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(72) Inventors:
 • **Szarycz, Jacek**
59-700 Boleslawiec (PL)
 • **Tutek, Michal**
59-700 Boleslawiec (PL)

(74) Representative: **Rejman, Tadeusz**
Kancelaria Patentowa "Rejman" S.C.
ul. Ciepla 15/41
50-524 Wroclaw (PL)

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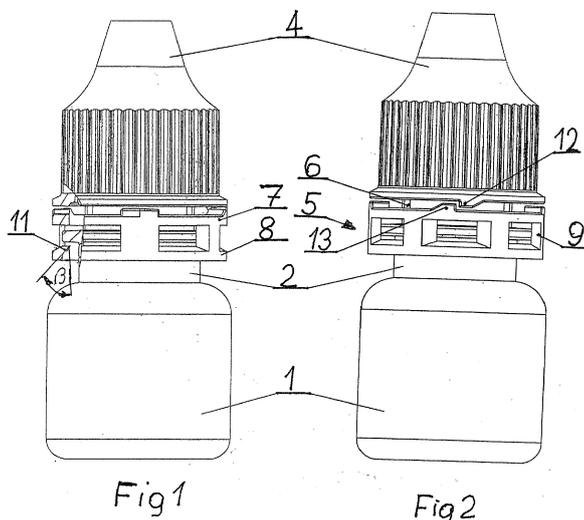
(71) Applicant: **Gerresheimer Boleslawiec Spolka Akcyjna**
59-700 Boleslawiec (PL)

(54) **CONTAINER, ESPECIALLY FOR MEDICINES**

(57) The subject matter of the invention is a container designed especially for medicines, which medicines must be protected against unauthorized opening, and in the case of which medicines any unauthorized opening must be evident.

The container, especially for medicines, consists of a bottle (1) whose neck (2) has an external thread (3), wherein the neck (2) is covered by a screw cap (4) whose body has an internal thread that cooperates with the thread (3) of the neck (2). The body of the screw cap (4) is breakably connected to a band (5) located from the side of the body of the bottle (1), wherein the breakable

connection is ensured by thin connectors (6) that connect the band (5) to the body of the screw cap (4). The container is characterized in that, the band (5) is made up of two rings (7, 8) connected by posts (9), and that the neck (2) of the bottle has a stopper ring (10) protruding outwards located between the rings (7, 8) of the band (5), wherein the inside diameter (D) of the rings (7, 8) of the band (5) is equal to the outside diameter (D) of the stopper ring (10), and the lower ring (8) of the band (5) has lips (11) protruding inwards located in the windows between the posts (9).



Description

[0001] The subject matter of the invention is a container designed especially for medicines, which medicines must be protected against unauthorized opening, and in the case of which medicines any unauthorized opening must be evident.

[0002] There is a known screw cap with a visible safeguard against being tampered with by unauthorized persons for a container presented in the Polish patent specification No. PL 202646. This screw cap has a body with a base and a side wall extending downwards, as well as a band with the visible safeguard against being tampered with by unauthorized persons breakably connected to the open end of the side wall. When the screw cap is being unscrewed, the breakable connection between the side wall and the band with the visible safeguard against being tampered with by unauthorized persons is broken before the seal is damaged. The band with the visible safeguard against being tampered with by unauthorized persons contains many overlapping retainers designed to engage with the container's limiting element in order to prevent the band with the visible safeguard against being tampered with by unauthorized persons from moving up in relation to the container. At least one of the overlapping retainers is designed and located so as to cooperate with the rotation-blocking element that can be found on the container. At least one of the overlapping retainers has a guiding edge that is shaped so as to allow the retainer to pass over the rotation-blocking element when the screw cap is being screwed onto the container for the first time.

[0003] There is another known container, especially for medicines, according to patent application P-422192. This container consists of a bottle whose neck has an external thread and a dispenser embedded in the neck, wherein the neck and the dispenser are covered by a screw cap whose body has an internal thread that cooperates with the thread of the neck. The body of the screw cap is breakably connected to a band whose inner surface has fastening elements, wherein at the height of the band the body of the bottle has teeth. The container is characterized by the fact that the band of the screw cap has recesses whose one side forms an acute angle with the bottom of the recess, and that the band of the screw cap ends in a lip facing the body of the bottle. The body of the bottle has a ring with notches facing opposite the recesses of the band with the acute angle. The second side of the recess of the band forms an obtuse angle with the bottom. The first side of the recess of the band forms an acute angle of 90° with the bottom. The notches in the ring of the body have differing depths, which depths are stepped. The inside diameter of the lip of the screw cap's band is 0.93-0.96 of the diameter of the body's ring.

[0004] The container, especially for medicines, of the invention, consists of a bottle whose neck has an external thread, wherein the neck is covered by a screw cap whose body has an internal thread that cooperates with

the thread of the neck. The body of the screw cap is breakably connected to a band located from the side of the body of the bottle, wherein the breakable connection is ensured by thin connectors that connect the band to the body of the screw cap. The container is characterized in that, the band is made up of two rings connected by posts, and that the neck of the bottle has a stopper ring protruding outwards located between the rings of the band, wherein the inside diameter of the ring of the band is equal to the outside diameter of the stopper ring, and the lower ring of the band has lips protruding inwards located in the windows between the posts. The surface area of the cross section of the lips is greater than that of the cross section of the connectors that connect the band to the body of the screw cap. The lower surface of the screw cap and the upper surface of the upper ring of the band have teeth located next to each other, wherein the teeth of the upper ring of the band are located next to the teeth of the screw cap from the side where the screw cap is screwed on. The lips have a bevel on the inside, and the bevel angle is 59-61° in relation to the vertical axis. The difference between the diameter of the stopper ring and the diameter of the lips is 1.0-2.2 mm.

[0005] The container of the invention allows to precisely and tightly close the medicine inside the container and, at the same time, to easily and reliably determine whether its contents have been tampered with by unauthorized persons. This is achieved thanks to the use of the screw cap with the band connected by breakable elements, as well as the appropriate selection of shapes and sizes of the inner surface of the band connected to the screw to cap as well as of the outer surface and size of the ring bound to the body of the bottle. Both these elements are bound together by their shapes so that the bottle can be easily closed by screwing the screw cap, and if the screw cap is being unscrewed, these elements block each other causing the connection between the screw cap and the band to break. At the same time, the lip of band, due to its size, does not allow the band to move upwards when the screw cap is being unscrewed, thanks to which it proves that the container's closure has been tampered with by an unauthorized person. An additional advantage offered by the construction of the connection between the band of the screw cap and the ring of the body is the producibility of their design. They are easy to make and their manufacture requires little material. What is more, the bevels on the lips of the band make it easier for the lips of the band to pass through the ring of the body, while the teeth in the lower part of the screw cap and the teeth on the upper ring of the band and their proper location cause the band to rotate when the screw cap is being screwed on - without damaging the connectors that connect the screw cap to the band.

[0006] The container of the invention is explained in more detail in the example of embodiment as well as in the drawing in which Fig. 1 shows the container in a view with a broken-out section, Fig. 2 shows the same container in a view from a different direction, Fig. 3 is a cross

section through the neck of the bottle and the middle part between the upper and the lower rings of the band, Fig. 4 is a cross section through the breakable connectors, and Fig. 5 is a view of the bottle without the screw cap.

[0007] As shown in Fig. 1 - Fig. 5, the medicine container of the invention consists of the bottle 1, whose neck 2 has the external thread 3. The neck 2 is covered by the screw cap 4, whose body has the internal thread that cooperates with the thread 3 of the neck. The body of screw cap 4 is breakably connected to the band 5 located from the side of the body of the bottle 1. The breakable connection is ensured by thin connectors 6 that connect the band 5 to the body of the screw cap 4. The band 5 is made up of two rings 7, 8 connected by posts 9. The neck of the bottle has the stopper ring 10 protruding outwards located between the rings 7, 8 of the band 5. The inside diameter D of the rings of the band 5 is equal to the outside diameter of the stopper ring 10, and the lower ring 8 of the band 5 has lips 11 protruding inwards located in the windows between the posts 9. The surface area of the cross section of the lips 11 is greater than that of the cross section of the connectors 6 that connect the band 5 to the body of the screw cap 4. The lower surface of the screw cap 4 has the teeth 12, and the upper surface of the upper ring 7 of the band 5 has the opposing teeth 13, which teeth 12, 13 are located next to each other, wherein the teeth 13 of the upper ring 7 of the band 5 are located next to the teeth 12 of the screw cap from the side where the screw cap 4 is screwed on. The lips 11 have a bevel on the inside, and the bevel angle β is 60° in relation to the vertical axis. The difference between the diameter D of the stopper ring 10 and the diameter C of the lips 11 is 2.0 mm.

[0008] When the screw cap 4 is being screwed onto the neck 2 of the bottle 1, the teeth 12 (bound to the screw cap 4) engage with the teeth 13 (bound to the band 5) which consequently turns the band 5 and places it onto the stopper ring 10. This is made easier by the β -angled bevel on the lips 11, thanks to which the lips 11 get slightly deflected and pass through the stopper ring 10. However, when the screw cap 4 is being unscrewed, the lips 11 engage with the stopper ring 10 preventing the band 5 from moving. This results in the breaking of the connectors 6 that connect the band 5 to the body of the screw cap 4, which is an indication that the contents of the bottle 1 have been used.

Claims

1. A container, especially for medicines, consisting of a bottle whose neck has an external thread, wherein the neck is covered by a screw cap whose body has an internal thread that cooperates with the thread of the neck, wherein the body of the screw cap is breakably connected to a band located from the side of the body of the bottle, wherein the breakable connection is ensured by thin connectors that connect

the band to the body of the screw cap, **characterized in that**, the band (5) is made up of two rings (7, 8) connected by posts (9), and that the neck (2) of the bottle has a stopper ring (10) protruding outwards located between the rings (7, 8) of the band (5), wherein the inside diameter (D) of the rings (7, 8) of the band (5) is equal to the outside diameter (D) of the stopper ring (10), and the lower ring (8) of the band (5) has lips protruding inwards (11) located in the windows between the posts (9).

2. The container according to claim 1, **characterized in that**, the surface area of the cross section of the lips (11) is greater than that of the cross section of the connectors (6) that connect the band (5) to the body of the screw cap (4).

3. The container according to claim 1, **characterized in that**, the lower surface of the screw cap (4) and the upper surface of the upper ring (7) of the band (5) have teeth (12, 13) located next to each other, wherein the teeth (13) of the upper ring (7) of the band (5) are located next to the teeth (12) of the screw cap (4) from the side where the screw cap (4) is screwed on.

4. The container according to claim 1, **characterized in that**, the lips (11) have a bevel on the inside, and the bevel angle (β) is $59-61^\circ$ in relation to the vertical axis.

5. The container according to claim 1, **characterized in that**, the difference between the diameter (D) of the stopper ring (10) and the diameter (C) of the lips (11) is 1.0-2.2 mm.

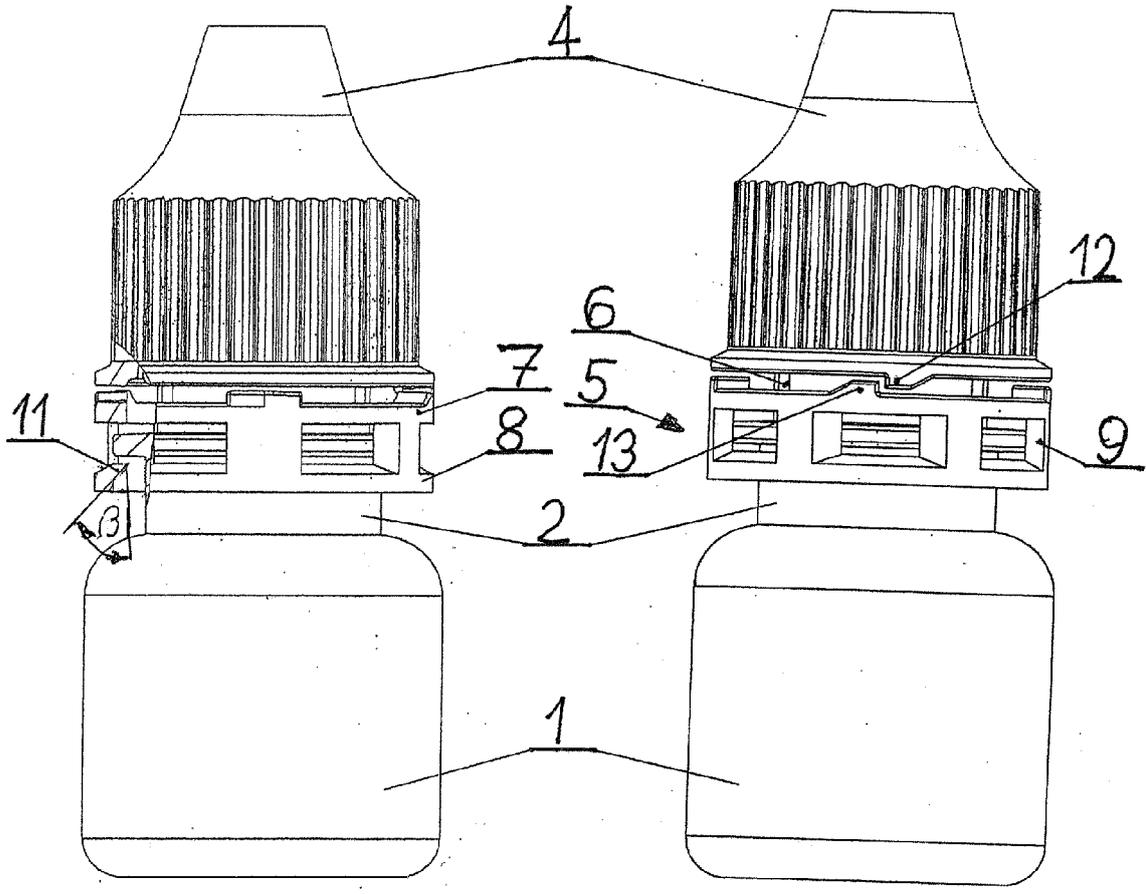


Fig1

Fig2

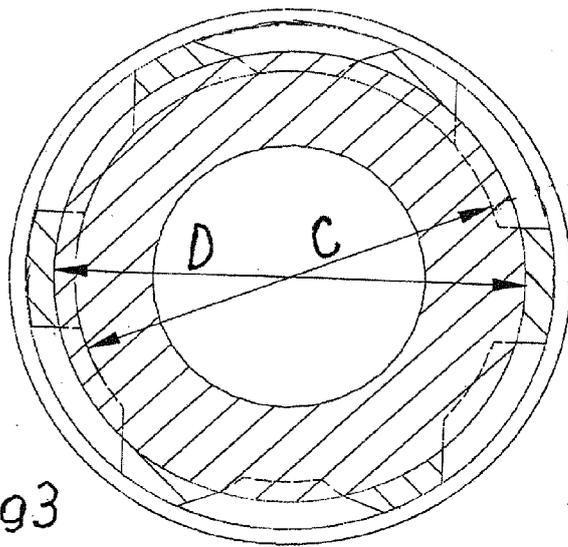


Fig3

Fig4

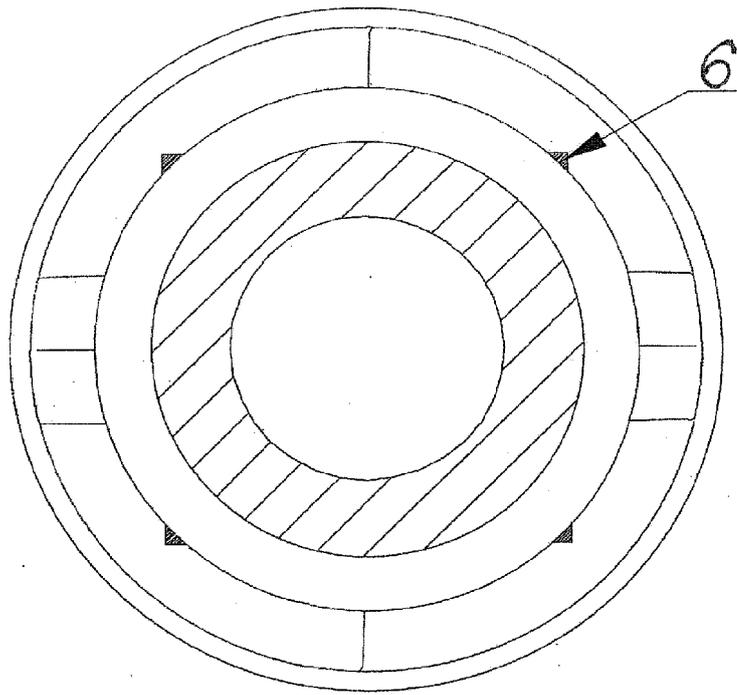
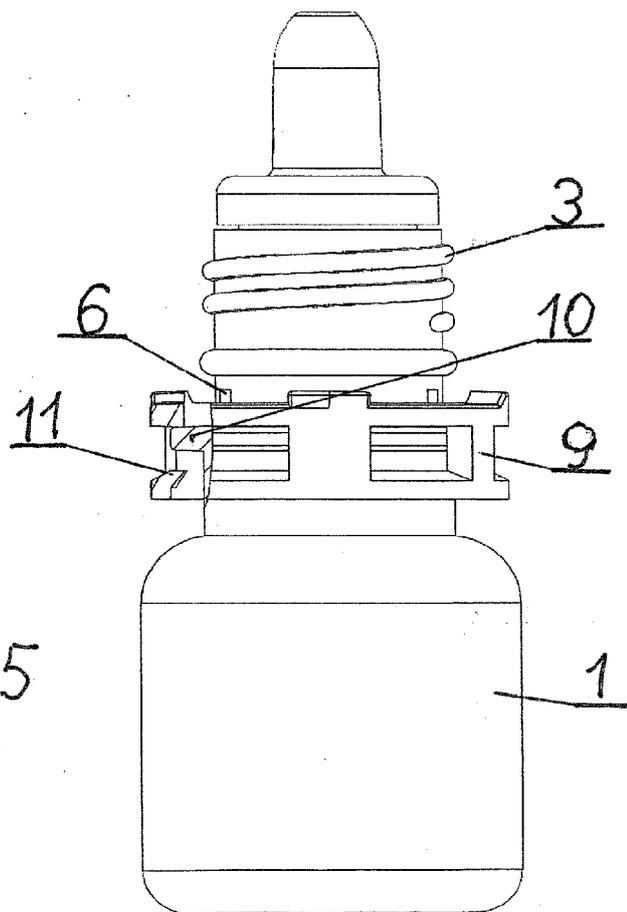


Fig5





EUROPEAN SEARCH REPORT

Application Number
EP 20 02 0216

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| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
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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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| Place of search The Hague | | Date of completion of the search 2 October 2020 | Examiner Bridault, Alain |
| CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document | | T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | |

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 20 02 0216

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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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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