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(54) **Closure cap for bottles for pharmaceutical use and the like**

Verschlusskappe für Gefäß für pharmazeutische Produkte oder dergleichen

Fermeture pour flacon pour produits pharmaceutiques ou produits similaires

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**EP 1 743 845 B1**

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## Description

### BACKGROUND OF THE INVENTION

[0001] The present invention relates to an improved closure cap, specifically designed for bottles for pharmaceutical uses and the like.

[0002] Closure caps for closing pharmaceutical bottles are already known in a plurality of different configurations.

[0003] See as examples the documents WO-A-2005/056411 and DE-A-28 54 834.

[0004] Said prior caps, in particular, are designed for meeting a lot of different requirements in this field and to aid a user to use them.

[0005] In fact, the increasing demand of products compatible with the environment and of low cost, compels the makers to make articles which, upon use, must allow an end user to easily disassemble the components, thereby allowing to perform a differentiated collection and, if possible, to further use the raw materials.

[0006] A prior closure cap, which has encountered a broad spreading of the market, is the so-called "FLIP OFF" cap, which comprises three component pieces, including a thermoplastic material cover or mantle elements, an aluminium outer body and an inner body also made of an aluminium material.

[0007] The mentioned cover or mantle elements is molded with a plurality of tongue elements which can be sealed on the inner body which, in turn, is molded and bored or perforated to receive, in assembling the cap, the cover element tongue elements.

[0008] The outer aluminium body is molded and pre-perforated with a clamping tongue element.

[0009] The above mentioned closure cap is used for sealing and covering a rubber plug element provided for protecting a bottle, either of a glass material or any other suitable materials, which can hold therein physiologic solutions, syrups, active or lyophilized substances.

### SUMMARY OF THE INVENTION

[0010] The aim of the present invention is to provide such a cap having the same features of presently available caps but with the additional advantage of using a much less number of component elements.

[0011] Within the scope of the above mentioned aim, a main object of the invention is to provide such a cap, whose manufacturing owing to its reduced number of components, is also economical.

[0012] Yet another object of the present invention is to provide such a cap which can be opened in a very simple manner.

[0013] Yet another object of the present invention is to provide such a cap which has a size compatible to the available packaging lines.

[0014] Another object of the invention is to provide such a cap the aluminium collar of which can be easily

removed and which can be easily made in a lot of different sizes, according to requirements.

[0015] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by an improved closure cap, as defined in claim 1.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0016] Further characteristics and advantages of the present invention will become more apparent from the following detailed disclosure of a preferred, though not exclusive, embodiment of the invention which is illustrated, by way of an indicative, but not limitative, example in the accompanying drawings, where:

Figure 1 is an exploded perspective view of the closure cap according to the present invention;

Figure 2 is a further exploded side elevation view, in cross section, of the closure cap according to the present invention; and

Figure 3 is a further cross-sectional side elevation view of the closure cap shown in assembled condition, applied to a bottle or vial.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] with reference to the number references of the above mentioned figures, the cap according to the invention, which has been generally indicated by the reference number 1, comprises a cover element 2, preferably made of a thermoplastic material and molded with latching or clamping tongue elements 3, and a single outer body 4, preferably made of aluminium.

[0018] In particular, the single outer body 4 is designed to be edge coupled (5) to the neck of the bottle 7.

[0019] Moreover, said outer body is perforated and comprises a clamping tongue element for facilitating, upon use, a complete removal of the body by tearing operations.

[0020] The cover element 2 is sealed on said single body 4 during the assembling operation which provides, at the start thereof, to apply a rubber plug or stopper 6 to the bottle 7, in a per se known manner.

[0021] The tongue elements 3 of the cover element have been specifically designed to engage, in the assembling operation, in a semicircular hole 8a and in a portion of a central hole 8b formed on the single body 4 to define a tearing ring element 9.

[0022] The closure cap according to the present invention has the same features as the prior three component closure caps, but the inventive cap has a lot of important advantages, in particular a very low cost of the product and a great reduction of production waste materials, and this owing to the reduction of its components.

[0023] Moreover, the closure cap according to the

present invention provides a user the possibility of easily opening the cover element, to allow the ring element to adhere to the rubber plug, which feature is not provided in three-element prior closure caps.

**[0024]** Moreover, the closure cap according to the present invention has a size which is compatible with existing packaging or bottling lines.

**[0025]** Further advantages of the closure cap according to the present invention comprise an easy removal of the aluminium collar and the possibility of making said closure cap according to a lot of different sizes, according to requirements.

**[0026]** It has been found that the invention fully achieves the intended aim and objects.

**[0027]** In fact, the invention provides a very functional and unexpensive article of manufacture, which allows both the maker and the user to obtain a very great saving.

**[0028]** In practicing the invention, the used materials, and the contingent size and shapes, can be any, within the scope of the appended claims.

## Claims

1. A closure cap (1), of a type provided for tightly removably covering a rubber plug (6) of a bottle (7) for pharmaceutical use, said bottle having a bottle neck and a bottle mouth opening, said closure cap (1) comprising a closure cap covering body (4) for removably covering said rubber plug (6) engaged in said bottle mouth opening and a further peripherally covering a portion of an outer surface of said bottle neck, and a top cover element (2) for removably covering said covering body (4), at a top portion thereof, **characterized in that** said top cover element (2) comprises a plurality of downward extending clamping tongue elements (3) to be engaged in a semicircular hole (8a) and in a portion of a central hole (8b) formed through said covering body (4) to define a tearing ring element (9) having a bottom surface abutting, in an assembled condition of said closure cap, against a top surface of said rubber plug (6).
2. A closure cap, according to claim 1, **characterized in that** said top cover element (2) is made of a thermoplastic material and is molded together with said clamping tongue elements (3).
3. A closure cap, according to claim 1 or 2, **characterized in that** said covering body (4) is made of aluminium.
4. A closure cap, according to one or more of the preceding claims, **characterized in that** said covering body (4) is molded and perforated and comprises a clamping tongue for clamping it to said neck of said bottle (7).

5. A closure cap, according to one or more of the preceding claims, **characterized in that** said top cover element (2) is sealed, with said closure cap (1) in an assembled condition, on said covering body (4).

## Patentansprüche

1. Verschlusskappe (1) von einem Typ, der zum dichten, entfernbaren Abdecken eines Gummistopfens (6) einer Flasche (7) für pharmazeutische Verwendungszwecke bestimmt ist, wobei die Flasche einen Flaschenhals und eine Flaschenmündungsöffnung aufweist, wobei die Verschlusskappe (1) einen Verschlusskappen-Abdeckkörper (4) zum entfernbaren Abdecken des Gummistopfens (6), der in der Flaschenmündungsöffnung in Eingriff steht, und ferner zu einem peripheren Abdecken eines Abschnitts einer äußeren Oberfläche des Flaschenhalses und ein oberes Abdeckelement (2) zum entfernbaren Abdecken des Abdeckkörpers (4) an einem oberen Abschnitt davon umfasst, **dadurch gekennzeichnet, dass** das obere Abdeckelement (2) mehrere sich abwärts erstreckende Klemmzungenelemente (3) umfasst, die in einem halbkreisförmigen Loch (8a) und in einem Abschnitt eines mittigen Loches (8b), welche durch den Abdeckkörper (4) ausgebildet sind, um ein Aufreißringelement (9) zu definieren, welches eine untere Oberfläche aufweist, die in einem montierten Zustand der Verschlusskappe gegen eine obere Oberfläche des Gummistopfens (6) anliegt, in Eingriff zu bringen sind.
2. Verschlusskappe nach Anspruch 1, **dadurch gekennzeichnet, dass** das obere Abdeckelement (2) aus einem thermoplastischen Material hergestellt ist und mit den Klemmzungenelementen (3) gemeinsam geformt wird.
3. Verschlusskappe nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** der Abdeckkörper (4) aus Aluminium hergestellt ist.
4. Verschlusskappe nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Abdeckkörper (4) geformt und perforiert ist und eine Klemmzunge zum Ankleben desselben an den Hals der Flasche (7) umfasst.
5. Verschlusskappe nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass**, mit der Verschlusskappe (1) in einem montierten Zustand, das obere Abdeckelement (2) auf den Abdeckkörper (4) gesiegt ist.

## Revendications

1. Capuchon de fermeture (1) d'un type fourni pour recouvrir hermétiquement de manière détachable un bouchon de caoutchouc (6) d'une bouteille (7) destinée à un usage pharmaceutique, ladite bouteille ayant un col de bouteille et une ouverture de goulot de bouteille, ledit capuchon de fermeture (1) comprenant un corps couvrant le capuchon de fermeture (4) afin de couvrir, de manière détachable ledit bouchon de caoutchouc (6) engagé dans ladite ouverture de goulot de bouteille et couvrant plus loin sur la périphérie une partie d'une surface extérieure dudit col de bouteille, et un élément de couvercle supérieur (2) permettant de couvrir, de manière détachable, ledit corps couvrant (4), au niveau d'une partie supérieure de celui-ci, **caractérisé en ce que**, ledit élément de couvercle supérieur (2) comprend une pluralité d'éléments de languette de serrage s'étendant vers le bas (3) destinés à s'engager dans un trou semi-circulaire (8a) et dans une partie d'un trou central (8b) formé à travers ledit corps couvrant (4) pour définir un élément de déchirement (9) ayant une surface de fond butant, dans un état assemblé dudit capuchon de fermeture, contre une surface supérieure dudit bouchon de caoutchouc (6).
 

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2. Capuchon de fermeture selon la revendication 1, **caractérisé en ce que** ledit élément de couvercle supérieur (2) est composé d'un matériau thermoplastique et est moulé en même temps que lesdits éléments de languette de serrage (3).
 

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3. Capuchon de fermeture selon la revendication 1 ou 2, **caractérisé en ce que** ledit corps couvrant (4) est composé d'aluminium.
 

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4. Capuchon de fermeture selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit corps couvrant (4) est moulé et perforé et comprend une languette de serrage afin de serrer celui-ci sur ledit col de ladite bouteille (7).
 

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5. Capuchon de fermeture, selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit élément de couvercle supérieur (2) est scellé, ledit capuchon de fermeture (1) étant dans un état assemblé, sur ledit corps couvrant (4).
 

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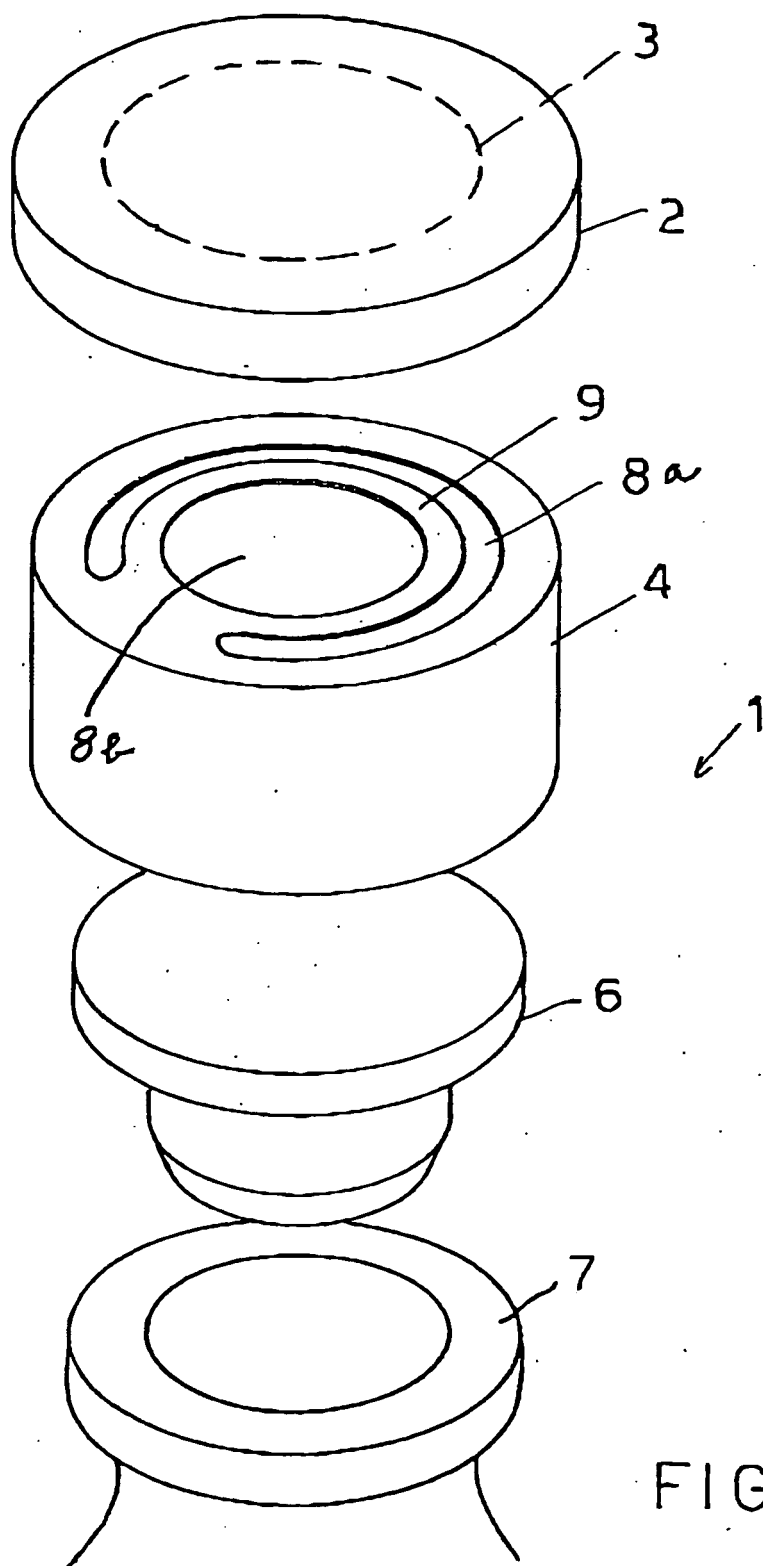
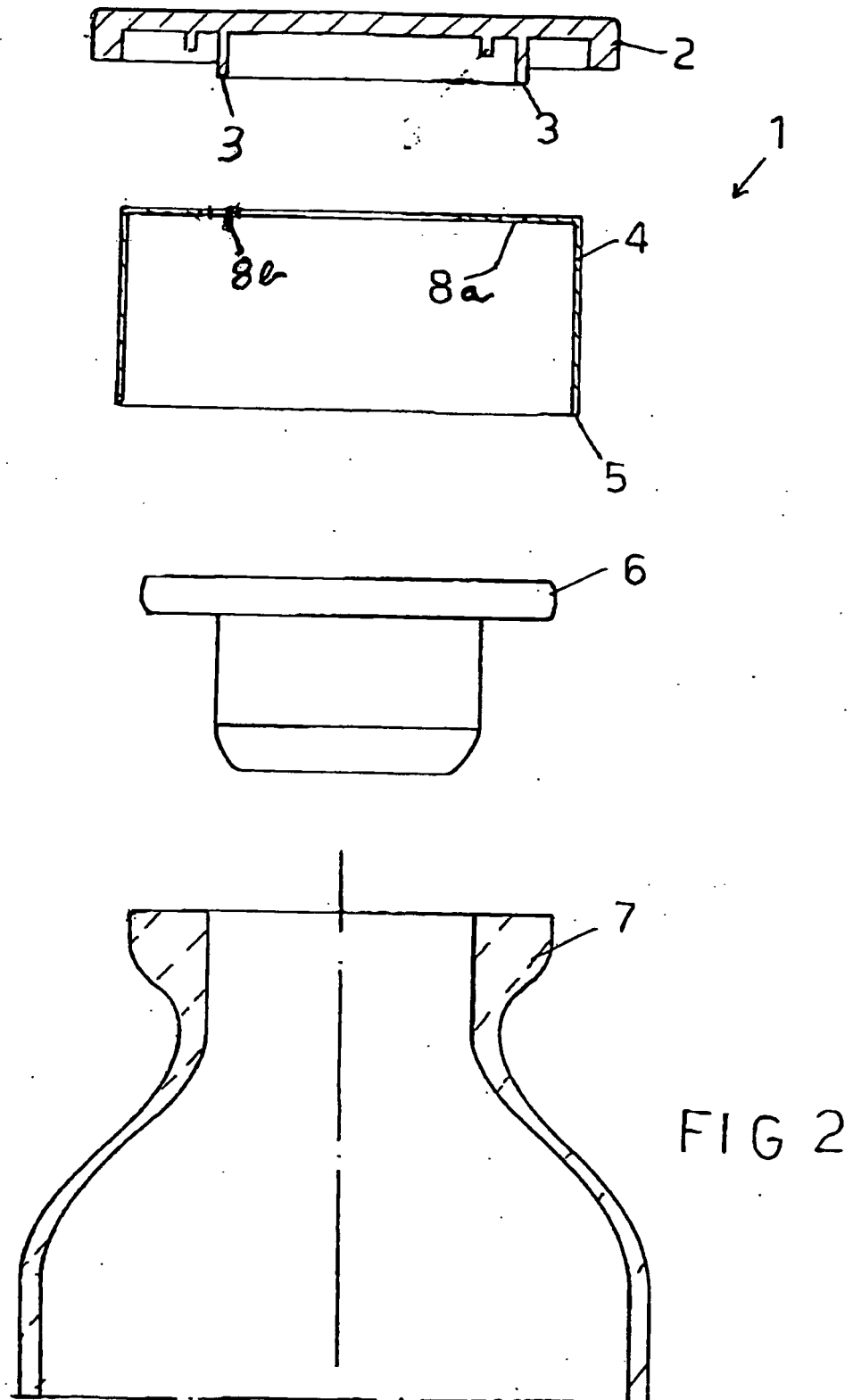


FIG 1



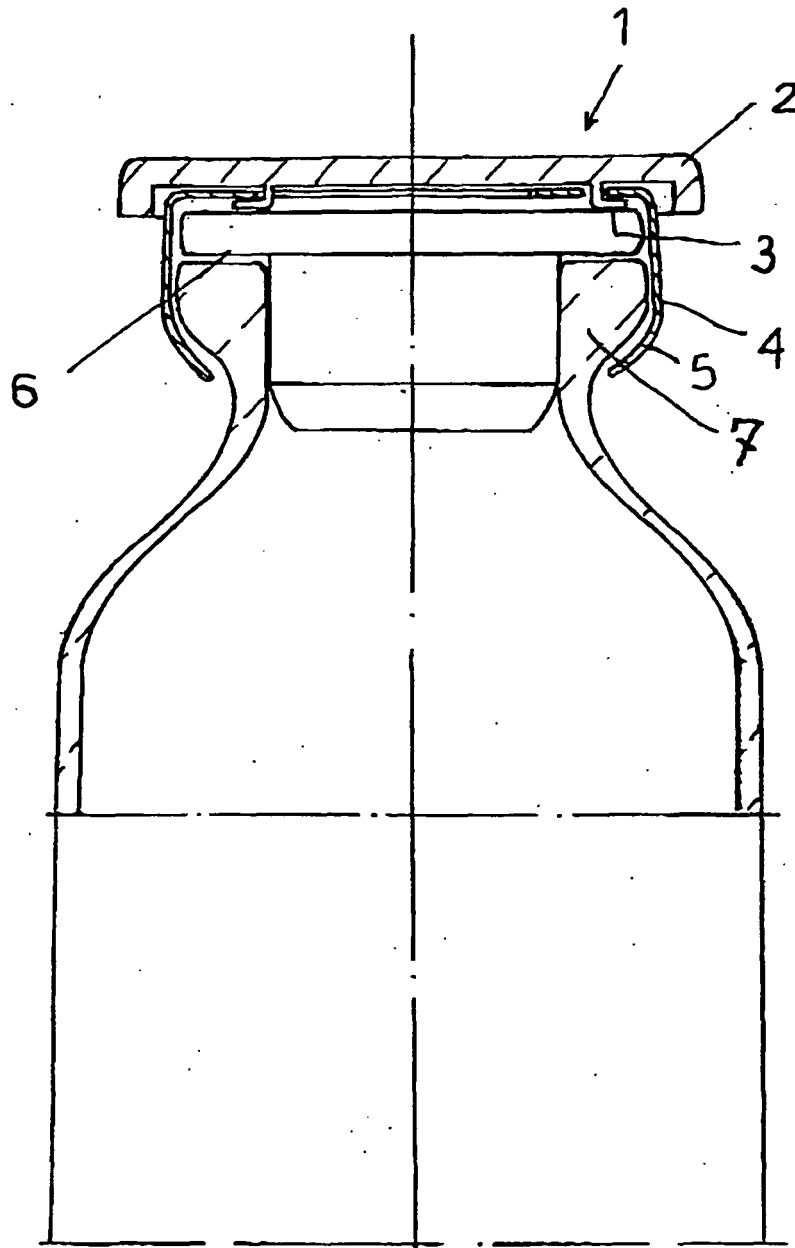


FIG. 3

**REFERENCES CITED IN THE DESCRIPTION**

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