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(54) **DEVICE FOR APPLYING A COSMETIC  
PRODUCT STICK**

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(57) **ABSTRACT**

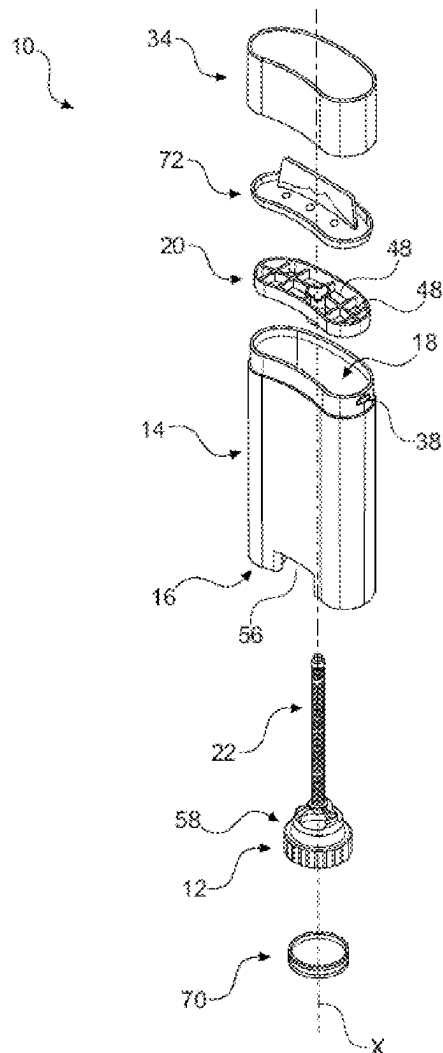
An application device for applying a cosmetic product (e.g., a stick of cosmetic product). The application device has a main longitudinal axis and includes a container, a movable support, a drive screw, an actuating means, a connecting skirt. The container forms a reservoir of the cosmetic product and extends axially from an open lower bottom towards an upper dispensing opening. The movable support disposed axially inside the container and configured to be linked to the cosmetic product. The drive screw causes an axial displacement of the movable support inside the container. The actuating means for the drive screw. The actuating means and the connecting skirt forming a duct for the passage of the fluid cosmetic product from the outside towards the inside of the container when filling the container with cosmetic product.

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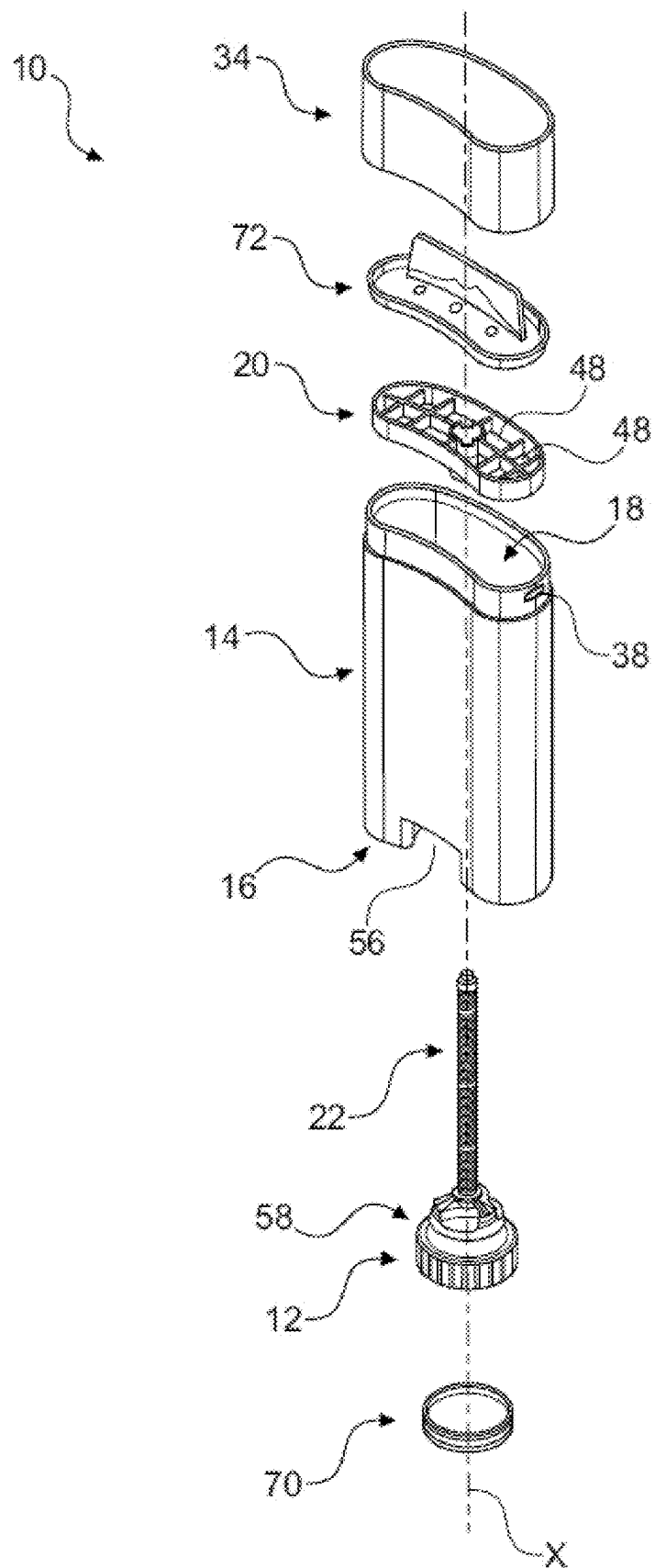
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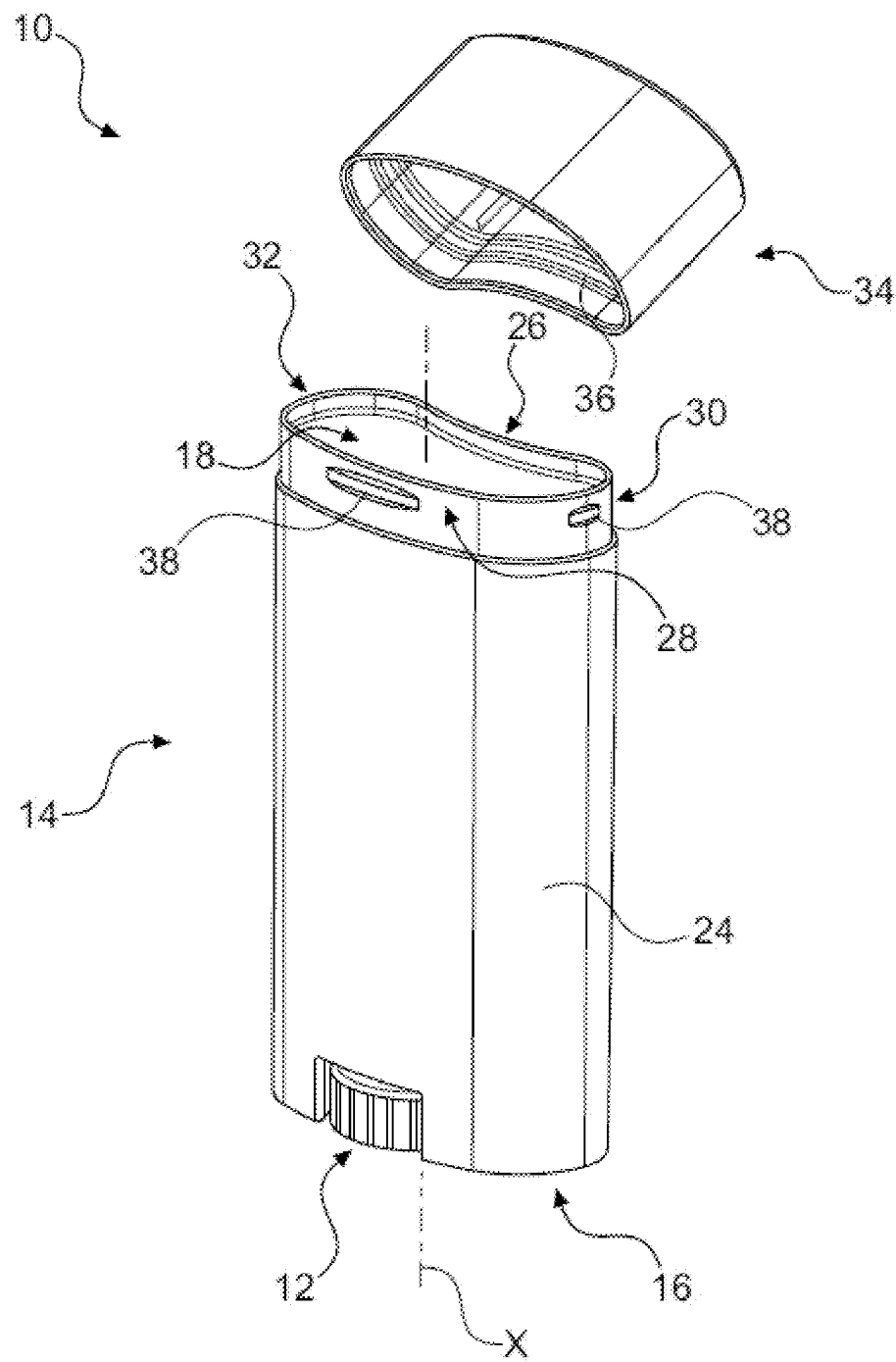
Feb. 16, 2024 (FR) ..... FR2401545



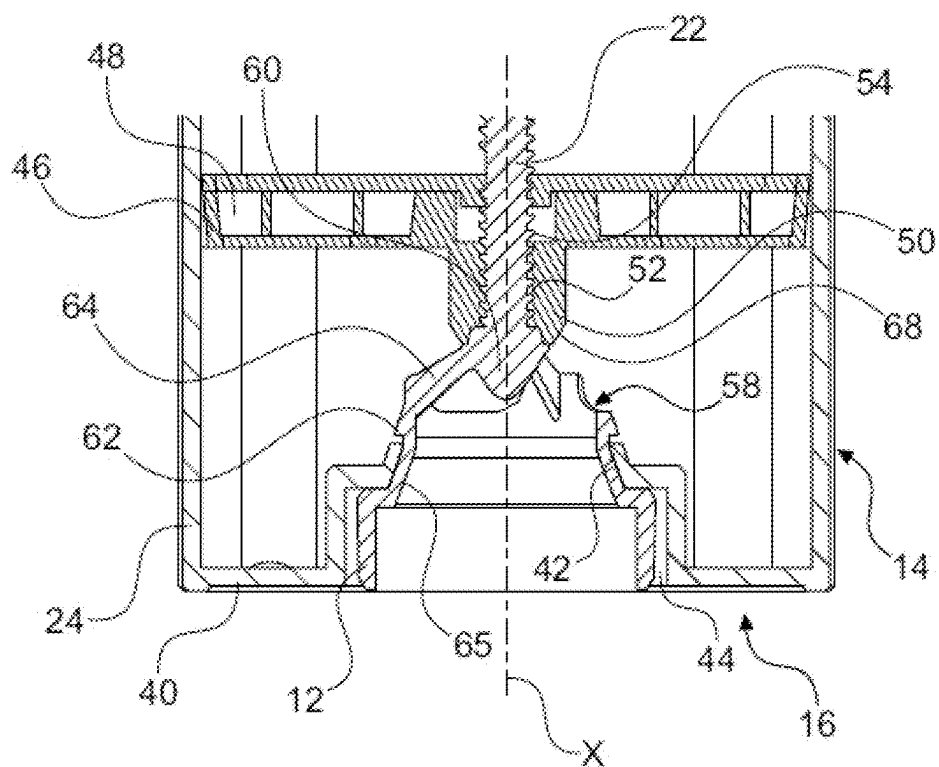
[Fig. 1]



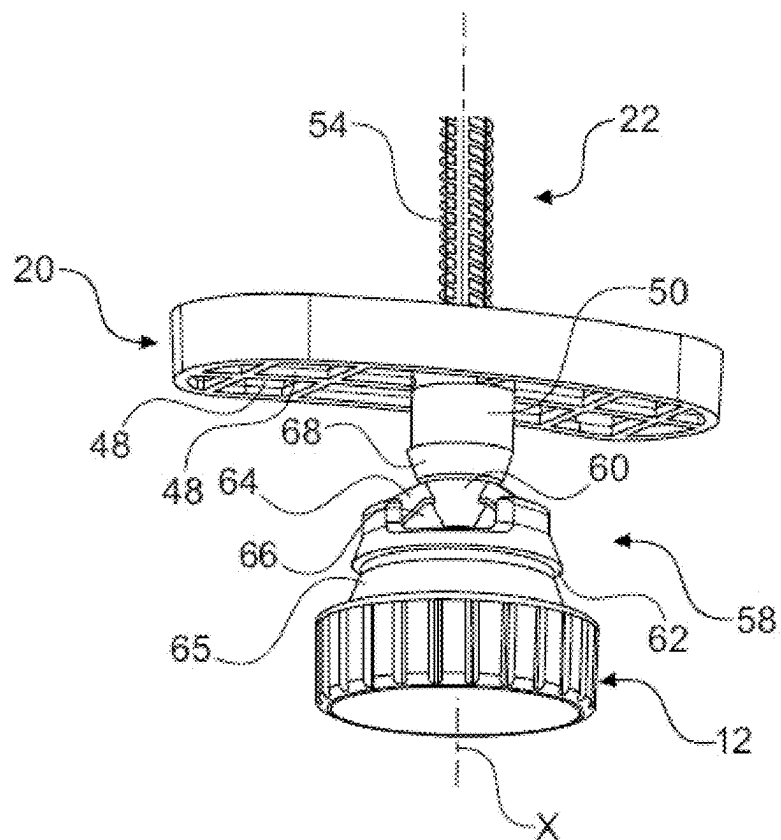
[Fig.2]



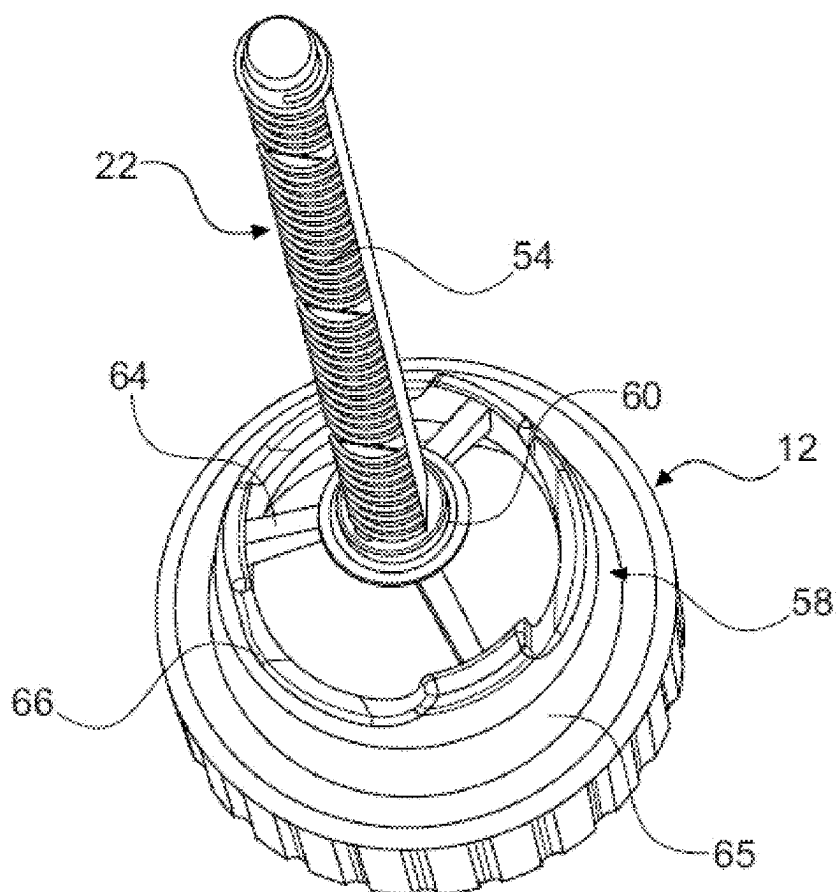
[Fig.3]



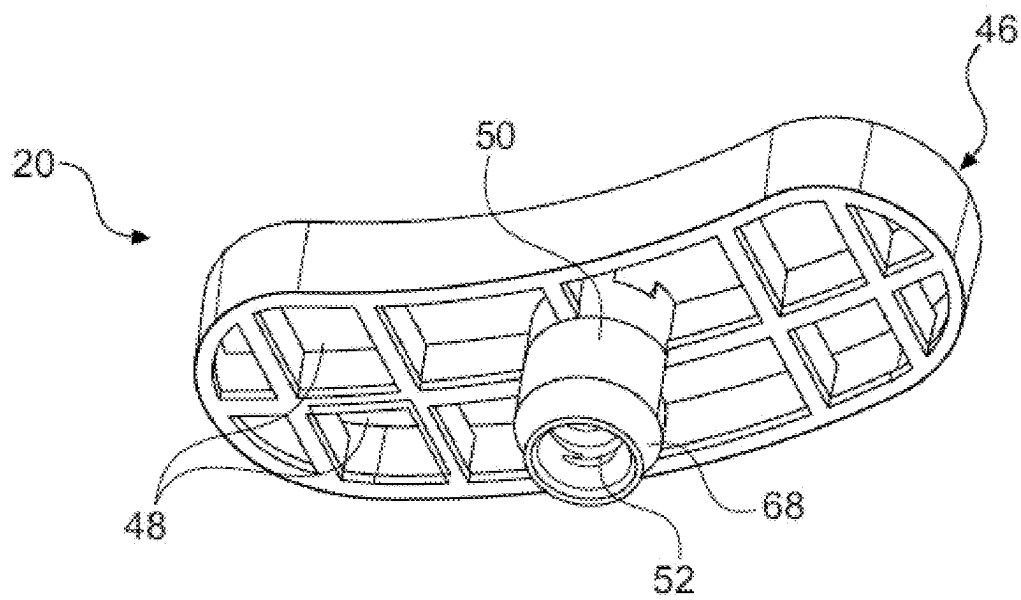
[Fig.4]



[Fig.5]



[Fig.6]



## DEVICE FOR APPLYING A COSMETIC PRODUCT STICK

### CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to French Application No. 2401545, filed on Feb. 16, 2024, the contents of which is incorporated herein by reference in its entirety.

### TECHNICAL FIELD OF THE INVENTION

[0002] The invention relates to a device for applying a cosmetic product, comprising a rotary system for raising and lowering the cosmetic product. This includes a cosmetic product in stick form, such as a deodorant, lipstick or lip balm.

### TECHNICAL BACKGROUND

[0003] It is known that in certain cosmetic product application devices, the rotary system for raising and lowering the cosmetic product comprises a central drive screw on which is mounted a support that can be raised and lowered. The cosmetic product is placed on the support and, by rotating the drive screw, for example by means of a knob, the support goes up or down, allowing the cosmetic product to be taken out for application or to be taken in after use.

[0004] Generally, the cosmetic product is charged in liquid form from the bottom of the application device, for example at the level of the knob. A reclosable opening is then arranged in the bottom of the application device, through which the product is poured by heat into an internal volume of the application device, which forms a mold. After cooling, the stick of cosmetic product is formed inside the application device and ready for use.

[0005] During filling, the cosmetic product is poured through the drive screw and the support. Openings are thus formed to allow the liquid cosmetic product to pass through. Not only do the openings restrict the filling speed, but the passage of the cosmetic product very often causes splashes and turbulence, resulting in poor filling.

[0006] There is therefore a need for a solution that solves at least some of the disadvantages mentioned while maintaining an application device that is simple to design and use.

### SUMMARY OF THE INVENTION

[0007] The invention thus concerns an application device for applying a cosmetic product, in particular a stick of cosmetic product, said application device having a main longitudinal axis and comprising:

[0008] a container forming a reservoir of cosmetic product and extending axially from an open lower bottom towards an upper dispensing opening for dispensing the cosmetic product,

[0009] a support movable axially inside the container and configured to be linked to the cosmetic product,

[0010] a drive screw whose a rotational movement causes an axial displacement of the movable support inside the container,

[0011] an actuating means accessible to the user to cause the rotational movement of the drive screw and housed in the open lower bottom of the container,

[0012] a connecting skirt extending from the actuating means towards a lower end of the drive screw, the connecting skirt being funnel-shaped towards the drive screw,

the actuating means and the connecting skirt forming a duct for the passage of the fluid cosmetic product from the outside towards the inside of the container when filling the container with cosmetic product.

[0013] In other words, the funnel shape of the actuating means and the connecting skirt allows to facilitate the flow of the cosmetic product when filling the container. The disruptions are thus limited and the filling flow remains constant, which allows to optimize the production or at least limit the risk of production slowdowns due to filling.

[0014] According to various embodiments of the invention, which may be taken together or separately:

[0015] the movable support is axially movable inside the container from a lower extreme position towards an upper extreme position,

[0016] the connecting skirt comprises at least one material bridge,

[0017] the connecting skirt and the drive screw are linked by the at least one material bridge,

[0018] the at least one material bridge is inclined towards the upper dispensing opening of the container,

[0019] the number of material bridges between the connecting skirt and the drive screw is between two and six, preferably between three and five, the connecting skirt comprises an inclined wall,

[0020] the connecting skirt is in the extension of the actuating means,

[0021] the actuating means, the connecting skirt and the drive screw are integral and formed in one-part,

[0022] the actuating means, the connecting skirt and the drive screw are a monolithic part,

[0023] an upper edge of the connecting skirt comprises at least one indentation increasing the cross-sectional area through which the fluid cosmetic product passes when filling the container with cosmetic product,

[0024] the at least one material bridge is linked to the upper edge of the connecting skirt in an area without an indentation,

[0025] the connecting skirt and the drive screw are linked by at least two material bridges, the at least two material bridges are linked to the upper edge of the connecting skirt between two adjacent indentations,

[0026] the actuating means is blocked axially in the open lower bottom of the container and free to rotate relative thereto,

[0027] the actuating means is clipped into the open lower bottom of the container,

[0028] the external end of the drive screw is ogive-shaped,

[0029] the movable support comprises a transverse wall equipped with openings for the passage of the fluid cosmetic product when filling the container with cosmetic product,

[0030] the movable support comprises a central skirt through which the drive screw passes,

[0031] an internal wall of the central skirt of the movable support comprises a thread cooperating with a thread of the drive screw so that the rotational movement of the drive screw causes axial displacement of the movable support inside the container,

- [0032] an external wall of the central skirt of the movable support has a chamfer in an extension of the ogive shape of the lower end of the drive screw, when the movable support is in abutment with the ogive shape of the lower end of the drive screw,
- [0033] the transverse wall of the movable support is a grid,
- [0034] the container is cylindrical,
- [0035] the grid is bean-shaped,
- [0036] the grid has a concave side and an opposite convex side,
- [0037] the actuating means has a circular cross-section,
- [0038] the container has an oblong cross-section,
- [0039] the movable support has a cross-sectional shape similar to the cross-section of the container,
- [0040] the actuating means is closed by a cap,
- [0041] the application device is made from a single material,
- [0042] the single material is a thermoplastic polymer,
- [0043] the single material is polypropylene.

#### BRIEF DESCRIPTION OF THE FIGURES

- [0044] The invention will be better understood, and other characteristics and advantages thereof will become apparent in the course of the detailed description which follows, of at least two examples of embodiment of the invention given by way of purely illustrative and non-limiting examples, with reference to the annexed schematic drawings wherein:
- [0045] FIG. 1 is an exploded perspective view of an application device according to the invention;
- [0046] FIG. 2 is a perspective view of the application device in FIG. 1 with an open cover;
- [0047] FIG. 3 is a cross-sectional view of a lower portion of the application device shown in FIG. 1;
- [0048] FIG. 4 is a perspective view of a drive screw, an actuation means and a movable support of the application device in FIG. 1;
- [0049] FIG. 5 is a perspective view of the drive screw and the actuation means of FIG. 4;
- [0050] FIG. 6 is a perspective view of the movable support shown in FIG. 4.

#### DETAILED DESCRIPTION OF THE INVENTION

- [0051] By convention, the “axial” or “longitudinal” direction in the figures corresponds to that of the main axis X of an application device 10 for applying a fluid product, and the “transverse” direction is orthogonal to the axial direction.
- [0052] In the following detailed description of the figures, the terms “upper” and “lower” or “top” and “low” will be used without limitation in reference to the axial direction. The lower portion of the application device 10 corresponds, here, to the part where an actuating means 12 is positioned.
- [0053] Similarly, the terms “outer or external” and “inner or internal” are used in reference to the transverse direction, an external element being radially further from the axis X than an inner element.
- [0054] FIGS. 1 to 6 illustrate an example of an application device 10 for applying a cosmetic product, in particular a stick of cosmetic product and having a main longitudinal axis X.
- [0055] A “stick” is a rigid, elongated object. In other words, the cosmetic product is rigid and elongated, i.e. it

extends along a longitudinal axis coinciding with the main longitudinal axis X of the application device 10.

[0056] The cosmetic product may be, for example, a deodorant, lipstick or lip balm.

[0057] The application device 10 comprises:

- [0058] a container 14 forming a reservoir of cosmetic product and extending axially from an open lower bottom 16 towards an upper dispensing opening 18 for dispensing the cosmetic product,
- [0059] a movable support 20 axially inside the container 14 and configured to be linked to the cosmetic product,
- [0060] a drive screw 22 whose a rotational movement causes an axial displacement of the movable support 20 inside the container 14, and
- [0061] an actuating means 12 accessible to the user to cause the rotational movement of the drive screw 22 and housed in the open lower bottom 16 of the container 14.

[0062] Preferably, the container 14 is cylindrical.

[0063] The container 14 comprises an axial wall 24 extending from the open lower bottom 16 towards the upper dispensing opening 18 and delimiting an inner volume forming the cosmetic product reservoir.

[0064] The container 14 has an oblong cross-section, in particular in the shape of a bean. The cross-section thus comprises a concave side 26 and an opposite convex side 28 connected by convex lateral sides 30, 32 with a smaller radius of curvature.

[0065] The upper dispensing opening 18 of the container 14 has a similar shape to the cross-section of the container 14. In other words, the upper dispensing opening 18 is in the extension of the axial wall 24.

[0066] An upper end portion of the axial wall 24 adjacent to the upper dispensing opening 18 has a reduced thickness so as to receive a cover 34 for closing the container 14.

[0067] The cover 34 comprises an axial wall extending from a lower edge towards a transverse wall and has a cross-sectional shape similar to the cross-section of the container 14.

[0068] The cover 34 is configured to fit over the upper end portion of the container 14 so as to close the application device 10.

[0069] To hold the cover 34 axially on the container 14, the cover 34 comprises at least one annular groove 36 cooperating with at least one rib 38 on the container 14. There are three ribs 38 located on the convex side 28 and on the two convex lateral sides 30, 32.

[0070] The open lower bottom 16 of the container 14 is a transverse wall 40 comprising an opening 42. The opening 42 is sunken relative to the transverse wall 40 so as to form a cavity 44 with a circular cross-section. The opening 42 is here circular.

[0071] The movable support 20 is configured to move inside the container 14 from the open lower bottom 16 towards the upper dispensing opening 18 as the cosmetic product is consumed.

[0072] Preferably, the movable support 20 moves from a lower extreme position close to the open bottom of the container 14 towards an upper extreme position close to the upper dispensing opening 18.

[0073] The movable support 20 comprises a transverse wall 46 equipped with openings 48 for the passage of the fluid cosmetic product when filling the container 14 with cosmetic product.

[0074] Advantageously, the transverse wall 46 of the movable support 20 can be a grid, as shown here in the embodiment.

[0075] Advantageously, the movable support 20 has a cross-sectional shape similar to the cross-section of the container 14. The grid is therefore bean-shaped, with a concave side and an opposite convex side.

[0076] Advantageously, the movable support 20 comprises a central skirt 50, an internal wall of which comprises a thread 52. The central skirt 50 passes through the transverse wall 46 and extends therefrom, projecting towards the open bottom of the container 14. In other words, a portion of the central skirt 50 is flush with the transverse wall 46 of the movable support 20, i.e. in the plane of the transverse wall 46 of the movable support 20, and a portion extends out of this plane.

[0077] The drive screw 22 is located inside the container 14, in particular in the center of the container. It extends axially from the upper dispensing opening 18 towards the open bottom of the container 14.

[0078] Advantageously, the drive screw 22 passes through the movable support 20, in this case through the central skirt 50 of the movable support 20.

[0079] The drive screw 22 comprises an external thread 54 along its entire length, which cooperates with the thread 52 on the internal wall of the central skirt 50 of the movable support 20.

[0080] A rotational movement of the drive screw 22 along the main longitudinal axis X therefore causes the movable support 20 to move axially inside the container 14.

[0081] A rotation in one direction causes the movable support 20 to go up and a rotation in the opposite direction causes the movable support 20 to go down.

[0082] The actuating means 12 is in the form of a circular knob. This is housed in the open lower bottom 16 of the container 14, in particular in the cavity 44 formed in the open lower bottom 16 of the container 14.

[0083] The axial wall 24 of the container 14 also comprises, on the concave side 26 and on the opposite convex side 28, rectangular notches 56 at the level of the open lower bottom 16 so that the actuating means 12 is accessible to the user. The actuating means 12 is connected to the drive screw 22. In this way, when the user exerts a rotational movement on the actuating means 12, this movement is transmitted to the drive screw 22, which also performs a rotational movement, causing the movable support 20 to move axially inside the container 14.

[0084] In particular, advantageously, the actuating means 12 is axially blocked in the open lower bottom 16 of the container 14 and free to rotate relative to it.

[0085] For example, as in the embodiment illustrated here, the actuating means 12 is clipped into the open lower bottom 16 of the container 14.

[0086] In addition, the actuating means 12 is a hollow part through which the cosmetic product can flow when the container 14 is filled.

[0087] According to the invention, the application device 10 further comprises a connecting skirt 58 extending from the actuation means 12 towards a lower end 60 of the drive screw 22.

[0088] The connecting skirt 58 allows the connection between the actuating means 12 to the drive screw 22. Thus, a rotational movement of the actuating means 12 also causes

a rotational movement of the drive screw 22 and the axial displacement of the movable support 20 inside the container 14.

[0089] Advantageously, the connecting skirt 58 is in the extension of the actuating means 12 and extends from the actuating means 12 towards an upper edge in the direction of the drive screw 22.

[0090] Advantageously, the connecting skirt 58 comprises a bead 62 of material forming a shoulder and cooperating with a periphery of the opening 42 of the open lower bottom 16 of the container 14 so as to axially block the actuating means 12 and the drive screw 22 relative to the container 14 while allowing them a rotational movement relative to the container 14 when a user rotates the actuating means 12.

[0091] Preferably, the connecting skirt 58 comprises at least one material bridge 64.

[0092] The connecting skirt 58 and the drive screw 22 are linked by the at least one material bridge 64. Preferably, the number of material bridges 64 between the connecting skirt 58 and the drive screw 22 is between two and six, even more preferably between three and five.

[0093] Preferably, the material bridges 64 are evenly distributed around the periphery of the connecting skirt 58.

[0094] In the embodiment illustrated here, the material bridges 64 are of the order of three and are evenly distributed around the periphery of the connecting skirt 58. They form an angle of 120° between them.

[0095] Also according to the invention, the connecting skirt 58 is funnel-shaped in the direction of the drive screw 22.

[0096] The actuating means 12 and the connecting skirt 58 thus form a duct for the passage of the fluid cosmetic product from the outside towards the inside of the container 14 when filling the container 14 with cosmetic product.

[0097] Advantageously, the connecting skirt 58 comprises an inclined wall 65 which extends from the actuating means 12 in the direction of the drive screw, here as far as the material bridges 64.

[0098] The inclination is measured in relation to the main longitudinal axis X.

[0099] The cosmetic product can therefore flow along the inclined wall 65 without the risk of any portion of it becoming blocked.

[0100] Advantageously, the inclined wall 65 has no horizontal portion, i.e. orthogonal to the main longitudinal axis X. Such a portion could slow down the flow of the cosmetic product or create an area of turbulence and splashing.

[0101] Advantageously, the at least one material bridge 64 is inclined towards the upper dispensing opening 18 of the container 14, thus favoring the funnel shape of the connecting skirt 58. The at least one material bridge 64 is thus in the extension of the inclined wall 65 of the connecting skirt 58.

[0102] The at least one material bridge 64 may have the same or a different inclination to the wall of the connecting skirt 58. In the embodiment illustrated here, the three material bridges 64 have an inclination less than the inclination of the inclined wall 65 of the connecting skirt 58.

[0103] Indeed, in this type of cosmetic product application device 10, the cosmetic product is introduced into the container 14 in liquid form, preferably through an opening located in the bottom of the container 14.

[0104] Thus, here, the cosmetic product is introduced into the container 14 through the opening 44 in the open lower bottom 16 of the container 14 via the actuating means 12.



[0105] In other words, the funnel shape of the actuating means **12** and the connecting skirt **58** allows to facilitate the flow of the cosmetic product when filling the container **14**. The disruptions are thus limited and the filling flow remains constant, which allows to optimize the production or at least limit the risk of the production slowdowns due to filling.

[0106] The funnel shape also makes it easier to insert the connecting skirt **58** into the cavity **44** and the opening **42** into which it is clipped.

[0107] The cosmetic product is then cured, generally during a step of cooling it.

[0108] Advantageously, the movable support **20** is caught in the hardened material of the cosmetic product and becomes secured to it. The cosmetic product can thus move axially with the movable support **20** as the actuating means **12** rotates.

[0109] Advantageously, the upper edge of the connecting skirt **58** comprises at least one indentation **66** increasing the cross-sectional area through which the fluid cosmetic product passes when filling the container **14** with cosmetic product.

[0110] Preferably, the number of indentations **66** is between two and six, and even more preferably, between three and five.

[0111] Preferably, the indentations **66** are evenly distributed around the periphery of the upper edge of the connecting skirt **58**.

[0112] In the embodiment illustrated here, the connecting skirt **58** comprises three indentations **66** evenly distributed around the periphery of the upper edge. They form an angle of 120° between them.

[0113] In the embodiment shown here, the material bridges **64** are linked to the upper edge of the connecting skirt **58** in an area without an indentation **66**. In particular, the material bridges **64** are linked to the upper edge of the connecting skirt **58** between two adjacent indentations **66**. In this way, the material bridges **64** do not obstruct the passage duct formed by the connecting skirt **58**, in particular by reducing the passage cross-section increased by the indentations **66**. In this way, the material bridges **64** do not compromise the passage of the cosmetic product when filling the container **14**, thus improving the flow of the cosmetic product for a faster filling.

[0114] Preferably, the actuating means **12**, the connecting skirt **58** and the drive screw **22** are integral and formed in one-part. In other words, the actuating means **12**, the connecting skirt **58** and the drive screw **22** are a monolithic part.

[0115] This avoids additional assembly steps, making it easier to design the application device **10**. This also limits the risk of poor assembly and/or fragility during use, which would lead to malfunction of the application device **10**.

[0116] To facilitate the passage of the cosmetic product when filling the container **14**, the external end, also referred to as the lower end **60**, of the drive screw **22** is ogive-shaped.

[0117] The central skirt **50** of the movable support **20** may also end in a chamfer **68**. Preferably, when the movable support **20** is in abutment with the ogive shape of the lower end **60** of the drive screw **22**, the chamfer **68** is in the extension of the lower end **60** of the ogive-shaped drive screw **22**. In other words, when the movable support **20** is in its extreme lower position, here in a position wherein the central skirt **50** of the movable support **20**, more precisely the chamfer **68** of the central skirt **50** of the movable support

**20**, is in contact/abutment with the lower end **60** of the ogive-shaped drive screw **22**, the chamfer **68** and the ogive shape form a cone.

[0118] This shape prevents the cosmetic product from splashing and limits the turbulences when filling with the cosmetic product. The risks of a slowdown in the passage of the cosmetic product through the passage duct formed by the actuating means **12** and the connecting skirt **58** during the filling of the container **14** are thus avoided. The flow of the cosmetic product is therefore more laminar. Advantageously, the actuating means **12** is closed by a cap **70**.

[0119] Once removed, the cap **70** allows access to the filling area, in particular to the passage duct.

[0120] The cap **70** allows to close the container **14** and prevents a deterioration and/or a contamination of the cosmetic product, for example during use.

[0121] Before use, the cosmetic product can also be protected at the upper level by a removable cover **72**. The removable cover **72** closes the container **14**. Thus, when filling the container with cosmetic product, the cover **72** allows to close off the upper dispensing opening **18** of the container **14**. The cover **72** allows to delimit an internal volume forming a mold for the cosmetic product. The cover **72** also allows to prevent the cosmetic product from leaking into the cover **34** during filling.

[0122] Advantageously, at least the actuating means **12**, the connecting skirt **58** and the drive screw **22** are made of a single material.

[0123] Preferably, the application device **10** is produced of a single material.

[0124] In other words, all the elements composing the application device **10** are produced from the same material.

[0125] A single material is defined as the design of one or more elements from a single material.

[0126] The use of a single material, or at least similar materials, to make the various elements composing the application device **10** is particularly interesting for their recycling after use of the cosmetic product. Indeed, the presence of different materials presents disadvantages during the recycling where the parts must be separated. The use of a single material means that all the elements composing the application device **10** can be disposed of together without having to dismantle it, which makes recycling easier.

[0127] The single material is a thermoplastic polymer. Examples include polypropylene (PP), polyethylene terephthalate (PET), post-consumer recycled (PCR) material, in particular post-consumer recycled polypropylene and/or a similar material, and/or a mixture of these.

[0128] Polypropylene is a plastic with a well-known recycling cycle.

1. An application device for applying a cosmetic product, in particular a stick of cosmetic product, said application device having a main longitudinal axis and comprising:

- a container forming a reservoir of cosmetic product and extending axially from an open lower bottom towards an upper dispensing opening for dispensing the cosmetic product,
- a support movable axially inside the container and configured to be linked to the cosmetic product,
- a drive screw whose a rotational movement causes an axial displacement of the movable support inside the container,

an actuating means accessible to the user to cause the rotational movement of the drive screw and housed in the open lower bottom of the container,

a connecting skirt extending from the actuating means towards a lower end of the drive screw, the connecting skirt being funnel-shaped towards the drive screw, the actuating means and the connecting skirt forming a duct for the passage of the fluid cosmetic product from the outside towards the inside of the container when filling the container with cosmetic product.

2. The application device according to claim 1, wherein the connecting skirt and the drive screw are linked by at least one material bridge, the at least one material bridge being inclined towards the upper dispensing opening of the container.

3. The application device according to claim 1, wherein the actuating means, the connecting skirt and the drive screw are integral and formed in one-part.

4. The application device according to claim 1, wherein an upper edge of the connecting skirt comprises at least one indentation increasing the cross-sectional area through which the fluid cosmetic product passes when filling the container with cosmetic product.

5. The application device according to claim 4, wherein the at least one material bridge is linked to the upper edge of the connecting skirt in an area without indentations.

6. The application device according to claim 5, wherein the connecting skirt and the drive screw are linked by at least two material bridges, the at least two material bridges are linked to the upper edge of the connecting skirt between two adjacent indentations.

7. The application device according to claim 1, wherein the actuating means is blocked axially in the open lower bottom of the container and free to rotate relative thereto.

8. The application device according to claim 1, wherein the external end of the drive screw is ogive-shaped.

9. The application device according to claim 1, wherein the movable support comprises a transverse wall equipped with openings for the passage of the fluid cosmetic product when filling the container with cosmetic product.

10. The application device according to claim 1, wherein the movable support comprises a central skirt through which the drive screw passes, an internal wall of the central skirt of the movable support comprising a thread cooperating with a thread of the drive screw so that the rotational movement of the drive screw causes the axial displacement of the movable support inside the container.

11. The application device according to claim 10, wherein an external wall of the central skirt of the movable support has a chamfer in the extension of the ogive shape of the lower end of the drive screw, when the movable support is in abutment with the ogive shape of the lower end of the drive screw.

12. The application device as claimed in claim 9, wherein the transverse wall of the movable support is a grid.

13. The application device according to claim 12, wherein the container is cylindrical and/or the grid is bean-shaped.

14. The application device according to claim 1, wherein the actuating means has a circular cross-section and/or the container has an oblong cross-section.

15. The application device according to claim 1, wherein the movable support has a cross-sectional shape similar to the cross-section of the container.

16. The application device according to claim 1, wherein the actuating means is closed by a cap.

17. The application device according to claim 1, made from a single material, the single material being polypropylene.

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