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(54) Improved squeeze release cap and container.

(57) A safety container comprising a screw cap (1) and a container body (8) wherein the container body has a neck (9), a mouth (10') at the end of the neck and a screw thread (11) around the outside of the neck below the mouth and wherein the cap has a relatively short inner skirt (3) with an internal screw-thread (4) to cooperate with the external screw-thread (11) on the neck of the container body and a relatively long outer skirt (5) concentrically surrounding the inner skirt, projections or lugs (6) on the inside of the outer skirt of the cap and projections or cams (12) on the outside of the container body below the screw-thread being provided for engagement with one another when the cap is screwed on to the container body to prevent removal of the cap until the outer skirt of the cap is squeezed at oppositely disposed positions (7) away from the points of engagement of the projections to deform the outer skirt so that the projections are disengaged to permit unscrewing of the cap.

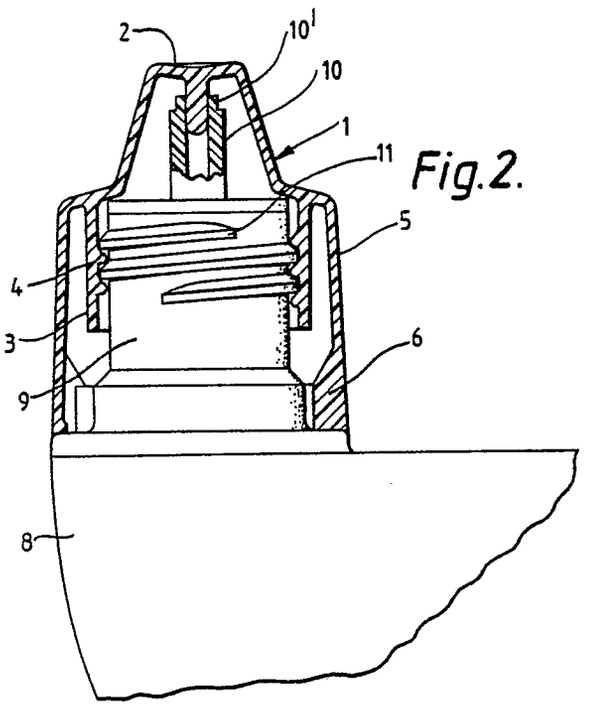

Fig.2.

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IMPROVED SQUEEZE RELEASE CAP AND CONTAINER

This invention is concerned with the provision of a safety container comprising in combination a container body and a cap and the invention also includes a cap and body for use in such a safety container. By a safety container we mean a container that can easily be opened by adults but which is difficult for children to open.

An early form of safety container is described in British Patent No.1387572, hereinafter called the Sunbeam Patent, which describes a twist-action screw cap for a container comprising a top, an inner wall depending from the top, retaining means on the inner wall operative by twist-action for co-operation with retaining means on the container neck, a resilient outer skirt depending from the top concentric with the inner wall and at least one lug depending from the outer skirt to an extremity below the inner wall for engagement in a recess in the exterior of the container as the cap is twisted to a closed position. The safety container described in the Sunbeam Patent is effective but the lug or lugs depending like ears from the outer skirt are rather ugly and this detracts from the appearance of the product on the market. In this connection it should be stated that there is no doubt that the purchasing public like to purchase products that are packed in an attractive container with a smooth outer profile.

Our British Patent No. 1524395 describes another form of safety container comprising a one piece body with a mouth and an external screw-threaded portion around the mouth and a one piece cap with an internal screw threaded portion at the top for engagement with the container body and shaped so that the inner surface of the cap tapers outwardly below the screw threaded part towards the bottom of the cap whereby when the cap is seated on the container body there is a space between the inner surface at the bottom of the cap and the outer surface of the container body and interlocking projections on the cap and on the container body for engagement with one another when the cap is screwed on to the container body to prevent removal of the cap until the cap or the body is squeezed at oppositely disposed positions away from the points of engagement of the projections to deform the cap or the body so that the projections are disengaged to permit unscrewing of the cap. The safety container described in our British Patent is also effective and the construction does not involve the depending lug or lugs extending below the skirt of the cap so that the outer profile of the product is more attractive than the appearance of the safety container described in the Sunbeam Patent. On the other hand the safety container described in our British Patent does require the use of a tapering skirt on the cap and a long neck on the container body which involves other problems and is impracticable on some types of bottle.

One object of the present invention is to provide a safety container in which the cap meets the body in such a way as to present a smooth unbroken outer profile while at the same time the product is an effective safety container which children will find difficult to open.

According to the present invention there is provided a safety container comprising a screw cap and a container body wherein the container body has a neck, a mouth at the end of the neck and a screw thread around the outside of the neck below the mouth and wherein the cap has a relatively short inner skirt with an internal screw-thread to cooperate with the external screw-thread on the neck of the container body and a relatively long outer skirt concentrically surrounding the inner skirt, projections or lugs on the inside of the outer skirt of the cap and projections or cams on the outside of the container body below the screw-thread being provided for engagement with one another when the cap is screwed on to the container body to prevent removal of the cap until the outer skirt of the cap is squeezed at oppositely disposed positions away from the points of engagement of the projections to deform the outer skirt so that the projections are disengaged to permit unscrewing of the cap.

One considerable advantage of our new construction of safety container is that our new cap may be applied effectively to a considerable number of existing container bodies with relatively simple changes to each of the bodies, such changes being effected by modification of the moulds in which the bodies are produced to provide the projections on the neck of each body.

In order that the invention may be more clearly understood reference is now directed to the accompanying diagrammatic drawings in which:

Figure 1 is a side elevation of one form of safety container in accordance with the present invention.

Figure 2 is a section across the centre line of the cap which is shown in position on a container body so that the cap interior and neck details are clearly illustrated.

Figure 3 is a diagrammatic plan view of the cap in its closed position.

Figure 4 is a diagrammatic plan view of the cap being squeezed at the sides so that the cap can be unscrewed for removal,

Figure 5 is a sectional plan view of the container body showing the body ratchet detail.

Figure 6 is a part section, part elevation of a modified construction in accordance with the invention.

These drawings illustrate only the principles of the invention and not necessarily the precise constructional details and sizes.

Referring first to Figures 1 to 5, a cap 1 has a top 2, an inner skirt 3, an internal screw-thread 4 on the inner skirt 3 and an outer skirt 5. The outer skirt 5 has two oppositely disposed internal projections or locking lugs 6 and two oppositely disposed squeeze positions or pads 7 displaced, preferably by 90° from lugs 6.

Referring now particularly to Figure 2, a container body 8 has a neck 9 with a jetting plug 10 including a mouth 10^1 and an external screw-thread 11 around the neck 9 for engagement by the thread 4 on the inner skirt 3 of the cap 1. The body 8 also has oppositely disposed external raised ratchet shaped cams or projections 12 for cooperation with the lugs 6. In operation as the cap 1 is screwed on to the container body clockwise in Figure 5 the lugs 6 ride over the cams 12 along surfaces 13 until the cap 1 is fully seated in position to close the mouth 10^1 of the body 8 but any attempt to unscrew the cap 1 will fail because the lugs 6 will abut against a shoulder 14 on each of the cams 12. The engagement of the lugs 6 with the cams 12 can be released by applying pressure pads 7 in the direction of the arrows 15 in Figure 4 to deform the outer skirt 5 onto an oval shape as shown in Figure 4 whereupon the cap 2 can be unscrewed in the direction of the arrow 16.

Our improved safety container may be made from any suitable plastics material the inner skirt 3 preferably being more robust than the outer skirt 5. A safety container according to this invention will, we think, be very useful when incorporating a body 8 with an angled neck as shown in Figures 1 to 5 which is now a popular design for use with 'jetting' toilet cleansers which are required to get up into the rim of a toilet bowl. These cleaning products may be very toxic and the assembly of cap and body is now deemed to require a child-resistant or safety container and manufacturers in addition require an assembly that is, as in this invention, neat, effective, compact and economically priced.

However, our improved safety container according to this invention may also be used in connection with a body 8 which has a substantially vertical neck as illustrated by way of example in Figure 6. in which we are illustrating a typical, conventional-shaped, plastics bottle which has been on the market for some years. As a result of changes in International legislation, this bottle must only now be fitted with a Child-Resistant Closure (CRC). To scrap the moulds and start afresh would necessitate crippling (and largely unbudgeted) expense. Modification of existing bottles in accordance with this invention will cost no more than a few hundred pounds sterling per bottle mould impression. Machining into the existing metal mould to form the lugs might take say two days of work and then the machine can go straight back into production. The same could apply to the existing cap moulds. New moulds demanded by other systems could cost well over £50,000 - say £4-5000 per impression.

Claims

1. A safety container comprising a screw cap and a container body wherein the container body has a neck, a mouth at the end of the neck and a screw thread around the outside of the neck below the mouth and wherein the cap has a relatively short inner skirt with an internal screw-thread to cooperate with the external screw-thread on the neck of the container body and a relatively long outer skirt concentrically surrounding the inner skirt, projections or lugs on the inside of the outer skirt of the cap and projections or cams on the outside of the container body below the screw-threaded being provided for engagement with one another when the cap is screwed on to the container body to prevent removal of the cap until the outer skirt of the cap is squeezed at oppositely disposed positions away from the points of engagement of the projections to deform the outer skirt so that the projections are disengaged to permit unscrewing of the cap.

2. A safety container according to claim 1 wherein there are two oppositely disposed projections or lugs on the inside of the outer skirt of the cap and two projections or cams on the outside of the container body.

3. A safety container according to claim 1 or 2 wherein the inner skirt of the cap is more robust than the outer skirt.

4. A safety container according to any of the preceeding claims wherein the container body has an angled neck.

5. A screw cap having a relatively short inner skirt with an internal screw-thread to cooperate with the external screw-thread on the neck of the container body and a relatively long outer skirt concentrically surrounding the inner skirt and projections or lugs on the inside of the outer skirt, for use in a container assembly as claimed in claim 1.

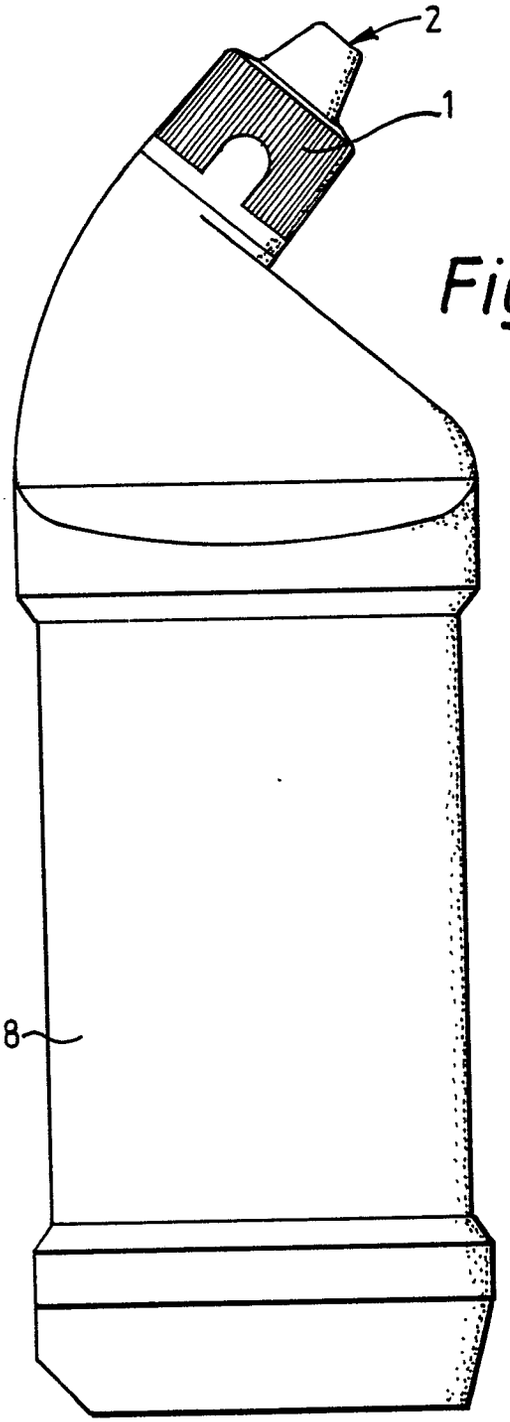

Fig.1.

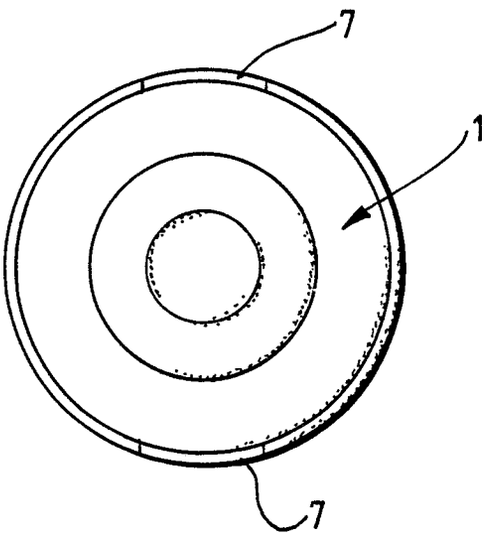

Fig.3.

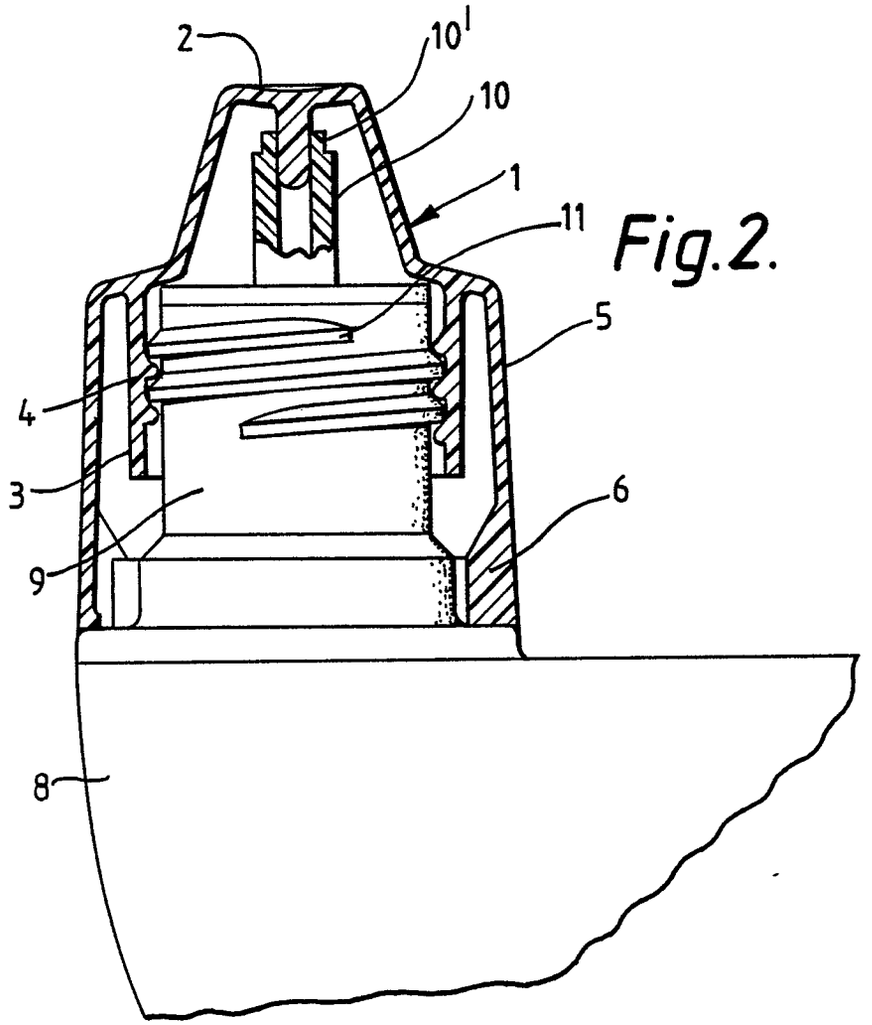

Fig.2.

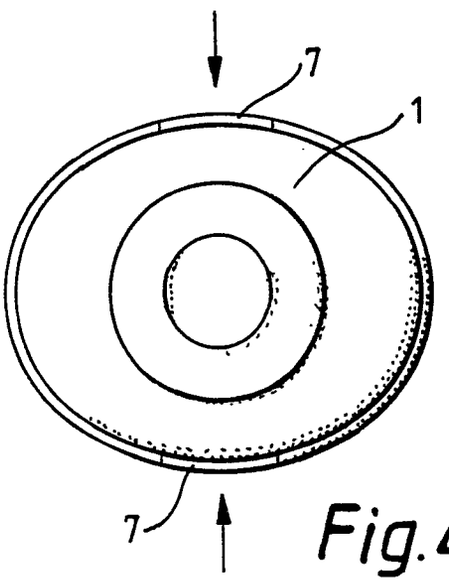

Fig.4.

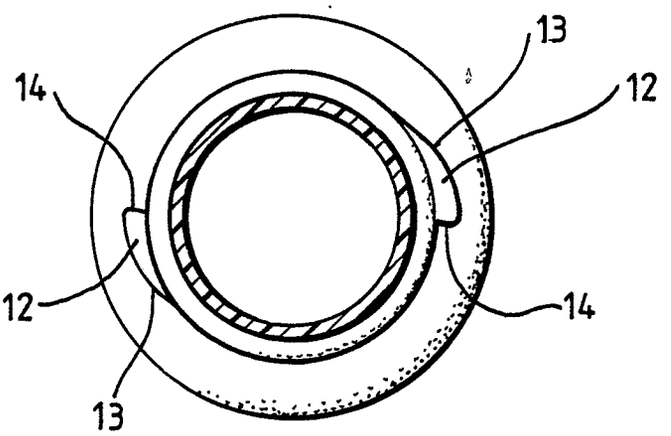

Fig.5.

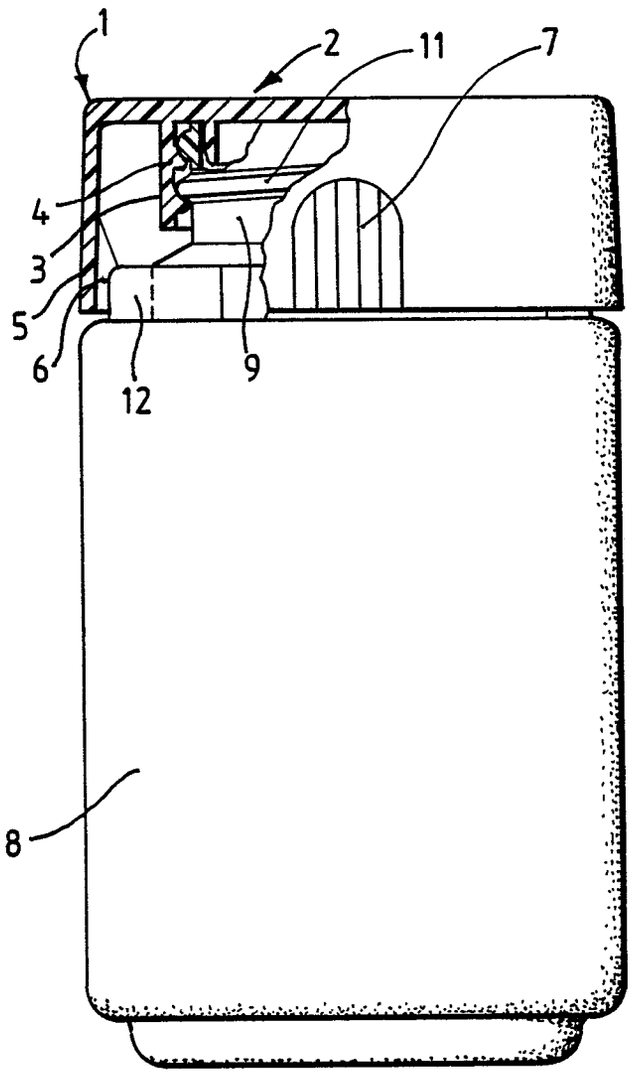

Fig.6.

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EUROPEAN SEARCH REPORT

Application Number

EP 89 30 3457

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.4)
X Y	AU-B- 462 459 (ACI) * Page 5, last paragraph - page 6, paragraph 2; figures 3-5 *	1,5 3-4	B 65 D 55/02
X	GB-A-1 603 668 (OWENS-ILLINOIS) * Page 3, line 109 - page 4, line 42; page 4, line 64 - page 5, line 121; figures 1-6 *	1-2,5	
Y,D	GB-A-1 387 572 (SUNBEAM) * Page 2, lines 121-128 *	3	
Y	EP-A-0 217 114 (BENCKISER) * Abstract; figure 1 *	4	

TECHNICAL FIELDS SEARCHED (Int. Cl.4)
B 65 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	23-08-1989	BRIDAULT A.A.Y.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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