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(54) Title: PACKAGING DEVICE WITH THREADED NECK AND SCREW CLOSURE MEMBER

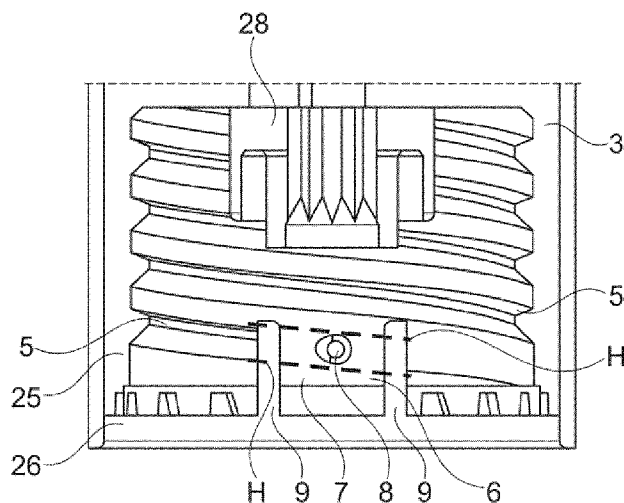


Fig. 3

(57) Abstract: Device (1) for packaging a product having a reservoir (2) for containing the product, provided with a threaded neck having at least one stop (20) at its base, and a closure member (3) that is internally threaded and configured to be screwed onto the neck (4), the closure member (3) having at least one flexible tongue (6) that bears, on an inner surface (7), at least one protruding relief (8) situated in the extension of a thread (5) of the closure member (3), this relief (8) being designed to pass over the stop (20) by elastic deformation of the tongue at the end of screwing the closure member (3) onto the neck, the passing of the relief (8) over the stop (20) being perceptible tactilely and/or aurally by the user and/or helping to keep the closure member in the screwed position.

TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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Description**Title: Packaging device with threaded neck and screw closure member****Technical field**

5 The present invention relates to the field of devices for packaging a product, in particular a cosmetic product, having a reservoir provided with a threaded neck, and a closure member that is to be screwed onto the neck.

Prior art

10 In order to signal to the user that the closure member is screwed sufficiently, it is known to use means that produce a tactile or audible “click”.

 To this end, US20200156831 and EP0780318 teach the use of closure members having a skirt provided with tongues that are capable of deforming elastically when they meet, at the end of screwing, protuberances provided on a shoulder of the reservoir.

15 For reasons of demoulding the thread and screwing onto the reservoir, the tongues are axially offset from the thread of the closure member. In this way, during the production of the closure member by moulding, it is possible to demould the tongues by removing, via a translational movement, one part of the mould, and to demould the remaining part, which has the thread, by unscrewing.

20 Furthermore, in order to manufacture the end-of-travel protuberances on the reservoir, the method for manufacturing the reservoir has to permit small radii of curvature so that the click is emitted with high quality. However, when the reservoir is made of glass, the permitted radii of curvature are too large to allow the formation of such protuberances on the reservoir in a satisfactory manner.

25 In addition, the presence of end-of-travel protuberances on the shoulder of the reservoir may detract from the attractiveness thereof. These protuberances can also promote the build-up of dirt, which is unattractive and could potentially lead to imperfect closure.

 FR 2 342 908 presents a plastics cap covered by a rigid cowl and has a screw thread terminated at the bottom by a ledge. A second ledge on the cap is disposed parallel to the first, and arranged so that it clips behind a projection on the container.

30 There is a need for a packaging device that is compatible with the production of the reservoir from glass, if desired, allows the user to be informed of the correct closure of the reservoir and remains relatively easy to produce and also attractive.

Disclosure of the invention

The present invention meets this need by virtue of a device for packaging a product, in particular a cosmetic product, having:

- a reservoir for containing the product, provided with a threaded neck having at least one stop at its base, and
- a closure member that is internally threaded and configured to be screwed onto the neck, the closure member having at least one flexible tongue that bears, on an inner surface, at least one protruding relief situated in the extension of a thread of the closure member, this relief being designed to pass over the stop by elastic deformation of the tongue at the end of screwing the closure member onto the neck, the passing of the relief over the stop being perceptible tactilely and/or aurally by the user and/or helping to keep the closure member in the screwed position.

The expression “*in the extension of said at least one thread of the closure member*” should be understood as meaning that the relief is situated in the continuation of the helix along which said at least one thread extends.

The relief may thus follow the screw thread of the neck during the screwing of the closure member, without being damaged.

Furthermore, given that said at least one relief is borne by a flexible tongue, the risks of plastic deformation thereof following repeated passing over are limited, offering good reliability over time of the tactile and/or aural perception by the user and/or the assistance in keeping the closure member in the screwed position.

By virtue of the invention, it is not necessary to have an axial offset between the thread of the closure member and said at least one tongue, offering great freedom in terms of the design of the closure member. In comparison with the prior art mentioned above, the present invention makes it possible to obtain a closure member that is more compact, in particular in the radial direction, and therefore limits the requirement for material for the manufacture thereof.

Since the stop is present on the neck, it is possible to obtain an attractive reservoir, and in addition the risk of dirt build-up is limited.

The reservoir may be made of glass. Specifically, the radii of curvature necessary for the formation of the stop on the neck are compatible with glass manufacturing methods.

Even with a glass reservoir, the invention makes it possible to obtain, at the end of screwing, clear and precise tactile and/or aural perception, affording the user high quality use of the device.

The closure member may have an internally threaded cap, bearing the or each
5 tongue, produced by moulding a thermoplastic material around a threaded core, then demoulding by unscrewing the threaded core, the or each tongue being able to deform elastically if necessary during this demoulding operation. During demoulding, said at least one relief can come out of an imprint in the threaded core used for the moulding thereof, by bending of the tongue, and then be in the cavity of the threaded core used for the moulding
10 of the thread of the closure member until the end of demoulding, and is therefore no longer stressed. Thus, during the manufacture of the closure member, and in particular during the unscrewing of the threaded core with respect to the closure member, the risk of damaging or crushing this relief is avoided. The relief may have a domed shape, which is in particular hemispherical, semicylindrical, ellipsoidal, or ogival.

The relief has, preferably, an asymmetric shape that makes passing over the stop
15 in the screwing direction more difficult than in the unscrewing direction. The greater force for passing over the stop during closing can improve the tactile and/or aural perception of the user. Such an asymmetric shape can, during production of the closure member, make it easier for the relief to come out of an imprint in a threaded core used for the moulding
20 thereof.

The neck has at least one thread and the stop may be provided on the neck at a proximal end of this thread, the stop preferably extending axially.

The closure member may have an outer overcap that is disposed around the cap.

The device may have, between the inner cap and the outer overcap, a space
25 allowing radial displacement of the or each tongue.

The or each tongue may have a free end provided with a foot for bearing against the outer overcap. This foot makes it possible to obtain better control of the deformation of the or each tongue in bending, and limitation of the risk of plastic deformation.

The closure member may have a stem holder to which a stem bearing a member
30 for applying the product is fastened, the stem being inserted into the reservoir of product when the closure member is screwed onto the reservoir.

The neck may have two threads and the closure member may have two corresponding threads, the closure member having two tongues that are diametrically opposite one another, each provided with at least one corresponding relief.

5 The reservoir can be filled with a product, in particular a cosmetic product, for example a mascara or a nail varnish.

The reservoir can have a body of generally cylindrical, spherical, parallelepipedal or prismatic shape, among other possibilities. The reservoir can have a shoulder from which the neck extends.

10 According to another of its aspects, the invention further relates to a method for manufacturing a packaging device as defined above, involving the following steps:

a) producing the closure member by moulding a material, in particular a thermoplastic material, around a threaded core,

b) demoulding the closure member by unscrewing said threaded core from said closure member.

15 By virtue of the presence of the abovementioned relief in the extension of a thread of the closure member, the demoulding during step b) can be done without requiring additional axial movement in order to demould the relief, i.e. only by unscrewing, and this is advantageous in terms of industrial process.

20 The method can involve the step consisting in manufacturing the reservoir, in particular from glass, and mounting the closure member on the reservoir.

Brief description of the drawings

25 The invention may be better understood upon reading the following detailed description of a non-limiting implementation example thereof and upon studying the appended drawing, in which

[Fig 1] Figure 1 shows an elevation view of an example of a device according to the invention,

[Fig 2] Figure 2 is a partial schematic perspective view of the closure member of the device in Figure 1,

30 [Fig 3] Figure 3 shows, in partial and schematic axial cross section, the closure member in Figure 2,

[Fig 4] Figure 4 shows, in a partial and schematic manner, the reservoir,

[Fig 5] Figure 5 illustrates the cooperation between the closure member and the neck,

[Fig 6] Figure 6 is a partial cross section through the closure member in Figure 2, and

[Fig 7] Figure 7 schematically illustrates steps of the moulding method according to the invention.

Detailed description

Figure 1 illustrates an example of a packaging device 1 according to the invention, having a reservoir 2, which is in this example made of mineral glass, and a closure member 3.

The reservoir 2 contains for example a cosmetic product, for example a mascara or a nail varnish. Its capacity is for example between 2 and 15 ml.

The closure member 3 has a closure cap 25, which is visible in Figures 2, 3, 5 and 6, which is intended to be screwed onto the reservoir 2, and an overcap 26, which is visible in Figures 1, 2, 3, and 6, which gives the closure member the desired final appearance. This overcap 26 can be metallic or metallized, for example, or be a different colour from the cap 25, and can be made from a different thermoplastic material or another material, for example wood or glass.

As illustrated in Figures 2 and 3, the cap 25 has, in this example, an internally threaded tubular skirt, comprising two threads 5 that are diametrically opposite one another, and two flexible tongues 6, which are elastically deformable radially towards the outside and diametrically opposite one another. Each tongue 6 bears, on an inner surface 7, a relief 8 that protrudes towards the inside. Each relief 8 is situated in the helical extension of the adjacent thread 5, as illustrated by the lines H. In this example, each relief 8 has a surface that is domed towards the inside.

In this example, the tongues 6 are inscribed substantially in the envelope surface of the threaded tubular skirt of the cap 25. In this example, each tongue 6 is formed between two axial slots 9 and has a substantially constant width.

As illustrated in Figure 4, the reservoir 2 has a substantially cylindrical shape, of axis Z, and has at one end a shoulder 11 from which a threaded neck 4, onto which the closure member 3 is screwed, extends upwards.

The neck 4 has, in this example, two threads 10 that are diametrically opposite one another, so as to respectively accommodate the two threads 5 of the closure member 3.

Given that each relief 8 is situated in the extension of a thread 5 of the closure member 3, it can move along a thread 10 of the neck 4 during screwing and unscrewing.

5 As illustrated in Figure 5, each relief 8 of the closure member 3 is designed to pass over, at the end of screwing the closure member 3, a stop 20 provided on the neck 4 at its base. The passing of the relief 8 over the stop 20 deforms the tongue 6 elastically, and the return of the tongue 6 is accompanied by a tactile and audible click indicating the end of travel. Passing over the stop can also help to keep the closure member 3 in the screwed
10 position. Preferably, the relief 8 has an asymmetric shape that makes passing over the stop in the screwing direction more difficult than in the unscrewing direction.

In the example in question, the device 1 has, between the inner cap 25 and the outer overcap 26, a space 27 allowing radial displacement of the tongue 6 during this passing over. Each tongue 6 has a foot 30 for bearing against the outer overcap 26. This foot 30
15 limits the radial deformation of the tongue 6 towards the outside, and makes it possible to obtain better control of the deformation of the tongue 6 in bending.

The device 1 may have a conventional wiping member 29, fastened in an opening 12 of the neck 4.

The cap 25 may have an end piece 28 that makes it possible to fasten a stem (not
20 shown) comprising a member for applying the product, this stem being inserted into the reservoir 2 of product when the closure member 3 is screwed onto the reservoir 2.

In order to manufacture the device 1, it is possible to implement the manufacturing method according to the invention that is described below and illustrated in Figure 7.

25 In a step a), the cap 25 of the closure member 3 is produced by injection moulding a thermoplastic material in a mould 50 cavity formed between a threaded core 51 and one or more, in this example two, mould parts 52 extending around this core 51.

The core 51 has helical imprints used to form the threads 5. The core 51 also has, for each tongue 6 to be manufactured, shaped portions extending axially and an imprint 53
30 used to form the relief 8.

In this example, each part 52 has shaped portions 56 allowing the tongues 6 to be formed.

In a step b), the closure member 3 is demoulded. In this example, the parts 52 are separated and then the core 51 is unscrewed from the closure member 3.

The invention is not limited to the example that has just been described.

The number of tongues may be different, as may the number of threads.

Claims

1. Device (1) for packaging a product, in particular a cosmetic product, having:
 - a reservoir (2) for containing the product, provided with a threaded neck having at least one stop (20) at its base, and
 - a closure member (3) that is internally threaded and configured to be screwed onto the neck (4), the closure member (3) having at least one flexible tongue (6) that bears, on an inner surface (7), at least one protruding relief (8) situated in the extension of a thread (5) of the closure member (3), this relief (8) being designed to pass over the stop (20) by elastic deformation of the tongue at the end of screwing the closure member (3) onto the neck, the passing of the relief (8) over the stop (20) being perceptible tactilely and/or aurally by the user and/or helping to keep the closure member in the screwed position.
2. Device according to Claim 1, the reservoir (2) being made of glass.
3. Device according to either of the preceding claims, the neck having at least one thread (10) and the stop (20) being provided on the neck (4) at a proximal end (21) of this thread, the stop (20) preferably extending axially.
4. Device according to any one of Claims 1 to 3, the closure member (3) having an internally threaded cap (25), bearing the or each tongue (6), produced by moulding a thermoplastic material around a threaded core, then demoulding by unscrewing the threaded core, the or each tongue (6) being able to deform elastically during this demoulding operation.
5. Device according to the preceding claim, the closure member (3) having an outer overcap (26), which is disposed around the cap (25).
6. Device according to the preceding claim, having, between the inner cap (25) and the outer overcap (26), a space (27) allowing radial displacement of the or each tongue (6).
7. Device according to Claim 5 or 6, the or each tongue (6) having a free end provided with a foot (30) for bearing against the outer overcap (26).
8. Device according to any one of the preceding claims, the closure member (3) having a stem holder (28) to which a stem bearing a member for applying the product is fastened, the stem being inserted into the reservoir (2) of product when the closure member is screwed onto the reservoir (2).

9. Device according to any one of the preceding claims, the relief (8) having a domed shape, which is in particular hemispherical, semicylindrical, ellipsoidal, or ogival.

10. Device according to any one of the preceding claims, the neck (4) having two threads (10) and the closure member (3) having two corresponding threads (5), the
5 closure member (3) having two tongues (6) that are diametrically opposite one another, each provided with at least one corresponding relief (8).

11. Method for manufacturing a packaging device (1) according to any one of the preceding claims, involving the following steps:

- 10 a) producing the closure member (3) by moulding a thermoplastic material around a threaded core,
b) demoulding the closure member (3) by unscrewing said threaded core from said closure member (3).

15

[Fig 1]

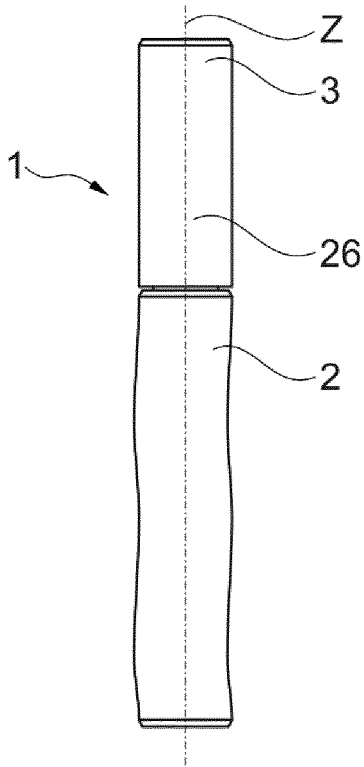


Fig. 1

[Fig 2]

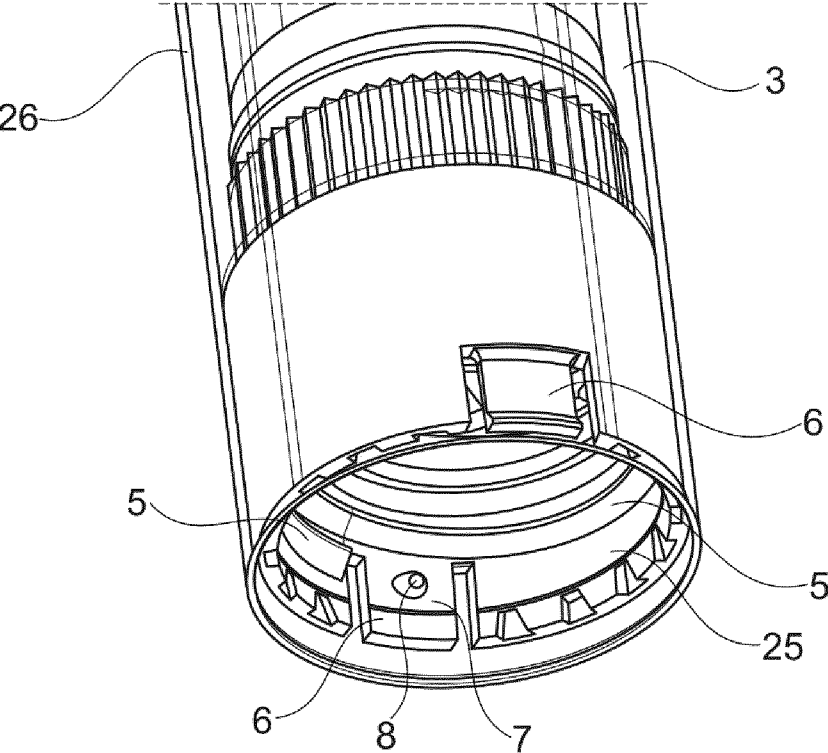


Fig. 2

[Fig 3]

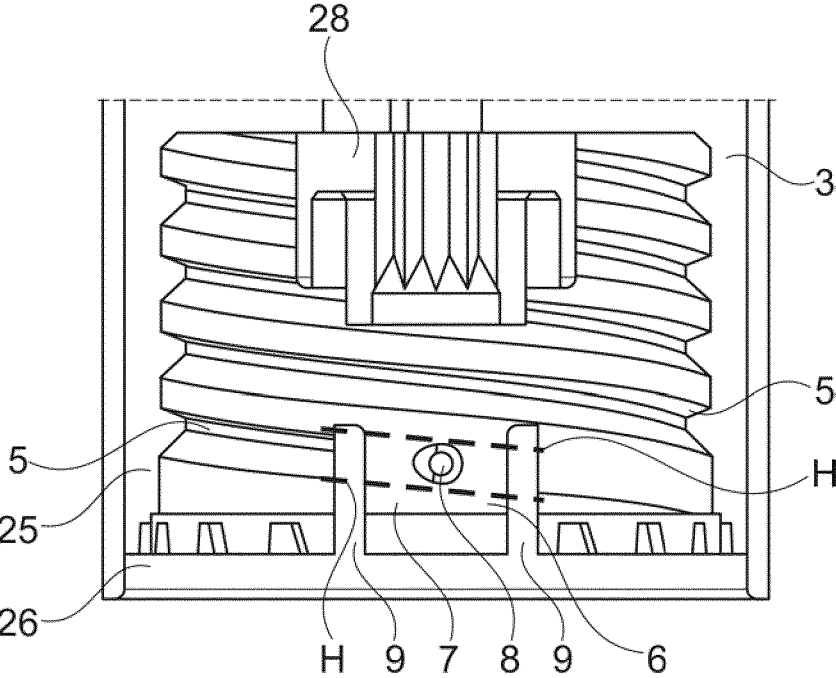


Fig. 3

[Fig 4]

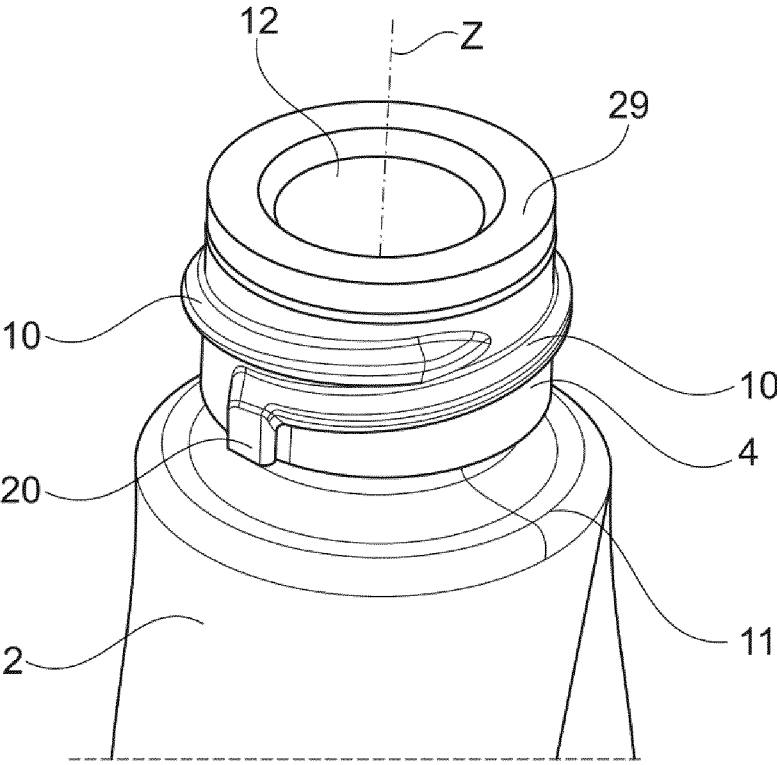


Fig. 4

[Fig 5]

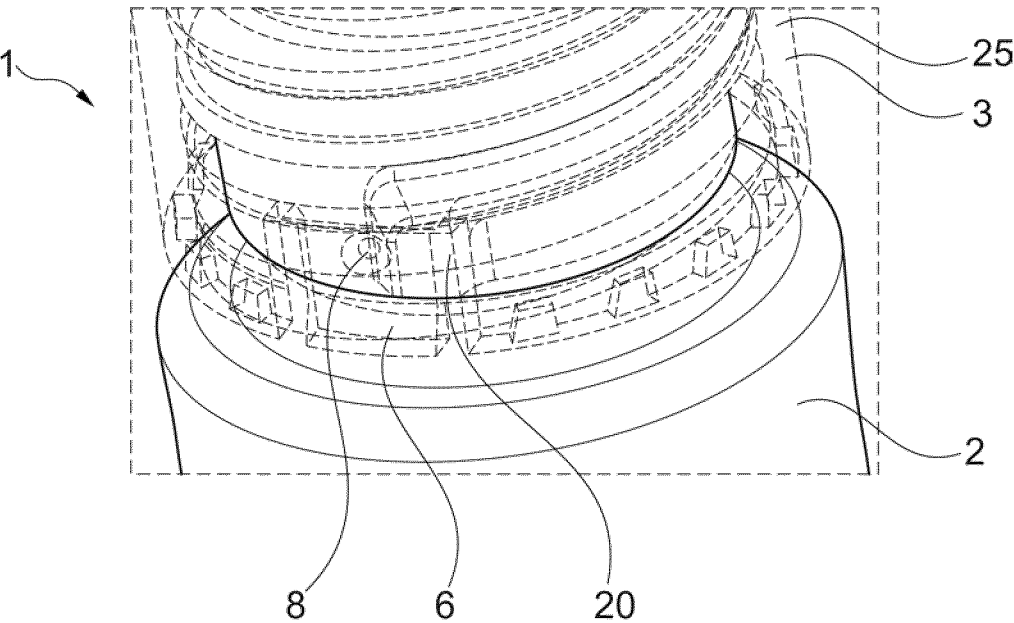


Fig. 5

[Fig 6]

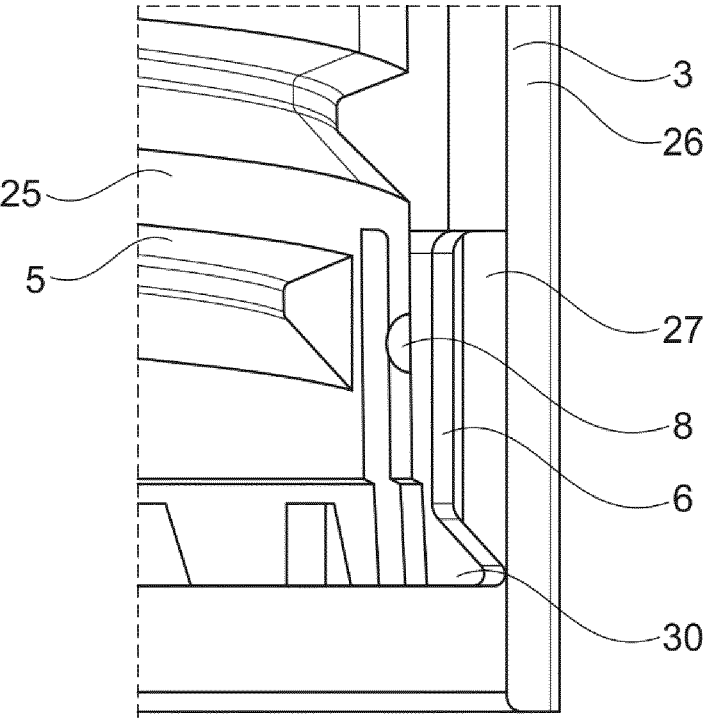


Fig. 6

[Fig 7]

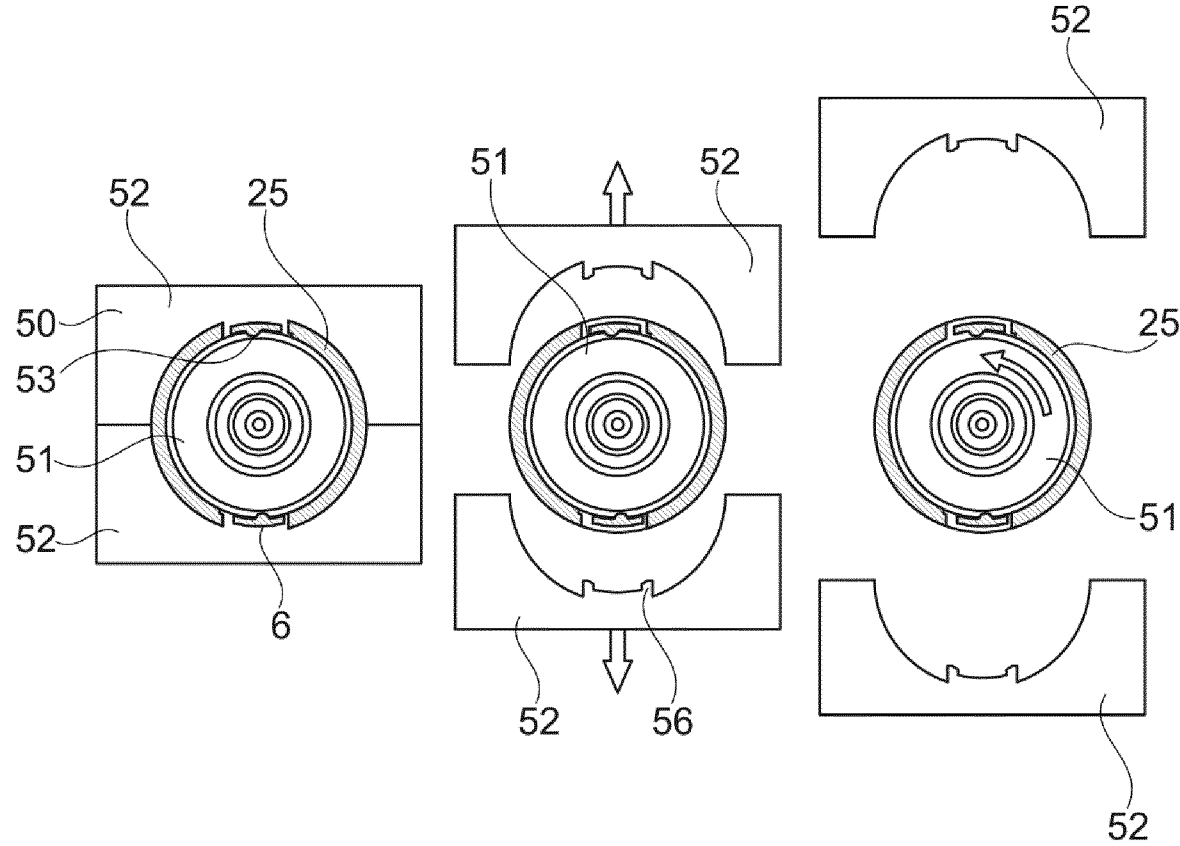


Fig. 7

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2022/062886

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D41/04 B65D51/24

ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 342 908 A1 (ARTS TECH NOUVELLES [FR]) 30 September 1977 (1977-09-30) figures 1-3 page 1, line 15 page 2, lines 21-27 -----	1-11
A	WO 2018/235026 A1 (PLASMED FAR EAST LTD [CN]) 27 December 2018 (2018-12-27) abstract; figures 1a, 1b -----	1-11
A	GB 2 122 978 A (YOSHINO KOGYO SHO KABUSHIKI KA; MAX FACTOR & CO) 25 January 1984 (1984-01-25) abstract; figures 1-4 -----	1-11
A	FR 2 604 151 A1 (GEIGER REINOLD [FR]) 25 March 1988 (1988-03-25) abstract; figures 1, 2, 4 -----	1-11



Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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