cap has an external rim adapted to be fit over the circumference of the neck-portion of the container.

10. A blow-molded container according to any of the preceding claims wherein the neck portion has one or more indentations or ribs.

11. A blow molded container having a body-portion and a neck-portion, said neck-portion being provided with a dispensing orifice, said neck portion having a screw thread attachment means adapted to accept a closure cap and having interruptions substantially parallel to the axis of the neck-portion, designed to permit air to escape from the container when the closure cup is applied; and (b) a snap ring attachment means located between the screw thread attachment means and the body-portion, adapted to accept a pour spout; the orifice diameter being significantly smaller at the position of the snap ring than at the position of the screw thread; the closure cap having an external rim adapted to the fitted over the circumference of the neck-portion of the container.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