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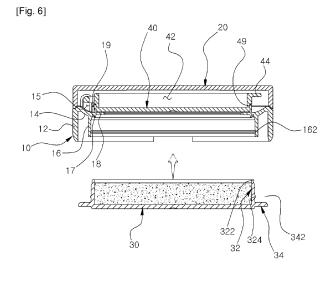
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(54) STRUCTURALLY SIMPLE COMPACT CONTAINER IMPROVED IN COSMETIC MATERIAL-FILLING PROCESS

(57) The present invention relates to a structurally simple compact container improved in cosmetic material-filling process, the compact container comprising: an outer container; an outer container cap hinge-coupled to one side of the outer container to open/close the outer container; a content dish mounted in the outer container so as to contain a cosmetic material therein; and a content dish cap hinge-coupled to one side of the outer container so as to open/close the content dish, wherein the

content dish is configured to be coupled to the outer container from a lower side of the outer container. For filling the compact container with a cosmetic material, the cosmetic material is loaded to the content dish which is then coupled to the outer container, assembled with the outer container cap and the content dish cap, from a lower side of the outer container, thereby improving a cosmetic material-filling process, with the consequent enhancement of productivity.



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Description

[Technical Field]

[0001] The present invention relates to a structurally simple compact container improved in a cosmetic material-filling process, and more particularly, to a structurally simple compact container improved in a cosmetic material-filling process, the compact container including: an outer container; an outer container cap hinge-coupled to one side of the outer container to open/close the outer container; a content dish mounted in the outer container and accommodated therein with a cosmetic material; and a content dish cap hinge-coupled to one side of the outer container to open/close the content dish, wherein the content dish is coupled to a lower side of the outer container. Accordingly, when filling the compact container with the cosmetic material, the content dish is filled with the cosmetic material, and the content dish is coupled to the lower side of the outer container which is assembled with the outer container cap and the content dish cap, so that the cosmetic material-filling process is improved so as to enhance productivity of a product.

15 [Background Art]

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[0002] In general, makeup refers to an act of applying or rubbing cosmetics to make up a face beautifully, and the cosmetics used in the makeup are classified into basic cosmetics and color cosmetics.

[0003] The basic cosmetics are used to nourish a skin and to prevent moisture from being evaporated, and the color cosmetics are used to correct a skin color of an entire face or a specific area of the face or to pursue beauty. Typically, such color cosmetics include a powder, a foundation, and a blusher.

[0004] Particularly, the powder generally used in color makeup is used in such a manner that the powder is sufficiently put on a puff and uniformly applied to the face to coat the skin with the powder, and the powder is accommodated in a compact container in the form of a solid, a powder, or a gel.

[0005] The compact container refers to a small-sized cosmetic container that is provided therein with color cosmetics and a puff, which is a makeup tool, has a mirror attached to an inner side of a cap, and is carried by women in a handbag or pouch for use.

[0006] Korean Patent No. 10-1499134 discloses a conventional compact container as described above, and, as shown in FIG. 1, the related art includes a lower body; an opening/closing cover hinge-coupled to one side of the lower body to open/close the lower body; an upper body coupled to an upper side of the lower body; a lower cap mounted at an inner side of the upper body to accommodate a cosmetic material; and an upper cap hinge-coupled to one side of a content container to open/close the content container.

[0007] However, in the conventional compact container, when filling the compact container with the cosmetic material, the opening/closing cover is opened from the lower body, the upper cap is opened from the lower cap, the lower cap is filled with the cosmetic material, the upper cap is closed again, and the opening/closing cover is closed, so that the cosmetic material-filling process becomes complicated, causing productivity to be lowered.

[0008] In addition, the conventional compact container has the upper body in addition to the lower body, the opening/closing cover, the lower cap, and the upper cap so that the conventional compact container has a complicated structure, which causes a manufacturing cost of the compact container to be increased and causes price competitiveness to be decreased.

[Disclosure]

[Technical Problem]

[0009] To solve the problems described above, an object of the present invention is to provide a structurally simple compact container improved in a cosmetic material-filling process, the compact container including: an outer container; an outer container cap hinge-coupled to one side of the outer container to open/close the outer container; a content dish mounted in the outer container and accommodated therein with a cosmetic material; and a content dish cap hinge-coupled to one side of the outer container to open/close the content dish, wherein the content dish is coupled to a lower side of the outer container. Accordingly, when filling the compact container with the cosmetic material, the content dish is filled with the cosmetic material, and the content dish is coupled to the lower side of the outer container which is assembled with the outer container cap and the content dish cap, so that the cosmetic material-filling process may be improved so as to enhance productivity of a product.

[0010] In addition, an object of the present invention is to provide a structurally simple compact container improved in a cosmetic material-filling process, in which the outer container cap and the content dish cap are rotatably fitted to the outer container without a hinge pin, and the content dish is fitted to a lower side of the outer container so as to simplify a structure and simplify an assembling process, so that a manufacturing cost may be reduced so as to enhance cost

competitiveness.

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[0011] In addition, an object of the present invention is to provide a structurally simple compact container improved in a cosmetic material-filling process, in which a first sealing protrusion wheel is formed on an upper end of a content dish wall of the content dish, and a second sealing protrusion wheel is spaced inward from an inner wall of the outer container by a predetermined interval, such that the first sealing protrusion wheel is fitted between the inner wall of the outer container and the second sealing protrusion wheel, so that a sealing ability of the content dish may be increased.

[0012] In addition, an object of the present invention is to provide a structurally simple compact container improved in a cosmetic material-filling process, in which a third sealing protrusion wheel extends upward from an upper portion of the outer container, and a sealing groove is formed at an outer periphery of the content dish cap, such that the third sealing protrusion wheel is fitted to the sealing groove, so that the sealing ability of the content dish may be further increased.

[0013] In addition, an object of the present invention is to provide a structurally simple compact container improved in a cosmetic material-filling process, in which a flange extends outward from a lower outer periphery of the content dish to make close contact with an inner periphery of an outer wall of the outer container, so that the flange covers the outer container such that an inner empty space of the outer container is invisible from an outside, thereby enhancing esthetic impression.

[Technical Solution]

[0014] According to the present invention, there is provided a structurally simple compact container improved in a cosmetic material-filling process, the compact container including:

an outer container;

an outer container cap coupled to the outer container to open/close the outer container;

a content dish mounted in the outer container and accommodated therein with a cosmetic material; and

a content dish cap coupled to the outer container to open/close the content dish,

wherein the content dish filled with the cosmetic material is coupled to a lower side of the outer container which is assembled with the outer container cap and the content dish cap.

[0015] In addition, a first hinge protrusion may be formed on the outer container, and a first hinge groove may formed in the outer container cap, such that the first hinge protrusion and the first hinge groove may be rotatably coupled to each other.

[0016] In addition, a second hinge groove may be formed on one side of the outer container, and a second hinge protrusion may be formed on one side of the content dish cap, such that the second hinge groove and the second hinge protrusion may be rotatably coupled to each other.

[0017] In addition, a first sealing protrusion wheel may be formed on an upper end of a content dish wall of the content dish, and a second sealing protrusion wheel may be spaced inward from an inner wall of the outer container by a predetermined interval, such that the first sealing protrusion wheel may be fitted between the inner wall of the outer container and the second sealing protrusion wheel.

[0018] In addition, a third sealing protrusion wheel may be formed on an upper portion of the outer container, and a sealing groove may be formed at an outer periphery of the content dish cap, such that the third sealing protrusion wheel may be fitted to the sealing groove.

[0019] In addition, a flange may extend outward from a lower outer periphery of the content dish to make close contact with an inner periphery of an outer wall of the outer container.

[Advantageous Effects]

[0020] According to the present invention, the structurally simple compact container improved in the cosmetic material-filling process includes: an outer container; an outer container cap hinge-coupled to one side of the outer container to open/close the outer container; a content dish mounted in the outer container and accommodated therein with a cosmetic material; and a content dish cap hinge-coupled to one side of the outer container to open/close the content dish, wherein the content dish is coupled to a lower side of the outer container. Accordingly, when filling the compact container with the cosmetic material, the content dish is filled with the cosmetic material, and the content dish is coupled to the lower side of the outer container which is assembled with the outer container cap and the content dish cap, so that the cosmetic material-filling process can be improved so as to enhance productivity of a product.

[0021] In addition, in the structurally simple compact container improved in the cosmetic material-filling process according to the present invention, the outer container cap and the content dish cap are rotatably fitted to the outer container without a hinge pin, and the content dish is fitted to the lower side of the outer container so as to simplify the structure

and simplify the assembling process, so that the manufacturing cost can be reduced so as to enhance cost competitiveness

[0022] In addition, in the structurally simple compact container improved in the cosmetic material-filling process according to the present invention, the first sealing protrusion wheel is formed on the upper end of the content dish wall of the content dish, and the second sealing protrusion wheel is spaced inward from the inner wall of the outer container by a predetermined interval, such that the first sealing protrusion wheel is fitted between the inner wall of the outer container and the second sealing protrusion wheel, so that the sealing ability of the content dish can be increased.

[0023] In addition, in the structurally simple compact container improved in the cosmetic material-filling process according to the present invention, the third sealing protrusion wheel extends upward from the upper portion of the outer container, and the sealing groove is formed at the outer periphery of the content dish cap, such that the third sealing protrusion wheel is fitted to the sealing groove, so that the sealing ability of the content dish can be further increased.

[0024] In addition, in the structurally simple compact container improved in the cosmetic material-filling process according to the present invention, the flange extends outward from the lower outer periphery of the content dish to make close contact with the inner periphery of the outer wall of the outer container, so that the flange covers the outer container such that the inner empty space of the outer container is invisible from the outside, thereby enhancing the esthetic impression.

[Description of Drawings]

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FIG. 1 shows a conventional cosmetic container.

FIG. 2 is a perspective view showing a compact container according to one embodiment of the present invention.

FIG. 3 is an exploded perspective view showing the compact container according to one embodiment of the present invention.

FIG. 4 is a sectional view taken along line A-A of the compact container according to one embodiment of the present invention.

FIG. 5 is a sectional view taken along line B-B of the compact container according to one embodiment of the present invention.

FIG. 6 is a sectional view showing a state in which a content dish filled with a cosmetic material is coupled to a lower side of an outer container of the compact container according to one embodiment of the present invention.

FIG. 7 is a perspective sectional view showing a state in which the content dish filled with the cosmetic material is coupled to the lower side of the outer container of the compact container according to one embodiment of the present invention

FIG. 8 is a sectional view showing a compact container according to another embodiment of the present invention.

[Best Mode]

[Mode for Invention]

[0026] The present invention and technical objects to be achieved by implementation of the present invention will become more apparent from the following detailed description of preferred embodiments. Hereinafter, a structurally simple compact container improved in a cosmetic material-filling process according to one embodiment of the present invention will be described in detail with reference to accompanying drawings.

[0027] FIG. 2 is a perspective view showing a compact container according to one embodiment of the present invention, FIG. 3 is an exploded perspective view showing the compact container according to one embodiment of the present invention, FIG. 4 is a sectional view taken along line A-A of the compact container according to one embodiment of the present invention, and FIG. 5 is a sectional view taken along line B-B of the compact container according to one embodiment of the present invention.

[0028] According to the present invention, a structurally simple compact container improved in a cosmetic material-filling process includes: an outer container (10); an outer container cap (20) coupled to the outer container (10) to open/close the outer container (10); a content dish (30) mounted in the outer container 10 and accommodated therein with a cosmetic material; and a content dish cap (40) coupled to the outer container (10) to open/close the content dish (30), wherein the content dish (30) filled with the cosmetic material is coupled to a lower side of the outer container (10) which is assembled with the outer container cap (20) and the content dish cap (40).

[0029] The outer container (10) has a shape of a ring in which a top and a bottom are opened, and the content dish (30) is coupled to an inner side of the outer container (10).

[0030] A button (11) is formed on a front surface of the outer container (10), and a latching protrusion (112) retracted

by a pressing operation of a user protrudes from a top of the button (11).

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[0031] A first hinge protrusion (13) to which the outer container cap (20) is hinge-coupled is formed on an opposite side of the button (11) of the outer container (10).

[0032] A second hinge groove (15) hinge-coupled to the content dish cap (40) is formed on one side of a top surface of the outer container (10).

[0033] The outer container (10) includes: an outer wall (12); a connection piece (14) extending inward from an upper portion of the outer wall (12); an inner wall (16) extending downward from the connection piece (14) while being spaced apart from the outer wall (12) by a predetermined interval; and a horizontal extension piece (18) extending inward from an upper portion of the inner wall (16).

[0034] The inner wall (16) is formed at an inner periphery thereof with a mounting groove (162) to which the content dish (30) is coupled.

[0035] A third sealing protrusion wheel (19) extends upward from an upper portion of the horizontal extension piece (18), and a second sealing protrusion wheel (17) extends downward from a lower portion of the horizontal extension piece (18), such that the second sealing protrusion wheel (17) is spaced inward from the inner wall (16) by a predetermined interval.

[0036] The outer container cap (20) is hinge-coupled to one side of the outer container (10) to open/close the outer container (10).

[0037] A hook (21) having a protrusion shape is formed on a front surface of the outer container cap (20) so as to be fastened to the latching protrusion (112) of the outer container (10).

[0038] A first hinge groove (23) is formed on an opposite side of the hook (21) of the outer container cap (20), and the first hinge protrusion (13) is rotatably coupled to the first hinge groove (23).

[0039] In other words, in the compact container according to one embodiment of the present invention, the outer container cap (20) and the content dish cap (40) are rotatably fitted to the outer container (10) without a hinge pin so as to simplify an assembling process and reduce a manufacturing cost, so that cost competitiveness may be enhanced.

[0040] A mirror may be formed on an inner side of the outer container cap (20) so that the user may easily perform makeup.

[0041] FIG. 6 is a sectional view showing a state in which a content dish filled with a cosmetic material is coupled to a lower side of an outer container of the compact container according to one embodiment of the present invention, and FIG. 7 is a perspective sectional view showing a state in which the content dish filled with the cosmetic material is coupled to the lower side of the outer container of the compact container according to one embodiment of the present invention.

[0042] The content dish (30) is accommodated therein with a cosmetic material or an impregnation member impregnated with a cosmetic material.

[0043] As shown in FIGS. 6 and 7, the content dish (30) is coupled to the lower side of the outer container (10) in the cosmetic material-filling process.

[0044] As shown in FIG. 1, in a conventional compact container, container components are manufactured respectively and assembled with each other, and the assembly is moved to the cosmetic material-filling process. In this case, in order to fill the compact container with a cosmetic material, the steps of opening an opening/closing cover from a lower body, opening an upper cap from a lower cap, filling the lower cap with the cosmetic material, closing the upper cap again, and closing the opening/closing cover may be necessary, so that the cosmetic material-filling process is complicated, causing productivity to be lowered.

[0045] Therefore, according to the present invention, when filling the compact container with the cosmetic material, the content dish (30) is filled with the cosmetic material, and the content dish (30) is coupled to the lower side of the outer container (10) which is assembled with the outer container cap (20) and the content dish cap (40), so that the steps of opening/closing the outer container cap (20) and the content dish cap (40) are omitted so as to simplify the cosmetic material-filling process.

[0046] In other words, according to the present invention, in order to improve the cosmetic material-filling process of the compact container, an assembly in which the outer container cap (20) and the content dish cap (40) are assembled to the outer container (10) and the content dish (30) are respectively moved to the cosmetic material-filling process, the content dish (30) is filled with the cosmetic material, and the content dish (30) is coupled to the lower side of the outer container (10).

[0047] A content dish wall (32) extends upward from a bottom of the content dish (30).

[0048] The content dish wall (32) is formed at an outer periphery thereof with a mounting protrusion (324) which is coupled to the mounting groove (162) formed at the inner periphery of the inner wall (16) of the outer container (10).

[0049] A first sealing protrusion wheel (322) is formed on an upper end of the content dish wall (32). As shown in an enlarged view of FIG. 4, the first sealing protrusion wheel (322) is fitted between the inner wall (16) of the outer container (10) and the second sealing protrusion wheel (17) so as to increase a sealing ability of the content dish (30).

[0050] As shown in FIG. 4, a flange (34) extends outward from a lower outer periphery of the content dish (30) so as to make close contact with an inner periphery of the outer wall (12) of the outer container (10) when the content dish

(30) is coupled to the lower side of the outer container (10). The flange (34) covers the outer container (10) such that an inner empty space of the outer container (10) is invisible from an outside, thereby enhancing esthetic impression.

[0051] The content dish cap (40) is coupled to one side of the outer container (10) to open/close the content dish (30).

[0052] The content dish cap (40) is formed at a top thereof with a makeup tool seating groove (42) in which a makeup tool such as a puff is accommodated, and formed at one outer periphery thereof with a handle (44) which allows a user to easily open/close the content dish cap (40).

[0053] A second hinge protrusion (45) is formed on an opposite side of the handle (44) of the content dish cap (40) so as to be rotatably coupled to the second hinge groove (15) of the outer container (10).

[0054] A sealing groove (49) is formed on a lower outer periphery of the content dish cap (40), and the third sealing protrusion wheel (19) of the outer container (10) is fitted to the sealing groove (49), so that the sealing ability of the content dish (30) is increased.

[0055] In addition, a first sealing protrusion (192) is formed at an upper inner periphery of the third sealing protrusion wheel (19), and a second sealing protrusion (492) is formed at a lower outer periphery of the sealing groove (49), such that the first sealing protrusion (192) and the second sealing protrusion (492) are fastened to each other.

[0056] FIG. 8 is a sectional view showing a compact container according to another embodiment of the present invention.

[0057] As shown in FIG. 8, a sealing part (48) may be formed instead of the sealing groove (49) formed at the outer periphery of the content dish cap (40).

[0058] The sealing part (48) protrudes from a bottom surface of the content dish cap (40), and the sealing part (48) is fitted at an inner side of the horizontal extension piece (18) of the outer container (10) so as to seal the content dish (30). The sealing part (48) may be integrally formed on the bottom surface of the content dish cap (40), or may be formed separately from the content dish cap (40) and coupled to the bottom surface of the content dish cap (40).

[0059] Hereinafter, a method of assembling the structurally simple compact container improved in the cosmetic material-filling process, which has a configuration as described above, and the use of the compact container will be described.

[0060] In order to assemble the structurally simple compact container improved in the cosmetic material-filling process according to the present invention, as shown in FIGS. 3 to 5, the content dish cap (40) and the outer container cap (20) are hinge-coupled to an upper portion of the outer container (10), in which the second hinge protrusion (45) of the content dish cap (40) is rotatably coupled to the second hinge groove (15) of the outer container (10), and the first hinge protrusion (13) of the outer container (10) is rotatably coupled to the first hinge groove (23) of the outer container cap (20).

[0061] In this case, when the content dish cap (40) is closed, the third sealing protrusion wheel (19) of the outer container (10) is fitted into the sealing groove (49) of the content dish cap (40).

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[0062] Next, as shown in FIGS. 6 and 7, the content dish (30) is filled with a cosmetic material or an impregnation member impregnated with a cosmetic material, and the content dish (30) is coupled to the lower side of the outer container (10), such that the mounting protrusion (324) of the content dish (30) is coupled to the mounting groove (162) of the outer container (10).

[0063] In this case, as shown in the enlarged view of FIG. 4, the first sealing protrusion wheel (322) of the content dish (30) is fitted between the inner wall (16) of the outer container (10) and the second sealing protrusion wheel (17), and the flange (34) of the content dish (30) covers a lower portion of the outer container (10) while making close contact with the inner periphery of the outer wall (12) of the outer container (10).

[0064] When using the structurally simple compact container improved in the cosmetic material-filling process, which is assembled as described above, first, the outer container cap (20) is opened from the outer container (10), the puff which is seated on the top of the content dish cap (40) is held, and the content dish cap (40) is opened to expose the content dish (30) to the outside.

[0065] Then, the puff taps on an upper portion of the cosmetic material or the impregnation member impregnated with the cosmetic material, which is accommodated in the content dish (30), to apply the cosmetic material, which is put on the puff, to skin.

[0066] After the makeup is completed, the content dish cap (40) is closed again, the puff is seated on the top of the content dish cap (40), and the outer container cap (20) is closed so as to complete the use of the compact container.

[0067] As described above, although the structurally simple compact container improved in the cosmetic material-filling process according to one embodiment of the present invention has been described for illustrative purposes, the present invention is not limited thereto. It is understood that various changes and modifications can be made by those skilled in the art without departing from the spirit and scope of the present invention as disclosed in the appended claims.

[Description of Reference Numerals]

10: Outer container 17: Second sealing protrusion wheel

19: Third sealing protrusion wheel30: Content dish30: Content dish wall

(continued)

34: Flange 40: Content dish cap

49: Sealing groove 322: First sealing protrusion wheel

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Claims

1. A structurally simple compact container improved in a cosmetic material-filling process, the compact container comprising:

an outer container;

an outer container cap coupled to the outer container to open/close the outer container;

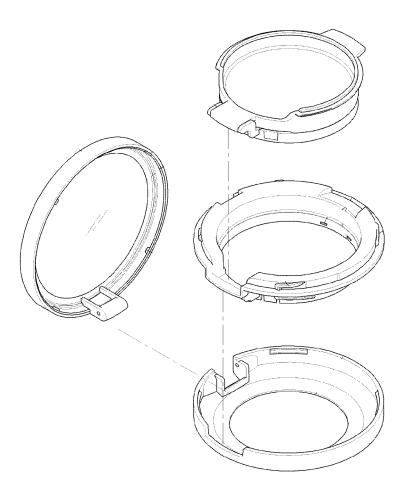
- a content dish mounted in the outer container and accommodated therein with a cosmetic material; and a content dish cap coupled to the outer container to open/close the content dish,
- wherein the content dish filled with the cosmetic material is coupled to a lower side of the outer container which is assembled with the outer container cap and the content dish cap.
- 2. The compact container of claim 1, wherein a first hinge protrusion is formed on the outer container, and a first hinge groove is formed in the outer container cap, such that the first hinge protrusion and the first hinge groove are rotatably coupled to each other.
 - 3. The compact container of claim 1, wherein a second hinge groove is formed on one side of the outer container, and a second hinge protrusion is formed on one side of the content dish cap, such that the second hinge groove and the second hinge protrusion are rotatably coupled to each other.
 - **4.** The compact container of claim 1, wherein a first sealing protrusion wheel is formed on an upper end of a content dish wall of the content dish, and a second sealing protrusion wheel is spaced inward from an inner wall of the outer container by a predetermined interval, such that the first sealing protrusion wheel is fitted between the inner wall of the outer container and the second sealing protrusion wheel.
 - **5.** The compact container of claim 1, wherein a third sealing protrusion wheel is formed on an upper portion of the outer container, and a sealing groove is formed at an outer periphery of the content dish cap, such that the third sealing protrusion wheel is fitted to the sealing groove.
 - **6.** The compact container of claim 1, wherein a flange extends outward from a lower outer periphery of the content dish to make close contact with an inner periphery of an outer wall of the outer container.
- 7. The compact container of claim 1, wherein a sealing part (48) protrudes from a bottom surface of the content dish cap (40) and is fitted at an inner side of a horizontal extension piece (18) of the outer container (10).

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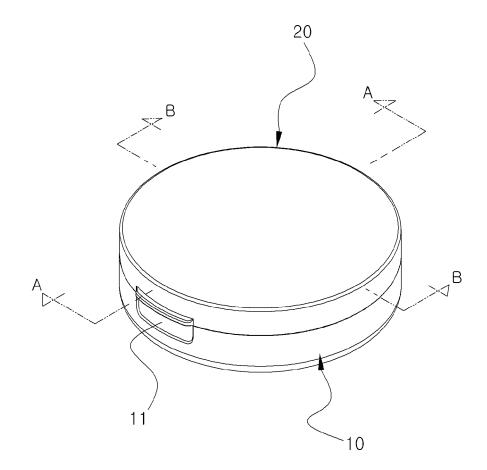
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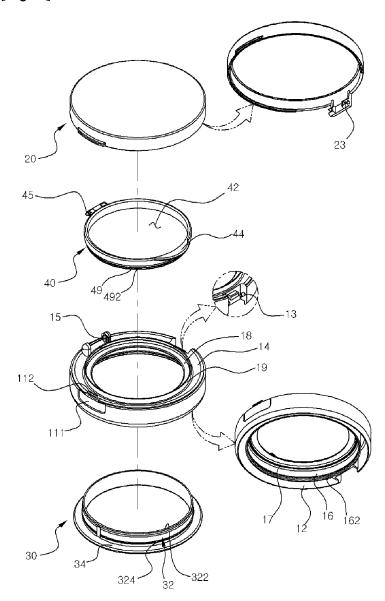
[Fig. 1]



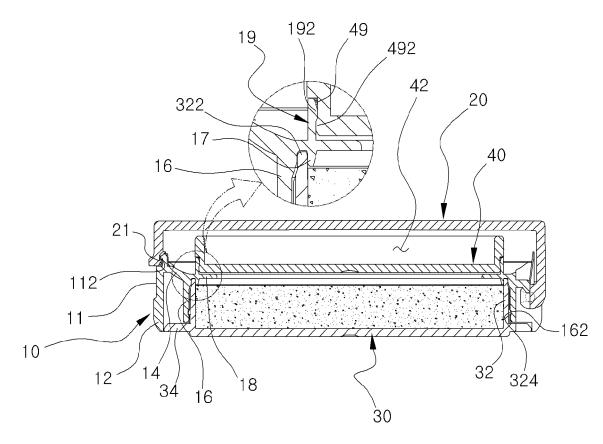
[Fig. 2]



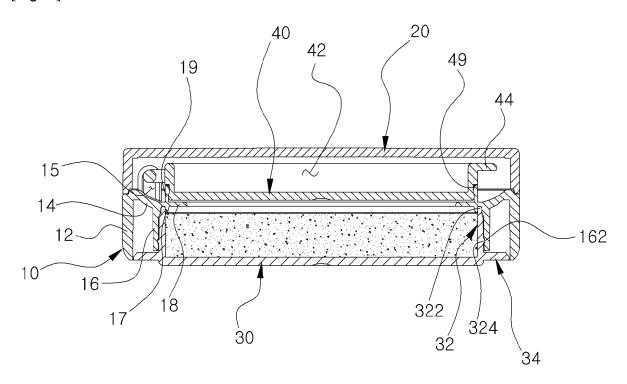




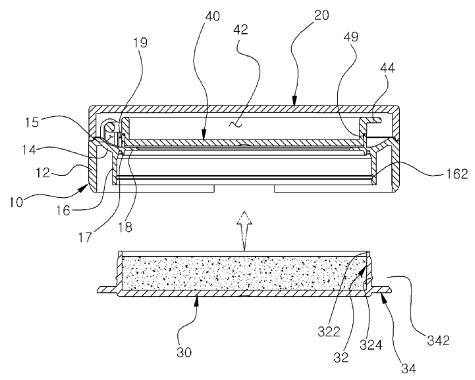
[Fig. 4]



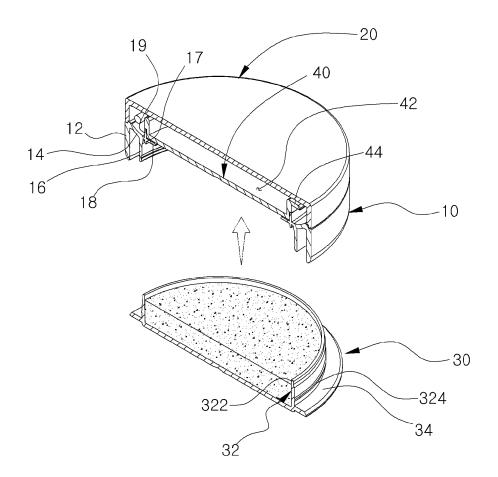
[Fig. 5]



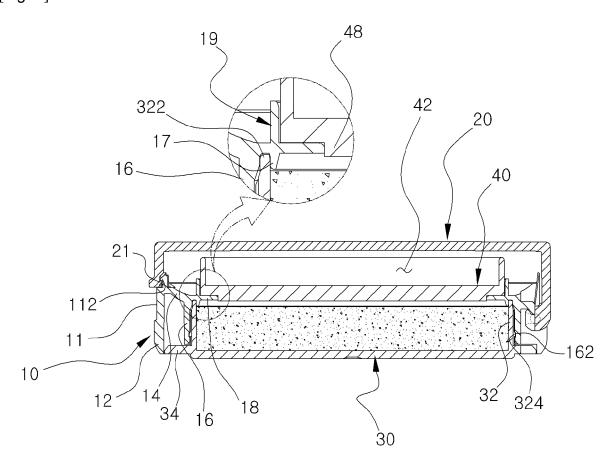
[Fig. 6]



[Fig. 7]



[Fig. 8]



INTERNATIONAL SEARCH REPORT International application No. PCT/KR2017/008858 5 CLASSIFICATION OF SUBJECT MATTER A45D 40/22(2006.01)i, A45D 33/00(2006.01)i, B65D 47/04(2006.01)i, B65D 53/00(2006.01)i, A45D 40/00(2006.01)i According to International Patent Classification (IPC) or to both national classification and IPC FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) 10 A45D 40/22; A45D 34/04; A45D 34/00; A45D 33/04; A45D 40/00; B65D 51/28; A45D 33/00; B65D 47/04; B65D 53/00 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean Utility models and applications for Utility models: IPC as above Japanese Utility models and applications for Utility models: IPC as above 15 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKOMPASS (KIPO internal) & Keywords: compact, container, cover, inner container, sealing protrusion, flange C. DOCUMENTS CONSIDERED TO BE RELEVANT 20 Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. \mathbf{X} KR 20-2015-0001805 U (AMOREPACIFIC CORPORATION) 11 May 2015 1-5,7 See claims 1-3; paragraphs [0049]-[0073]; figures 2-8. Y 6 25 Y KR 10-1474279 B1 (CTK CO., LTD.) 18 December 2014 6 See claim 1; paragraph [0033]; figures 1-6. KR 10-2015-0008798 A (JUNG MIN CO., LTD.) 23 January 2015 1-7 A See the entire document. 30 Α KR 10-2012-0097823 A (YECHAN CO. LTD.) 05 September 2012 1-7 See the entire document. US 5865194 A (GUERET, Jean-Louis H.) 02 February 1999 1-7 À See the entire document. 35 40 Further documents are listed in the continuation of Box C. See patent family annex. Special categories of cited documents: later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention document defining the general state of the art which is not considered to be of particular relevance earlier application or patent but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone filing date 45 document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination document referring to an oral disclosure, use, exhibition or other being obvious to a person skilled in the art document published prior to the international filing date but later than document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 50 19 DECEMBER 2017 (19.12.2017) 19 DECEMBER 2017 (19.12.2017) Name and mailing address of the ISA/KR Authorized officer Korean Intellectual Property Office Government Complex-Daejeon, 189 Seonsa-ro, Daejeon 302-701, Facsimile No. +82-42-481-8578 Telephone No. 55

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