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(71) Applicant (for all designated States except US): LG IN-  
NOTEK CO., LTD. [KR/KR]; 20th Fl. Seoul Square  
541 Namdaemunno 5-ga Jung-gu, Seoul 100-714 (KR).

(72) Inventor; and

(75) Inventor/Applicant (for US only): BYEON, Daegil [KR/  
KR]; 20th Fl. Seoul Square 541 Namdaemunno 5-ga  
Jung-gu, Seoul 100-714 (KR).

(74) Agents: JIN, Cheon Woong et al.; 4th Fl., Deuk-Young  
Bldg., 423-5 Dogok-dong, Gangnam-Gu, Seoul 135-855  
(KR).

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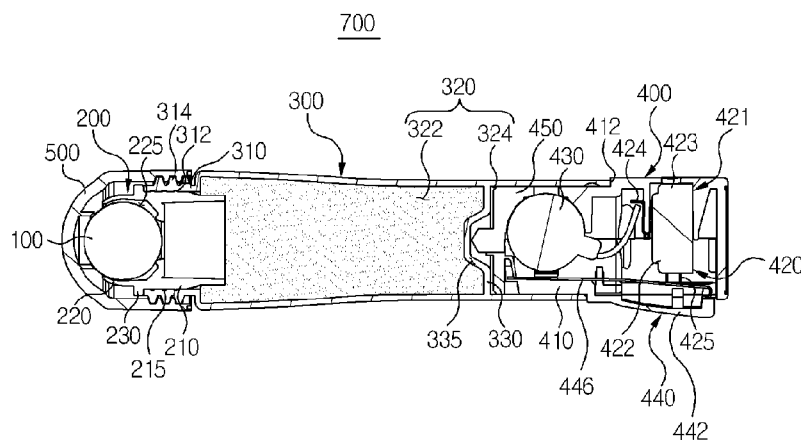
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(54) Title: VIBRATION DISPENSER

[Fig. 2]



(57) Abstract: Disclosed is a vibration dispenser, the dispenser including an application ball, a first body having a ball rotating unit for rotating the application ball, a second body coupled at a first end thereof to the first body and having a receiving space, and a vibration generating unit coupled to a second end that is opposite to the first end of the second body and providing vibrations to the first and second bodies.

## Description

### Title of Invention: VIBRATION DISPENSER

#### Technical Field

- [1] The present invention relates to a vibration dispenser.

#### Background Art

- [2] Recently, as many people consider appearances as important, they make efforts to make themselves look more attractive by using clothes, cosmetics and the like. Particularly, since the face exposed to the outside is regarded as the standard of beauty, people prefer transparent and clear facial skin so as to make them look more beautiful. To this end, several kinds of cosmetics are applied to the face to improve the skin.
- [3] Generally, after liquid or gel cosmetics are applied to the skin that is exposed to the outside, such as the face and the hand, using a cotton pad or the hand, people wait until the skin absorbs the cosmetics or dab the skin with the hand so as to absorb the cosmetics.
- [4] Such a method inconveniences a user because cosmetics must be applied to the skin using the hand or cotton pad. Further, this method is problematic in that a large amount of cosmetics permeate even the hand, so that the absorption ratio of the cosmetics applied to the facial skin is reduced.

#### Disclosure of Invention

##### Technical Problem

- [5] The present invention provides a vibration dispenser, which is constructed so that, as soon as cosmetics are applied to the skin using an application ball of a cosmetic container, vibrations are applied to the skin and the application ball, thus improving the convenience of a product and the absorption ratio of the cosmetics applied to the skin.

##### Solution to Problem

- [6] In order to accomplish the above object, the present invention provides a vibration dispenser, the dispenser comprising: an application ball; a first body having a ball rotating unit for rotating the application ball; a second body coupled at a first end thereof to the first body and having a receiving space; and a vibration generating unit coupled to a second end that is opposite to the first end of the second body, and providing vibrations to the first and second bodies.
- [7] The first body may comprise a first body section shaped like a cylinder and formed such that a diameter of a first end thereof is smaller than a diameter of the application ball, a second body section protruding in an annular shape from an inner surface of the first body section to prevent removal of the application ball, and a third body section protruding in an annular shape from an outer surface of the first body section and

locked to the second body.

[8] A gap may be formed between the application ball and the first end of the first body section.

[9] The application ball may comprise an anodizing film formed on a surface thereof.

[10] The vibration generating unit may be inserted into the second body through the second end of the second body, and a partition may be provided in the second body in such a way as to be in contact with the vibration generating unit and create a receiving space. Preferably, a central portion of the partition may be formed to be concave toward the second body.

[11] Preferably, the vibration generating unit may comprise a cylindrical case coupled to the second body, an electrode unit disposed in the case and making contact with a battery, a vibration motor fixedly held in the case and generating vibrations by power produced from the battery, and a switch unit turning the vibration motor on or off.

[12] Further, the vibration dispenser may comprise a vibration transmission member fixedly held in the case, making contact with the vibration motor to transmit vibrations from the vibration motor to the second body, and protruding into the recess of the partition.

[13] Preferably, the receiving space of the second body may contain a fluid material that is discharged to an outside by rotation of the application ball.

[14] The second body may be made of a transparent material to allow a user to perceive a flow of the fluid material stored in the receiving space due to the vibrations generated by the vibration motor.

[15] Preferably, the vibration motor may comprise either of a coin-type vibration motor or a cylindrical linear vibration motor.

[16] The vibration dispenser may further comprise a cap coupled to the second body. Preferably, the cap may comprise a leakage prevention part, the leakage prevention part protruding from an inner surface of the cap and pressing the surface of the application ball when the cap is coupled to the second body, thus causing the application ball to close a communicating passage between the first and second bodies. Preferably, the leakage prevention part may protrude in a cylindrical shape from the inner surface of the cap.

### **Advantageous Effects of Invention**

[17] A vibration dispenser according to the present invention is advantageous in that an application ball for applying cosmetics contained in a body to the skin while being rotated by friction against the skin and a vibration generation unit for vibrating the application ball are coupled to the body filled with the cosmetics, thus being capable of improving the absorption ratio of the cosmetics applied to the skin using vibrations,

and allowing the cosmetics to be applied to and absorbed into the skin without using the hand or a cotton pad, thereby enhancing convenience.

### **Brief Description of Drawings**

[18] FIG. 1 is a perspective view showing a vibration dispenser in accordance with an exemplary embodiment of the present invention;

[19] FIG. 2 is a sectional view taken along line I-I of FIG. 1; and

[20] FIG. 3 is an exploded perspective view of FIG. 1.

### **Best Mode for Carrying out the Invention**

[21] Hereinafter, exemplary embodiments of the present invention will be described in detail with reference to the accompanying drawings. For clarity and convenience of description, the size or shape of components shown in the drawings may not be illustrated to scale. Further, terminologies defined in consideration of the construction and effect of the present invention may be changed according to a user or operator intention or the custom. These terminologies should be interpreted as having meanings and concepts in keeping with the technical spirit of the present invention based on the overall detailed description.

[22] FIG. 1 is a perspective view showing a vibration dispenser in accordance with an exemplary embodiment of the present invention. FIG. 2 is a sectional view taken along line I-I of FIG. 1. FIG. 3 is an exploded perspective view of FIG. 1.

[23] Referring to FIGS. 1 to 3, a vibration dispenser 700 includes an application ball 100, a first body 200, a second body 300, and a vibration generating unit 400. The vibration dispenser 600 may further include a cap 500.

[24] The application ball 100 is used to apply liquid or gel cosmetics to the skin, is coupled to the first body 200 that will be described below in detail, and is rotated in the first body 200 by friction against the skin.

[25] The application ball 100 is made of, for example, aluminum, and an anodizing coating film is formed on a surface of the application ball 100. When the application ball 100 is rotated in the first body 200, the cosmetics are continuously applied to the skin by a fine uneven part formed on the surface of the application ball 100. The roughness of the application ball 100 with the anodizing coating film is determined to apply a proper amount of cosmetics to the surface of the application ball 100.

[26] The first body 200 functions to rotatably support the application ball 100 and to supply the cosmetics to the application ball 100.

[27] The first body 200 includes a first body section 210, a second body section 220, and a third body section 230.

[28] The first body section 210 is shaped like a cylinder having a through hole that extends from a first surface to a second surface that is opposite to the first surface. The

first body section 210 defines a passage through which the cosmetics are supplied to the application ball 100. First threads 215 are formed on an outer circumference of the first body section 310 to engage with the second body section 300, which will be described below in detail, in a threaded manner.

[29] The second body section 220 protrudes in an annular shape from a first end of the first body section 210 that is opposite to an end coupled to the second body section 220, and holds the application ball 100 so as to prevent the application ball 100 from being removed from the first body 200.

[30] Referring to FIG. 2, a ball inserting part 225 is formed in the second body section 220 to permit the rotation of the application ball 100. The ball inserting part 225 is a cavity with a curved surface corresponding to the application ball 100, and extends from the second body section 220 to the first body section 210.

[31] In order to allow a portion of the application ball 100 to be always exposed to the outside of the second body section 220 when the application ball 100 is inserted into the second body section 220, the depth of the ball inserting part 225 is less than a diameter of the application ball 100. The second body section 220 protrudes to a height to cover a portion corresponding to about 3/4 of the application ball 100.

[32] The diameter of the ball inserting part 225 is slightly larger than that of the application ball 100 to allow the application ball 100 to be smoothly rotated in the ball inserting part 225, thus forming a gap between the application ball 100 and the ball inserting part 225 and thereby allowing the cosmetics to be discharged through the gap.

[33] Even though the diameter of the ball inserting part 225 is larger than that of the application ball 100, the diameter of an opening of the second body section 220 is smaller than the diameter of the application ball 100, so that the application ball 100 inserted into the ball inserting part 225 is not removed from the first body 200.

[34] The cylindrical first body section 210 causes the interior of the first body section 210 to communicate with the ball inserting part 225. Thus, if the vibration dispenser 600 is tilted so as to use the cosmetics, the cosmetics flow out through the gap between the ball inserting part 225 and the application ball 100, so that the cosmetics are continuously supplied to the surface of the rotating application ball 100.

[35] The third body section 230 protrudes in an annular shape from an end of the first body section 210, that is, an outer circumference of a junction between the first body section 210 and the second body section 220 to serve as a locking step that limits the insertion of the first body 200 into the second body 300 which will be described below in detail to a predetermined depth.

[36] Referring to FIGS. 2 and 3, the second body 300 is a cosmetic container that has a cylindrical shape and contains liquid or gel cosmetics. The second body 300 includes an opening 310, a receiving space 320, and a partition 330.

- [37] The opening 310 is coupled to the first body section 210 to supply the cosmetics contained in the receiving space 320 to the first body 200 and thereby supply the cosmetics to the application ball 100. The opening 310 is formed in a first end of the second body 300 that is coupled to the first body 200, and communicates with the receiving space 320.
- [38] Second threads 314 are formed on an outer circumference of the opening 310 to engage with the cap 500, which will be described below in detail, in a threaded manner. First grooves 312 are formed on an inner circumference of the opening 310 to engage with the first threads 215 formed on the first body section 210 in a threaded manner.
- [39] The first body section 210 of the first body 200 is inserted into the opening 310 to be fastened thereto in a threaded manner, and the third body section 230 of the first body 200 is caught by the section of the opening 310. Hence, in appearance, the diameter of the opening 310 is equal to that of the third body section 230 of the first body 200.
- [40] Referring to FIG. 2, the receiving space 320 is defined in the second body 300, and is partitioned into a first space 322 and a second space 324 by the partition 330. The first space 322 is defined between the partition 330 and the opening 310 and stores the liquid or gel cosmetics.
- [41] The second space 324 is defined between the partition 330 and a second end of the second body 300 that is opposite to the first end thereof, so that the vibration generating unit 400 that will be described below in detail is received in the second space 324. Here, the second end of the second body 300 is open so that the second space 324 is exposed to the outside, and the vibration generating unit 400 is inserted into the second space 324 through an opening.
- [42] As described above, the partition 330 is formed between the first space 322 and the second space 324, and a recess 335 is formed on the center of the partition 330 in such a way as to be concave toward the first space 322.
- [43] In order to visually perceive the vibration when the cosmetics contained in the first space 322 are vibrated by the vibration generation unit 400, for example, the second body 300 is made of a transparent or semi-transparent material.
- [44] Referring to FIGS. 2 and 3, the vibration generating unit 400 is placed in the second space 324 of the second body 300 to provide vibrations to the first and second bodies 200 and 300 and the application ball 100. The vibration generating unit 400 includes a case 410, an electrode unit 420, a vibration motor 430, and a switch unit 440. The vibration generating unit 400 further includes a vibration transmission member.
- [45] The case 410 has a receiving space therein, and has the shape of a cylinder with an opening that is formed in a first surface of the case 410 facing the partition 330 of the second body 300 in such a way as to communicate with the receiving space. The

electrode unit 420, the vibration motor 430, and a portion of the switch unit 440 are held in the receiving space.

[46] A step 412 is formed on a middle portion of the outer circumference of the case 410, so that the second end of the second body 300 is locked to the step 412. Since only a portion ranging from the first surface of the case 410 facing the partition 330 of the second body 300 to the step 412 is inserted into the second space 324 of the second body 300, the height from the first surface of the case 410 to the step 412 is equal to the depth of the second space 324.

[47] When viewing the external appearance of the vibration dispenser 600, the diameter from the step 412 to a second surface of the case 410 that is opposite to the first surface is equal to, for example, the diameter of the second body 300.

[48] The electrode unit 420 is disposed in the receiving space of the case 410 to supply power to the vibration motor 430, and includes a battery 421, a positive plate 424, and a negative plate 425.

[49] The battery 421 supplies power to drive the vibration motor 430. A positive terminal 422 is formed on a first end of the battery 421, and a negative terminal 423 is formed from a side surface of the battery 421 to a second end thereof.

[50] The positive plate 424 makes contact with the positive terminal 422 of the battery 420, and is electrically connected to positive wiring of the vibration motor 430 that will be described below in detail.

[51] The negative plate 425 makes contact with the negative terminal 423 of the battery 421, and is electrically connected to negative wiring of the vibration motor 430 that will be described below in detail.

[52] The vibration motor 430 is fixedly held in the receiving space of the case 410, and is electrically connected to the electrode unit 420 via the wiring to generate vibrations by power generated from the electrode unit 420.

[53] Although not shown in the drawings, the vibration motor 430 includes a case with an empty space, a rotating shaft that is rotatably disposed in the case and is rotated at high speed by power produced from a power unit, a rotor that is eccentrically secured to the rotating shaft to generate vibrations, and a magnet which rotates the rotating shaft using a generated magnetic field in cooperation with the rotor.

[54] The rotor includes a weight that is eccentrically secured to the rotating shaft and generates vibrations when the rotating shaft is rotated, and a coil that is disposed to correspond to the magnet and generates a magnetic field which is required to rotate the rotating shaft in cooperation with the magnet.

[55] The switch unit 440 electrically connects the electrode unit 420 to the vibration motor 430 to turn the vibration motor 430 on or off. The switch unit 440 includes a switch button 442 and a switch plate 446.

- [56] The switch button 446 is actuated by a user to turn the switch unit 440 on or off and thereby to drive the vibration motor 430, and protrudes from the step 412 of the case 410 in such a way as to extend toward the second surface of the case 410.
- [57] Except for a first end of the switch button 442 that is adjacent to the step 412, the lower end and side surfaces of the switch button 442 are separated from the case 410. The separated switch button 442 is lifted outwards relative to the case 410, and protrudes from the outer circumference of the case 410 in such a way as to be flared toward the second surface of the case 410, so that the switch button 442 has elastic force.
- [58] A second end of the switch button 442 is bent toward the receiving space of the case 410.
- [59] The switch plate 446 is a thin plate made of a conductive material, and electrically connects or disconnects the electrode unit 420 to or from the vibration motor 430 in response to the pushing of the switch button 442, thus applying power to the vibration motor 430. The switch plate 446 is placed under the switch button 442. Thereby, if the switch button 442 is pushed, the switch button 442 makes contact with the negative plate 425 of the electrode unit 420 to form a closed circuit between the electrode unit 420 and the vibration motor 430.
- [60] Turning back to FIG. 2, the vibration transmission member 450 transmits vibrations from the vibration motor 430 to the second body 300 to vibrate the cosmetics and the application ball 100. The vibration transmission member 450 surrounds the outer surface of the vibration motor 430 and makes contact with the vibration motor 430, and is fixedly held in the receiving space of the case 410. The vibration transmission member 450 is disposed between the first surface of the case 410 facing the partition 330 of the second body 300 and the vibration motor 430.
- [61] A portion of the vibration transmission member 450 corresponding to the concave recess 335 of the partition 330 protrudes to be inserted into the concave recess 335 of the partition 330 through the opening of the case 410, and makes contact with the partition 330 to transmit vibrations, which have been transmitted through the vibration motor 430 to the vibration transmission member 450, to the second body 300.
- [62] Referring to FIGS. 1 to 3, the cap 500 is fastened to the opening 310 of the second body 300 in a threaded manner, thus preventing impurities such as dust from adhering to the application ball 100 and preventing the cosmetics from evaporating from the surface of the application ball 100.
- [63] When the cap 500 is coupled to the second body 300, a first surface of the cap 500 facing the application ball 100 is formed in a curved shape to correspond to the application ball 100, and a receiving space is formed in the cap 500 to receive the application ball 100 and the first body 200. A second surface of the cap 500 which is

opposite to the first surface thereof is open to communicate with the receiving space.

[64] A leakage prevention part 510 is provided on the inner surface of the cap 500 and has the shape of a cylinder that protrudes from the inner surface of the cap 500 toward the application ball 100.

[65] The leakage prevention part 510 presses the application ball 100 when the cap 500 is coupled to the second body 300. Thereby, the application ball 100 blocks the opening 212 which is formed in the ball inserting part 225 formed in the first body 200 and serves as a passage communicating with the second body 300. Thus, when the cap 500 is coupled to the second body 300, the application ball 100 blocks the opening 212 communicating with the second body 300 to prevent the cosmetics stored in the second body 300 from leaking out.

[66] In contrast, when the cap 500 is separated from the second body 300, the force of the leakage prevention part 510 pressing the application ball 100 is eliminated, so that a gap is formed between the application ball 100 and the opening 212, and thereby the cosmetics stored in the second body 300 are supplied through the gap and the application ball 100 to a user's skin.

[67] Second grooves are formed on the inner surface of the cap 500 in such a way as to correspond to the second threads 314 formed on the opening 310 of the second body 300, and engage with the second threads 314 in a threaded manner.

[68] According to the embodiment of the present invention, the vibration dispenser with the application ball has been illustrated. However, the present invention may also be applied to a cosmetic container with an application brush for applying cosmetics, in place of the application ball. Further, as long as a cosmetic container containing cosmetics is manufactured in the same specification as the second body described with reference to FIGS. 1 to 3 and has a space for receiving the vibration generating unit, the vibration generating unit may be applied to any cosmetic container.

[69] As described above, a vibration dispenser is advantageous in that an application ball for applying cosmetics contained in a body to the skin while being rotated by friction against the skin and a vibration generation unit for vibrating the application ball are coupled to the body filled with the cosmetics, thus being capable of improving the absorption ratio of the cosmetics applied to the skin using vibrations, and allowing the cosmetics to be applied to and absorbed into the skin without using the hand or a cotton pad, thereby enhancing convenience.

[70] Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

**Industrial Applicability**

- [71] As described above, the present invention provides a vibration dispenser, which may be applied to a makeup tool and a beauty product, and is constructed so that an application ball for applying cosmetics contained in a body to the skin while being rotated by friction against the skin and a vibration generation unit for vibrating the application ball are coupled to the body filled with the cosmetics, thus being capable of improving the absorption ratio of the cosmetics applied to the skin using vibrations, and allowing the cosmetics to be applied to and absorbed into the skin without using the hand or a cotton pad, thereby enhancing convenience.

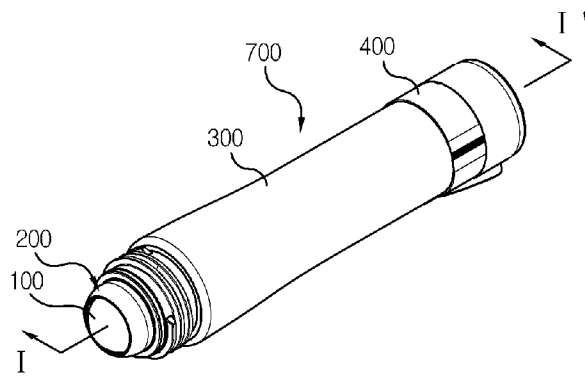
## Claims

- [Claim 1] A vibration dispenser, comprising:  
an application ball;  
a first body having a ball rotating unit for rotating the application ball;  
a second body coupled at a first end thereof to the first body and having a receiving space; and  
a vibration generating unit coupled to a second end that is opposite to the first end of the second body, and providing vibrations to the first and second bodies.
- [Claim 2] The vibration dispenser according to claim 1, wherein the first body comprises:  
a first body section shaped like a cylinder and formed such that a diameter of a first end thereof is smaller than a diameter of the application ball;  
a second body section protruding in an annular shape from an inner surface of the first body section to prevent removal of the application ball; and  
a third body section protruding in an annular shape from an outer surface of the first body section and locked to the second body.
- [Claim 3] The vibration dispenser according to claim 2, wherein a gap is formed between the application ball and the first end of the first body section.
- [Claim 4] The vibration dispenser according to claim 1, wherein the application ball comprises an anodizing film formed on a surface thereof.
- [Claim 5] The vibration dispenser according to claim 1, wherein the vibration generating unit is inserted into the second body through the second end of the second body, and a partition is provided in the second body in such a way as to be in contact with the vibration generating unit and create a receiving space.
- [Claim 6] The vibration dispenser according to claim 5, wherein the partition comprises on a central portion thereof a recess that is concave toward the second body.
- [Claim 7] The vibration dispenser according to claim 1, wherein the vibration generating unit comprises:  
a cylindrical case coupled to the second body;  
an electrode unit disposed in the case and making contact with a battery;  
a vibration motor fixedly held in the case and generating vibrations by

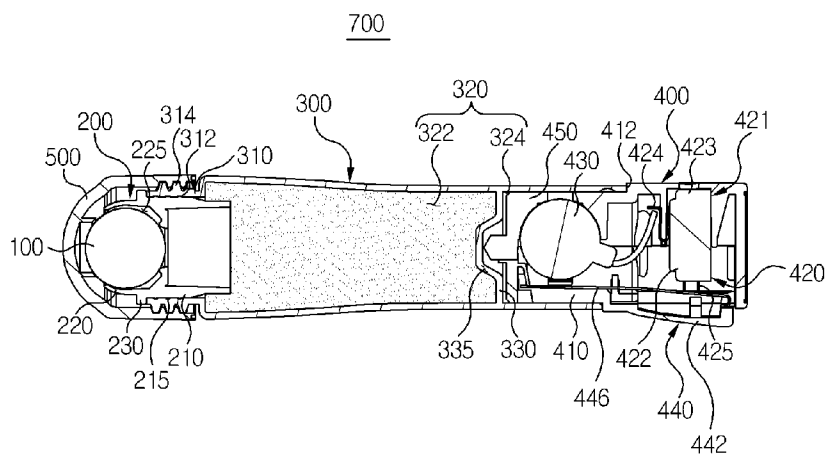
power produced from the battery; and  
a switch unit turning the vibration motor on or off.

- [Claim 8] The vibration dispenser according to claim 7, further comprising:  
a vibration transmission member fixedly held in the case, making  
contact with the vibration motor to transmit vibrations from the  
vibration motor to the second body, and protruding into the recess of  
the partition.
- [Claim 9] The vibration dispenser according to claim 1, wherein the receiving  
space of the second body contains a fluid material that is discharged to  
an outside by rotation of the application ball.
- [Claim 10] The vibration dispenser according to claim 9, wherein the second body  
is made of a transparent material to allow a user to perceive a flow of  
the fluid material stored in the receiving space due to the vibrations  
generated by the vibration motor.
- [Claim 11] The vibration dispenser according to claim 1, wherein the vibration  
motor comprises either of a coin-type vibration motor or a cylindrical  
linear vibration motor.
- [Claim 12] The vibration dispenser according to claim 1, further comprising:  
a cap coupled to the second body.
- [Claim 13] The vibration dispenser according to claim 12, wherein the cap  
comprises a leakage prevention part, the leakage prevention part  
protruding from an inner surface of the cap and pressing the surface of  
the application ball when the cap is coupled to the second body, thus  
causing the application ball to close a communicating passage between  
the first and second bodies.
- [Claim 14] The vibration dispenser according to claim 13, wherein the leakage  
prevention part protrudes in a cylindrical shape from the inner surface  
of the cap.

[Fig. 1]



[Fig. 2]



[Fig. 3]

