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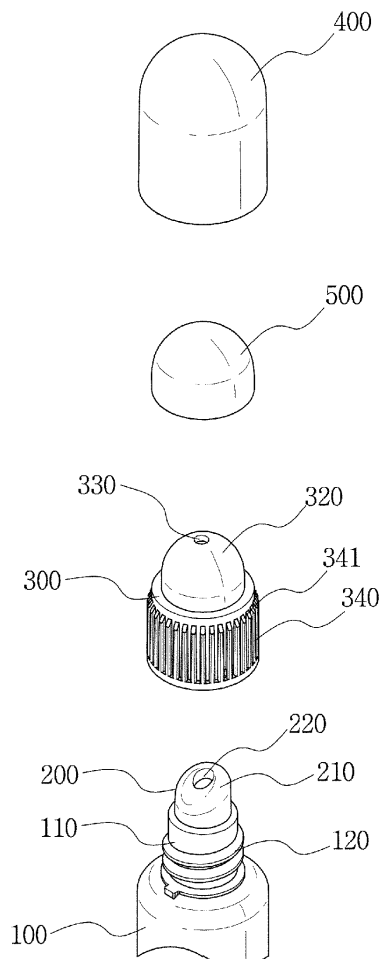
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(54) **CONTENTS CONTAINER WITH MULTI-APPLICATOR**

(57) The present invention relates to a container including: a body having a space therein to receive a content; a first applicator for discharging the content received in the body therethrough; a second applicator detachably fastened to the body by means of a first fastening method; and a cap coupled to the second applicator by means of a second fastening method, wherein the first fastening method is different from the second fastening method.

【Fig. 2】



Description

[Technical Field]

5 **[0001]** The present invention relates to a contents container equipped with multi-applicators, and more specifically, to a contents container with multi-applicators that is capable of applying a single content by various methods according to an application site or area.

[Background Art]

10 **[0002]** Containers for storing volatile liquid-phase gel-type or cream-type contents have narrow outlets so that water or volatile solvents contained in the contents is or are prevented from being evaporated. Further, an applicator is provided at the outlet of such a container to apply the content to a given application area of a human body, and the applicator has a small discharge hole adapted to discharge the content therethrough.

15 **[0003]** Generally, such a container has only one applicator, thereby causing the content to be applied in only one way. Even when more appropriate application methods according to a given type, application area, and use purpose of the content are needed, as a result, there are limitations in the options selectable by a user.

[0004] In the case of color cosmetics, cosmetic application areas are different according to the user's application areas such as eyes, lips, cheeks, and the like, and therefore, it is difficult to create a desired makeup image only with one application tip.

20 **[0005]** For example, application areas for the lips have large curvatures, and therefore, an area where a cosmetic is brought into close contact with the lips and applied thereto is different from an area where the cosmetic is applied to lip borders and thus determines the lip lines. If the cosmetic is applied constantly to the lips, without any changes in applicability and spreadability onto the lips, a user's desired color makeup may not be easily made.

25 [Prior art Document]

[Patent Document]

30 **[0006]** (Patent document 0001) Korean Utility Model Application Laid-open No. 20-2013-0002294

[Disclosure]

[Technical Problem]

35 **[0007]** To solve the above-mentioned problems occurring in the related art, accordingly, it is an object of the present invention to provide a container that is capable of allowing a first applicator and a second applicator to be selectively exposed to the outside according to fastening methods, so that a content is applied using the two applicators with different use areas.

40 **[0008]** The technical problems to be achieved through the present invention are not limited as mentioned above, and other technical problems not mentioned herein will be obviously understood by one of ordinary skill in the art through the following description.

[Technical Solution]

45 **[0009]** To accomplish the above-mentioned objects, according to the present invention, there is provided a container including: a body having a space therein to receive a content; a first applicator for discharging the content received in the body therethrough; a second applicator detachably fastened to the body by means of a first fastening method; and a cap coupled to the second applicator by means of a second fastening method, wherein the first fastening method is different from the second fastening method.

[0010] The first fastening method or the second fastening method may be screw fastening.

[0011] The body may have a male screw thread on an outer peripheral surface thereof, and the second applicator may have a female screw thread on an inner peripheral surface thereof in such a way as to be fastened to the male screw thread.

[0012] The first fastening method or the second fastening method may be snap-on fastening.

55 **[0013]** One of the outer peripheral surface of the second applicator or the inner peripheral surface of the cap may have sawtooth protrusions protruding therefrom, and the other may have coupling protrusions protruding therefrom, whereby the sawtooth protrusions may engage with the coupling protrusions to allow the first applicator and the cap to rotate together.

[0014] Each sawtooth protrusion may have a first slant portion on top thereof, and each coupling protrusion may have a second slant portion on underside thereof in such a way as to come into contact with the first slant portion and to be guidedly inserted between the neighboring sawtooth protrusions.

[0015] The cap and the second applicator may have the corresponding shapes to each other so that the cap and the second applicator may engage with each other and rotate together.

[0016] The first applicator may be made of the same material as the body in such a way as to be formed unitarily with the body.

[0017] The first applicator may be detachably mounted on the body.

[0018] The first applicator or the second applicator may be made of silicone.

[0019] The first applicator may have a discharge hole formed therein, and the second applicator may have a nozzle on top thereof in communication with the discharge hole, so that the content stored in the body can be discharged therethrough.

[0020] The second applicator may have a second application portion with the shape of a sphere on top thereof.

[0021] The container may further include a contact member located on top of the second applicator in such a way as to be brought into contact with an application portion.

[0022] The contact member may be made of silicone or flocked.

[0023] The cap may have a sealing protrusion adapted to seal the nozzle.

[Effective Advantages of the Invention]

[0024] According to the present invention, the container with multi-applicators is configured to allow the users to select an multi-applicator according to the type, use area, or purpose of the content and apply the content in various ways.

[0025] Further, the container of the present invention allows the multi-applicators to be selectively exposed to the outside according to the fastening methods, so that the unused applicator is isolated from the outside and sanitarily kept, thereby avoiding the user's confusion in use. Therefore, the container of the present invention improves the use conveniences of the user, and the content stored in the single container is applicable in different ways, thereby providing excellent economic and practical benefits.

[0026] Furthermore, the container of the present invention has a simple fastening structures and allows the multi-applicators to be switched in simple and easy ways, thereby ensuring the conveniences of use.

[0027] Additionally, the container of the present invention allows the shapes, application areas, and materials of the multi-applicators to be variously designed and applied, thereby improving the efficiency in production.

[Description of Drawings]

[0028]

FIG. 1 is a perspective view showing a container with multi-applicators according to an embodiment of the present invention.

FIG. 2 is an exploded perspective view in one direction showing the container with multi-applicators according to the embodiment of the present invention.

FIG. 3 is an exploded perspective view in the other direction showing the container with multi-applicators according to the embodiment of the present invention.

FIG. 4 is a sectional view showing the container with multi-applicators according to the embodiment of the present invention.

FIGs. 5 is a sequence diagram showing the use states of the contents container with multi-applicators according to the embodiment of the present invention.

FIG. 6 is a perspective view showing a first applicator of a container with multi-applicators according to another embodiment of the present invention.

FIG. 7 is a sectional view showing a container with multi-applicators according to yet another embodiment of the present invention.

[Mode for Invention]

[0029] Hereinafter, example embodiments will be described with reference to the accompanying drawings. In addition, a device of the present invention and a method for using the device will be explained in detail with reference to the attached drawings. In the drawings, the same reference numerals or symbols indicate parts or components performing the same functions. Further, top, bottom, left and right directions as will be described below are determined with reference to the drawings, and accordingly, the scope of the present invention is not necessarily restricted to the corresponding directions.

[0030] Terms, such as the first, the second, and the like, may be used to describe various elements, but the elements should not be restricted by the terms. The terms are used to only distinguish one element from the other element. For example, a first element may be named a second element without departing from the scope of the present invention. Likewise, a second element may be named a first element. A term 'and/or' includes a combination of a plurality of relevant and described items or any one of a plurality of related and described items.

[0031] Terms used in this application are used to only describe specific exemplary embodiments and are not intended to restrict the present invention. An expression referencing a singular value additionally refers to a corresponding expression of the plural number, unless explicitly limited otherwise by the context. In this application, terms, such as "comprise", "include", or "have", are intended to designate those characteristics, numbers, steps, operations, elements, or parts which are described in the specification, or any combination of them that exist, and it should be understood that they do not preclude the possibility of the existence or possible addition of one or more additional characteristics, numbers, steps, operations, elements, or parts, or combinations thereof.

[0032] In the description, when it is said that one element is described as being "connected" to the other element, one element may be directly connected or coupled to the other element, but it should be understood that another element may be present between the two elements. When it is said that one portion is described as "includes" any component, further, one element may further include other components unless no specific description is suggested.

[0033] FIG. 1 is a perspective view showing a container with multi-applicators according to an embodiment of the present invention, FIG. 2 is an exploded perspective view in one direction showing the container with multi-applicators according to the embodiment of the present invention, FIG. 3 is an exploded perspective view in the other direction showing the container with multi-applicators according to the embodiment of the present invention, and FIG. 4 is a sectional view showing the container with multi-applicators according to the embodiment of the present invention.

[0034] Referring to FIGs. 1 to 4, a container according to the present invention includes a body 100, a first applicator 200, a second applicator 300, and a cap 400.

[0035] The body 100 serves to store a given content therein, and in this case, the content is, for example, a liquid or gel type cosmetic. For example, the content may be lip gloss, lip balm, lip repair, lotion, milk lotion, moisture lotion, nutrition lotion, skin lotion, skin softer, skin toner, astringent, massage cream, nutrition cream, moisture cream, whitening essence, tone-up cream, sunblock, sun cream, sun milk, BB cream, base, foundation, CC cream, concealer, blusher, shade, eyeshadow, eyebrow, eye cream, primer, etc. However, the content may not be limited thereto, and therefore, the content may include different formulations or different types of cosmetics, medicines, etc.

[0036] The body 100 has the shape of a cylindrical tube whose bottom is compressed and melted in the form of a straight line and thus closed. The body 100 has a main outlet 110 on top thereof in such a way as to allow the content to pass therethrough. The main outlet 110 has an outer diameter smaller than the bottom of the body 100 and has a male screw thread 120 on the outer peripheral surface thereof in such a way as to be coupled to the second applicator 300 as will be discussed later. Further, the body 100 is made of a soft material with given elasticity, that is, polypropylene (PP), and otherwise, the body 100 may be made of different materials. If a given pressure is applied to the body 100, an internal pressure of the body 100 increases to allow the content stored therein to be discharged through the main outlet 110.

[0037] The first applicator 200 serves to apply the content received in the body 100 to a user's body and is located on top of the main outlet 110 of the body 100.

[0038] According to the embodiment of the present invention, the first applicator 200 is made of the same material as the body 100 in such a way as to be formed unitarily with the body 100.

[0039] According to the embodiment of the present invention, otherwise, the first applicator 200 is made separately from the body 100 and then coupled to the body 100. Therefore, the first applicator 200 is detachably mounted on the body 100.

[0040] According to the embodiment of the present invention, the first applicator 200 has a first application portion 210 on top thereof. Further, the first applicator 200 has a discharge hole 220 on the first application portion 210 to allow the content stored in the body 100 to be discharged therethrough.

[0041] According to the embodiment of the present invention, the first application portion 210 has the shape of a circular plane or oval with an inclined surface. Without being limited thereto, the first application portion 210 may have various shapes.

[0042] The second applicator 300 serves to apply the content stored in the body 100 to the user's body and is detachably fastened to the other end of the body 100 by means of a first fastening method.

[0043] The first fastening method is screw fastening or snap-on fastening, and without being limited thereto, the first fastening method is performed with various fastening generally used in the art.

[0044] According to the embodiment of the present invention, the first fastening method is performed by fastening the second applicator 300 to the body 100 by means of the rotations of a female screw thread 310 and the male screw thread 120. To do this, the male screw thread 120 is formed on the outer peripheral surface of the body 100, and the female screw thread 310 is formed on the inner peripheral surface of the second applicator 300 in such a way as to be fastened to the male screw thread 120.

[0045] The second applicator 300 is cylindrical and open on the bottom thereof.

[0046] The second applicator 300 has a second application portion 320 with the shape of a sphere on top thereof. without being limited thereto, however, the second application portion 320 may have various shapes such as a square, triangle, oval, and the like and be flat, without any protrusion.

[0047] The second applicator 300 has a nozzle 330 on top thereof in such a way as to be connected to the discharge hole 220 of the first applicator 200 to allow the content stored in the body 100 to be discharged therethrough. The nozzle 330 protrudes from the second applicator 300 in the form of a cylindrical pipe so that when the second applicator 300 is fastened to the body 100, the nozzle 330 is inserted into the discharge hole 220.

[0048] The second applicator 300 has sawtooth protrusions 340 on the outer peripheral surface thereof in such a way as to be connected to the cap 400 as will be discussed later. The sawtooth protrusions 340 each have the shape of a long bar in an up and down direction and are equally spaced apart from one another along the outer peripheral surface of the second applicator 300. The shapes of sawtooth protrusions 340 or the number of sawtooth protrusions 340 may be appropriately varied, without being limited as suggested in the drawings. The sawtooth protrusions 340 are connected to the cap 400 so that they interlock with the cap 400 to rotate the cap 400.

[0049] The cap 400 serves to surround and protect the second applicator 300 and is coupled to the second applicator 300 by means of a second fastening method.

[0050] The second fastening method is screw fastening or snap-on fastening, and without being limited thereto, the first fastening method is performed with various fastening generally used in the art.

[0051] According to the embodiment of the present invention, the second fastening method is the snap-on fastening that is performed by press-fitting the cap 400 to the outer peripheral surface of the second applicator 300.

[0052] Further, the cap 400 rotates together with the second applicator 300, while rotating relative to the first applicator 200.

[0053] According to the embodiment of the present invention, the cap 400 has the shape of a cylinder whose bottom is open and top is spherical. Further, the cap 400 has coupling protrusions 410 on the inner peripheral surface thereof in such a way as to engage with the sawtooth protrusions 340. The coupling protrusions 410 each have the shape of a long bar in an up and down direction and are equally spaced apart from one another along the inner peripheral surface of the cap 400. Each coupling protrusion 410 is engagingly inserted between the neighboring sawtooth protrusions 340 to allow the second applicator 300 and the cap 400 to rotate together.

[0054] According to the embodiment of the present invention, each sawtooth protrusion 340 has a first slant portion 341 on top thereof, and each coupling protrusion 410 has a second slant portion 411 on underside thereof in such a way as to come into contact with the first slant portion 341 and to be thus inserted between the neighboring sawtooth protrusions 340. If it is desired to mount the cap 400 onto the second applicator 300, the second slant portions 411 slide along the first slant portions 341 to guide the coupling protrusions 410 so that each coupling protrusion 410 is inserted between the neighboring sawtooth protrusions 340.

[0055] According to the embodiment of the present invention, the cap 400 and the second applicator 300 have the corresponding shapes to each other so that they engage with each other and rotate together. For example, if the cap 400 and the second applicator 300 have the cross-sectional shapes of squares or ovals, not circles, they are closely fitted to each other and rotate together. According to the embodiment of the present invention, the cap 400 has a sealing protrusion 420 protruding from the inside thereof in such a way as to be inserted into the nozzle 330. The sealing protrusion 420 protrudes downward from an upper inner portion of the cap 400 so that if the cap 400 is mounted onto the second applicator 300, the sealing protrusion 420 is inserted into top of the nozzle 330 and seals the nozzle 330. The sealing protrusion 420 thus prevents the content from unintentionally leaking to the outside through the nozzle 330.

[0056] According to the embodiment of the present invention, the container further includes a contact member 500 located on top of the second applicator 300 in such a way as to be brought into contact with an application area of the user's body.

[0057] The contact member 500 is mounted on the second application portion 320 and brought into direct contact with the user's body to allow the content to be applied to his or her body. The contact member 500 has the shape of a hemispherical shell surrounding the second application portion 320 and is made of silicone or a mixture of polypropylene (PP) and thermoplastic elastomer (TPE). Further, the contact member 500 is flocked. If the contact member 500 is flocked, the surface of the contact member 500 becomes softer so that the contact member 500 minimizes the skin stimulation occurring upon the application of the content and allows the content to spread out uniformly on the user's body.

[0058] FIGs. 5a to 5d are perspective views showing use states of the container with multi-applicators according to the embodiment of the present invention. In detail, FIGs. 5a and 5b show processes wherein the first applicator 200 is exposed to the outside, and FIGs. 5c and 5d show processes wherein the second applicator 300 is exposed to the outside.

[0059] As shown in FIGs. 5a and 5b, if the cap 400 rotates by means of the screw fastening according to the first fastening method, the second applicator 300 rotates together with the cap 400, so that the female screw thread 310 of the second applicator 300 rises along the male screw thread 120 to allow the second applicator 300 to be separated from the body 100, thereby causing the first applicator 200 to be exposed to the outside. The first application portion 210 of the first applicator 200 is flat or slant so that if the content is desired to be applied to a narrow area, the first applicator 200 is used.

[0060] As shown in FIGs. 5c and 5d, if the cap 400 is held and pulled upward from the second applicator 300 by means of the snap-on fastening according to the second fastening method, the cap 400 is separated from the second applicator 300, thereby causing the second applicator 300 to be exposed to the outside. The second application portion 320 of the second applicator 300 applies the content to the user's body through the contact member 500, and in this case, it is spherical so that

[0061] Like this, the first applicator 200 and the second applicator 300 are selectively exposed to the outside according to the fastening methods, so that the same content is applied in different ways, thereby increasing the use range of the container and a degree of satisfaction of the user.

[0062] FIG. 6 is a perspective view showing a first applicator 200 of a container with multi-applicators according to another embodiment of the present invention. As shown in FIG. 6, the first applicator 200 becomes narrow in diameter in an upward direction and has a first application portion 210 on top thereof in such a way as to have the shape of a circular plane. If the first application portion 210 has the shape of such a circular plane, the container is used to allow a content stored therein to be applied to a relatively narrow area, and in this case, the container is used for cosmetics such as concealer, foundation, blusher, and the like.

[0063] Optionally, the first applicator 200 is separable from the body 100. FIG. 7 is a sectional view showing the container with multi-applicators according to yet another embodiment of the present invention. As shown in FIG. 7, to allow a first applicator 200 to be separable from a body 100, the first applicator 200 has a coupling portion 250 on bottom thereof in such a way as to be inserted into a main outlet 110 of the body 100 and a stopper 260 protruding from the outer peripheral surface of the top end of the coupling portion 250 in such a way as to be locked onto top of the main outlet 110. To allow the first applicator 200 to be separable from the body 100, further, the first applicator 200 is made of a material different from the body 100, for example, silicone.

[0064] Under the above-mentioned configurations, the container of the present invention allows the first applicator 200 and the second applicator 300 to be selectively used according to the fastening methods.

[0065] As mentioned above, the preferred embodiments of the present invention have been disclosed in the specification and drawings. In the description of the present invention, special terms are used not to limit the present invention and the scope of the present invention as defined in claims, but just to explain the present invention. Therefore, persons skilled in the relevant art can appreciate that many modifications and variations are possible in light of the above teachings. It is therefore intended that the scope of the invention be limited not by this detailed description, but rather by the claims appended hereto.

[List of Reference Numerals]

[0066]

100 :	body	110 :	main outlet
120 :	male screw thread	200 :	first applicator
210 :	first application portion	220 :	discharge port
250 :	coupling portion	260 :	stopper
300 :	second applicator	310 :	female screw thread
320 :	second application portion	330 :	nozzle
340 :	sawtooth protrusion	341 :	first slant portion
400 :	cap	410 :	coupling protrusion
411 :	second slant	420 :	sealing protrusion
500 :	contact member		

Claims

1. A container comprising:

a body having a space therein to receive a content;
a first applicator for discharging the content received in the body therethrough;
a second applicator detachably fastened to the body by means of a first fastening method; and
a cap coupled to the second applicator by means of a second fastening method,
wherein the first fastening method is different from the second fastening method.

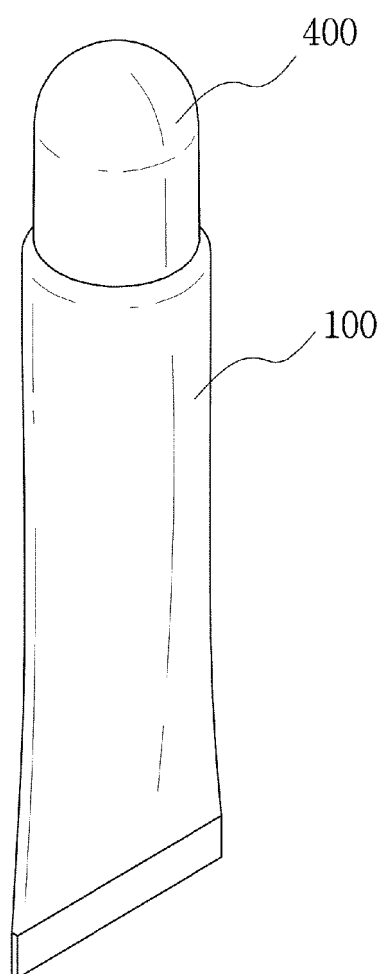
2. The container according to claim 1,
wherein the first fastening method or the second fastening method is screw fastening.
3. The container according to claim 2,
wherein the body has a male screw thread on an outer peripheral surface thereof, and the second applicator has a female screw thread on an inner peripheral surface thereof in such a way as to be fastened to the male screw thread.
4. The container according to claim 1,
wherein the first fastening method or the second fastening method is snap-on fastening.
5. The container according to claim 1,

wherein one of the outer peripheral surface of the second applicator or the inner peripheral surface of the cap has sawtooth protrusions protruding therefrom,
and the other has coupling protrusions protruding therefrom,
whereby the sawtooth protrusions engage with the coupling protrusions to allow the second applicator and the cap to rotate together.
6. The container according to claim 5,

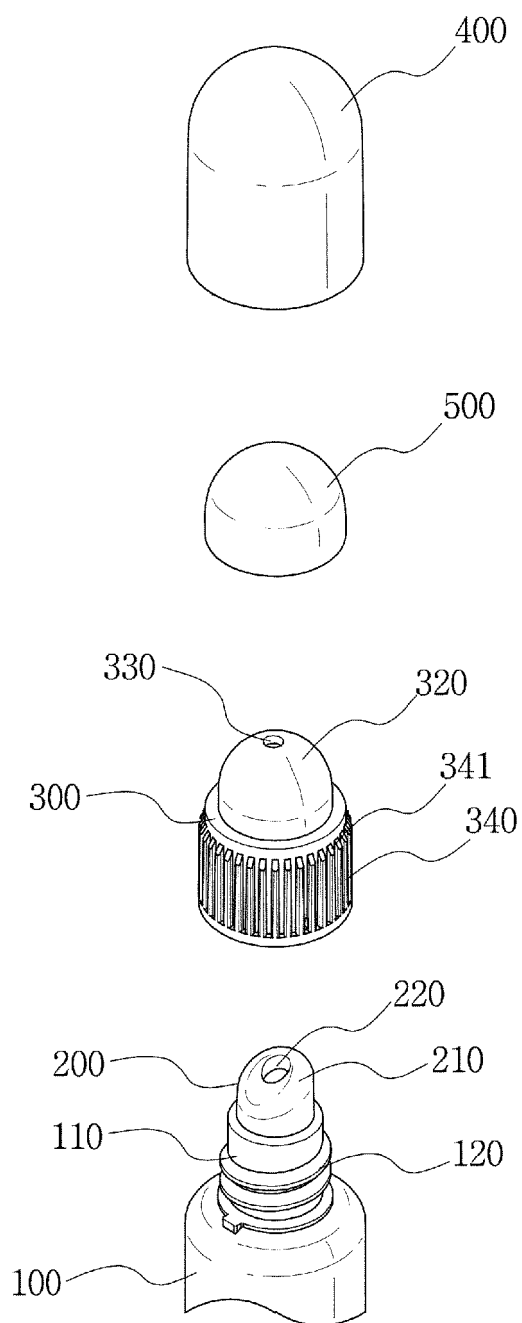
wherein each sawtooth protrusion has a first slant portion on top thereof,
and each coupling protrusion has a second slant portion on underside thereof in such a way as to come into contact with the first slant portion and to be guidedly inserted between the neighboring sawtooth protrusions.
7. The container according to claim 1,
wherein the cap and the second applicator have the corresponding shapes to each other so that the cap and the second applicator engage with each other and rotate together.
8. The container according to claim 1,
wherein the first applicator is made of the same material as the body in such a way as to be formed unitarily with the body.
9. The container according to claim 1,
wherein the first applicator is detachably mounted on the body.
10. The container according to claim 1,
wherein the first applicator or the second applicator is made of silicone.
11. The container according to claim 1,

wherein the first applicator has a first application portion on top thereof and a discharge hole on the first application portion,
and the second applicator has a nozzle on top thereof in such a way as to communicate with the discharge hole to allow the content stored in the body to be discharged therethrough.
12. The container according to claim 1,
wherein the second applicator has a second application portion with the shape of a sphere on top thereof.
13. The container according to claim 1,
further comprising a contact member located on top of the second applicator in such a way as to be brought into contact with an application portion.
14. The container according to claim 13,
wherein the contact member is made of silicone material or flocked.
15. The container according to claim 11,
wherein the cap has a sealing protrusion adapted to seal the nozzle.

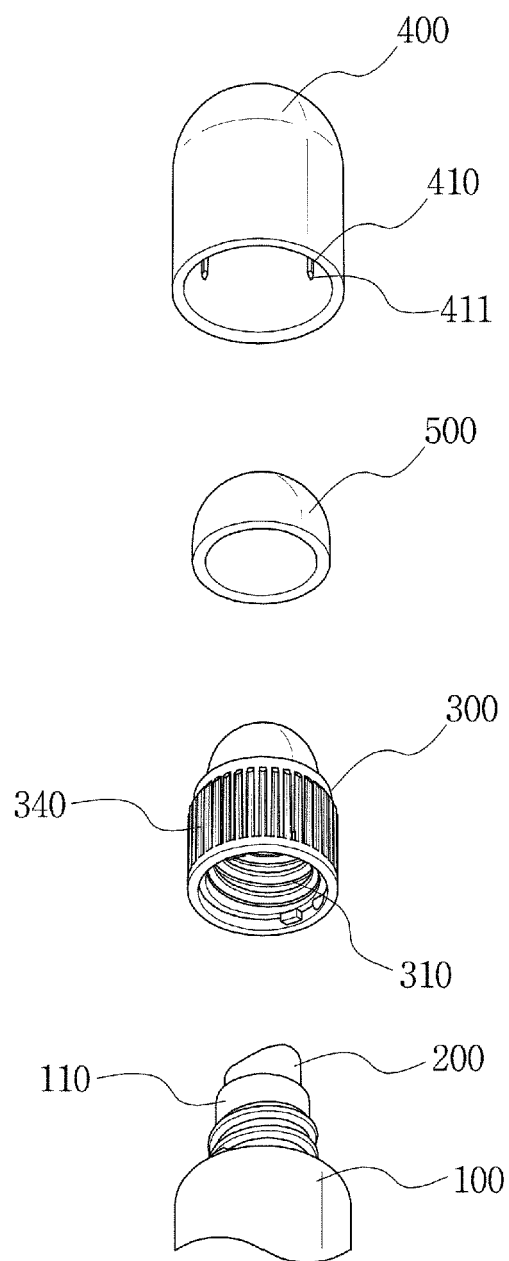
【Fig. 1】



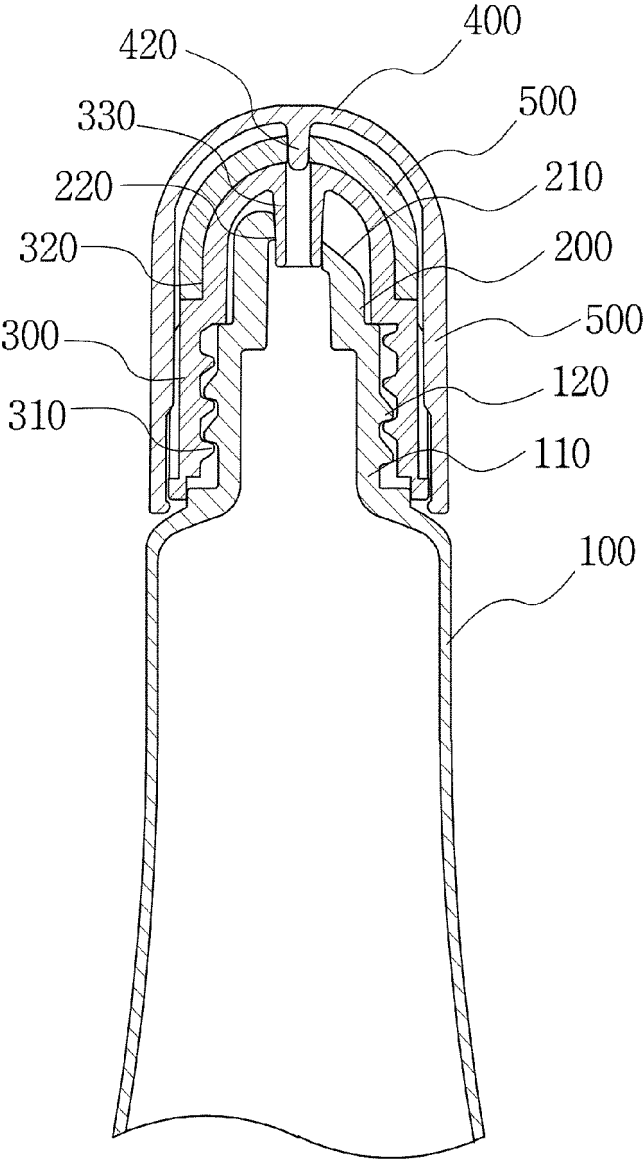
【Fig. 2】



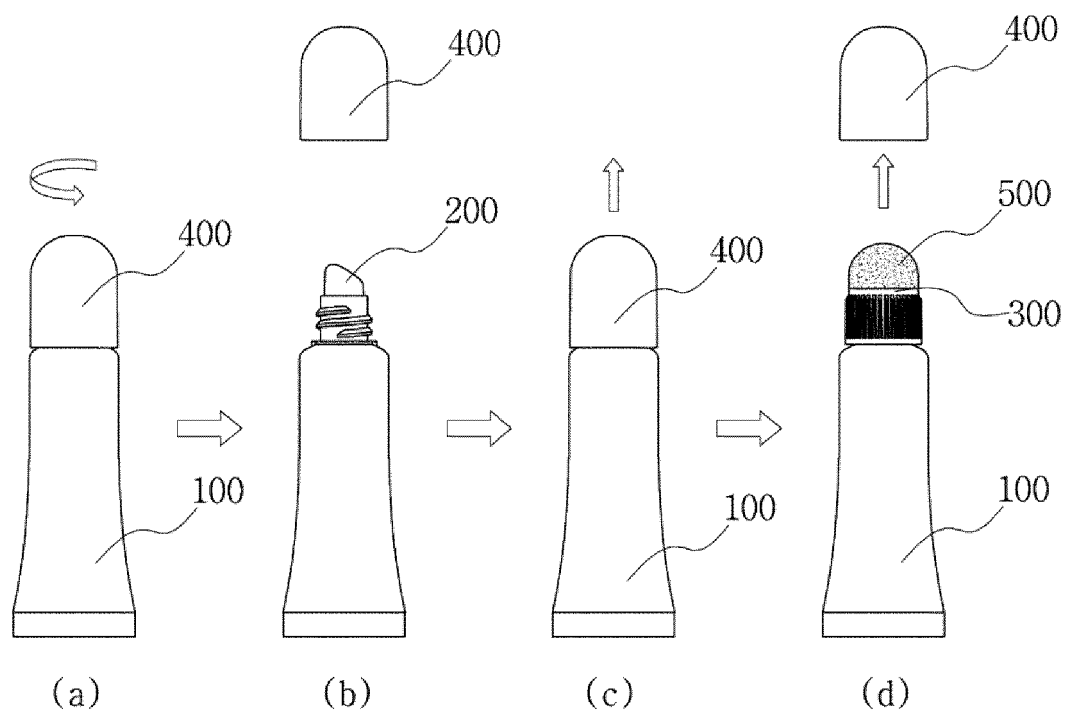
【Fig. 3】



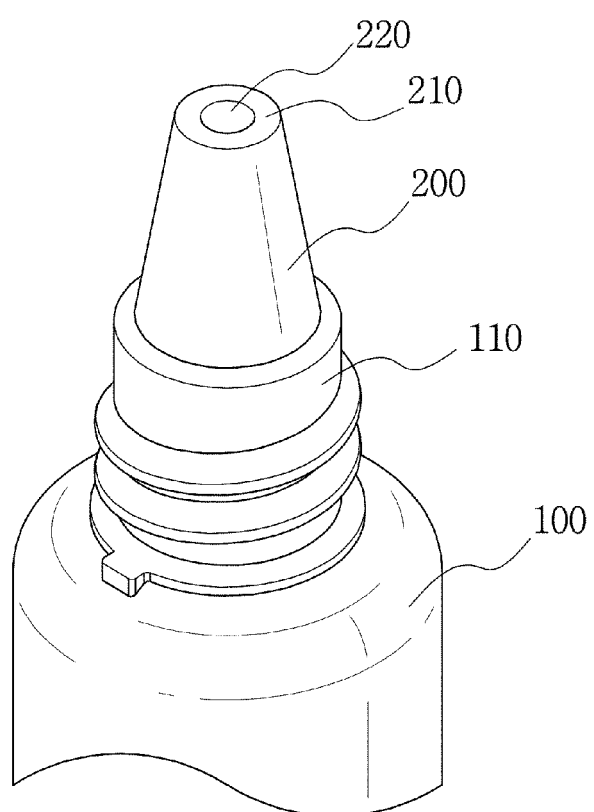
【Fig. 4】



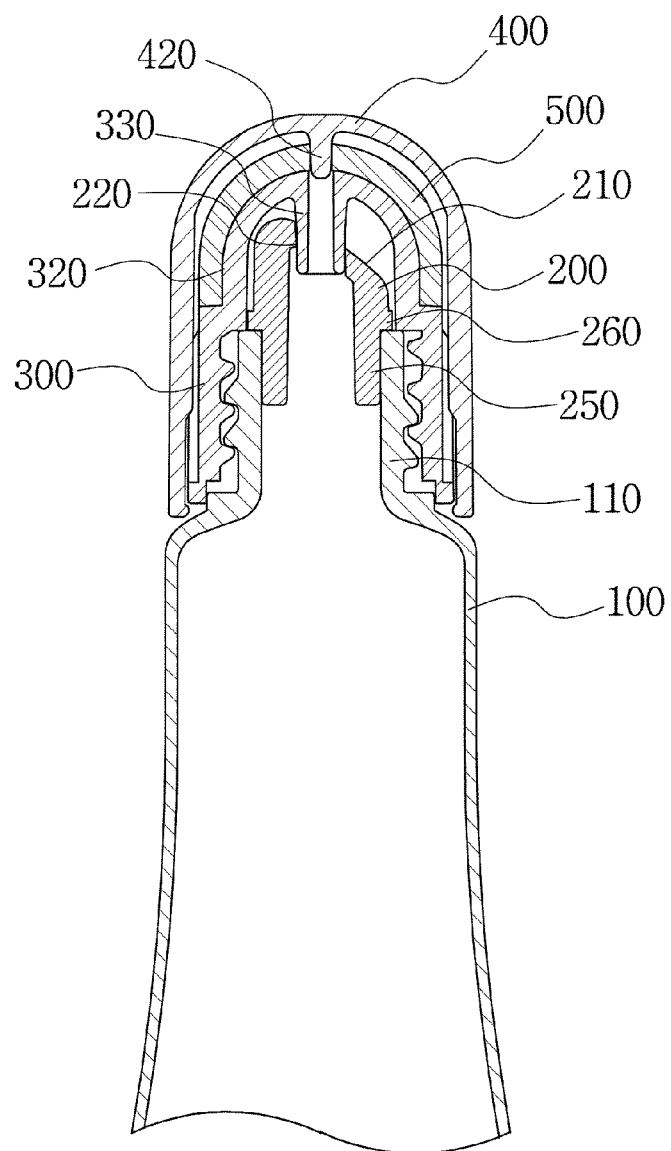
【Fig. 5】



【Fig. 6】



【Fig. 7】





EUROPEAN SEARCH REPORT

Application Number

EP 25 19 5598

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	KR 101 505 034 B1 (LG HOUSEHOLD & HEALTH CARE LTD [KR]) 23 March 2015 (2015-03-23)	1-4,9,10,13,14	INV. A45D34/04
Y	* the whole document *	5,6	A45D34/06
Y	US 2022/378171 A1 (BICKFORD WILLIAM ROBERT [US] ET AL) 1 December 2022 (2022-12-01)	5,6	A45D40/24
X	JP S60 80719 U (-) 5 June 1985 (1985-06-05)	1-4,8,10,11,13-15	
X	* the whole document *		
X	KR 2011 0004725 U (-) 12 May 2011 (2011-05-12)	1-4,7,8,13	
Y	* the whole document *	12	
A		10,14	
Y	KR 2021 0030119 A (SOG JONG WAN [KR]) 17 March 2021 (2021-03-17)	12	
A	* the whole document *		TECHNICAL FIELDS SEARCHED (IPC)
A	EP 4 159 084 A1 (KOLMAR KOREA CO LTD [KR]) 5 April 2023 (2023-04-05)	10,14	A45D
	* paragraph [0033]; figures *		
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		23 January 2026	Dinescu, Daniela
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			
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 25 19 5598

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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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23-01-2026

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 101505034 B1	23-03-2015	NONE	
US 2022378171 A1	01-12-2022	CN 117320590 A US 2022378171 A1	29-12-2023 01-12-2022
JP S6080719 U	05-06-1985	JP S6080719 U JP S6330336 Y2	05-06-1985 15-08-1988
KR 20110004725 U	12-05-2011	NONE	
KR 20210030119 A	17-03-2021	NONE	
EP 4159084 A1	05-04-2023	CN 113347904 A EP 4159084 A1 JP 7487343 B2 JP 2023528268 A US 2023090075 A1	03-09-2021 05-04-2023 20-05-2024 04-07-2023 23-03-2023

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EPO FORM P0459

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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Patent documents cited in the description

- KR 2020130002294 [0006]