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(54) Screw cap with means for preventing overtightening

Schraubverschlusskappe mit Mitteln zum Verhindern des Überspannens

Bouchon fileté avec des moyens pour empêcher le surserrage

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Description

This invention relates to closures, and particularly, but not exclusively, to closures in the form of caps for containers adapted to hold effervescent liquids.

The bottling of effervescent liquids, for example, orangeade or lemonade requires that the cap of the bottle is screwed on tight enough to prevent the carbon dioxide in the liquid from escaping. Also, it is necessary that the cap is not so tight that it is difficult for certain people, for example, children or the elderly to unscrew the top.

However, in some cases, the caps are screwed on so tightly that it is difficult for such people to unscrew the cap. It is possible to purchase a tool which will assist in the unscrewing of bottle caps which enables the user to apply greater leverage to the cap than would be possible if they were using their hands. The disadvantage of such a tool is that there is a tendency for users to try to twist the cap in the wrong direction and effectively over tighten it. This can cause the threads to be jumped. In view of the fact that the liquids in the bottles can contain carbon dioxide there can be, in certain circumstances, a build up of pressure inside the bottle. When the cap of the bottle is over tightened such that the threads are jumped, the pressure inside the bottle can cause the cap to be blown off at speeds of upto 400km/h (250mph) with a force that can cause injury. The expression "missiling" is used in the art to describe caps being blown off bottles in this way.

Specification No. FR-A-2569661 discloses a bottle cap having a stop provided on securing means to prevent overtightening. DE-U-9206634 discloses a screw cap according to the first part of claim 1 with a stop in the form of a raised portion to prevent overtightening. However, the apparatuses disclosed in these specifications do not fully overcome the above disadvantage.

According to one aspect of this invention there is provided a closure for a vessel, the closure comprising a side wall defining a cavity having a closed end, an open end to receive a top region of the vessel, and securing means to secure the closure to the vessel, the securing means being in the form of threads adapted to co-operate with corresponding threads on said top region of the vessel, and stop means to engage a stop element on the vessel, the stop means including a raised portion extending inwardly of the side wall, characterised in that the stop means is separate from the securing means and further includes an abutment extending from the raised portion towards the open end of the closure, the abutment comprising a first sloping surface and a second sloping surface sloping towards and merging with the raised portion, the second sloping surface adapted to engage the stop element on the vessel.

In this specification, the term "overtightened" refers to the situation where the closure is secured onto the vessel beyond a predetermined degree of tightness.

The term "overtightening" is intended to be construed accordingly. In the preferred embodiment, the stop means is arranged on the closure to engage said stop element at said predetermined degree of tightness.

The stop means is preferably arranged adjacent the closed end of the closure and may be spaced from the securing means.

The raised portion may extend at least partially around the inner circumference of the side wall. Preferably, the raised portion extends substantially wholly around the inner circumference of the side wall.

Advantageously, in the event of overtightening the closure on the vessel, the second sloping portion is adapted to cooperate with said stop element to cause deformation of said stop means, thereby causing said closure to deform to create a gap between the closure and the wall of the vessel to allow any pressurised gas in the vessel to be released via said gap.

In a first embodiment, the second sloping portion may slope inwardly of the cavity from the side wall of the closure towards said first sloping portion. In a second embodiment, the second sloping portion may slope from said raised portion to said first sloping portion to define a V-shaped recess with said raised portion to receive said stop element on the vessel.

The closure may be in the form of a cap for a container, preferably a bottle cap, and the preferred embodiment is particularly suitable for use with bottles adapted to hold effervescent beverages.

According to another aspect of this invention, there is provided a system comprising a closure as described above, and a vessel being provided with securing formations adapted to cooperate with the securing means on the closure to enable the closure to be secured to the vessel by tightening the closure thereto, and a stop element on the vessel adapted to co-operate with the stop means on the closure to assist in preventing overtightening of the closure on the vessel.

The vessel may be in the form of a bottle which may be adapted to hold effervescent beverages.

Preferably the stop element is in the form of a shoulder defined by said threads on the vessel against which the stop means on the closure can abut. Conveniently, the shoulder is defined at the end of the threads closest to the open end of the vessel.

Alternatively, the stop element may be separate from the threads on the vessel and is preferably in the form of a protrusion extending from the vessel. Conveniently, the protrusion is provided adjacent the top of the vessel.

The stop element may have a flattened surface extending transverse to the wall of the vessel. The flattened surface may be provided a lip extending along an edge thereof remote from the wall of the vessel.

Preferably, the stop element has a further flattened surface extending substantially parallel to the wall of the vessel. Preferably, the distance of said further flattened surface from the wall of the vessel is less than the height

of the remainder of the threads at said top region.

Advantageously, when the closure is overtightened on the vessel, said lip co-operates with the stop means thereby causing some of the material of the stop means to be scraped off by the lip, to collect between the lip and the first mentioned flat surface thereby increasing the resistance against overtightening.

According to a further aspect of this invention, there is provided a system comprising a closure as described above and a vessel as described above, the closure being adapted to be secured to the vessel by tightening the closure relative thereto.

According to another aspect of the invention there is provided a method of forming a closure as, comprising providing a vessel to which the closure is to be secured, applying a first mark to said vessel in alignment with a stop element, tightening the closure onto the vessel until a predetermined degree of tightness is attained, applying a second mark to the closure in alignment with said first mark, and thereafter using the marked closure as a guide to manufacture closures as described above.

Embodiments of the invention will now be described by way of example only, in which:

Fig. 1 is a schematic part cross-sectional side view of a closure;

Fig. 2 is a view along the lines II-II in Fig. 1

Fig. 3 is a schematic side view of a top region of a vessel;

Fig. 4 is a view along the lines IV-IV in Fig. 3; and

Fig. 5 is a schematic part cross-sectional side view of the closure as shown in Fig. 1 secured to the top region of a vessel as shown in Fig. 3

Referring to Figs. 1 to 5, there is shown a closure in the form of a cap 10 (Fig. 1) for a vessel in the form of a bottle 12 (Fig. 3) only the top of which is shown for clarity. The cap 10 is provided with securing means in the form of threads 14, and the bottle 12 is provided with securing formations in the form of corresponding threads 16 adapted to threadably engage the threads 14 on the cap 10. The cap 10 can be screwed onto the top of the bottle 12 and tightened to a predetermined degree of tightness. This is important where the bottle contains an effervescent liquid, for example orangeade or lemonade, to prevent the carbon dioxide in the liquid from escaping. The cap 10 has an open end 11, a closed end 13 and a side wall 15 defining a cavity 17.

The cap 10 is provided with stop means comprising a raised portion 18 and an abutment 19. The raised portion 18 projects inwardly of the side wall 15 and extends around the inner circumference of the side wall 15 adjacent the closed end 13. The abutment 19 extends from

the raised portion 18 towards the open end 11. The abutment has a first sloping surface 20 which slopes towards and merges with the raised portion 18. The raised portion 18 and the abutment 19 are attached to the side wall 15 and may be formed as the remainder of the cap for example by moulding.

The abutment 19 is also provided with a second sloping surface 21 which slopes inwardly towards the raised portion 18 to define a V-shaped recess 22, the purpose of which will be explained below. The bottle 12 is provided with a stop element against which the projection 18 can abut. In the embodiment shown in Fig. 3 the stop element is in the form of a shoulder 24 defined by the end of the threads 16 adjacent the opening in the top of the bottle 12. The shoulder 24 prevents the cap 10 being overtightened on the bottle 12 in the factory.

The abutment 19 is arranged adjacent the closed end 13 of the cap, as shown in Fig. 1, because the cap is most rigid at that position, and is unlikely to deform by excessive forces being applied thereto during tightening.

As can be seen from Fig. 5, the shoulder 24 is received in the V-shaped recess 22 and is engaged by the abutment 19 on tightening the cap 10 onto the bottle 12. The engagement of the shoulder 24 with the abutment 22 resists overtightening of the cap 10 on the bottle 12.

Referring to Fig. 4, there is shown a view of the end of the shoulder 24 which is an extension of the threads 16. The shoulder 24 is provided with a flat surface 25 extending along the wall 26 substantially perpendicular thereto. A lip 27 extends along an edge of the flat surface 25 substantially parallel to the wall 26. The lip 27 extends along the edge of the flat surface 25 for only a few millimetres, for example to the point 28 as shown in Fig. 4.

The shoulder 24 also comprises a further flat surface 28 which extends substantially parallel to the wall 26. As can be seen from Fig. 4, the lip 27 extends along the edge joining the flat surfaces 25,28.

In the event that the cap 10 is overtightened on the bottle 12, the abutment 19 is forced against the shoulder 24 thereby deforming the abutment 19. Also, the lip 27 co-operates with the abutment 19 and is received with the V-shaped recess. The lip 27 then scrapes off some of the material forming the abutment 19, thus increasing the resistance to overtightening. If the cap is tightened further, the lip 27 hooks onto the abutment 19 thereby deforming the cap 10 to create a gap between the cap 10 and the wall 26 of the vessel 12. Thus, any pressurised gas in the bottle 12, for example carbon dioxide released from an effervescent liquid such as lemonade, is released via the gap.

It is an advantage of the preferred embodiment of this invention that it reduces the risk of the cap missing by allowing any pressurised gas in the bottle to be released, in the event of overtightening, by deforming and preventing the threads from being stripped.

The preferred embodiment also has the advantage that it prevents caps being overtightened by the capping machines. When the shoulder 24 engages the abutment 19, there is then a resistance to further tightening and the capping machine gripping the cap 10 slips around the cap 10 preventing further tightening.

The position of the abutment 19 is determined such that the stop 18 engages the shoulder 24 when a predetermined degree of tightness of the cap 10 on the bottle 12 has been reached. Such a degree of tightness is sufficient to ensure that the carbon dioxide in the liquid does not escape, but is not so tight that certain people, for example children or the elderly cannot undo the cap.

In order to determine accurately the position of the abutment 19, the bottle is initially marked at a position directly below the shoulder 24 at a point on the bottle which would enable the mark to be seen when the cap 10 is screwed on tightly. A cap 10 without an abutment 19 is then screwed onto the top of a bottle 12 until a predetermined amount of torque is reached, for example 3.5 kN/m^2 (20 lb/in^2). The portion of the cap 10 adjacent the mark on the bottle is then also marked to indicate where the stop should be positioned. The cap 10 so marked can then be used to form a mould for forming further caps 10 with the abutment 19.

Various modifications can be made to the invention without departing from the scope thereof for example, the shoulder 24 or the stop 18 may be formed such that the edges adapted to engage each other are defined at an angle to the top of the bottle 12 or the cap 10, as shown in Fig. 4. Alternatively, the stop 18 and the shoulder 24 can be of any other suitable configuration.

Claims

1. A closure (10) for a vessel (12), the closure comprising a side wall (15) defining a cavity (17) having a closed end (13), an open end (11) to receive a top region of the vessel (12), and securing means to secure the closure (10) to the vessel (12), the securing means being in the form of threads (14) adapted to co-operate with corresponding threads (16) on said top region of the vessel (12), and stop means to engage a stop element (24) on the vessel, the stop means including a raised portion (18) extending inwardly of the side wall, characterised in that the stop means is separate from the securing means (14) and further includes an abutment (19) extending from the raised portion (18) towards the open end (13) of the closure, the abutment (19) comprising a first sloping surface (20) and a second sloping surface (21) sloping towards and merging with the raised portion (18), the second sloping surface (21) adapted to engage the stop element (24) on the vessel (12).
2. A closure according to Claim 1 wherein the stop means is arranged adjacent the closed end (13) of the closure.
3. A closure according to Claim 1 or 2 wherein the raised portion (18) extends at least partially around the inner circumference of the side wall (15).
4. A closure according to Claim 3 wherein the raised portion (18) extends substantially wholly around the inner circumference of the side wall (15).
5. A closure according to any preceding Claim wherein in the event of overtightening the closure (10) on the vessel (12), the second sloping surface (21) is adapted to co-operate with said stop element (24) to cause deformation of said stop means, thereby causing said closure (10) to deform to create a gap between the closure and the wall of the vessel (12) to allow any pressurised gas in the vessel (12) to be released via said gap.
6. A closure according to any preceding Claim wherein the second sloping surface (21) slopes inwardly of the cavity (17) from the side wall (15) of the closure (10) towards said first sloping surface (20).
7. A closure according to any of Claims 1 to 5 wherein the second sloping surface (21) slopes from said raised portion (18) to said first sloping surface (20) to define a V-shaped recess (22) with said raised portion (18) to receive said stop element on the vessel (12).
8. A system characterised by a closure (10) as claimed in any of Claims 1 to 7, and a vessel (12) being provided with securing formations adapted to co-operate with the securing means on the closure (10) to enable the closure (10) to be secured to the vessel (12) by tightening the closure (10) thereto, and a stop element (24) on the vessel (12) adapted to co-operate with the stop means on the closure (10) to assist in preventing overtightening of the closure (10) on the vessel (12).
9. A system according to Claim 8 characterised in that the stop element is in the form of a shoulder (24) defined by said threads (16) on the vessel against which the stop means on the closure can abut.
10. A system according to Claim 9 characterised in that the shoulder (24) is defined at the end of the threads (16) closest to the open end of the vessel (12).
11. A system according to Claim 9 characterised in that the stop element is separate from the threads (16) on the vessel (12) and is in the form of a protrusion extending from the vessel (12).

12. A system according to Claim 11 characterised in that the protrusion is provided adjacent the top of the vessel (12).

13. A system according to any of Claims 8 to 12 characterised in that the stop element has a flattened surface (25) extending transverse to the wall of the vessel, said flattened surface being provided a lip (27) extending along an edge thereof remote from the wall of the vessel.

14. A system according to Claim 13 characterised in that the stop element has a further flattened surface (28) extending substantially parallel to the wall of the vessel (12), the distance of said further flattened surface (28) from the wall of the vessel (12) is less than the height of the remainder of the threads (16) at said top region.

15. A system according to Claim 13 or 14 characterised in that when the closure (10) is overtightened on the vessel (12), said lip (27) co-operates with the stop means thereby causing some of the material of the stop means to be scraped off by the lip (27), to collect between the lip (27) and the first mentioned flattened surface (25) thereby increasing the resistance against overtightening.

16. A method of forming a closure (10) characterised by providing a vessel (12) as to which the closure (10) is to be secured, applying a first mark to said vessel (12) in alignment with a stop element (24), tightening the closure (10) onto the vessel until a predetermined degree of tightness is attained, applying a second mark to the closure (10) in alignment with said first mark, and thereafter using the marked closure (10) as a guide to manufacture closures as claimed in any of Claims 1 to 7.

Patentansprüche

1. Verschluß (10) für ein Gefäß (12), wobei der Verschluß eine Seitenwand (15) aufweist, die einen Hohlraum (17) mit einem geschlossenen Ende (13), einem offenen Ende (11) zur Aufnahme eines oberen Bereichs des Gefäßes (12) und einem Befestigungsmittel zum Befestigen des Verschlusses (10) an dem Gefäß (12) bestimmt, wobei das Befestigungsmittel vorliegt in Form von Windungenn (14), die ausgelegt sind, um mit entsprechenden Windungenn (16) auf dem oberen Bereich des Gefäßes (12) zusammenzuwirken, und einem Anschlagsmittel, um mit einem Anschlagselement (24) auf dem Gefäß in Eingriff zu kommen, wobei das Anschlagsmittel einen angehobenen Abschnitt (18) enthält, der sich von der Seitenwand nach innen erstreckt, dadurch gekennzeichnet, daß das Anschlagsmittel von dem Befestigungsmittel (14)

getrennt ist und weiterhin eine Stoßstelle (19) enthält, die sich von dem angehobenen Abschnitt (18) zu dem offenen Ende (13) des Verschlusses erstreckt, wobei die Stoßstelle (19) eine erste geneigte Fläche (20) und eine zweite geneigte Fläche (21) aufweist, die zu dem angehobenen Abschnitt (18) hin geneigt und mit ihm vereint ist, und wobei die zweite geneigte Fläche (21) ausgelegt ist, um mit dem Anschlagselement (24) an dem Gefäß (12) in Eingriff zu gelangen.

2. Verschluß nach Anspruch 1, dadurch gekennzeichnet, daß das Anschlagsmittel neben dem geschlossenen Ende (13) des Verschlusses angeordnet ist.

3. Verschluß nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß sich der angehobene Abschnitt (18) zumindest teilweise um den inneren Umfang der Seitenwand (15) herum erstreckt.

4. Verschluß nach Anspruch 3, dadurch gekennzeichnet, daß sich der angehobene Abschnitt (18) im wesentlichen vollständig um den inneren Umfang der Seitenwand (15) erstreckt.

5. Verschluß nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß im Falle des Überspannens des Verschlusses (10) an dem Gefäß (12) die zweite geneigte Fläche (21) ausgelegt ist, um mit dem Anschlagsmittel (24) zusammenzuwirken, um eine Verformung des Anschlagsmittels hervorzurufen, wodurch bewirkt wird, daß sich der Verschluß (10) verformt, um einen Spalt zwischen dem Verschluß und der Wand des Gefäßes (12) zu erzeugen, um es jeglichem unter Druck stehenden Gas in dem Gefäß (12) zu gestatten, über den Spalt freigegeben zu werden.

6. Verschluß nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die zweite geneigte Fläche (21) innerhalb des Hohlraums (17) von der Seitenwand (15) des Verschlusses (10) zu der ersten geneigten Fläche (20) geneigt ist.

7. Verschluß nach einem der Ansprüche 1 bis 5, dadurch gekennzeichnet, daß die zweite geneigte Fläche (21) von dem angehobenen Abschnitt (18) zu der ersten geneigten Fläche (20) geneigt ist, um eine V-förmige Vertiefung (22) mit dem angehobenen Abschnitt (18) zu bestimmen, um das Anschlagselement an dem Gefäß (12) aufzunehmen.

8. System, gekennzeichnet durch einen Verschluß (10) nach einem der Ansprüche 1 bis 7 und ein Gefäß (12) mit Befestigungsgebilden, die ausgelegt

sind, um mit den Befestigungsmitteln an dem Verschluss (10) zusammenzuwirken, um zu ermöglichen, daß der Verschluss (10) an dem Gefäß (12) befestigt wird, indem man den Verschluss (10) an ihm spannt, und einem Anschlagselement (24) an dem Gefäß (12), das zum Zusammenwirken mit dem Anschlagsmittel an dem Gefäß (10) ausgelegt ist, um das Verhindern eines Überspannens des Verschlusses (10) an dem Gefäß (12) zu unterstützen.

9. System nach Anspruch 8, dadurch gekennzeichnet, daß das Anschlagselement in Form einer Schulter (24) vorliegt, die durch die Windungen (16) an dem Gefäß bestimmt ist, an denen das Anschlagsmittel an dem Verschluss anstoßen kann.

10. System nach Anspruch 9, dadurch gekennzeichnet, daß die Schulter (24) am Ende der Windungen (16) bestimmt ist, die dem offenen Ende des Gefäßes (12) am nächsten sind.

11. System nach Anspruch 9, dadurch gekennzeichnet, daß das Anschlagselement von den Windungen (16) an dem Gefäß (12) getrennt ist und in Form eines sich von dem Gefäß (12) erstreckenden Vorsprungs vorliegt.

12. System nach Anspruch 11, dadurch gekennzeichnet, daß der Vorsprung neben dem Oberteil des Gefäßes (12) vorliegt.

13. System nach einem der Ansprüche 8 bis 12, dadurch gekennzeichnet, daß das Anschlagselement eine sich quer zur Wand des Gefäßes erstreckende abgeflachte Oberfläche (25) hat, welche mit einer Lippe (27) versehen ist, die entlang eines von der Wand des Gefäßes entfernten Randes von ihr verläuft.

14. System nach Anspruch 13, dadurch gekennzeichnet, daß das Anschlagselement eine weitere abgeflachte Oberfläche (28) hat, die im wesentlichen parallel zur Wand des Gefäßes (12) verläuft, wobei der Abstand der weiteren abgeflachten Oberfläche (28) von der Wand des Gefäßes (12) kleiner als die Höhe der restlichen Windungen (16) bei dem oberen Bereich ist.

15. System nach Anspruch 13 oder 14, dadurch gekennzeichnet, daß, wenn der Verschluss (10) an dem Gefäß (12) zu fest gespannt wird, diese Lippe (27) mit dem Anschlagsmittel zusammenwirkt, wodurch bewirkt wird, daß ein Teil des Materials des Anschlagsmittels durch die Lippe (27) abgeschabt wird, um sich zwischen der Lippe (27) und der erstgenannten abgeflachten Oberfläche (25) anzusammeln, wodurch der Widerstand gegenüber

einem Überspannen erhöht wird.

16. Verfahren zum Bilden eines Verschlusses (10), gekennzeichnet durch Bereitstellen eines Gefäßes (12), an dem der Verschluss (10) befestigt werden soll; Anbringen einer ersten Markierung an dem Gefäß (12) in Ausrichtung mit einem Anschlagselement (24); Spannen des Verschlusses (10) an dem Gefäß, bis ein vorbestimmtes Ausmaß an Festigkeit gewonnen wird; Anbringen einer zweiten Markierung an dem Verschluss (10) in Ausrichtung mit der ersten Markierung; und daraufhin Verwenden des markierten Verschlusses (10) als Führung, um Verschlüsse nach Anspruch 1 bis 7 herzustellen.

Revendications

1. Obturateur (10) de récipient (12), l'obturateur comprenant une paroi latérale (15) définissant une cavité (17) présentant une extrémité fermée (13), une extrémité ouverte (11) destinée à recevoir une zone supérieure du récipient (12), et des moyens de fixation destinés à fixer l'obturateur (10) sur le récipient (12), les moyens de fixation se présentant sous la forme d'un filetage (14) susceptible de coopérer avec un filetage (16) correspondant présent sur la zone supérieure du récipient (12), et de moyens d'arrêt destinés à coopérer avec un élément d'arrêt (24) présent sur le récipient, les moyens d'arrêt présentant une partie surélevée (18) s'étendant vers l'intérieur de la paroi latérale, caractérisé en ce que les moyens d'arrêt sont séparés des moyens de fixation (14) et comprennent, en outre, une butée (19) s'étendant à partir de la partie surélevée (18) en direction de l'extrémité ouverte (13) de l'obturateur, la butée (19) comprenant une première surface inclinée (20) et une deuxième surface inclinée (21) s'étendant de façon inclinée en direction de la partie surélevée (18), et convergeant avec elle, la deuxième surface inclinée (21) étant susceptible de coopérer avec l'élément d'arrêt (24) présent sur le récipient (12).

2. Obturateur selon la revendication 1, dans lequel les moyens d'arrêt sont placés de façon adjacente à l'extrémité fermée (13) de l'obturateur.

3. Obturateur selon la revendication 1 ou 2, dans lequel la partie surélevée (18) s'étend, au moins partiellement, autour de la circonférence intérieure de la paroi latérale (15).

4. Obturateur selon la revendication 3, dans lequel la partie surélevée (18) s'étend sensiblement complètement autour de la circonférence intérieure de la paroi latérale (15).

5. Obturateur selon l'une quelconque des revendica-

- tions précédentes, dans lequel, en cas de serrage exagéré de l'obturateur (10) sur le récipient (12), la deuxième surface inclinée (21) est susceptible de coopérer avec l'élément d'arrêt (24) pour entraîner une déformation des moyens d'arrêt, entraînant ainsi l'obturateur (10) à se déformer afin de créer un espace entre l'obturateur et la paroi du récipient (12), afin que tout gaz sous pression présent dans le récipient (12) soit libéré par cet espace.
6. Obturateur selon l'une quelconque des revendications précédentes, dans lequel la deuxième surface inclinée (21) s'étend de façon inclinée en direction de l'intérieur de la cavité (17), à partir de la paroi latérale (15) de l'obturateur (10), en direction de la première surface inclinée (20).
7. Obturateur selon l'une quelconque des revendications 1 à 5, dans lequel la deuxième surface inclinée (21) s'étend de façon inclinée, à partir de la partie surélevée (18), en direction de la première surface inclinée (20), pour définir un évidement (22) en forme de V, la partie surélevée (18) étant destinée à recevoir l'élément d'arrêt présent sur le récipient (12).
8. Système caractérisé par un obturateur (10) selon l'une quelconque des revendications 1 à 7, et un récipient (12) équipé d'éléments de fixation susceptibles de coopérer avec les moyens de fixation présents sur l'obturateur (10), afin de permettre à l'obturateur (10) d'être fixé sur le récipient (12) en serrant l'obturateur (10) sur celui-ci, et un élément d'arrêt (24) présent sur le récipient (12), susceptible de coopérer avec les moyens d'arrêt présents sur l'obturateur (10) afin d'aider à empêcher un serrage exagéré de l'obturateur (10) sur le récipient (12).
9. Système selon la revendication 8, caractérisé en ce que l'élément d'arrêt se présente sous la forme d'un épaulement (24) défini par le filetage (16) présent sur le récipient, contre lequel les moyens d'arrêt présents sur l'obturateur peuvent venir buter.
10. Système selon la revendication 9, caractérisé en ce que l'épaulement (24) est défini à l'extrémité du filetage (16) qui est la plus proche de l'extrémité ouverte du récipient (12).
11. Système selon la revendication 9, caractérisé en ce que l'élément d'arrêt est séparé du filetage (16) présent sur le récipient (12) et se présente sous la forme d'une saillie s'étendant à partir du récipient (12).
12. Système selon la revendication 11, caractérisé en ce que la saillie est prévue adjacente à la face supérieure du récipient (12).
13. Système selon l'une quelconque des revendications 8 à 12, caractérisé en ce que l'élément d'arrêt présente une surface aplatie (25) s'étendant perpendiculairement à la paroi du récipient, cette surface aplatie étant pourvue d'une lèvre (27) s'étendant le long d'un de ses bords, à distance de la paroi du récipient.
14. Système selon la revendication 13, caractérisé en ce que l'élément d'arrêt présente une autre surface aplatie (28) s'étendant sensiblement parallèlement à la paroi du récipient (12), la distance entre cette autre surface aplatie (28) et la paroi du récipient (12) étant inférieure à la hauteur du reste du filetage (16) au niveau de la zone supérieure.
15. Système selon la revendication 13 ou 14, caractérisé en ce que, lorsque l'obturateur (10) est serré de façon exagérée sur le récipient (12), la lèvre (27) coopère avec le moyen d'arrêt, entraînant ainsi une partie de la matière des moyens d'arrêt à être raclée par la lèvre (27), pour s'amasser entre la lèvre (27) et la première surface aplatie (25) mentionnée, augmentant ainsi la résistance vis-à-vis d'un serrage exagéré.
16. Procédé de fabrication d'un obturateur (10), caractérisé par le fait de fournir un récipient (12) sur lequel l'obturateur (10) est destiné à être fixé, d'appliquer une première marque sur le récipient (12), en alignement avec un élément d'arrêt (24), de serrer l'obturateur (10) sur le récipient jusqu'à ce qu'un degré d'étanchéité prédéterminé soit atteint, d'appliquer une deuxième marque sur l'obturateur (10) en alignement avec la première marque et, ensuite, d'utiliser l'obturateur marqué (10) comme guide pour fabriquer des obturateurs selon l'une des revendications 1 à 7.

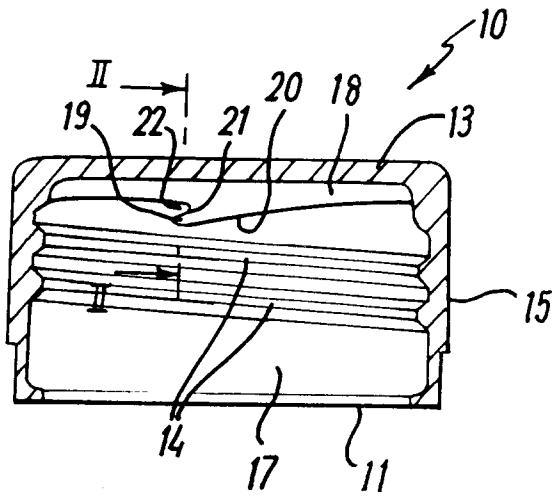


FIG. 1

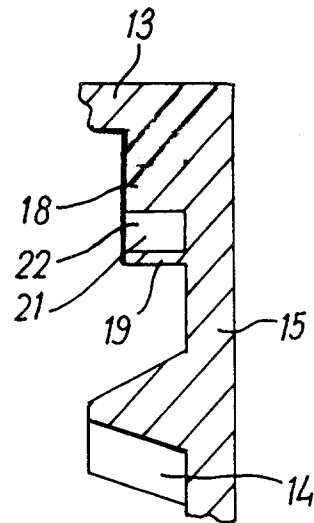


FIG. 2

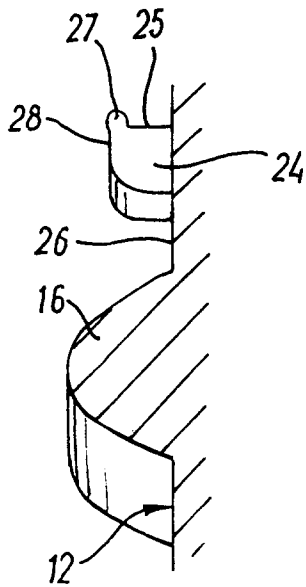


FIG. 4

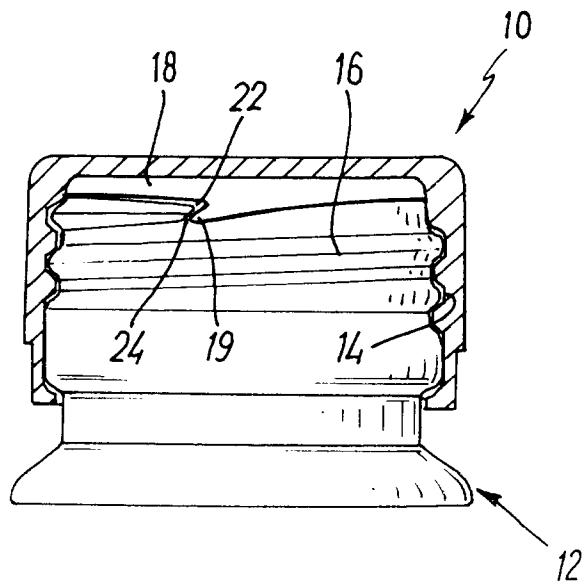


FIG. 5

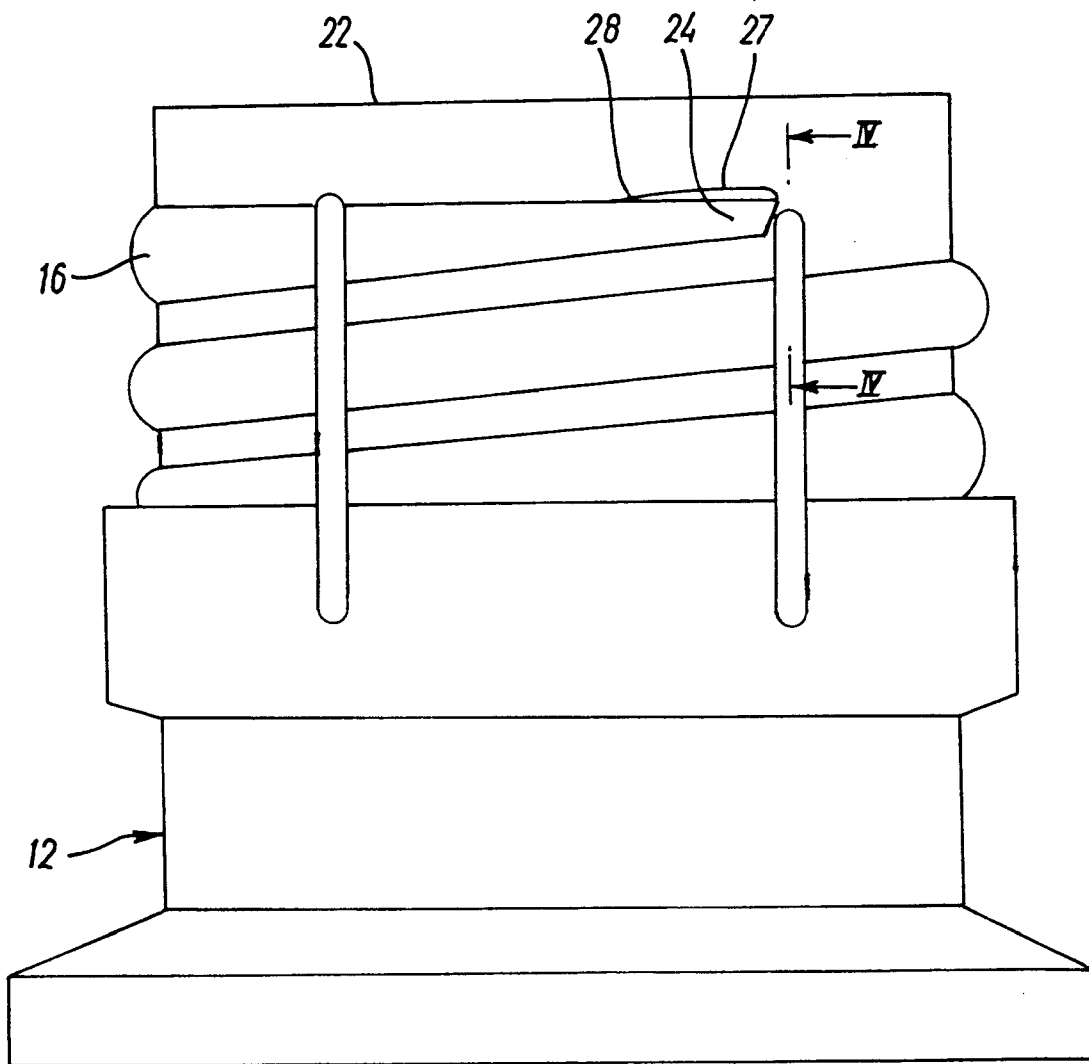


FIG. 3