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Section 29

AUSTRALIA
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PATENT REQUEST : STANDARD PATENT

I/We, being the person(s) identified below as the Applicant(s), request the grant of a Standard Patent to the person(s) identified below as the Nominated Person(s), for an invention described in the accompanying complete specification.

**Applicant(s) and
Nominated Person(s):** Giacomo BENIACAR

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Invention Title: FOLDABLE BOTTLE WITH FASTENING ELEMENT

**Name(s) of Actual
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BASIC CONVENTION APPLICATION DETAILS

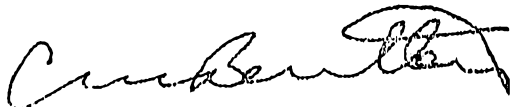
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Giacomo BENIACAR

GRIFFITH HACK & CO.



MO5 0879 1011 93

Patent Attorney for and
on behalf of the Applicant

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NOTICE OF ENTITLEMENT

I/We Giacomo BENIACAR

of VIA C. TROYA, 22
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ITALY

being the applicant(s) in respect of an application for a patent for an invention entitled
FOLDABLE BOTTLE WITH FASTENING ELEMENT, state the following:

1. The nominated person(s) has/have, for the following reasons, gained entitlement
from the actual inventor(s):

THE NOMINATED PERSON IS THE ACTUAL INVENTOR.

2. The nominated person(s) has/have, for the following reasons, gained entitlement
from the basic applicant(s) listed on the patent request:

THE APPLICANT AND NOMINATED PERSON IS THE
BASIC APPLICANT.

3. The basic application(s) listed on the request form is/are the first application(s)
made in a Convention country in respect of the invention.

DATE: 16 November 1993

Giacomo BENIACAR

GRIFFITH HACK & CO.



Patent Attorney for and
on behalf of the applicant(s)



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FOLDABLE BOTTLE WITH FASTENING ELEMENT

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(56) Prior Art Documents
US 5310068
US 4592492
US 4456134

(57) Claim

1. Bottle (10,110) with at least lateral surfaces made of pliable material which enable it to be folded up into a deformed configuration of limited size, provided with engaging members which engage with a flexible fastening element (17, 117) to hold the bottle in the deformed position, characterized in that the bottle is made of blown plastic material and the engaging member (15, 115) consists of a groove made in a portion of wall between pouring neck (14, 114) and bottle side walls, to receive the fastening element.

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COMPLETE SPECIFICATION
STANDARD PATENT

Applicant(s):

Giacomo BENIACAR

Invention Title:

FOLDABLE BOTTLE WITH FASTENING ELEMENT

The following statement is a full description of this invention, including the best method of performing it known to me/us:

FOLDABLE BOTTLE WITH FASTENING ELEMENT

There are known "disposable" bottles made of flexible plastic material which can be folded or rolled up after use to reduce their dimensions. This is useful in order to reduce the volume of waste to be disposed of.

- 5 These bottles are usually obtained by blowing, with relatively thin and pliable walls. One of these bottles is illustrated in EPA 525 908.

Unfortunately, due to the elasticity of plastic materials, the minimum dimensions obtained are never as limited as
10 could theoretically be hoped for. In fact, as hard as the user tries to fold it as tightly as possible, the folded bottle always tends to unfold.

It is known to make containers of variable volumes which are held in variously contracted positions by differently
15 shaped elements.

US 4.456.134 provides for laces to be fastened to eyelets on the bottle lateral sides.

US 4.592.492 and US 4.157.103 show lateral protrusions which engage in tape eyelets.

- 20 These solutions call for the bottles to be moulded from sufficiently thick plastic material in order to form these types of fasteners, which are not obtainable by blowing.

In fact, US 4.157.103 appears to suggest applying the protrusions as separate parts, which is incompatible with
25 the manufacture of disposable bottles. FR 2.560.095 describes a bottle which folds up concertina-fashion with

fasteners for the various loops.

These fasteners must be extremely sturdy and require an economically inadmissible use of material.

It has also been suggested to keep highly flexible bottles
5 in the collapsed position by applying an elastic element (for example a rubber ring), as shown in US 3.424.218.

This fastening requires a relatively long additional element in elastic material, differing from that of the bottle, thereby rendering the operations of recycling the
10 materials more complicated. The use of an elastic ring makes it difficult to effectively counteract the tendency of the bottle to stretch back into shape.

The general scope of this invention is to obviate the aforementioned problems by providing a bottle made of
15 foldable plastic material, which can be easily fastened to secure it in a tightly folded position.

This scope is achieved according to the invention by providing a bottle with at least lateral surfaces made of pliable material which enable it to be folded up into a
20 deformed configuration of limited size, provided with engaging members which engage with a flexible element to hold the bottle in the deformed position, characterized by the fact that the bottle is made of blown plastic material and the engaging member consists of a groove made in the
25 portion of wall between the pouring neck and the side walls, to receive the retaining element.

The innovatory principles of this invention and its advantages with respect to the known technique will be

more clearly evident from the following description of possible exemplificative embodiments applying such principles, with reference to the accompanying drawings, in which:

- 5 - figure 1 shows a schematic perspective view of a bottle according to the invention, in a distended or useable condition;
 - figure 2 shows a view of the bottle of figure 1 in a rolled up-or disposable condition;
 - 10 - figure 3 shows a schematic and partial view of a second embodiment of a bottle according to the invention.
- With reference to the figures, figure 1 shows a first bottle made according to the invention and generically indicated by reference 10. Said bottle comprises a plastic
- 15 body 11, made of sufficiently pliable material as to enable the bottle to be folded up. To offer sufficient rigidity during use, the lower portion of the bottle can be housed in a box-shaped casing 12, for example made of cardboard, which can be torn off after use. To facilitate
- 20 the folding, the bottle can also comprise transversal grooves 13 on its wider sides. The bottle 10 can, for example, be of the roll-up type as described in the Italian patent application MI91A 002 165 filed on 2nd August 1991.
- 25 According to this invention, the bottle innovatively comprises engaging elements disposed close to the upper pouring neck 14. Said engaging elements for example can be made in the form of a groove disposed in a crosswise

direction to the rolling faces. The term rolling or folding faces is used to indicate the surfaces of the bottle which are rolled or folded up. For example, in the event of the bottle being made in the form of a body of revolution, the rolling faces would be the surfaces that would be obtained by flattening the bottle to enable it to be subsequently rolled or folded up.

To allow the use of more than one fastening elements or even simply for aesthetical purposes, the bottle can be provided with a second or even more grooves disposed symmetrically on the other side of the neck. A second groove of this kind is shown schematically by the broken line in figure 1.

As can be seen in figure 2, after the bottle has been emptied and the support 12 has been removed, the bottle can be rolled up from the bottom, so that the upper portion near the neck remains on the outside. The rolled up bottle can then be secured with a string or fastening element 17, typically annular, which remains securely in place due to its engagement in the groove 15 and which keeps the bottle in the folded position.

The fastening element 17 can, for example, be made in the form of an elastic ring. The fastening element 17 can advantageously also be made from a non-elastic material. In which case, the elasticity of the bottle in the rolled up condition can be exploited to fit the fastening element in place. In fact, it is sufficient to squeeze the rolled up bottle firmly in order to tighten the spirals. After

the fastening element has been fitted in position, the bottle is released, which causes it to expand slightly thereby locking the non-extensible fastening element in place. Making the fastening element non-elastic is also
5 advantageous in that it can be made from the same material as the bottle. This would make it possible to provide homogeneous material in the event of recycling. The fastening element can also be made as a protrusion on the bottle. In this case, as well as in the case of a separate
10 fastening element, the latter can be housed inside the casing 12, for example, between the bottom of the casing and the bottom of the bottle. When the casing is torn off or removed the fastening element is thus available for use.

15 Figure 3 shows a possible variation. For example, the bottle (generically indicated by reference 110) comprises engaging elements 115 close to the neck 114 made in the form of "bubbles" or projections protruding from the plastic surface. A groove is so formed at the base of the
20 projection, where a string 117 is engaged. Once it has been rolled or folded up, the bottle, which is not necessarily parallelepipedon in shape, but, for example, cylindrical, can thus be secured by means of a fastening element or string 117 similar to the one described for
25 bottle 10. The engaging means prevent the fastening element from slipping off the lateral shoulders on the upper portion of the bottle, which are usually rounded or tapered towards the neck.

In the case of rolled or folded bottles, it is also advantageous to provide them with lower protrusions in order to prevent the string or fastening element from slipping from the bottom of the bottle. These protrusions
5 can advantageously be known types of supporting protrusions (petal-shaped or other shapes).

If each string is made in the form of a generically ring-shaped element it can be provided disposed around the circumference of the bottle, for example held in place by
10 means of the protrusions disposed at regular intervals around the circumference of the bottle, as shown schematically by the broken line in 117' or housed in a groove as schematically shown in 118. This eliminates the need to provide temporary fastening means such as clips or
15 light gluing during the manufacturing process. This is particularly advantageous whenever the bottle is made without an additional external strengthening case in which to insert the string.

The foregoing description of embodiments applying the
20 innovatory principles of this invention are obviously given by way of example in order to illustrate such innovatory principles and should not therefore be understood as a limitation to the sphere of the invention claimed herein.

25 For example, it is obvious that the shape of the bottle can differ from the one shown. Moreover, the engaging elements defining a groove close to the neck designed to prevent the string from slipping off the bottle can be of

various shapes.

As described in the aforementioned patent application, the material used for manufacturing the bottle can also have differentiated degrees of pliancy, to make it easily

5 foldable and at the same time relatively rigid during use.

For example, the upper neck portion and the engaging means for holding the string in place can be made more rigid than the foldable lateral walls. Coupling means can also be provided to secure the bottle to the external casing

10 12.

Although the term bottle has been used, this term is obviously used to refer to a generic container with an upper pouring neck or aperture.

The bottles according to the invention can obviously be
15 folded in any way whatsoever and not necessarily rolled, the term folded being understood as rolled, bent zig-zag or concertina fashion or in any other way which compacts and reduces the dimensions of the bottle by hand or using any suitable device.

20 The fastening element 17, 117 can also be temporarily secured to the bottle by trapping it under a label stuck onto the bottle.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Bottle (10,110) with at least lateral surfaces made of pliable material which enable it to be folded up into a deformed configuration of limited size, provided with engaging members which engage with a flexible fastening
5 element (17, 117) to hold the bottle in the deformed position, characterized in that the bottle is made of blown plastic material and the engaging member (15, 115) consists of a groove made in a portion of wall between pouring neck (14, 114) and bottle side walls, to receive
10 the fastening element.
2. Bottle as claimed in claim 1, characterized in that the bottle can be folded by rolling it up from the bottom towards the pouring neck (14, 114) into its completely rolled up deformed configuration.
- 15 3. Bottle as claimed in claim 1, characterized in that the fastening element (17, 117) is a ring-shaped element which fits onto the body of the bottle in its deformed configuration.
4. Bottle as claimed in claim 1, characterized in that the
20 fastening element (17, 117) is made of elastic material.
5. Bottle as claimed in claim 1, characterized in that the fastening element (17, 117) is made from the same plastic material as the bottle.
6. Bottle as claimed in claim 1, characterized in that the
25 groove (15) is disposed crosswise to the folding faces of the bottle.

7. Bottle as claimed in claim 1, characterized in that the groove is defined by at least one protrusion (115) projecting from the surface of the bottle.

8. Bottle as claimed in claim 3, characterized in that in
5 the bottle undeformed configuration the ring shaped element (17, 117) is fitted around the circumference of the bottle.

9. Bottle as claimed in claim 8, characterized in that the ring-shaped element is housed in a groove (118) around the
10 outer surface of the bottle.

10. Bottle as claimed in claim 7, characterized in that the protrusions (115) are disposed circumferentially spaced apart around the neck of the bottle (110) to constitute a circumferential engagement for the fastening
15 element which is in form of a ring-shaped element.

11. Bottle as claimed in claim 1, characterized in that before the bottle is folded the fastening element (17) is stored inside a removable casing (12) covering at least part of the body of the bottle.

DATED THIS 16TH DAY OF NOVEMBER 1993

Giacoma BENIACAR

By his Patent Attorneys:

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Fellows Institute of Patent
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ABSTRACT

A bottle (10, 110) made of flexible material which can be folded or rolled up into a deformed configuration of limited dimensions. The bottle comprises, between the pouring neck (14, 114) and side walls (15, 115), elements
5 which engage with a fastening element (17, 117) which can be fitted onto the bottle to keep it in the deformed configuration.

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