

Description

Field of the invention

[0001] The present invention relates to devices for packaging a cosmetic composition, in particular a make-up and/or care composition, and more particularly but not exclusively those comprising a case containing a porous carrier impregnated with the composition.

[0002] By "cosmetic composition", one designates any composition as defined in the EC regulation N°1223/2009 of the European Parliament and of the Council dated November 30, 2009, relating to the cosmetic product. It may be a foundation or an eye shadow for example.

Background of the invention

[0003] There are numerous cosmetic devices on the market which comprise a case defining a housing within which is received a porous carrier impregnated by the cosmetic composition. These devices are also referred to as "compacts".

[0004] One example of such device is disclosed in WO 2017/016608 A1. The device comprises a housing receiving a porous reservoir that comprises a fiber carrier impregnated with the composition and a screen net covering the upper face of the fiber carrier. The screen net defines a withdrawal surface where the composition is taken using a finger or an applicator. An optional sealing ring may be fixed in the opening of the housing on top of the porous reservoir, for pressing the screen net against the fiber carrier and preventing leakage of the composition from the sides of the housing.

[0005] A problem that may arise with this type of article is that, over multiple uses or when the user presses the withdrawal surface roughly or in case of a "dragging gesture" the applicator is pressed on the porous reservoir with a lateral movement parallel to the surface of the net, there is a risk that the composition overflows from the sides of the housing. In the absence of sealing ring, there is even a risk that the porous reservoir be ejected from the housing.

[0006] KR101780323 discloses a compact comprising an annular metal plate laminated with a porous reservoir containing the composition. The metal plate has a larger diameter than the porous reservoir. It defines a central opening and comprises multiple perforations allowing dispensing of the composition besides through the central opening. The metal plate is intended to bring a cooling effect to the composition.

[0007] KR200488300 discloses a compact comprising a carrier impregnated with cosmetic composition and encircled by a ring composed of two semi-circular parts.

Summary of the invention

[0008] There remains a need to further improve cosmetic devices comprising a housing containing a porous

reservoir impregnated with a cosmetic composition, which avoids or lower the risk of composition leakage or porous reservoir ejection.

[0009] The present invention aims to meet this need and exemplary embodiments of the invention relate to a cosmetic device, comprising:

- a case defining a housing,
- a porous reservoir received in the housing, impregnated with a cosmetic composition, the reservoir comprising :

- a porous carrier, and
- a polymer stiffening ring integral with the porous carrier and axially superimposed therewith.

[0010] By "integral" it is meant that the stiffening ring forms a single piece with the porous carrier once all the components of the reservoir are assembled.

[0011] By "axially superimposed" it is meant that the stiffening ring is superimposed with the porous carrier when observed along the main axis of the reservoir, which is preferably an axis of symmetry for the reservoir or even an axis of symmetry of revolution for the reservoir. The reservoir defines a withdrawal surface that extends generally transversely to the main axis of the reservoir. The stiffening ring thus superimposes with the porous carrier when the reservoir is seen in front view.

[0012] The stiffening ring reinforces the porous reservoir and increases the rigidity of the reservoir on its top surface, the rest of the porous reservoir remaining soft. The risk of having the reservoir pop out of the housing in case the user exerts too much force on the withdrawal surface is reduced.

[0013] Moreover, the stiffening ring impedes the bulk overflow of the composition from the sides of the reservoir.

[0014] Preferably, the case comprises a retaining surface extending over a top surface of the reservoir. Such retaining surface may be defined by a rim of an upper part of the case.

Stiffening ring

[0015] Preferably, the stiffening ring is situated on an upper side of the porous carrier. The stiffening ring is preferably present on top of the reservoir, as the upper most layer of the reservoir.

[0016] The stiffening ring advantageously extends at least partially under the retaining surface, preferably extends entirely under said retaining surface. Thus, the stiffening ring is hidden from view and the withdrawal surface accessible through the opening defined by the retaining surface may be smooth.

[0017] The stiffening ring is preferably made of a thermoplastic material, preferably a thermoplastic material such as a rigid or semi-rigid material.

[0018] The stiffening ring is preferably made of PET,

but other suitable materials may be used.

[0019] The thickness of the stiffening ring may be less than or equal to 1 mm, preferably ranging from 0.35 mm to 0.5 mm.

[0020] The stiffening ring may have an outer diameter D_{ext} between 15 mm and 65 mm and an inner diameter D_{int} lying between 10 mm and 63 mm.

[0021] As a matter of fact, the diameter of the ring preferably depends on the diameter of the porous reservoir. For instance, if the latter is equal to 62 mm, D_{ext} preferably ranges from 61 mm to 62 mm and D_{int} preferably ranges from 58 mm to 59 mm so that the ring remains hidden.

[0022] The ratio $D_{\text{int}}/D_{\text{ext}}$ may range from 0.6 to 0.97, preferably from 0.8 to 0.97. Accordingly, the stiffening ring is relatively narrow and does not cover too much of the upper surface of the reservoir, thus leaving most of the surface for composition take up. The stiffening ring may be of circular inner contour and circular outer contour, but other shapes are possible, such as polygonal shapes, for example square or square with rounded corners. Preferably, the width of the stiffening ring ($(D_{\text{ext}} - D_{\text{int}})/2$) is constant, but the width may vary. When a contour is not circular, the "outer diameter" refers to the diameter of the smallest circle in which the contour is inscribed. The "inner diameter" refers to the diameter of the largest circle that is inscribed in the contour.

[0023] The ratio e_s/e_r of the thickness e_s of the stiffening ring to the total thickness e_r of the reservoir may be between 0.01 and 0.08, preferably between 0.03 and 0.07. The thickness of the stiffening ring may be relatively small compared to the total thickness of the reservoir. Accordingly, the reservoir may be easily accommodated in the case.

[0024] The stiffening ring preferably has a same outside contour as the reservoir when seen from above in front view. This may result from the manufacturing method, as detailed below.

[0025] The stiffening ring may be affixed to other components of the reservoir by any suitable technique, such as gluing, ultrasonic welding, heat lamination, over-molding, among others.

Porous carrier

[0026] The porous carrier is impregnated with cosmetic composition in liquid or semiliquid form, preferably is saturated with the composition, so that the latter can be released for the porous carrier when the user exerts a force on the withdrawal surface.

[0027] The porous carrier is preferably elastically deformable and resumes to an original shape once the user ceases to exert a force on the withdrawal surface.

[0028] The porous carrier may be made with a single layer of a given material, or in variants is a combination of at least two layers of different materials.

[0029] The porous carrier is preferably a fibrous carrier, which may be a non-woven material or a 3D fabric. The fibers of the carrier are, for example, polyolefin fibers,

such as polyethylene (PE), polypropylene (PP), polyethylene terephthalate (PET) or polyamides (PA), polycarbonates (PC), saturated polyesters (for example, polyethylene terephthalate glycol PET, polybutylene terephthalate glycol PBT), polyacetals (for example, polyoxymethylene POM, trioxane ethylene oxide copolymer), polyvinyl alcohol (PVA) fibers or a mixture thereof.

[0030] The porous carrier may also be a foam, such as an open cell foam, for example a PU foam or a NBR foam.

[0031] The thickness of the porous carrier may range from 6 mm to 18 mm.

[0032] The porous carrier may be covered with a screen net defining the withdrawal surface.

Screen net

[0033] The screen net is permeable to the composition and may improve the appearance of the reservoir as well as the properties of the withdrawal surface in terms of take up of the composition and feeling of the user. The screen net may add some rigidity to the withdrawal surface and may force the distribution of the composition to be more uniform on the withdrawal surface, when the user presses on it.

[0034] The screen net may be any permeable sheet and may have a mesh texture or not, with a network or not.

[0035] The screen net may be otherwise made of non-permeable material with holes. The screen net may be made of a thermoplastic material and is preferably made of polyamide. It may be made by an extrusion process. The screen net may be made by a knitting or a weaving process.

[0036] The screen net may be affixed to the porous carrier by any suitable technique such as gluing, heat lamination, ultrasonic welding, sewing, knitting, among others, the fixation of the screen net being carried out in a way that it does not prevent flow of the composition from the porous carrier toward the outer surface of the reservoir through the screen net. The screen net may be affixed on the porous carrier uniformly throughout its entire surface facing the porous carrier.

[0037] The thickness of the screen net may range from 0.1 to 1 mm.

[0038] When present, the screen is situated between the porous carrier and the ring.

Case

[0039] The case may have any shape suitable for accommodating the reservoir.

[0040] Preferably, the case is configured to take a closed configuration in which the reservoir is sealed and an open configuration giving access to the reservoir for take up of the composition.

[0041] The case may comprise a closure lid, in particular a hinged closure lid.

[0042] The case may have an open bottom for insertion

of a refill containing the reservoir.

Refill

[0043] Exemplary embodiments of the invention also relate to a cosmetic refill configured for insertion in a case of a device according to the invention, such refill comprising a porous reservoir configured to be received in the housing of the case, the reservoir being impregnated with a cosmetic composition, the reservoir comprising:

- a porous carrier, and
- a polymer stiffening ring integral with the porous carrier and axially superimposed therewith.

[0044] The refill may comprise a cup that accommodates the reservoir. This cup may be provided with at least one relief configured for snap-fastening engagement into the housing of the case.

[0045] The cup may be made by injection molding with a thermoplastic material.

Method

[0046] Exemplary embodiments of the invention also relate to a method for manufacturing a reservoir for a device according to the invention, comprising:

- assembling a porous carrier sheet with a polymer stiffening sheet having at least one perforation of a same inner contour as the inner contour of the at least one stiffening ring to make, to obtain a stack,
- cutting the stack along its entire thickness around each perforation of the stiffening sheet at the outer contour of the at least one stiffening ring to form at least one reservoir.

[0047] The method may comprise assembling a porous carrier sheet with a polymer stiffening sheet having perforations of a same inner contour as the inner contour of the stiffening rings to make, to obtain a stack,

- cutting the stack along its entire thickness around each perforation of the stiffening sheet at the outer contour of the stiffening rings to form a plurality of reservoirs.

[0048] It is also possible to assemble the rings one by one.

[0049] The ring can be assembled by glue or welding or mechanical snapping. It is indeed possible to cut at first the ring with a diameter slightly inferior to the diameter of the porous material, and then to assemble the ring on top of the porous material by glue, welding or mechanical snapping.

[0050] The invention will be better understood on reading the following detailed description of non-limiting exemplary embodiments thereof and on examining the ap-

pendent drawings, in which:

- Figure 1 shows schematically and in perspective an example of a device according to the invention;
- Figure 2 is a perspective view of the reservoir of the device illustrated in Figure 1;
- Figure 3 is an exploded perspective view of the reservoir of the device illustrated in Figure 1;
- Figure 4 is a side section view of the reservoir of the device illustrated in Figure 1, the various components being shown in an unassembled state;
- Figure 5 is a cross-sectional and schematic view of another example of a device according to the invention, and
- Figure 6 illustrates a method for manufacturing the reservoir.

[0051] In the following, identical elements or elements having equivalent functions bear same reference signs. Their description may not be repeated for each of the figures as only the main differences between the embodiments may be highlighted.

[0052] Figure 1 shows a cosmetic device 1 according to an example of the invention, which is a hand-held compact used for makeup of keratinous materials, depicted in an open configuration.

[0053] The device 1 comprises a case 3 having for example as shown a circular shape, a cover 4 hinged to the case 3 and a sealing lid 7 articulated on the case 3 for receiving an applicator such as a puff, not shown in this example. The cover 4 is provided in this example with a mirror 8 on its internal surface.

[0054] The case 3 defines a housing for a porous reservoir 5 impregnated with a cosmetic composition such as a liquid foundation.

[0055] In this example, the upper part of the case 3 comprises an upper part 35 having a rim 10 extending over the periphery of the reservoir 5. The inner face of the rim 10 defines a retention surface for the reservoir, that prevents it from leaving its housing.

[0056] The rim 10 extends over a top surface 55 of the reservoir 5 defining an opening through which the cosmetic composition may be taken up on the reservoir 5.

[0057] The diameter D_E of the opening may range from 10 mm to 58 mm, depending the size of the case, the invention not being limited to a particular size, however.

[0058] The reservoir 5 may have a capacity of several mL, about 3mL for example.

[0059] Figures 2 to 4 show different components of the reservoir 5.

[0060] The reservoir 5 comprises a porous carrier 13, which is preferably a fibrous carrier made of thermoplastic fibers, covered by a screen net 6 over its entire surface. A stiffening ring 12 is fixed on top of the screen net 6.

[0061] The fibrous carrier may be made of PET or polyolefin, among others, as the stiffening ring. The screen net 6 may be made of polyamide or polyolefin, among others.

[0062] In this example, the stiffening ring 12 is present on an upper side of the porous carrier 13, above the screen net 6. In a variant (not shown), the stiffening ring 12 is placed beneath the screen net 6.

[0063] As can be seen in Figure 1, the stiffening ring 12 extends entirely under the rim 10, and thus is hidden from view by the rim 10. The inner diameter of the stiffening ring 12 is thus preferably larger than the inner diameter of the rim 10.

[0064] Figure 2 shows that the stiffening ring 12 has a same outside contour as the reservoir 5 when seen from above.

[0065] The stiffening ring 12 may have an outer diameter D_{ext} between 15 mm and 65 mm and an inner diameter D_{int} between 10 mm and 60 mm, and the ratio D_{int}/D_{ext} may range from 0.6 to 0.9, preferably from 0.75 to 0.85.

[0066] The ratio e_s/e_r of the thickness e_s of the stiffening ring 12 to the thickness e_r of the reservoir 5 may be between 0.02 and 0.08, preferably between 0.03 and 0.07.

[0067] Because of the stiffening ring 12, the risk of composition leakage at the sides of the reservoir when the user presses on the screen net 6 is reduced, as well as the risk of having the reservoir 5 pop out of its housing.

[0068] Figure 5 relates to another embodiment of the device 1 represented in a closed configuration and containing an applicator 70 consisting of a puff, resting on the sealing lid 7.

[0069] In this example, the reservoir 5 is part of a cosmetic refill 18, being received in a cup 183 configured for insertion in a corresponding housing 33 of the case 3. The container 183 may be fixed into the housing 33 by snap fastening. The side wall 180 of the cup 183 may comprise a bead 181 as shown, configured for engaging into a corresponding groove 31 of the housing 33 when the refill 18 is inserted into the case 3.

[0070] In this example, the stiffening ring 12 extends entirely under a rim 10 of an upper part 35 of the case 3. The upper part 35 may be made monolithically by injection molding with a skirt 30 defining a housing 33 for receiving the cup 183 and with a wall 37 on which the sealing lid 7 may bear in closed position, as shown.

[0071] To manufacture the reservoir, one may assemble a sheet 113 of porous material intended to form the porous carrier with a polymer stiffening sheet 112 having a plurality of openings 106 as shown in Figure 6. Each opening 106 corresponds to the inner diameter of a ring 12. A screen net sheet may be interposed between the stiffening sheet 112 and the sheet 113. The various layers may be assembled using any appropriate glue, for example a heat activated glue.

[0072] Once the layers are assembled and form a stack, each reservoir 5 may be cut out of the stack using a cutting tool of a diameter corresponding to the outer diameter of the reservoir.

[0073] The invention is not limited to the examples that have just been described. In particular, the device can have another overall shape than circular, for example

rectangular or rectangular with rounded corners.

[0074] The cover may be removable from the case and attached thereto otherwise than by a hinge, for example by screwing.

[0075] The polymer stiffening sheet may be assembled to the porous carrier sheet other than by gluing, for example by sewing or by welding.

[0076] The expression "comprising a" or "including a" must be understood as being synonymous with "comprising at least one" or "including at least one", unless specified otherwise.

Claims

1. A cosmetic device (1), comprising:

- a case (3) defining a housing,
- a porous reservoir (5) received in the housing (33), impregnated with a cosmetic composition, the reservoir comprising :

- a porous carrier (13), and
- a polymer stiffening ring (12) integral with the porous carrier and axially superimposed therewith.

2. The device according to claim 1, the stiffening ring (12) being present on an upper side of the porous carrier (13).

3. The device according to claim 1 or 2, the case (3) comprising a retaining surface (10) extending over a top surface (55) of the reservoir.

4. The device according to claim 3, the stiffening ring (12) extending at least partially under the retaining surface (10), preferably extending entirely under said retaining surface.

5. The device according to claim 3 or 4, the retaining surface being defined by a rim (10) of an upper part (35) of the case (3).

6. The device according to any one of the preceding claims, the stiffening ring (12) being made of a thermoplastic material.

7. The device according to any one of the preceding claims, the stiffening ring (12) having an outer diameter D_{ext} between 15 mm and 63 mm and an inner diameter D_{int} between 10 mm and 60 mm.

8. The device according to the preceding claim, the ratio D_{int}/D_{ext} ranging from 0.6 to 0.97, preferably from 0.8 to 0.97.

9. The device according to any one of the preceding

claims, the ratio e_s/e_r of the thickness e_s of the stiffening ring (12) to the total thickness e_r of the reservoir (5) being between 0.02 and 0.08, preferably between 0.03 and 0.07.

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10. The device according to any one of the preceding claims, the stiffening ring (12) having a same outside contour as the reservoir (5) when seen from above, preferably a circular contour.

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11. The device according to any of the preceding claims, the porous carrier (13) being fibrous, the fibers being chosen from: polyolefin fibers, polypropylene (PP), polyethylene terephthalate (PET), polyamides (PA), polycarbonates (PC), saturated polyesters, polyacetals, polyvinyl alcohol (PVA) fibers or a mixture thereof.

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12. The device according to any one of claims 1 to 10, the porous carrier (13) comprising a foam, preferably of PET.

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13. The device according to any one of the preceding claims, the porous carrier (13) being covered with a screen net (6), preferably of polyamide.

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14. A cosmetic refill (18) configured for insertion in a case of a device as defined in any one of the preceding claims, comprising a porous reservoir (5) configured to be received in the housing of the case (3), the reservoir (5) being impregnated with a cosmetic composition, the reservoir comprising :

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- a porous carrier (13), and
- a polymer stiffening ring (12) integral with the porous carrier and axially superimposed therewith.

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15. A method of manufacturing at least one reservoir (5) for a device according to any one of claims 1 to 13, comprising :

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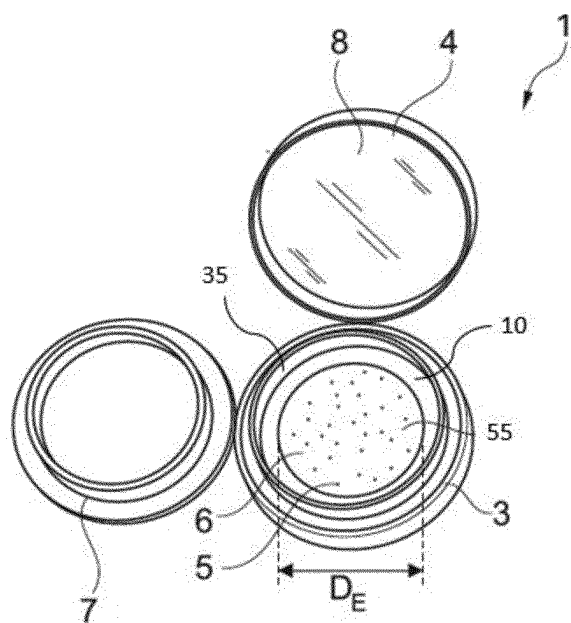
- assembling a porous carrier sheet (113) with a polymer stiffening sheet (112), preferably made of PET, having at least one perforation (106) of a same inner contour as the inner contour of at least one stiffening ring (12) to make, to obtain a stack,
- cutting the stack along its entire thickness around each perforation (106) of the stiffening sheet at the outer contour of the at least one stiffening ring (12) to make, to obtain at least one reservoir (5).

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[Fig 1]



[Fig 2]

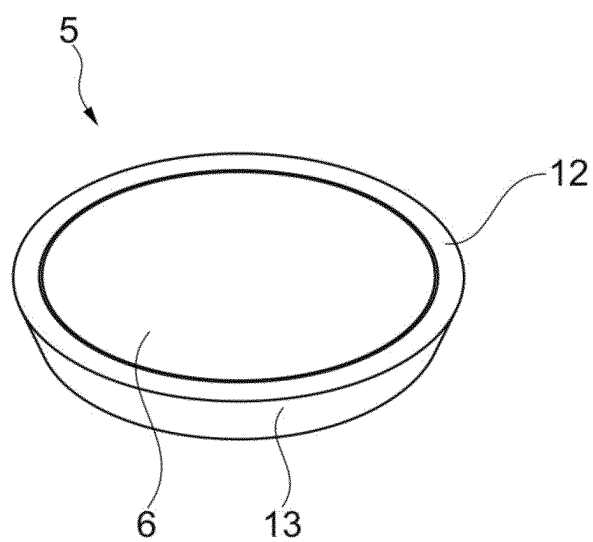


Fig. 2

[Fig 3]

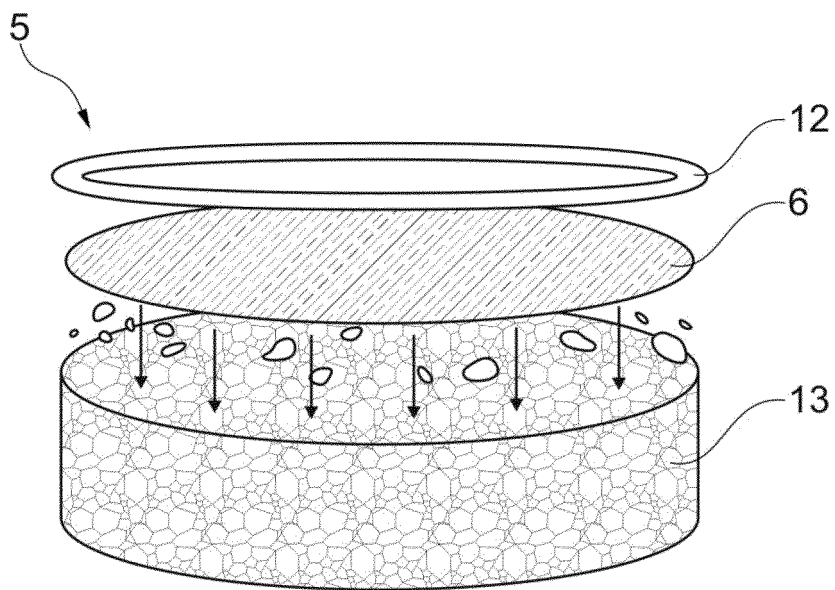


Fig. 3

[Fig 4]

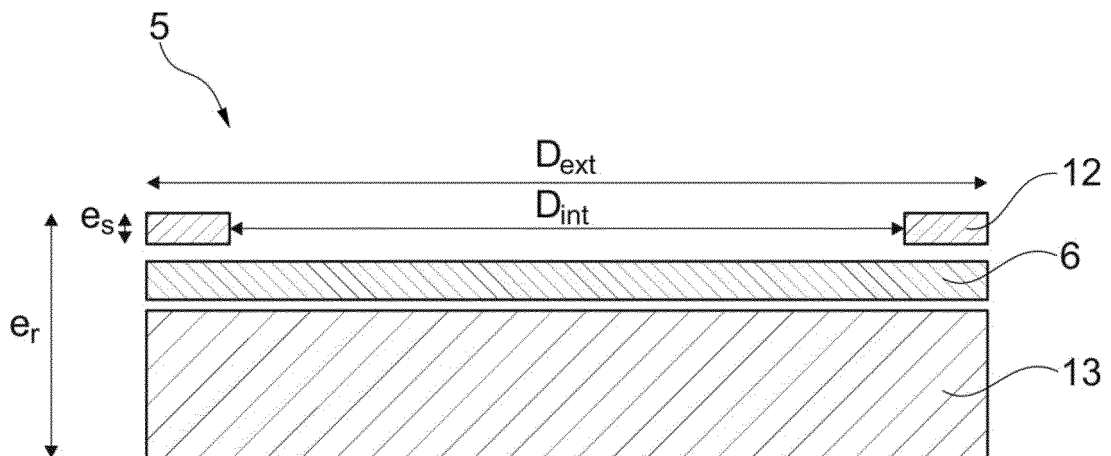


Fig. 4

[Fig 5]

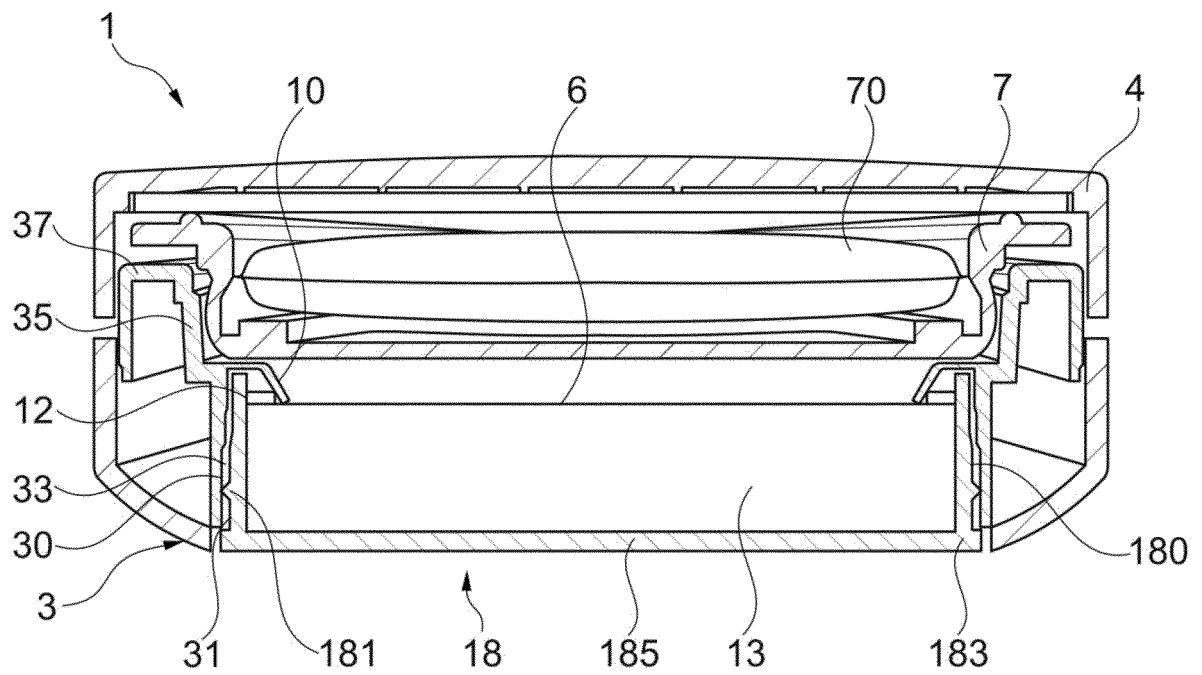


Fig. 5

[Fig 6]

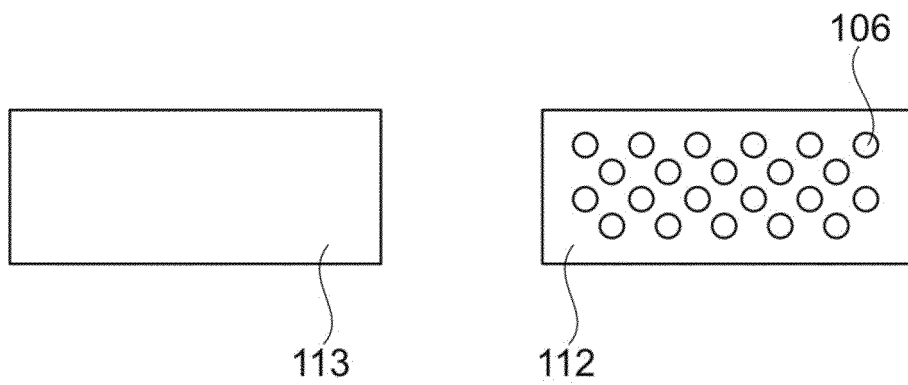


Fig. 6



EUROPEAN SEARCH REPORT

Application Number

EP 21 30 6037

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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 2020 0059102 A (COREA PUFF MFG CO LTD [KR]) 28 May 2020 (2020-05-28)	1, 2, 6-15	INV. A45D34/00
Y	* the whole document *	3-5	
Y, D	WO 2017/016608 A1 (OREAL [FR]) 2 February 2017 (2017-02-02)	3-5	
A	* the whole document *	1	
A, D	KR 101 780 323 B1 (HAN JONG IL [KR]; HANKOOK COSMETICS CO LTD [KR]) 29 September 2017 (2017-09-29)	1	
	* the whole document *		
			TECHNICAL FIELDS SEARCHED (IPC)
			A45D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 21 December 2021	Examiner Nicolás, Carlos
CATEGORY OF CITED DOCUMENTS		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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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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