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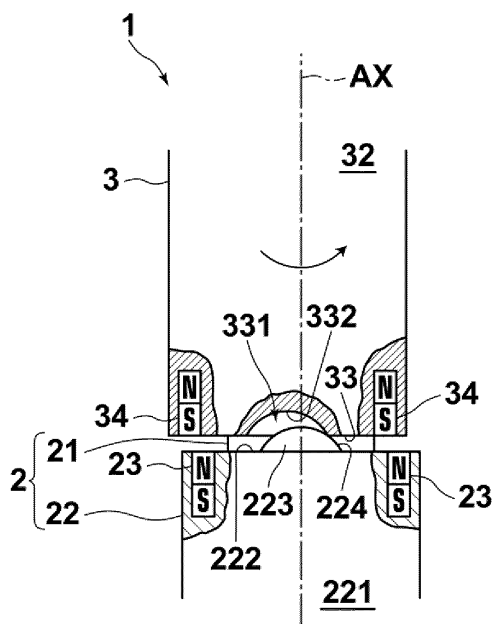
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(54) **COSMETIC CONTAINER**

(57) A cosmetic material container constituted by a main body (2) and a lid member (3) is configured such that one of abutment surfaces (33) and (222) that abut each other when fitted is a cam surface (332) and the other is a follower surface (224). The cam surface (32) and the follower surface (224) are configured to relatively move the main body (2) and the lid member (3) in a direction of a rotational axis (AX) in response to rotation of

the lid member (3) with respect to the main body (2). The main body (2) and the lid member (3) move between a fitted position at which the abutment surfaces (33) and (222) abut each other and are held together by magnetic force, and a separated position at which the abutment surfaces (33) and (222) are separated from each other against the magnetic force, by rotation of the lid member (3) with respect to the main body (2).

FIG.5A



Description

[Technical Field]

[0001] The present invention is related to a cosmetic material container. More specifically, the present invention is related to a cosmetic material container equipped with a main body that houses a cosmetic material such as lipstick, a lid member that fits on the main body in a rotatable manner, and a magnet that maintains the main body and the lid member in a fitted state by magnetic force.

[Background Art]

[0002] In conventional cosmetic material containers constituted by a main body that houses a cosmetic material and a lid member that fits on the main body in a rotatable manner, a technique that mounts magnets on each of a main body and a lid member in order to maintain a fitted state is well known (Patent Document 1).

[0003] In cosmetic material containers provided with fit maintaining magnets, a technique that provides markings on the outer peripheral surfaces of a main body and a lid member in order to prevent the same magnetic poles facing each other by positioning opposite magnetic poles to face each other during fitting is also a known technique (Patent Document 2). Further, there is also a known technique that provides a stepped portion on a main body and a recessed portion that engages with the stepped portion on a lid member to perform more accurate positioning, because positioning that only utilizes magnetic force may generate a degree of positioning shift.

[Background Art Documents]

[Patent Documents]

[0004]

[Patent Document 1]

Japanese Unexamined Utility Model Publication No. S57-187117

[Patent Document 2]

Japanese Patent No. 5480553

[Summary of the Invention]

[Problem to be Solved by the Invention]

[0005] It is necessary to employ magnets having strong magnetic force if positioning is performed utilizing only magnetic force, as in Patent Document 1 and Patent Document 2. Therefore, a strong pulling force will be necessary when removing the lid member from the main body, and there is a problem that removal will be difficult.

[0006] In addition, there are many cases in which cosmetic material containers are carried in bags or the like.

If the magnetic force that leaks from the cosmetic material container is strong, there is a possibility that various electronic devices and various magnetic strip card which are in the same bag will be influenced by the magnetic force.

However, the above patent documents neither disclose nor suggest suppressing magnetic force from leaking from the cosmetic material containers, or to facilitate removal of the lid members from the main bodies.

[0007] The present invention has been developed in view of the foregoing circumstances. It is an object of the present invention to provide a cosmetic material container that maintains a fitted state between a main body and a lid member by magnetic force, that suppresses the leakage of magnetic force, facilitates removal of the lid member from the main body, and facilitates positive positioning of the main body and the lid member at a predetermined position in a rotational direction of the lid member, without sacrificing the pleasant sensation of magnetic attraction by the magnetic force during fitting operations.

[Means for Solving the Problem]

[0008] A cosmetic material container of the present invention that achieves the above objective comprises:

a main body that houses a cosmetic material;
a lid member which is fitted onto the main body in a relatively rotatable manner; and
at least one set of magnets that maintain a fitted state between the main body and the lid member;
the main body and the lid member respectively having abutment surfaces that abut each other during a fitting operation;
the abutment surfaces being configured to separate and approach each other between a position at which the main body and the lid member are positioned at a predetermined position in a rotational direction of the lid member such that the abutment surfaces abut each other, and a position other than the predetermined position at which the main body and the lid member are separated in a direction of a rotational axis;
the lid member being movable between a fitted position at which the abutment surfaces abut each other and the main body and the lid member are maintained in a fitted state by magnetic force, and a separated position at which the abutment surfaces are in the position other than the predetermined position, separated from each other against the magnetic force, by rotating the lid member.

[0009] Here, the "lid member which is fitted onto the main body in a relatively rotatable manner" means that one of the lid member and the main body is rotatable with respect to the other in a state in which the main body and the lid member are fitted. This configuration is not limited to that in which one is fixed and the other is rotated, and a configuration in which both the main body and the lid

member rotate is also possible.

[0010] The abutment surfaces are configured to separate and approach each other between a position at which the main body and the lid member are positioned at the predetermined position in the rotational direction of the lid member such that the abutment surfaces abut each other, and the position other than the predetermined position at which the main body and the lid member are separated in the direction of the rotational axis thereof by relative rotation of the main body and the lid member. The main body and the lid member may be configured such that a recessed portion is formed on one of the abutment surfaces and a protruding portion that abuts the recessed portion is formed the other of the abutment surfaces, and separate from each other by the recessed portion riding up on the protruding portion due to the relative rotation. Here, "separate" means that the main body and the lid member move away from each other, and "separate and approach" means that the main body and the lid member move away from and abut each other.

[0011] That is, the main body and the lid member are in a relationship in which the protruding portion formed on the abutment surface of one of the two moves in a sliding direction along the recessed portion, which is formed on the abutment surface on the abutment surface of the other, along an arc having the rotational axis as the center, by the lid member being rotated with respect to the main body. Thereby, the lid member can be separated from the main body, by rotating the lid member with respect to the main body.

[0012] In addition, in the cosmetic material container of the present invention, a plurality of combinations of the recessed portion and the protruding portion may be provided along the arc having the rotational axis as the center.

[0013] In addition, in the cosmetic material container of the present invention, the main body may be a cylinder, and a cosmetic material which is capable of being fed out, lipstick, for example, may be housed in the cylinder.

[0014] In addition, in the cosmetic material container of the present invention, the outer peripheral surface of the lid member and the outer peripheral surface of a base end portion of the main body may be coplanar in the fitted state.

[0015] In addition, in the cosmetic material container of the present invention, the cross sectional shape of the main body and the lid member in a direction perpendicular to the rotational axis may be linearly symmetrical with respect to one line.

[0016] In addition, the cosmetic material container of the present invention may be equipped with a plurality of sets of magnets.

[0017] Here, a "set of magnets" refers to a combination of an S pole of one magnet provided at the abutment surface of the main body, and an N pole of another magnet provided at the abutment surface of the lid member.

[0018] In addition, in the cosmetic material container of the present invention, it is desirable for one of the set

of magnets at a first one of the corresponding abutment surfaces to have an N pole facing a second abutment surface and for the other of the set of magnets at the second abutment surface to have an S pole facing the corresponding first abutment surface. That is, it is desirable for magnetic poles of the same polarity to be exposed on the same abutment surface.

[0019] In addition, in the cosmetic material container of the present invention, it is desirable for the magnetic force that leaks from the set of magnets in the fitted state to be 500 gauss or less.

[Advantageous Effects of the Invention]

[0020] According to the cosmetic material container of the present invention, the cosmetic material container maintains the fitted state between the main body and the lid member by magnetic force. The abutment surfaces of the main body and the lid member that abut each other during a fitting operation are configured to separate and approach each other between the position at which the main body and the lid member are positioned at the predetermined position in a rotational direction of the lid member such that the abutment surfaces abut each other, and the position other than the predetermined position at which the main body and the lid member are separated in a direction of the rotational axis. The lid member is movable between a fitted position at which the abutment surfaces abut each other and the main body and the lid member are maintained in a fitted state by magnetic force, and a separated position at which the abutment surfaces are in the position other than the predetermined position, separated from each other against the magnetic force, by rotating the lid member. Therefore, positioning is not performed only by magnetic force, and it is not necessary for the magnetic force of the magnets to be great. As a result, removal of the lid member from the main body is facilitated, and accurate positioning of the main body and the lid member at the predetermined position in the rotational direction is also facilitated.

[0021] A user will experience a sensation that positioning and fitting are automatically performed without sacrificing the pleasant sensation of magnetic attraction by the magnetic force during fitting operations, because if the main body is held and the lid member is rotated, the lid member will be fitted at the predetermined position by magnetic attraction of the magnetic force when the lid member is at a position close to the predetermined position.

[Brief Description of the Drawings]

[0022]

[Figure 1] a perspective view that illustrates a cosmetic material container in a state in which a lid member is fitted onto a main body.

[Figure 2] a perspective view that illustrates the cos-

metic material container in a state in which the lid member is removed from the main body.

[Figure 3] a plan view of the main body of the cosmetic material container.

[Figure 4] a bottom view of the lid member of the cosmetic material container.

[Figure 5A] a first schematic diagram that illustrates transitions between the state in which the lid member is fitted on the main body and the state in which the lid member is removed from the main body.

[Figure 5B] a second schematic diagram that illustrates transitions between the state in which the lid member is fitted on the main body and the state in which the lid member is removed from the main body.

[Figure 5C] a third schematic diagram that illustrates transitions between the state in which the lid member is fitted on the main body and the state in which the lid member is removed from the main body.

[Figure 5D] a fourth schematic diagram that illustrates transitions between the state in which the lid member is fitted on the main body and the state in which the lid member is removed from the main body.

[Figure 6] a schematic diagram that illustrates a first modification of a combination of a protruding portion and a recessed portion of the cosmetic material container.

[Figure 7] a schematic diagram that illustrates a second modification of the combination of the protruding portion and the recessed portion of the cosmetic material container.

[Figure 8] a schematic diagram that illustrates a third modification of the combination of the protruding portion and the recessed portion of the cosmetic material container.

[Figure 9] a schematic diagram that illustrates a fourth modification of the combination of the protruding portion and the recessed portion of the cosmetic material container.

[Figure 10] a schematic diagram that illustrates a fifth modification of the combination of the protruding portion and the recessed portion of the cosmetic material container.

[Figure 11] a diagram that illustrates a cosmetic material container according to a second embodiment.

[Figure 12] a diagram that illustrates the results of comparison between the cosmetic material container of the present invention and another cosmetic material container.

[Figure 13] a perspective view that illustrates a cosmetic material container according to a third embodiment of the present invention.

[Detailed Description of the Embodiments]

[0023] Hereinafter, a cosmetic material container 1 according to an embodiment of the present invention will be described in detail with reference to the attached drawings. The cosmetic material container 1 houses a cos-

metic material for lips (including lipstick, lip color, lip liner, lip cream, lip gloss, and lip essence) in the form of a stick. Note that the cosmetic material container of the present invention is not limited to housing a cosmetic material for lips, and may be applied to any cosmetic material container that houses any cosmetic material, as long as the cosmetic material container is that of an aspect having a main body and a lid member having a fitting portion which is rotatable. For example, the cosmetic material container of the present invention may be applied to cosmetic material containers of the dispenser type and the pump type.

[0024] As illustrated in Figure 1 through Figure 4, the cosmetic material container 1 is constituted mainly by a main body 2, and a lid member 3 which is fitted on the main body 2 in a manner rotatable about a rotational axis AX. Figure 1 illustrates a state in which the lid member 3 is fitted on the main body 2, and Figure 2 illustrates a state in which the lid member 3 and the main body 2 are separated. In addition, Figure 3 is a plan view of the main body 2, and Figure 4 is a bottom view of the lid member 3.

[0025] As illustrated in Figure 2, the main body 2 is mainly constituted by a columnar portion 21 that houses lipstick, which is not illustrated, and a base end portion 22 having a greater outer dimension than the outer diameter of the columnar portion 21. The columnar portion 21 is a cylinder having an opening 211 at the upper end thereof. The lipstick is inserted into the columnar portion 21 through the opening 211, and is contained therein.

[0026] In the cosmetic material container 1, the base end portion 22 is relatively rotatable with respect to the columnar portion 21. The cosmetic material container 1 is equipped with a known feeding mechanism that enables the lipstick, which is not illustrated, to be fed out from the opening 211 by rotating the base end portion 22 while holding the columnar portion 21.

[0027] As illustrated in Figure 2, the lid member 3 is a bottomed cylinder. A penetrating aperture 31 for the columnar portion 21 to penetrate through is formed in the lower end of the lid member 3 (the lid member is illustrated inverted in the vertical direction in Figure 2). The shapes of the outer peripheral surfaces of the base end portion 22 of the main body 1 and the lid member 2 are substantially the same, particularly at a fitting portion, and in the fitted state illustrated in Figure 1, the entirety of the cosmetic material container 1 is of an integrated shape. Of course, the outer peripheral surface of the lid member 1 may become as narrow as possible toward the upper end thereof, or may be a design that deviates from a circular shape.

[0028] The cosmetic material container 1 is fitted together by a stepped surface 222 that constitutes the upper end of the base end portion 22 and a bottom end surface 33 of the lid member 3 abutting each other. As illustrated in Figure 1, the outer peripheral surface 221 of the base end portion 22 and the outer peripheral surface 32 of the lid member 3 become coplanar in the fitted state. The stepped surface 222 and the end surface 33

correspond to the "abutment surfaces" recited in the claims.

[0029] As is clear from Figure 3 and Figure 4, the contours of the cross sections perpendicular to the height direction, that is, the direction of the rotational axis AX, of the base end portion 22 and the lid member 3 are non circular shapes having a plurality of continuous arcs having different curvatures. These cross sections are linearly symmetrical with respect to only one line that intersects the rotational axis AX. That is, the cross sections are not symmetrical with respect to two or more lines. Such contours of the cross sectional shapes include a heart shape, a crescent moon shape, an isosceles triangle, etc., in addition to the shapes illustrated in Figure 3 and Figure 4. Of course, the contours of the cross sections may be designed as other arbitrary shapes that satisfy the above condition regarding symmetry.

[0030] Thereby, the position at which the outer peripheral surface 221 and the outer peripheral surface 32 become coplanar due to fitting is uniquely determined. It is desirable for the cosmetic material container 1 to have one or fewer lines L of linear symmetry (having zero lines L of linear symmetry means that a shape is asymmetrical in all directions). The reason why the number of lines L of linear symmetry is set to only one is due to preference as well as aesthetics.

[0031] However, the cosmetic material container of the present invention includes those having cross sectional shapes with two lines L of linear symmetry, such as rectangles and ellipses, those having cross sectional shapes with three lines L of linear symmetry, such as an equilateral triangle, those having cross sectional shapes with four lines L of linear symmetry, such as a square, and those having cross sectional shapes with an infinite number of lines L of linear symmetry, such as a circle.

[0032] As illustrated in Figure 3, two main body magnets 23 are mounted on the stepped surface 222 at a predetermined angular interval other than 180 degrees along a circumferential direction having its center on the rotational axis AX. As illustrated in Figure 4, two lid member magnets 34 are mounted on the end surface 33 at positions at the same predetermined angular interval along the circumferential direction having its center on the rotational axis AZ that cause the main body magnets 23 to face the lid member magnets 34 at a fitting position.

[0033] The two main body magnets 23 and the two lid member magnets 34 have opposite magnetic poles facing each other at the fitting positions such that they will be magnetically attached. The main body magnets 23 and the lid member magnets 34 maintain the main body 2 and the lid member 3 in the fitted position by magnetically attaching to each other. A combination of the main magnet 23 and the lid member 34 at a position at which opposite magnetic poles face each other is a set of magnets. In the example illustrated in the drawings, the magnetic poles of the two main body magnets 23 are both N, and the magnetic poles of the two lid member magnets 34 are both S. The main body 2 and the lid member 3

both have magnets with the same magnetic poles facing (exposed at) the surface. However, the magnetic poles may not be the same, and may be opposite poles. That is, one of the two main body magnets 23 may have an N pole exposed at the abutment surface while the other main body magnet 23 may have an S pole exposed at the abutment surface, and the one of the two lid member magnets 34 that faces the main body magnet 23 with the exposed N pole may have an S pole exposed at the abutment surface while the other lid member magnet 34 that faces the main body magnet 23 with the exposed S pole may have an N pole exposed at the abutment surface. In this case, however, there is a disadvantage that the polarities of magnets must be changed when embedding the magnets according to the position thereof during assembly. Therefore, it is desirable for the magnets to be embedded with the same orientation as in the embodiment illustrated in the drawings.

[0034] The number of the sets of magnets is not limited to two, and it is necessary for at least one or more sets to be provided. However, in the case that only one set is provided, there is a possibility that the magnetic force that leak from the cosmetic material container 1 will become locally strong. Therefore, it is desirable for at least two sets of magnets to be provided, so as to distribute the magnetic force that leaks.

[0035] In addition, the positions at which the main body magnets 23 and the lid member magnets 34 are mounted are not limited to the stepped surface 222 and the end surface 33. For example, the main body magnets 23 may be mounted on an outer peripheral surface 212 of the columnar portion 21, and the lid member magnets 34 may be mounted on an inner peripheral surface 35 of the lid member 3.

[0036] As illustrated in Figure 3 and Figure 4, the main body magnets 23 and the lid member magnets 34 are substantially circular in shape, but the shape of the magnets is not particularly limited. The magnets may be rectangular, ring shaped, etc. The main body magnets 23 and the lid member magnets 34 are mounted at positions which are linearly symmetrical with respect to the line L of linear symmetry, but the positions at which the magnets are mounted are not particularly limited. The magnets may be provided at any position as long as opposite magnetic poles face each other in the fitted state.

[0037] If a plurality of lines L of linear symmetry exist for the contours of the outer peripheral surfaces of the main body 2 and the lid member 3, a plurality of fitting positions at which the outer peripheral surface 221 and the outer peripheral surface 32 become coplanar will exist. In the case that all of the plurality of fitting positions are allowed, the positions at which the main body magnets 23 and the lid member magnets 34 are mounted may be positions at which opposite magnetic poles face each other in different fitting positions.

[0038] However, in the case that a logo, a mark, or the like is printed across the outer peripheral surface 221 and the outer peripheral surface 32, and the printed con-

tents can be visually discriminated at only a specific fitting position from among a plurality of fitting positions, for example, it is desirable for the main body magnets 23 and the lid member magnets 34 to be mounted such that opposite poles face each other only at the specific fitting position.

[0039] As illustrated in Figure 3, all of the main body magnets 23 are mounted such that N poles face the end surface 33 during fitting operations. As illustrated in Figure 4, all of the lid member magnets 34 are mounted such that S poles face the stepped surface 222 during fitting operations. The magnets may be mounted with poles opposite those of the present embodiment, that is, such that the S poles of all of the main body magnets 23 face the end surface 33 and the N poles of all of the lid member magnets 34 face the stepped surface 222 during fitting operations.

[0040] In the case that a plurality of sets of magnets are provided, steps during manufacture can be reduced and costs can be decreased, by mounting the magnets such that the directions of the magnetic poles are aligned compared to mounting the magnets such that S poles and N poles alternate, as described previously.

[0041] It is desirable for magnets that leak 500 gauss or less of magnetic force as measured by a known method that employs a known magnetic force sensor in the fitted state to be employed as the main body magnets 23 and the lid member magnets 34, in order to prevent adverse influence from being imparted onto objects which are influenced by magnetic force, such as cards and memories when the cosmetic material container 1 is placed in bags or pockets. As methods realizing leaked magnetic force of 500 gauss or less other than employing weak magnets, the widths of the stepped surface 222 and the end surface 33 may be increased to increase the distance from the magnets to the outer peripheral surface of the cosmetic material container 1, or the magnets may be distributed, even if strong magnets are employed.

[0042] As illustrated in Figure 2, the stepped surface 222 includes two protruding portions 223 which are formed on the stepped surface 222. In addition, the end surface 33 includes two smoothly recessed portions 331 which are formed in the end surface 33. The protruding portions 223 and the recessed portions 331 engage each other at the fitting position.

[0043] Figures 5A through 5D are diagrams that illustrate the transition between fitting and separation of the protruding portions 223 and the recessed portions 331. As illustrated in Figures 5A through 5D, the protruding portions 223 have curved surfaces which are ridged with respect to the stepped surface 222 other than the protruding portions 223. The recessed portions 331 have curved surfaces which are recessed with respect to the end surface 33 other than the recessed portions 331. The curved surfaces of the protruding portions 223 are follower surfaces 224, and the curved surfaces of the recessed portions 331 are cam surfaces 332.

[0044] When the stepped surface 222 and the end sur-

face 33 approach each other, the cam surfaces 332 and the follower surfaces 224 contact each other (refer to Figure 5A). The force of magnetic attraction between the main body magnets 23 and the lid member magnets 34 increases, and the cam surfaces 332 slide smoothly along the follower surfaces 224 (refer to Figure 5B).

[0045] The main body 2 and the lid member 3 relatively move in a direction to approach each other along the rotational axis AX while rotating relative to each other, by the cam mechanism formed by the combination of the cam surfaces 332 and the follower surfaces 224, as well as the operation of the set of magnets.

[0046] When the cam surfaces 332 and the follower surfaces 224 slide until the positions thereof match, the protruding portions 223 and the recessed portions 331 are caused to approach each other by the force of magnetic attraction between the sets of magnets, and engage each other (refer to Figure 5C). At this time, the sensation felt by fingers that rotate the lid member 3 is a feeling not of assisting rotation of the lid member 3, but of the lid member 3 being automatically drawn into the fitted position beyond the force of rotation. The main body magnets 23 and the lid member magnets 34 become magnetically attached and the lid member 3 is positioned at a desired fitting position with respect to the main body 2 in this manner. The set of magnets maintain the fitted state.

[0047] When the lid member 3 is relatively rotated with respect to the main body 2 about the rotational axis AX in order to separate the lid member 3 from the main body 2, the follower surfaces 224 slide along the cam surfaces 332 against the magnetic force (refer to Figure 5D). The force that relatively rotates the lid member 20 about the rotational axis AX is converted to a force that separates the main body 2 and the lid member in the direction of the rotational axis AX by the operation of the cam mechanism described above. The follower surfaces 224 ride up on the cam surfaces 332, and the main body 2 and the lid member 3 are separated from each other.

[0048] The sensation felt by fingers that rotate the lid member 3 at this time is a feeling that requires a force to rotate the lid member 3 against the magnetic force, and a feeling of an urging force that urges the lid member 3 to return to the fitting position by the magnetic force if the fingers are released. When the main body 2 and the lid member 3 move in the direction to separate from each other along the rotational axis X, the fitting is released, and the lid member 3 can be easily removed from the main body 2.

[0049] The cam mechanism described above is not limited to a combination of the protruding portions 223 of the main body 2 and the recessed portions 331 of the lid member 3. Conversely, the end surface 33 of the lid member 3 may have protruding portions 333, and the stepped surface 222 may have recessed portions 225. Curved surfaces of the protruding portions 333 may be follower surfaces 334 and curved surfaces of the recessed portions 225 may be cam surfaces 226.

[0050] In addition, the follower surfaces 224 and the

cam surfaces 332 are not limited to curved surfaces. As illustrated in Figure 7, the follower surfaces 224 may be surfaces which are inclined with respect to the stepped surface 222 other than the protruding portions 223, and the cam surfaces 332 may be surfaces which are inclined with respect to the end surface 33 other than the recessed portions 331. Note that use of inclined surfaces may also be applied to the follower surfaces 334 and the cam surfaces 226 (refer to Figure 6) as well. In this case, the respective surfaces will not be smooth as a whole. However, if the inclined surface of the recessed portion 331, which is formed in the end surface 33, adjacent to the end surface 33 is a gradual inclined surface, the follower surfaces 334 will follow and be easily guided into the recessed portions 331, and therefore smooth movement will be secured.

[0051] The shapes of the follower surfaces 224 and the cam surfaces 332 are not particularly limited. Any shapes may be adopted, as long as at least portions thereof complement each other substantially without gaps when the shapes engage each other. The same applies to the follower surfaces 334 and the cam surfaces 226 (refer to Figure 6) as well.

[0052] One protruding portion 223 and one recessed portion 331 may be provided, as illustrated in Figure 8. In addition, the sizes of the two protruding portions 223 and the two recessed portions 331 may largely differ, as illustrated in Figure 9. In addition, four protruding portions 223 and four recessed portions 331 may be provided, that is, a plurality of pairs of protruding portions and recessed portions may be provided, as illustrated in Figure 10. The same applies to the protruding portions 333 and the recessed portions 225 (refer to Figure 6) as well.

[0053] As illustrated in Figure 11, the present invention may be applied to a cosmetic material container 6 constituted by a cylindrical main body 4 and a lid member 5 which fits onto the main body 4 in a rotatable manner about a rotational axis B. Protruding portions or recessed portions may be formed on a stepped surface 41 of the main body 4, and recessed portions or protruding portions may be formed on an end surface 51 of the lid member.

[0054] Figure 12 is a table that shows the results of various comparative measurements which were conducted on a cosmetic material container (E) of the present invention and other cosmetic material containers (A through D) of the type that maintain fitted states by sets of magnets.

[0055] The items of measurement are: a force (N) necessary to remove the lid members from the main bodies by pulling the lid members in the height direction without rotation; a force necessary to remove the lid members by pulling the lid members while rotating the lid members (units are Newton: N); and magnetic force that leaks in a fitted state (units are gauss: G).

[0056] The cosmetic material containers A through C are not equipped with cam mechanisms constituted by protruding portions and recessed portions, and have con-

figurations that maintain fitting only by magnets. The cosmetic material container A is that in which a set of ring shaped magnets are mounted, the cosmetic material container B is that in which two sets of columnar magnets are mounted, and the cosmetic material container C is that in which four sets of columnar magnets are mounted.

[0057] The cosmetic material container D is that in which four sets of columnar magnets are mounted, and further has a positioning structure constituted by protruding portions and recessed portions. This positioning structure is a simple engagement between protrusions and recesses, and if rotation of the lid member is attempted, the protruding portions and the recessed portions do not slide with each other, but rather suppress relative rotating motion of the lid member with respect to the main body in the fitted state.

[0058] As shown in Figure 12, it is possible to employ a set of magnets having a comparatively weak magnetic force in the cosmetic material container of the present invention. Thereby, it is possible to remove the lid member in the cosmetic material container 1 with a weaker force than the cosmetic material containers A through D, both in cases in which the lid member is simply pulled, and cases in which the lid member is pulled while being rotated.

[0059] As described above, according to the present embodiment, the cam mechanism formed by the cam surfaces 332 (recessed portions) and the follower surfaces (protruding portions) 224 cause the main body 2 and the lid member 3 to approach each other or separate from each other in response to rotation of the main body 2 with respect to the lid member 3 in the axial direction of the rotational axis AX. Therefore, smooth fitting and removal can be realized. In addition, fitting operations while receiving magnetic force and removal against the magnetic force impart a favorable sense of use, a sense of richness, and a sense of class to users.

[0060] The cosmetic material container of the present invention may be applied to containers that house a cosmetic material for the eyebrows and eyes, such as eyeliner, mascara, eye shadow, and an eyebrow pencil/liner. The cosmetic material container of the present invention may also be applied to containers that house a liquid or a semiliquid cosmetic material as an external preparation for skin.

[0061] In the above description, the follower surfaces 224 and the cam surfaces 332 provided on the abutment surfaces 222 and 33 of the main body 2 and the lid member 3 are provided at an interval (180 degrees, for example) along an arc having the rotational axis AX at its center. However, the cam surface (step) may be a surface that rises throughout the entirety of a 360 degree angular range. Such an embodiment is illustrated in Figure 13.

[0062] Figure 13 illustrates a third embodiment of the present invention. A cosmetic container of the third embodiment is constituted by a main body 12 and a lid member 13 which are coaxial with the rotational axis AX, and a push type discharge unit 12B that discharges a cos-

metic material is fixed on a base end portion 12A of the main body.

[0063] The main body 12 and the lid member 13 are of different shapes of which the cross sectional shapes perpendicular to the rotational axis AX are not circular but symmetrical with respect to one axis. The position at which the lid member is fitted onto the main body is clearly discernable from the outer shapes thereof. A step 14 which is the same shape as an upper surface 12C of the base end portion 12A and is smaller than the upper surface 12C is formed on the upper surface 12C. The discharge unit 12B is fixed on the step 14. The step 14 has a deformed triangular upper surface 14B which is surrounded by an inclined surface 14A which is the side surface of the step 14.

[0064] The lid member 13 is equipped with an abutment surface 13A that abuts the upper surface 12C of the base end portion 12A of the main body when fitted thereon, a recess 13B for accommodating the step 14 of the main body 12, and a housing hole 13C having a circular cross section for accommodating the discharge unit 12B. The inner surface of the recess 13B is formed to accommodate the step 14 substantially along the outer surface of the step 14. Although not illustrated in the drawing, magnets that attract each other are embedded in the abutment surfaces 12C and 13A of the main body 12 and the lid member 13, or in the outer surface of the step 14 and the inner surface of the recess 13B.

[0065] When the cosmetic material container of the third embodiment is opened and closed, if the lid member 13 is rotated with respect to the main body 12 in a fitted state, the lid member 13 rides up on the step 14 of the main body 12 to separate from the main body 12. When fitting the lid member 13 onto the main body 12, if the lid member 13 is fitted onto the main body 12 according to the outer shapes thereof, the lid member 13 is positioned along the inclined surface of the step 14, and simultaneously attracted into the fitting position by magnetic force. In this case, 14A functions as a cam surface.

[0066] The present invention is not particularly limited to the embodiments described above, and may be modified as appropriate as long as such modifications do not stray from the spirit of the present invention.

[Explanation of the Reference Numerals]

[0067]

- 1, 6 cosmetic material container
- 2, 4 main body
- 3, 5 lid member
- 21 columnar portion
- 22 base end portion
- 23 main body magnet
- 32 outer peripheral surface (lid member)
- 33, 51 end surface (abutment surface)
- 34 lid member magnet
- 41, 222 stepped surface (abutment surface)

- 221 outer peripheral surface (base end portion)
- 223, 333 protruding portion
- 224, 334 follower surface
- 225, 331 recessed portion
- 226, 332 cam surface

Claims

1. A cosmetic material container, comprising:

a main body that houses a cosmetic material;
a lid member which is fitted onto the main body in a relatively rotatable manner; and
at least one set of magnets that maintain a fitted state between the main body and the lid member; **characterized by**:

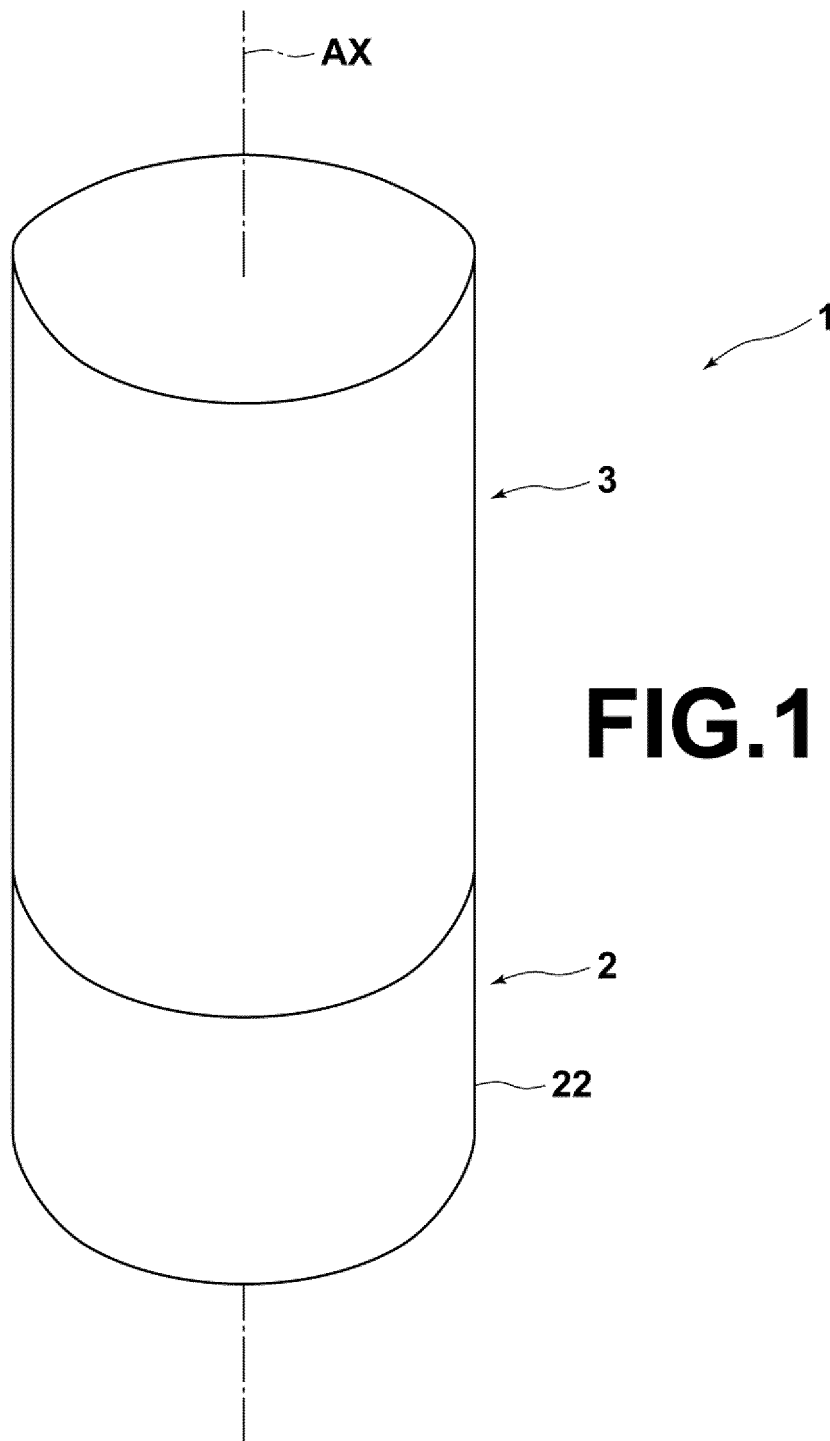
the main body and the lid member respectively having abutment surfaces that abut each other during a fitting operation;
the abutment surfaces being configured to separate and approach each other between a position at which the main body and the lid member are positioned at a predetermined position in a rotational direction of the lid member such that the abutment surfaces abut each other, and a position other than the predetermined position at which the main body and the lid member are separated in a direction of a rotational axis;
the lid member being movable between a fitted position at which the abutment surfaces abut each other and the main body and the lid member are maintained in a fitted state by magnetic force, and a separated position at which the abutment surfaces are in the position other than the predetermined position, separated from each other against the magnetic force, by rotating the lid member.

2. A cosmetic material container, comprising:

a main body that houses a cosmetic material;
a lid member which is fitted onto the main body in a relatively rotatable manner; and
at least one set of magnets that maintain a fitted state between the main body and the lid member; **characterized by**:

the main body and the lid member respectively having abutment surfaces that abut each other during a fitting operation;
one of the abutment surfaces including a cam surface, and the other of the abutment surfaces including a follower surface that follows along the cam surface;

- the cam surface and the follower surface being configured to move the main body and the lid member in a direction of a rotational axis in response to relative rotation of the lid member with respect to the main body; and
the lid member being movable between a fitted position at which the abutment surfaces abut each other and the main body and the lid member are maintained in a fitted state by magnetic force, and a separated position at which the abutment surfaces are separated from each other against the magnetic force, by rotating the lid member.
3. A cosmetic material container as defined in Claim 1 or Claim 2, **characterized by:**
- one of the cam surface and the follower surface being formed as a recessed portion provided in one of the abutment surfaces, and the other of the cam surface and the follower surface being formed on the other of the abutment surfaces as a protruding portion that abuts the recessed portion; and
the main body and the lid member being configured to separate by the recessed portion riding up on the protruding portion due to the rotation.
4. A cosmetic material container as defined in any one of Claims 1 through 3, **characterized by:**
a plurality of combinations of the recessed portion and the protruding portion being provided along an arc having the rotational axis as its center.
5. A cosmetic material container as defined in any one of Claims 1 through 4, **characterized by:**
- the main body being a cylinder; and
a lipstick which is capable of being fed out being contained in the cylinder.
6. A cosmetic material container as defined in any one of Claims 1 through 5, **characterized by:**
an outer peripheral surface of the lid member and an outer peripheral surface of the main body being coplanar in the fitted state.
7. A cosmetic material container as defined in any one of Claims 1 through 6, **characterized by:**
the cross sectional shapes of the main body and the lid member perpendicular to the direction of the rotational axis being linearly symmetrical with respect to one line.
8. A cosmetic material container as defined in any one of Claims 1 through 7, **characterized by** comprising:
a plurality of the sets of magnets.
9. A cosmetic material container as defined in any one of Claims 1 through 8, **characterized by:**
one of the sets of magnets being provided at one of the abutment surfaces, and the other of the sets of magnets being provided at the other of the abutment surfaces.
10. A cosmetic material container as defined in Claim 9, **characterized by:**
the one of the sets of magnets at one of the abutment surfaces having an N pole facing the other abutment surface, and the other of the sets of magnets at the other of the abutment surfaces having an S pole facing the one of the abutment surfaces.
11. A cosmetic material container as defined in any one of Claims 1 through 10, **characterized by:**
magnetic force that leaks from the set of magnets in the fitted state being 500 gauss or less.
12. A cosmetic material container, comprising:
- a main body that houses a cosmetic material;
a lid member which is fitted onto the main body;
and
at least one set of magnets that maintain a fitted state between the main body and the lid member; **characterized by:**
- the main body and the lid member respectively having abutment surfaces that abut each other during a fitting operation; and
one of the abutment surfaces including a cam surface, and the other of the abutment surfaces including a follower surface that follows along the cam surface.



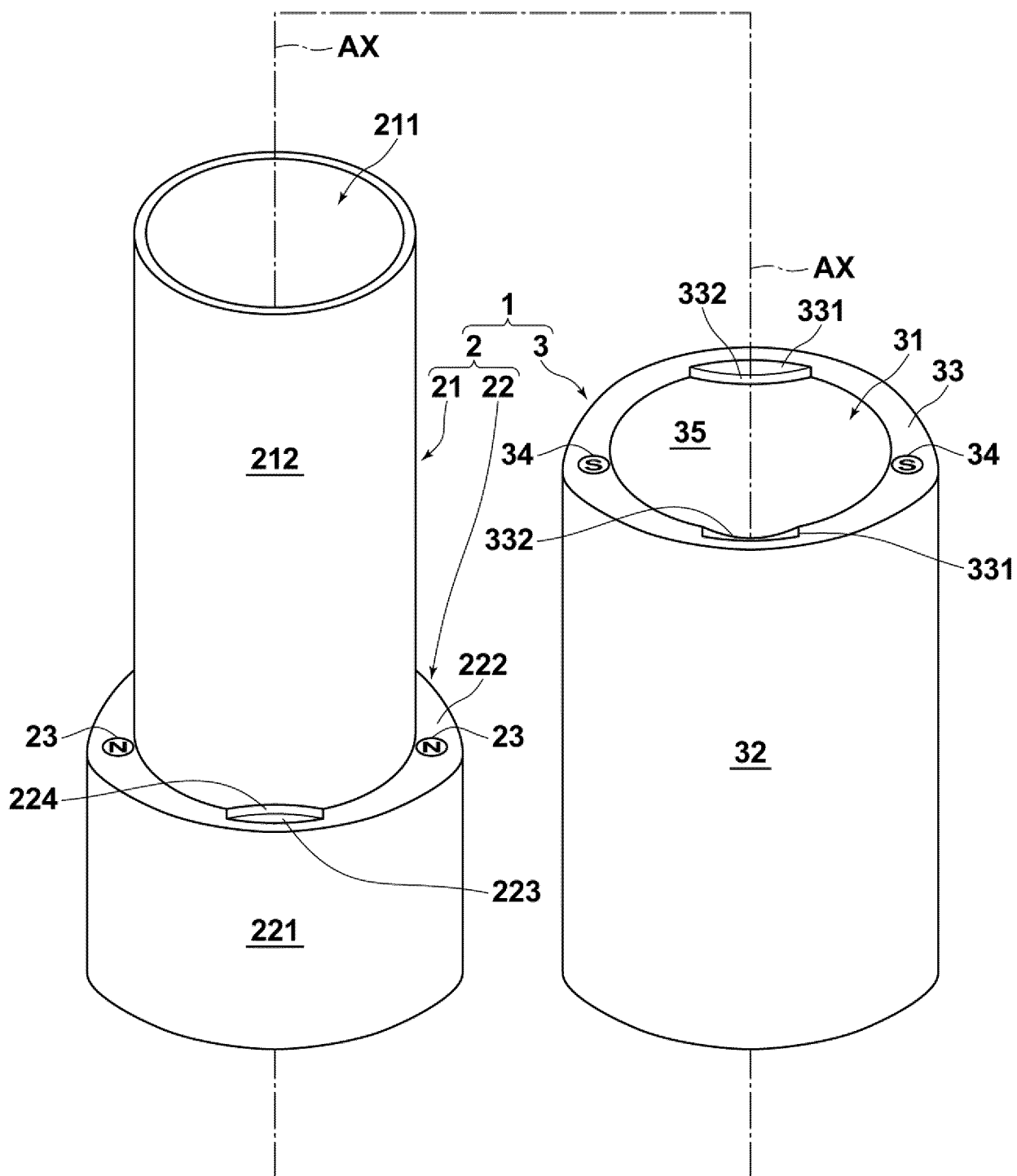


FIG.2

FIG.3

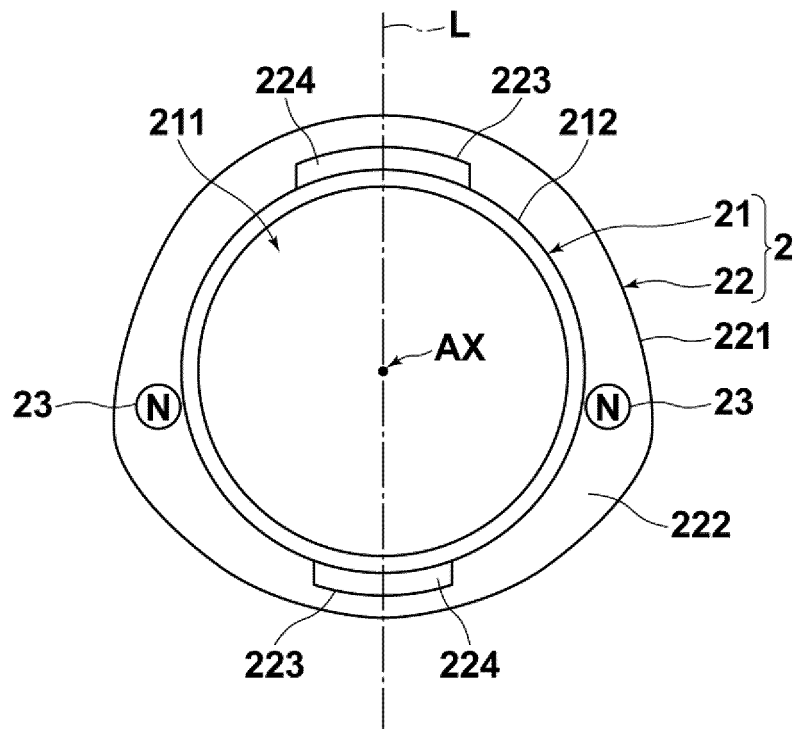


FIG.4

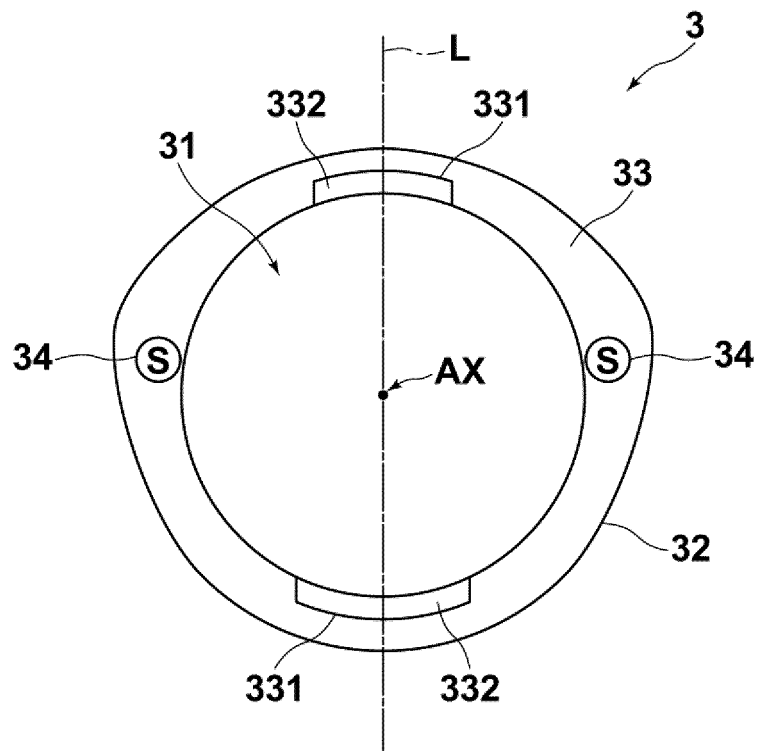


FIG.5C

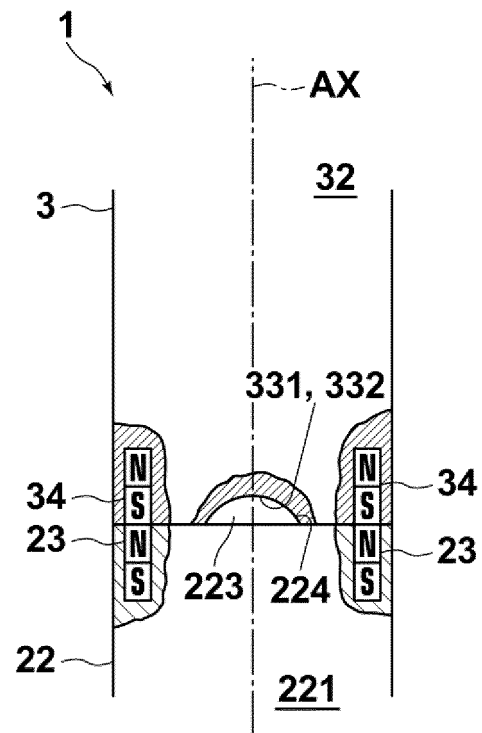


FIG.5D

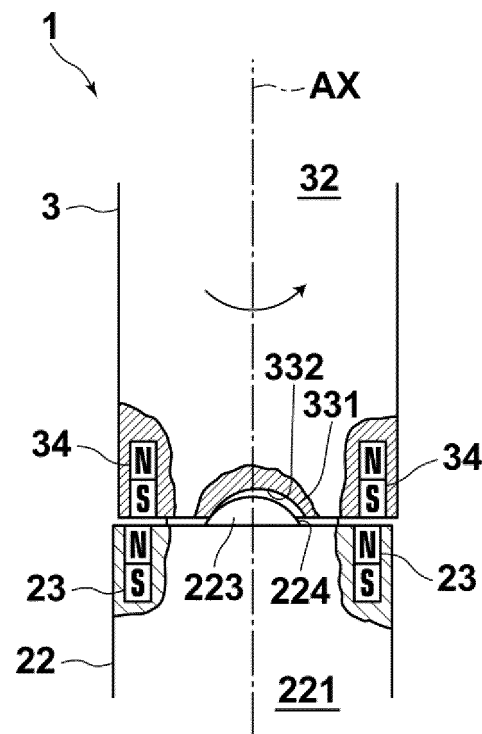


FIG.6

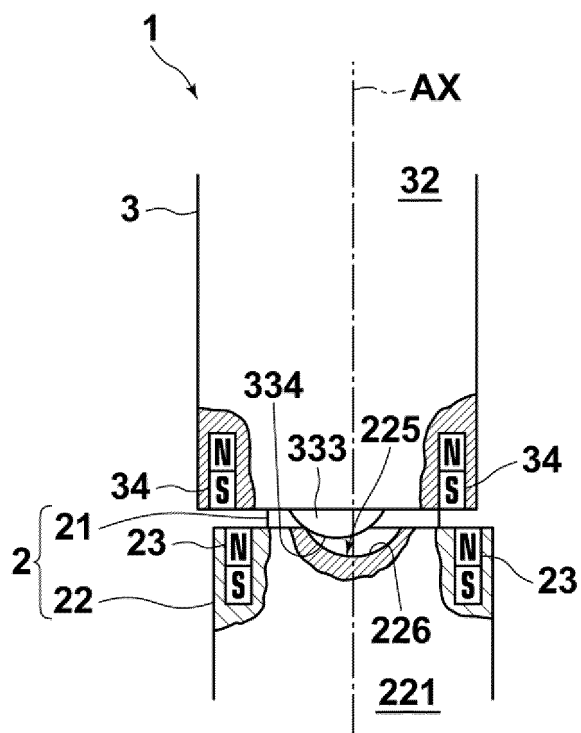


FIG.7

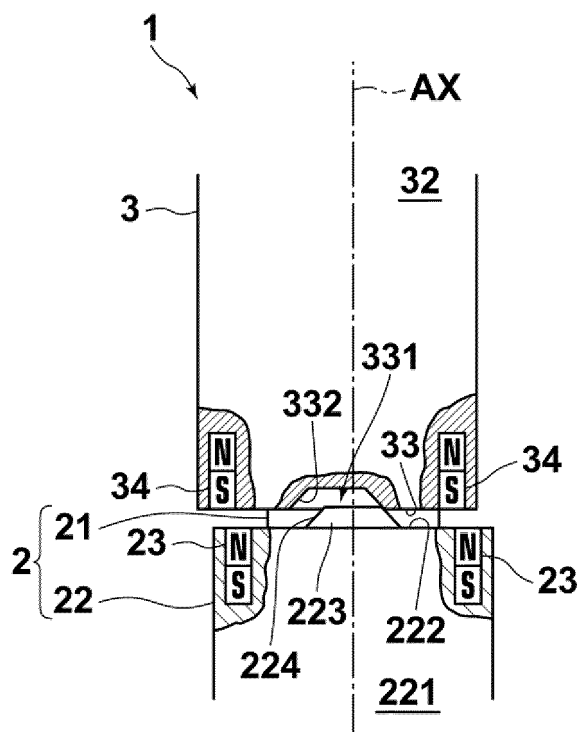


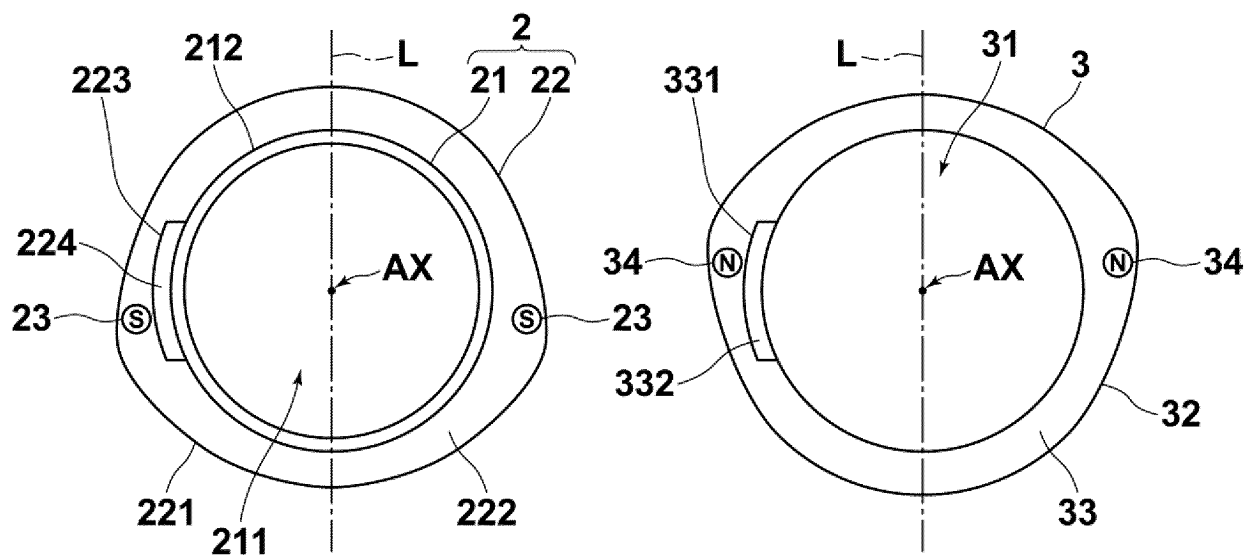
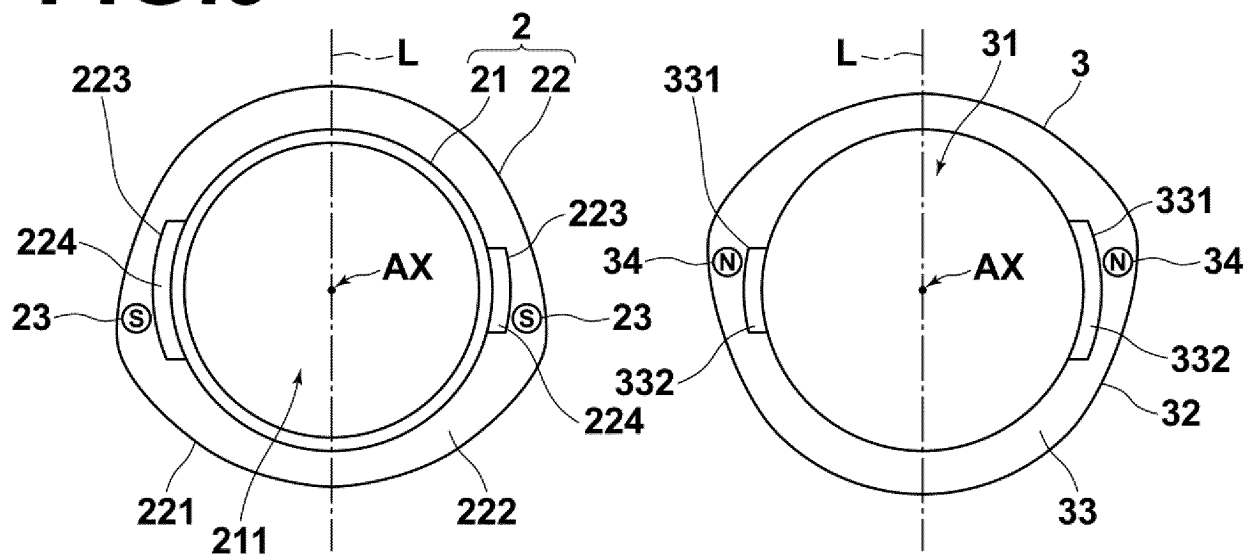
FIG.8**FIG.9**

FIG.10

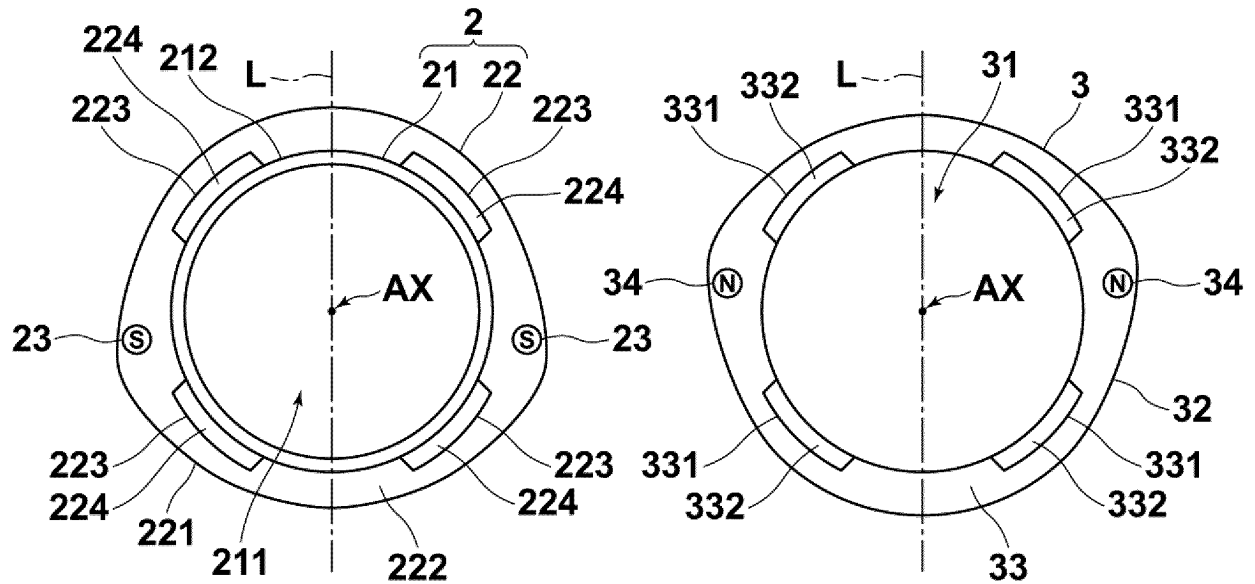


FIG.11

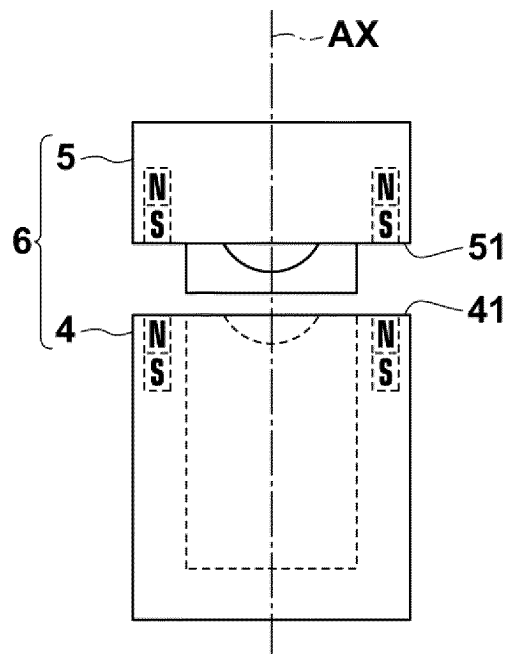
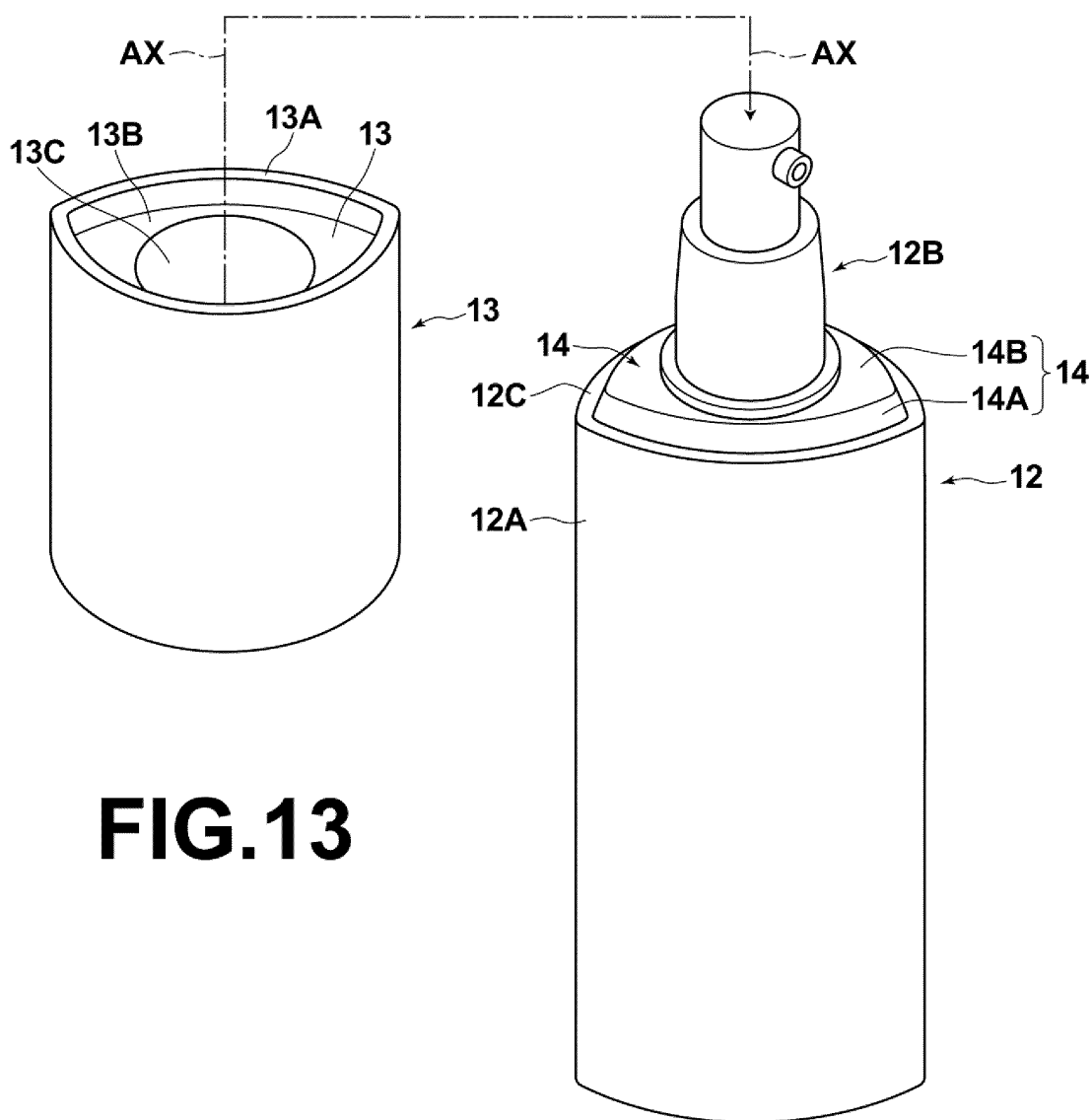


FIG.12

	A	B	C	D	E (PRESENT INVENTION)
REMOVAL FORCE (BY PULLING)	3.1~3.3N	3.1~3.3N	3.8~4.2N	2.0~2.5N	1.5~2.8N (Ave.2.07N)
REMOVAL FORCE (BY ROTATION)	1.3~1.4N	1.7~2.1N	2.6~2.9N	NOT ROTATABLE	1.4~2.7N
LEAKED MAGNETIC FORCE (EXTERIOR OF CONTAINER)	Max 490G	Max 500G	Max 420G	Max 760G	Max 460G

**FIG.13**

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2017/004890

A. CLASSIFICATION OF SUBJECT MATTER
A45D40/00(2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A45D40/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2017
Kokai Jitsuyo Shinan Koho 1971-2017 Toroku Jitsuyo Shinan Koho 1994-2017

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 5480553 B2 (Hidan Co., Ltd.),	1, 3-4
Y	23 April 2014 (23.04.2014),	5-10
A	paragraphs [0001], [0010] to [0020]; fig. 1 to 5 & US 2011/0073601 A1 paragraphs [0002], [0035] to [0046]; fig. 1 to 5 & EP 2281476 A1	2, 11-12

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

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"P" document published prior to the international filing date but later than the priority date claimed

"T" 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

"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

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Date of the actual completion of the international search
10 April 2017 (10.04.17)

Date of mailing of the international search report
18 April 2017 (18.04.17)

Name and mailing address of the ISA/
Japan Patent Office
3-4-3, Kasumigaseki, Chiyoda-ku,
Tokyo 100-8915, Japan

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2017/004890

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 42177/1986(Laid-open No. 15715/1987) (Kamaya Kagaku Kogyo Co., Ltd.), 03 October 1987 (03.10.1987), specification, page 6, lines 1 to 12; fig. 1 to 2 (Family: none)	5-10 2,11-12
Y A	JP 3186606 U (Tombow Pencil Co., Ltd.), 17 October 2013 (17.10.2013), paragraph [0023]; fig. 6 to 8 (Family: none)	7-10 2,11-12
A	JP 11-89629 A (Key Trading Co., Ltd.), 06 April 1999 (06.04.1999), paragraph [0002]; fig. 23 (Family: none)	1-12
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 73110/1982(Laid-open No. 174026/1983) (Pola Chemical Industries Inc.), 21 November 1983 (21.11.1983), specification, page 3, line 7 to page 6, line 5; fig. 1 to 6 (Family: none)	1-12
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 074055/1981(Laid-open No. 187117/1982) (Kabushiki Kaisha Katsushika Press Kogyosho), 27 November 1982 (27.11.1982), specification, page 1, line 11 to page 3, line 16; fig. 1 to 3 (Family: none)	1-12
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 110345/1978(Laid-open No. 27651/1980) (Kabushiki Kaisha Hidan Seisakusho), 22 February 1980 (22.02.1980), specification, page 1, line 11 to page 3, line 3; fig. 1 to 2 (Family: none)	1-12
A	US 2004/0213624 A1 (ROBERT PETIT), 28 October 2004 (28.10.2004), paragraphs [0037] to [0045]; fig. 1 & FR 2854039 A	1-12

Form PCT/ISA/210 (continuation of second sheet) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- JP 5480553 B [0004]