



US 20170020263A1

(19) **United States**

(12) **Patent Application Publication**  
**Chang**

(10) **Pub. No.: US 2017/0020263 A1**

(43) **Pub. Date: Jan. 26, 2017**

(54) **POWDER CASE**

(71) Applicant: **Chia-Sheng Chang**, Taichung City (TW)

(72) Inventor: **Chia-Sheng Chang**, Taichung City (TW)

(21) Appl. No.: **14/803,122**

(22) Filed: **Jul. 20, 2015**

**Publication Classification**

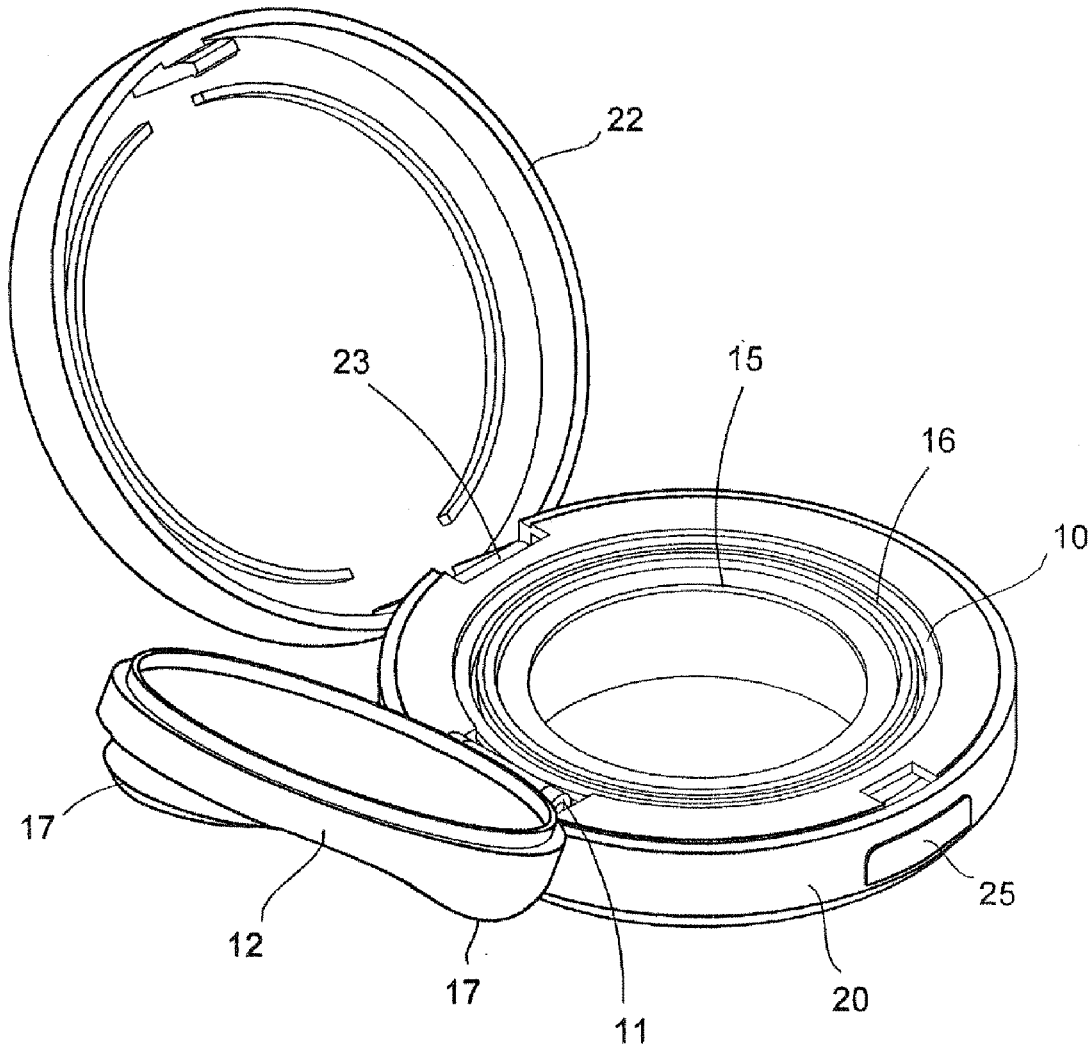
(51) **Int. Cl.**  
**A45D 33/00** (2006.01)

(52) **U.S. Cl.**

CPC ..... **A45D 33/003** (2013.01); **A45D 33/008** (2013.01); **A45D 2033/001** (2013.01)

(57) **ABSTRACT**

The powder case contains two concentric ring slots on a top side of the inner case for installing a block ring and an elastic seal ring. When the inner case is closed by an inner cap, the inner case is reliably sealed, greatly enhancing the airtightness of the powder case and effectively preventing the stored powders from spilling outside the powder case. Additionally, the powder case contains an outer case to house the inner case. When an outer cap to the outer case is closed, it depresses protruding pieces configured around the top side of the inner case so as to further enhance the airtightness of the powder case.



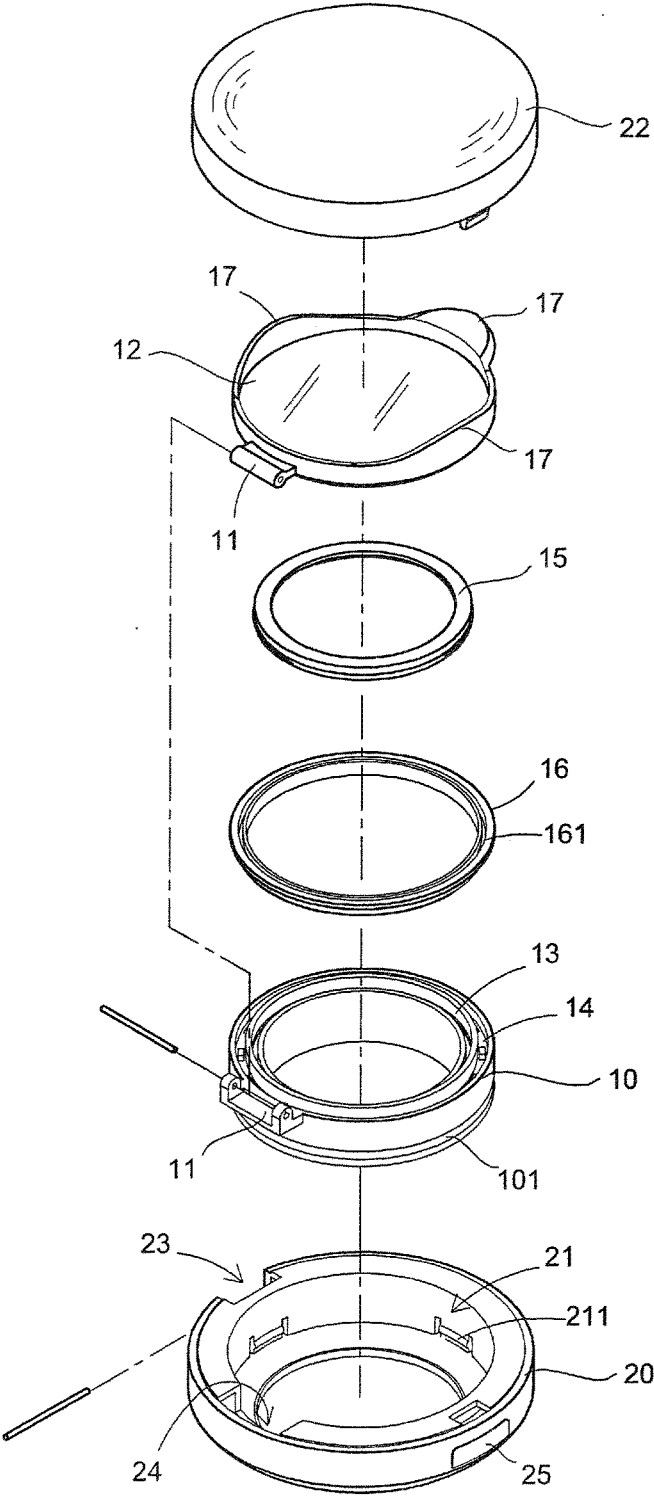


FIG. 1

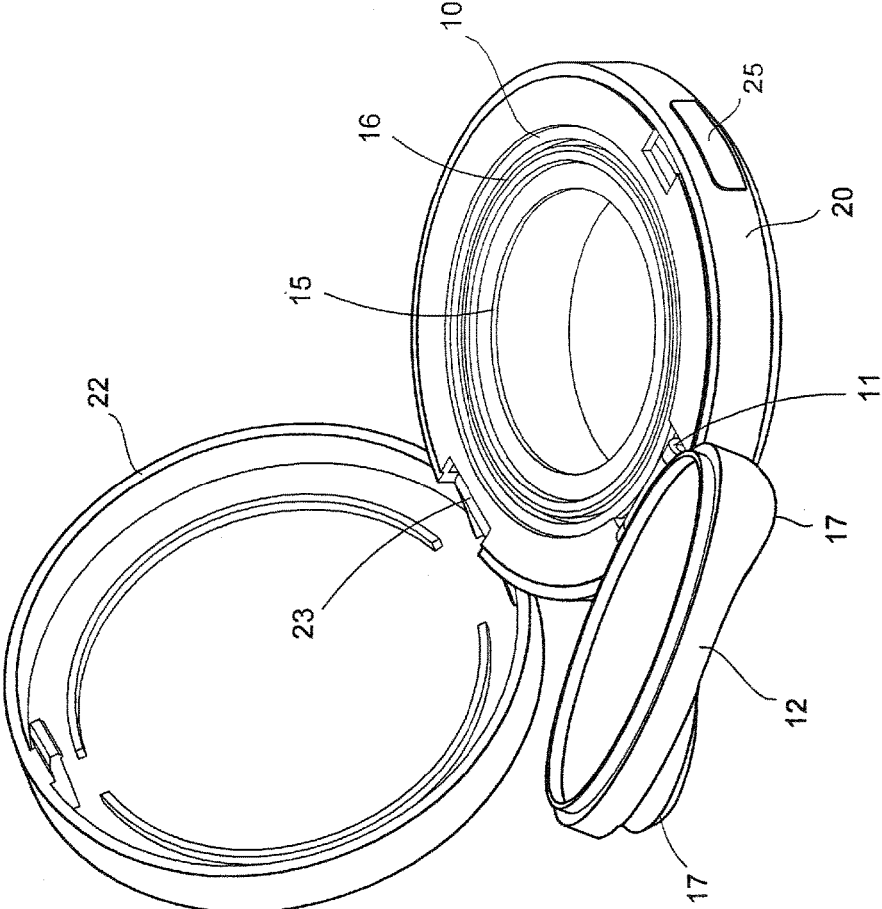


FIG. 2

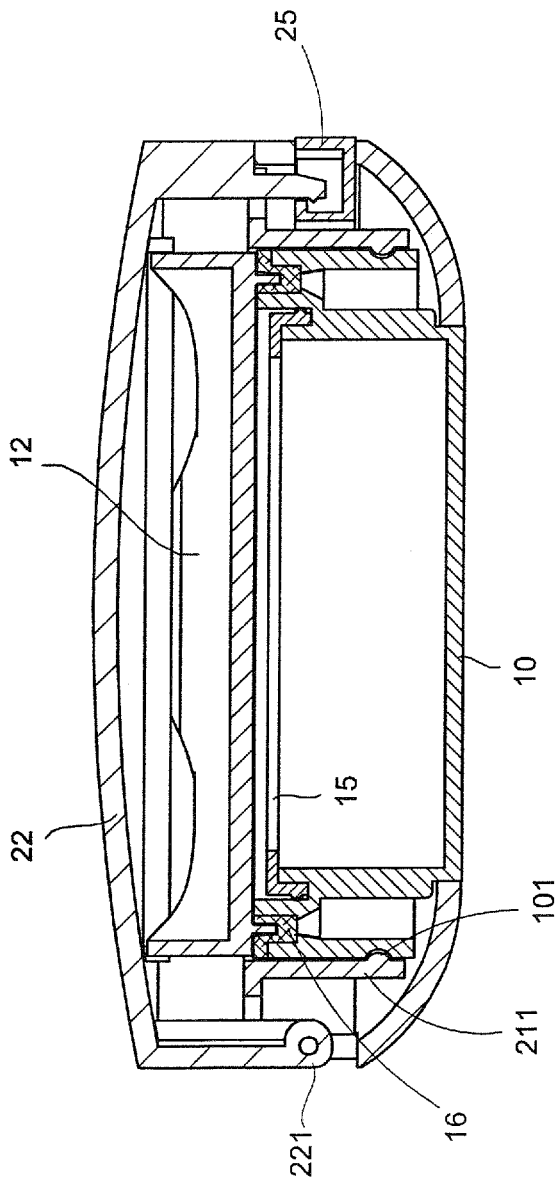


FIG. 3

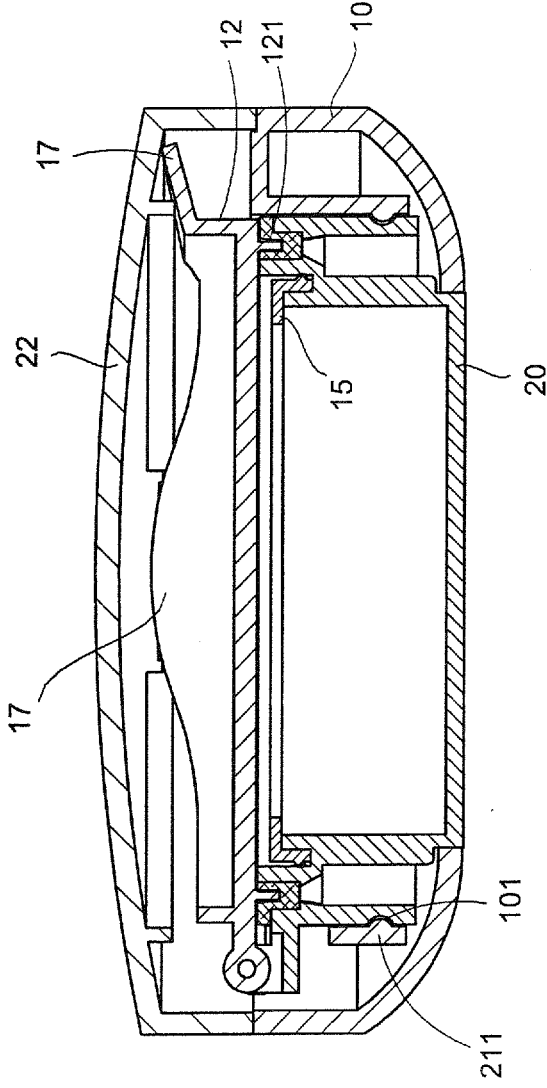


FIG. 4

## POWDER CASE

### BACKGROUND OF THE INVENTION

[0001] (a) Technical Field of the Invention

[0002] The present invention is generally related to powder cases, and more particular to powder cases with an enhanced airtight mechanism.

[0003] (b) Description of the Prior Art

[0004] A conventional powder case usually has the cosmetic powders stored in an indented space and sealed by a cap. But, as the powder case is carried around, for example, in a purse, the powders often spill outside the powder case. Therefore there are powder cases having a removable inner case housed in an outer case. Separate inner cases of different cosmetic powders therefore can be installed and replaced. The inner and outer cases are sealed separately by an inner cap and an outer cap, respectively. However, the cosmetic powders in the inner case still often spill into the gap between the inner and outer cases. Due to the inferior airtightness, the cosmetic powders in the gap can still spill outside the outer case. In addition, after a period of time, the cosmetic powders are moisturized and deteriorated. The cause is that the caps and the cases are not reliably sealed and, therefore even with an outer case to wrap around an inner case, the problem of the spilling of the stored cosmetic powders cannot be effectively resolved.

### SUMMARY OF THE INVENTION

[0005] To obviate the shortcomings of the prior art, a novel powder case is provided herein. The powder case contains two concentric ring slots on a top side of the inner case for installing a block ring and an elastic seal ring. When the inner case is closed by an inner cap, the inner case is reliably sealed, greatly enhancing the airtightness of the powder case and effectively preventing the stored powders from spilling outside the powder case.

[0006] Additionally, the powder case contains an outer case to house the inner case. When an outer cap to the outer case is closed, it depresses protruding pieces configured around the top side of the inner case so as to further enhance the airtightness of the powder case.

[0007] The foregoing objectives and summary provide only a brief introduction to the present invention. To fully appreciate these and other objects of the present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification and drawings identical reference numerals refer to identical or similar parts.

[0008] Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a perspective break-down diagram showing the various components of a powder case according to an embodiment of the present invention.

[0010] FIG. 2 is a perspective diagram showing the powder case of FIG. 1 after its assembly.

[0011] FIG. 3 is a sectional diagram showing the powder case of FIG. 1 when it is sealed.

[0012] FIG. 4 is another sectional diagram showing the powder case of FIG. 1 from another angle.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] The following descriptions are exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

[0014] As shown in FIGS. 1 to 4, a powder case according to an embodiment of the present invention contains an inner case 10 having an internal space for storing cosmetic powders. A first joint element 11 is configured on a top rim of the inner case 10 for pin-joining to an inner cap 12 for sealing the inner case 10. Two concentric ring slots 13 and 14 are configured on a top side of the inner case, surrounding a top opening of the inner case 10. A block ring 15 having an inverted-L cross section is embedded in the inner ring slot 13. An elastic seal ring 16 is embedded in the outer ring slot 14. The seal ring 16 is made of a flexible material and has a ring notch 161 on a top side. The seal ring 16 has a T-like cross section. The seal ring 16 can also be formed by injection molding a flexible material on to the inner case 10. When the inner cap 12 is closed to seal the inner case 10, a protruding element 121 of the inner cap 12 is embedded into the ring notch 161. The hard inner cap 12 and the elastic seal ring 16 jointly provide airtight sealing to the stored powder. Three protruding pieces 17 are equally spaced along a top rim of the inner cap 12. The protruding pieces 17 are slant outward for different angles but of a same height for conveniently flipping open the inner cap 12. The inner case 10 and the above mentioned components are then housed in an indentation 21 of an outer case 20. The indentation 21 has a through hole on a bottom side. Along a circumferential wall of the indentation 21, a number of snapping pieces 211 are configured. Correspondingly, a ring slot 101 is configured along a circumference of the inner case 10. As such, as the inner case 10 is placed in the outer case 20, the snapping pieces 211 are embedded into the ring slot 101 so that the inner case 10 is reliably positioned. Along a top side of the outer case 20, an inwardly open first notch 24 and an outwardly open second notch 23 are configured on an outer rim and an inner rim, respectively. The second notch 23 receives a second joint element 221 of an outer cap 22 so that the outer cap 22 is rotatably joined to the outer case 20. The first notch 24 receives the first joint element 11 of the inner cap 12. The first and second notches 24 and 23 are separated 90-degree away so that they do not interfere with each other. When the outer cap 22 is closed, its inner rim depresses the protruding pieces 17 and, through the elastic seal ring 16, the protruding element 121 is reliably plugged into the ring notch 161. The powder case is thereby sealed in an enhanced airtight manner.

[0015] The improvements provided by the present invention are described as follows. On the top side of the inner case 10 around the top opening, two concentric rings slots 13 and 14 are configured. The inverted-L shaped block ring 15

is installed in the inner ring slot **13**, providing a flange to the top opening so that a puff applicator (not shown) can be contained, further preventing the cosmetic powders from spilling. The T-shaped seal ring **16** installed in the outer ring **14** provides an airtight cushion between the hard inner cap **12** and the inner case **10**, achieving effective concealment. Additionally, the closure of the outer cap **22** further depresses the inner cap **12** and forces the protruding element **121** solidly into the seal ring **16** to assure the airtightness of the powder case. A push button **25** is configured along a circumference of the outer case **20** to lock the outer cap **22** reliably. When depressed, the push button **25** releases and opens the outer cap **22**. As such, different inner cases **10** along with different cosmetic powders can be stored and replaced conveniently.

**[0016]** In summary, the powder case contains two concentric ring slots on a top side of the inner case for installing a block ring and an elastic seal ring. When the inner case is closed by an inner cap, the inner case is reliably sealed, greatly enhancing the airtightness of the powder case and effectively preventing the stored powders from spilling outside the powder case. Additionally, the powder case contains an outer case to house the inner case. When an outer cap to the outer case is closed, it depresses protruding pieces configured around the top side of the inner case so as to further enhance the airtightness of the powder case.

**[0017]** While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be

made by those skilled in the art without departing in any way from the claims of the present invention.

I claim:

**1.** A powder case comprising an inner case and an outer case having an indentation housing the inner case, the inner case being sealed by an inner cap, the outer case being sealed by an outer cap, the powder case characterized in that the inner case comprises two concentric ring slots on a top side of the inner case, and a block ring and an elastic seal ring installed in the ring slots so that, when the inner and outer cases are closed by the inner and outer caps, the powder case is reliably sealed.

**2.** The powder case according to claim **1**, wherein the block ring has an inverted-L cross section.

**3.** The powder case according to claim **1**, wherein the seal ring has a T-like cross section.

**4.** The powder case according to claim **1**, wherein the seal ring is formed by injection molding a flexible material on to the inner case.

**5.** The powder case according to claim **1**, wherein a plurality of protruding pieces are equally spaced along a top rim of the inner cap; and the protruding pieces are slant outward for different angles but of a same height for conveniently flipping open the inner cap.

**6.** The powder case according to claim **1**, wherein a plurality of snapping pieces are configured along a circumferential wall of the indentation; and, correspondingly, a ring slot is configured along a circumference of the inner case so that, as the inner case is placed in the outer case, the snapping pieces are embedded into the ring slot.

\* \* \* \* \*