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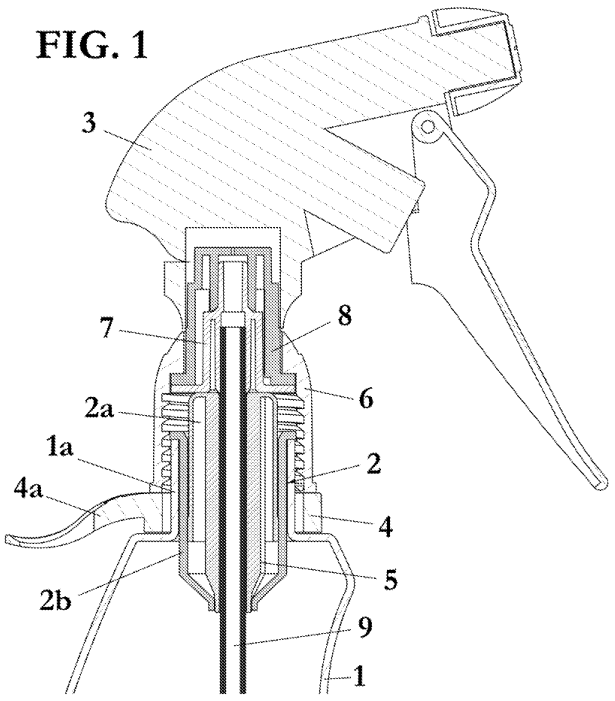
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(54) Closure for containers

(57) The closure for containers comprises a capsule (2) that houses a product to be mixed with the contents of the container (1), and it comprises a security ring (4) that can be broken that prevents the opening of said capsule accidentally.
Said security ring (4) comprises a handle (4a) and a weakening groove, so that when the handle (4a) is driven, the security ring (4a) breaks.
It is provided a container with its corresponding closure, wherein the mixture of the product of the capsule and the contents of the container is carried out only when the user wants, simply removing the ring and breaking the capsule afterwards.

FIG. 1



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Description

[0001] The present invention refers to a closure for containers, which permits to dose a product that is mixed with the content of the container before it is used.

BACKGROUND OF THE INVENTION

[0002] In determined applications it is necessary to mix two products before they are used automatically in a container.

[0003] To this end, there are different closures for containers that comprise a capsule that houses a product that is mixed with the product inside the container, so that a desired mixture is obtained just before the container is used for the first time.

[0004] A container of this kind is described in the European patent application EP-A-1 012 068, that comprises a capsule that is movable to break a wall and, therefore, to cause the exit of the content of the capsule.

[0005] The container disclosed in this document has the drawback that once the closure is placed, or the spraying head, on the capsule, it can be broken accidentally, which would lead to the mixture of the two products, even if the user does not want to use the container.

SUMMARY OF THE INVENTION

[0006] With the closure for containers of the invention said drawbacks can be solved, presenting other advantages that will be described.

[0007] The closure of containers of the present invention comprises a capsule that can be opened that houses a product soluble in the content of the container, and it is **characterised in that** it comprises a security ring that can be broken that prevents the aperture of said capsule accidentally.

[0008] Thanks to this feature, a container with its corresponding closure is provided, in which the mixture of the product of the capsule and the content of the container is only carried out when the user wishes, just removing the ring and causing the capsule to the broken afterwards.

[0009] Said security ring comprises advantageously a handle and a weakening groove, so that the driving of the handle produces the rupture of said security ring, and facilitates the removal of the security ring.

[0010] According to a preferred embodiment, the material of said security ring is high-density and low-density polyethylene at 50%, even though it could be any suitable material.

[0011] Said capsule comprises advantageously an upper piece and a lower piece, the lower piece resting against the container and being said upper piece movable along said lower piece.

[0012] According to a preferred embodiment, said upper and lower pieces of the capsule have a frustroconical shape at it lower part, so that the movement of the upper piece causes the expansion of said frustroconical part of the lower piece, permitting the exit of the content of the capsule.

[0013] Furthermore, said upper piece of the capsule is advantageously integral with a threaded body and said lower piece is snap-fitted in the container, so that the threading of said threaded body to the container, being removed the security ring, causes the movement of said lower piece of the capsule.

[0014] The closure for containers of the present invention also comprises advantageously a cannula that crosses sealingly the capsule.

[0015] Additional advantages of the closure of the present invention are that it is obtained a completely tight, so that the user never contacts the product inside the capsule and the container during its use, and it permits just one use, guaranteeing therefore said tightness and security.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] For a better understanding of what has been disclosed some drawings are attached in which, diagrammatically and only as a non-limitative example, a practical case of embodiment is shown.

Fig. 1 is an elevation view of the closure for containers of the present invention in a cross-section.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0017] As it can be seen from Fig. 1, the closure of the present invention is fixedly engaged to a container 1, which is provided with a neck 1a. Said container contains a product that must be mixed with another product before its use.

[0018] The closure of the present invention comprises a capsule 2 that contains the product to be mixed with the contents of the container. This product is classified as non-innocuous and, therefore, it is indispensable that the user of the container cannot contact never with it before it is mixed with the contents of the container and its ejection to outside, preferably by a spray head 3.

[0019] The closure of the present invention also comprises a security ring 4 provided with a handle 4a and with a weakening groove (not show in the figure), so that when said handle 4a is driven the security ring 4 is broken, as will be described afterwards.

[0020] According to a preferred embodiment, the material of said security ring is high and low-density polyethylene at 50%, even though it could be made from any suitable material.

[0021] The capsule 2 is formed by two pieces, an upper piece 2a and a lower piece 2b. These upper 2a and lower 2b pieces are snap fitted to each other, one inside the other and concentrically, the upper piece 2a being movable with respect to said lower piece 2b.

[0022] Said upper 2a and lower 2b pieces of the cap-

sule 2 are frustoconical shaped at their lower part, so that the movement of the upper piece 2a causes the dilatation of said frustoconical part of the lower piece 2b, permitting the exit of the contents of the capsule 2. This is possible because the frustoconical part of the upper piece 2a has a plurality of ribs 5, so that the product inside the capsule 2 can exit through the gap defined between said ribs 5.

[0023] The closure of the present invention also comprises a threaded body 6 integral with the upper piece 2a, a thrust piece 7 and a seal piece 8. These thrust 7 and seal 8 pieces are integral with said upper piece.

[0024] The lower piece 2b of the capsule 2 is snap fitted in the neck 1a of the container 1, and the upper piece 2a is integral with the threaded body 6 thanks to the thrust piece 8.

[0025] The container with the closure of the present invention is provided to the user according to Fig. 1.

[0026] When the used wants to use the container, firstly he/she must remove the security ring 4. To this end, he/she must pull the handle 4a, breaking the security ring 4 thanks to the presence of the weakening groove. Once broken, the security ring 4 can be removed easily.

[0027] Once the security ring 4 has been removed, the threaded body 6 is threaded to the container, which would not be possible previously because of the presence of the security ring 4.

[0028] The rotation of the threaded body 6 to the containers causes the downwardly movement, as shown in Fig. 1, of the thrust body 7, which will press downwardly the upper piece 2a of the capsule. This movement of the upper piece 2a, and thanks to the frustoconical shape of the lower part of the pieces 2a and 2b of the capsule, causes the dilatation of the lower part of the lower piece 2b and the subsequent exit of the product contained inside the capsule 2, which will be mixed with the contents of the container.

[0029] Then, simply the spray head 3 will be driven to use the product conventionally mixed, which will exit the container 1 through a cannula 9. This cannula, as it can be seen in Fig. 1, crosses sealingly the capsule 2.

[0030] It must be pointed out that the closure for containers of the present invention is specially designed to be used with phytosanitary products, which require absolute security conditions to be handled, its use being permitted without any contact with the product. However, it is apparent that the closure for containers of the present invention can be used to any suitable application, which requires a mixture of two products before their use.

[0031] Even though reference is made to a specific embodiment of the invention, it is apparent for a person skilled in the art that the described closure for containers is susceptible of numerous variations and modifications, and that all the details cited can be substituted by other technically equivalents, without departing from the scope of protection defined by the attached claims.

Claims

1. Closure for containers, comprising a capsule (2) that houses a product to be mixed with the contents of the container (1), **characterised in that** it comprises a security ring (4) that can be broken that prevents the opening of said capsule accidentally.

2. Closure for containers according to claim 1, wherein said security ring (4) comprises a handle (4a) and a weakening groove, so that when the handle (4a) is driven, the security ring (4a) breaks.

3. Closure for containers according to claim 1 or 2, wherein the material of said security ring (4) is high or low-density polyethylene at 50%.

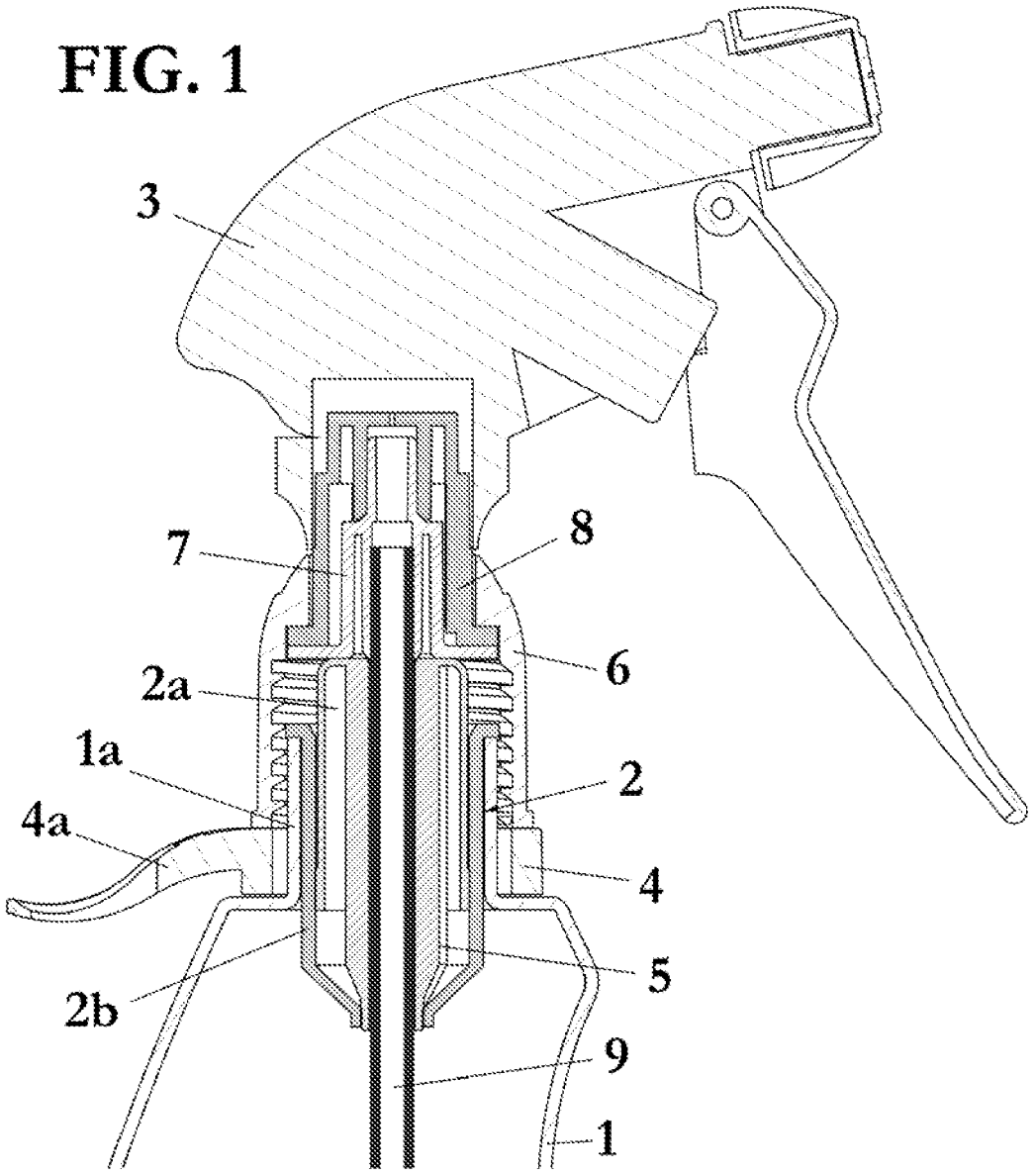
4. Closure for containers according to claim 1, wherein said capsule (2) comprises an upper piece (2a) and a lower piece (2b), the lower piece (2b) being fixed to the container (1) and said upper piece (2a) being movable with respect to said lower piece (2b).

5. Closure for containers according to claim 4, wherein said upper (2a) and lower (2b) pieces of the capsule (2) are frustoconical at their lower part, so that the movement of the upper piece (2a) causes the dilatation of said frustoconical part the lower piece (2b), permitting the exit of the contents of the capsule (2).

6. Closure for containers according to claim 4, wherein said upper piece (2a) of the capsule (2) is integral with a threaded body (6) and said lower piece (2b) is fixed to the container (1), so that when the threaded body (6) is threaded to the container (1), the security ring (4) being removed, it causes the movement of said upper piece (2a) of the capsule (2).

7. Closure for containers according to claim 1, which comprises a cannula (9) that crosses sealingly said capsule (2).

FIG. 1



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EUROPEAN SEARCH REPORT

Application Number
EP 09 38 2016

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Y	* column 3, line 41 - line 57 * * figures 1-3 *	5,6	
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X	US 2006/118435 A1 (CRONIN JERRY [US] ET AL) 8 June 2006 (2006-06-08) * paragraph [0055] - paragraph [0088]; figures 10,11 *	1,4,6	TECHNICAL FIELDS SEARCHED (IPC) B05B B65D
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	11 May 2009	Roldán Abalos, Jaime

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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