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(54) **FOAM-TYPE MATERIAL APPLICATOR**

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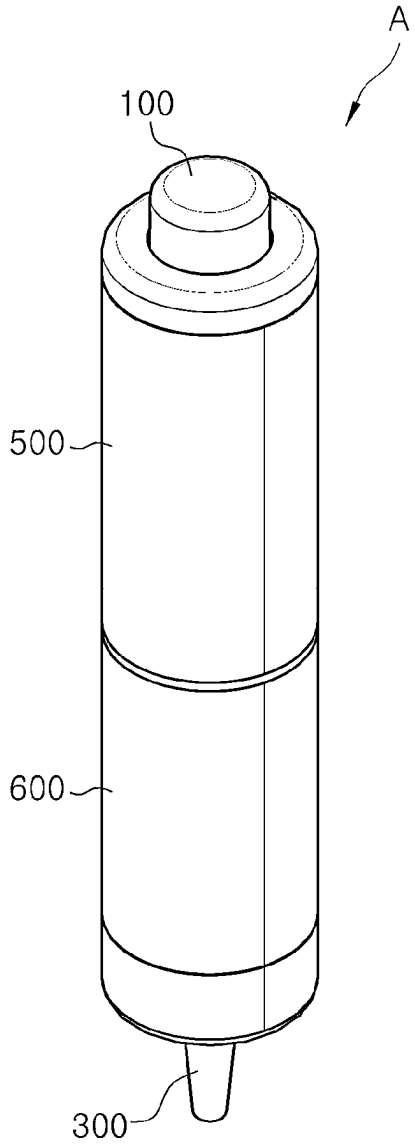
(57) **ABSTRACT**

The present invention relates to a foam-type material applicator and, in particular, to a foam-type material applicator comprising an application body in which a piston provided thereinside advances by a certain distance when a button is pressed, and a temperature-sensitive foam-type material accommodated thereinside is discharged in a fixed amount through a nozzle to the outside near an application area such as the scalp, wherein the application body is configured such that the piston remains in an advanced state when the button is released such that a certain amount of the foam-type material is discharged whenever the button is pressed.



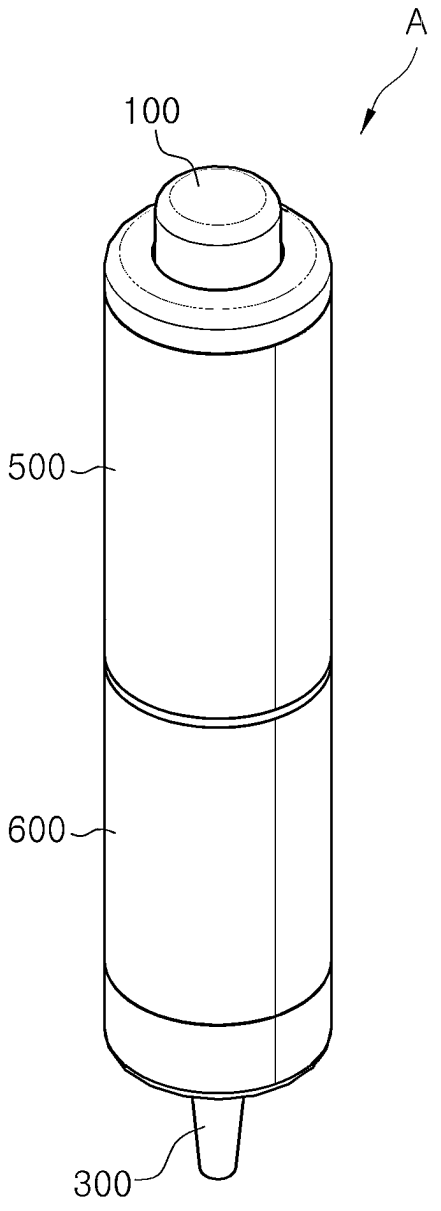


FIG. 1

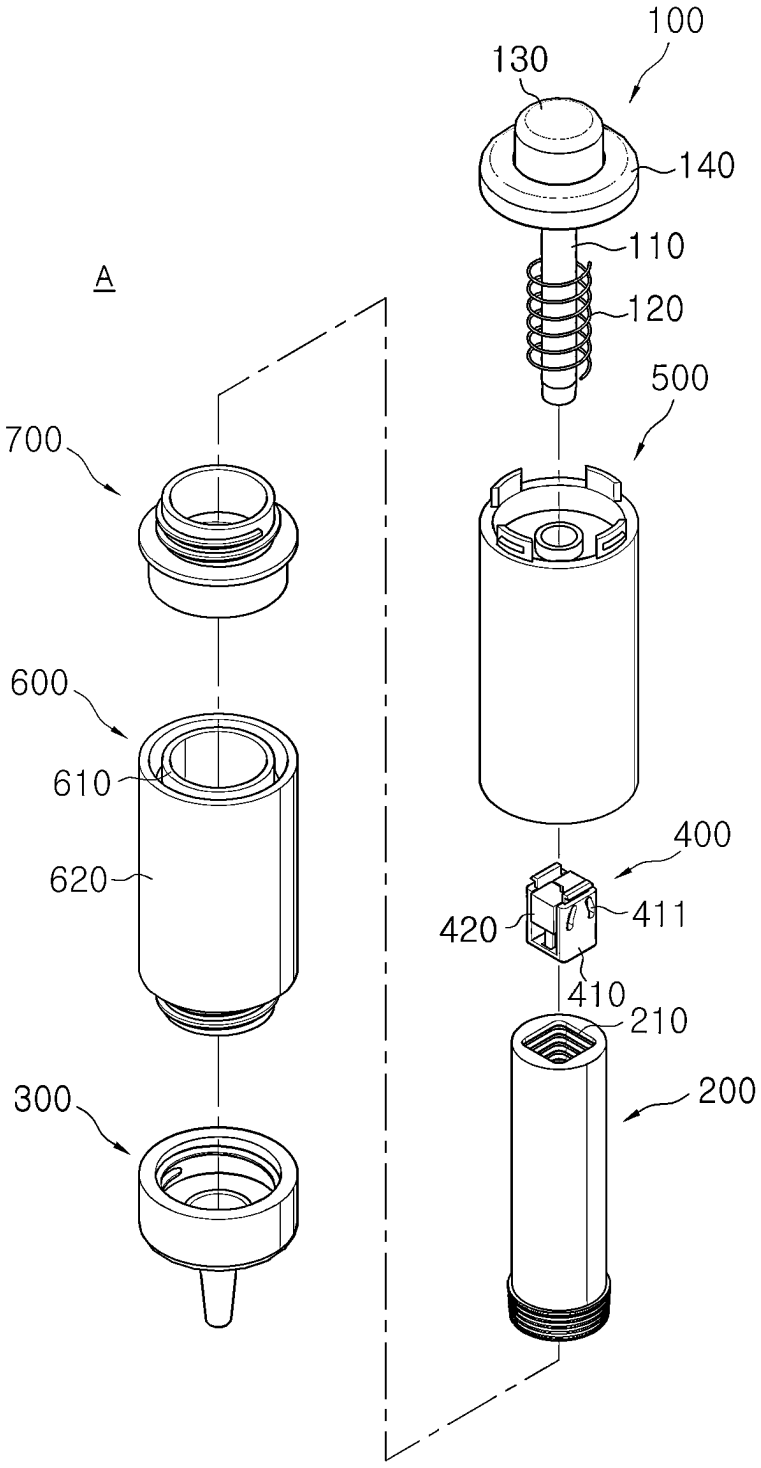

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FIG. 2

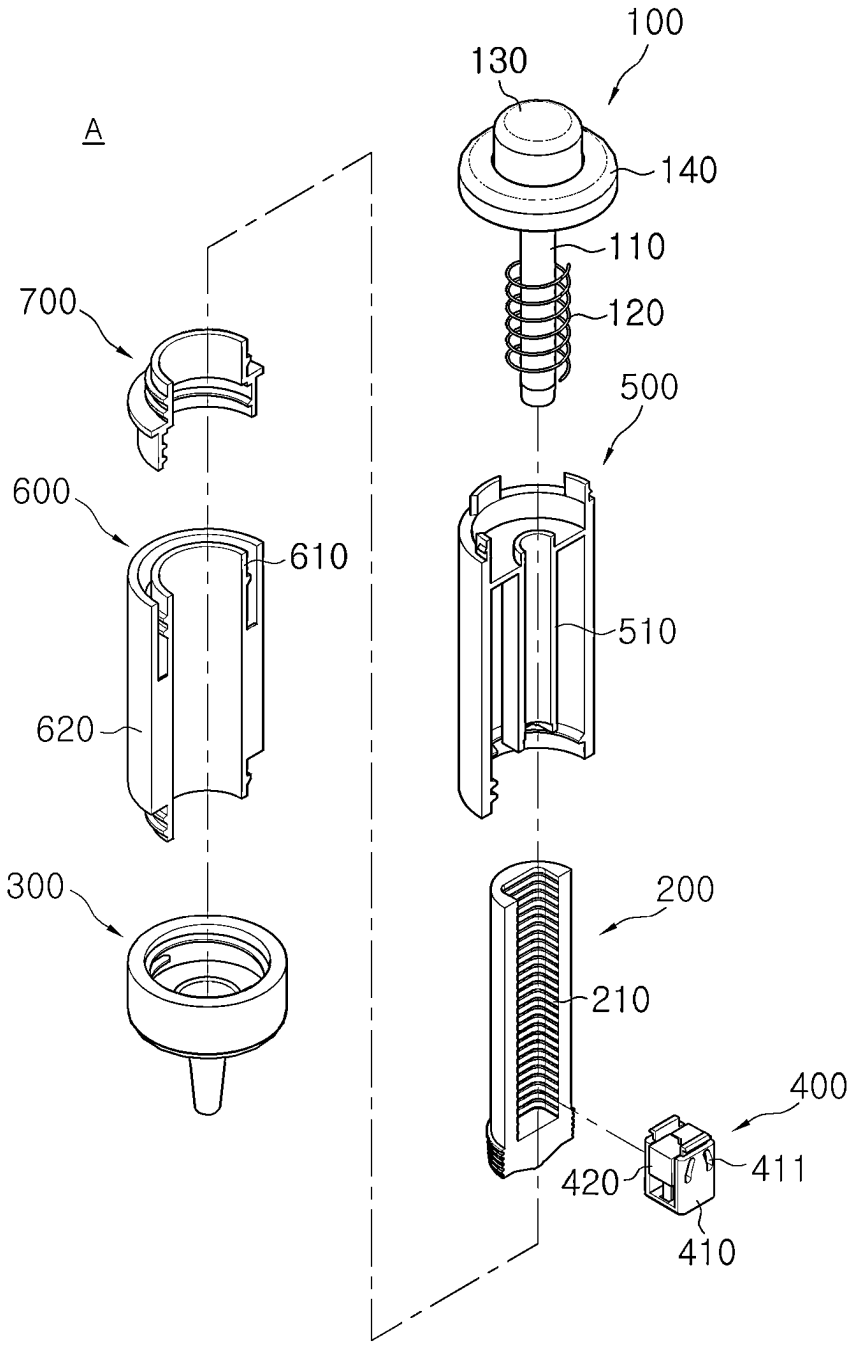
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FIG. 3

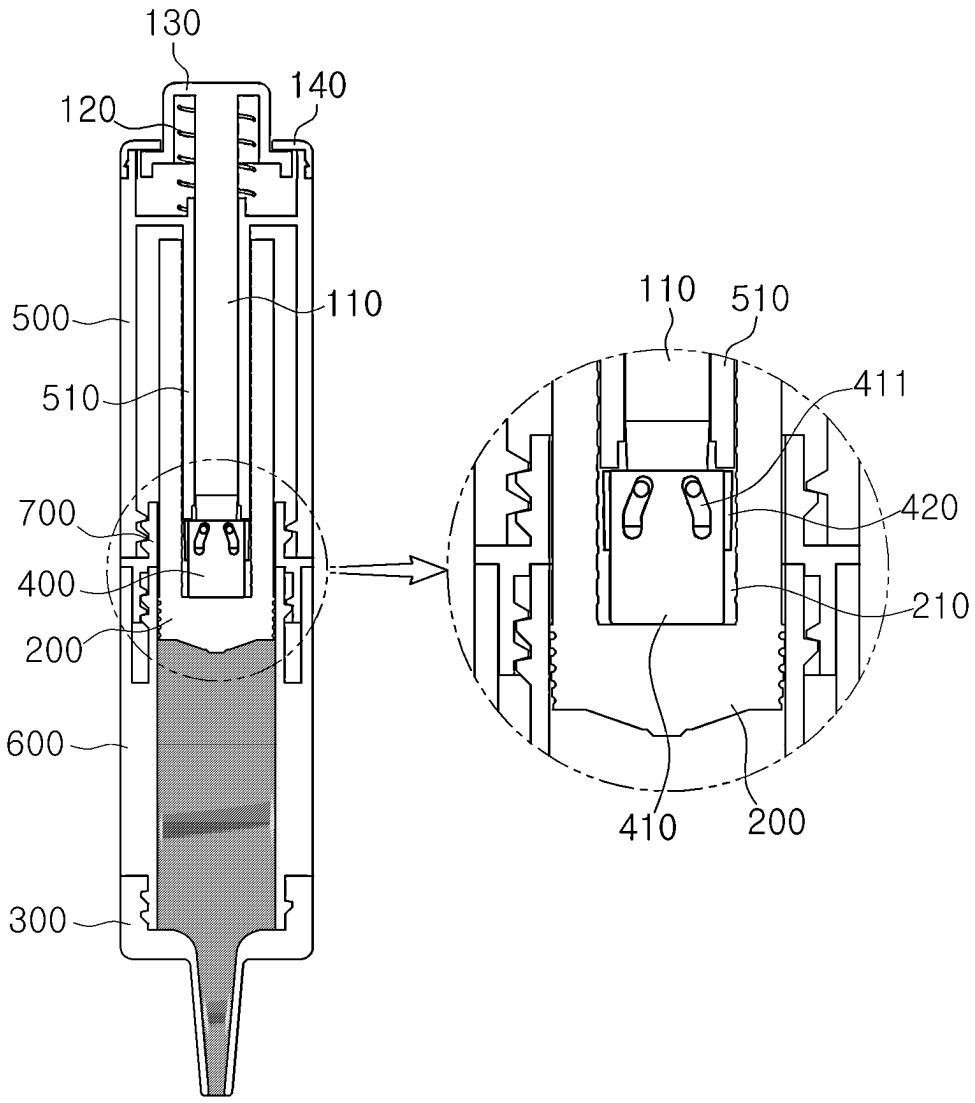
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FIG. 4

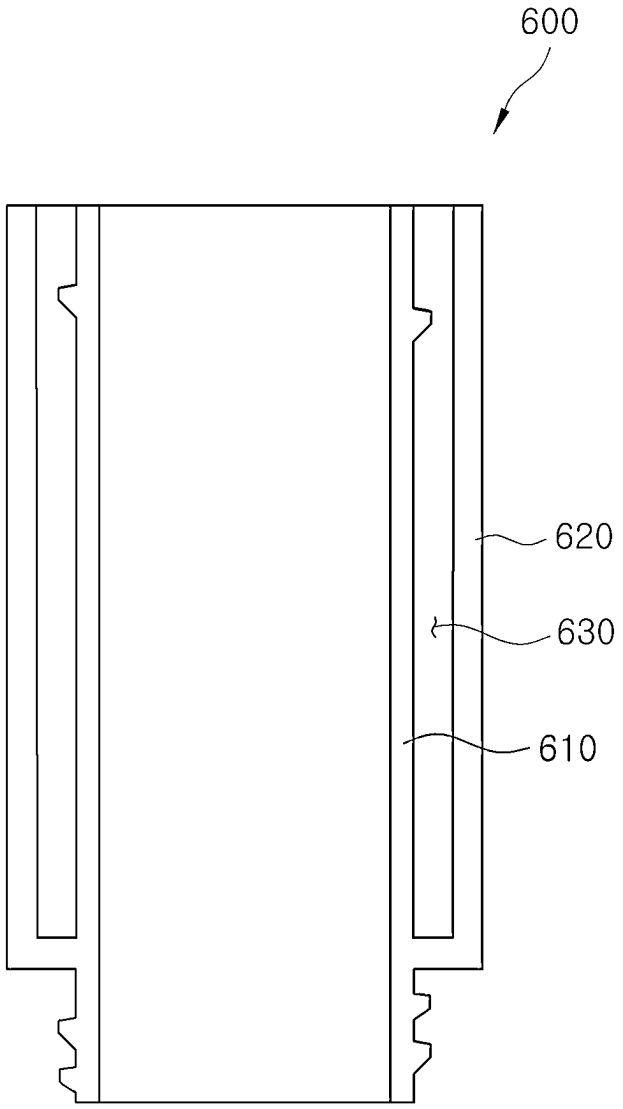

FIG. 5

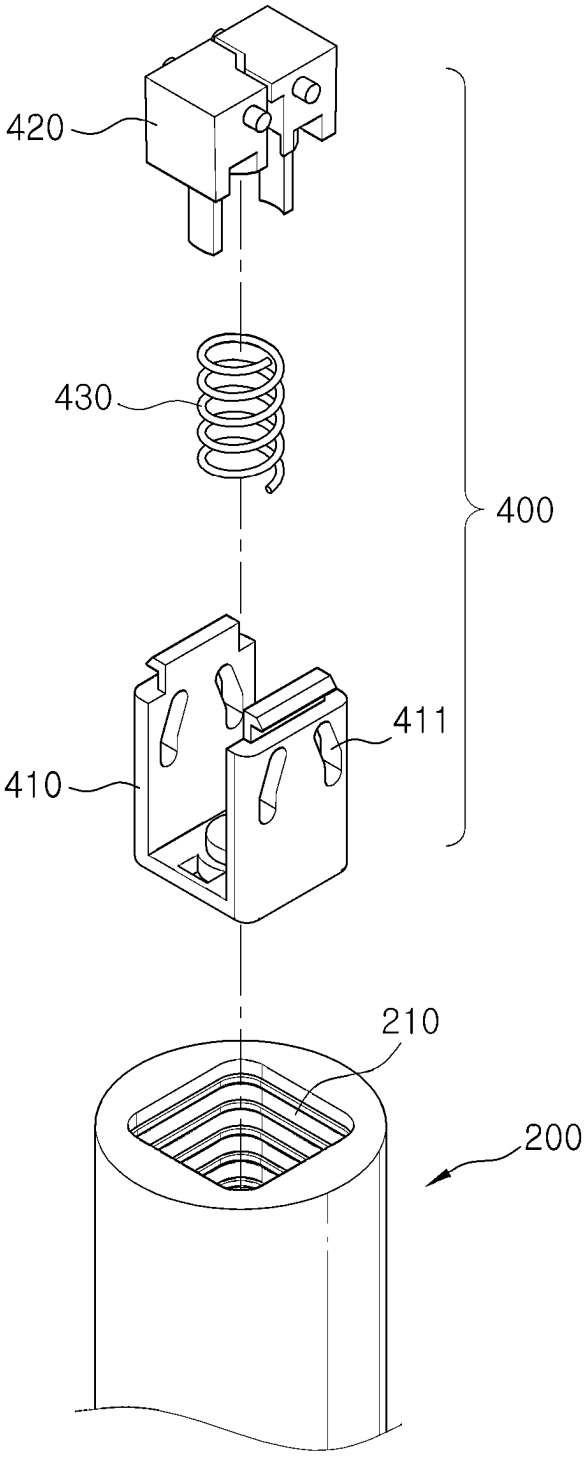

FIG. 6

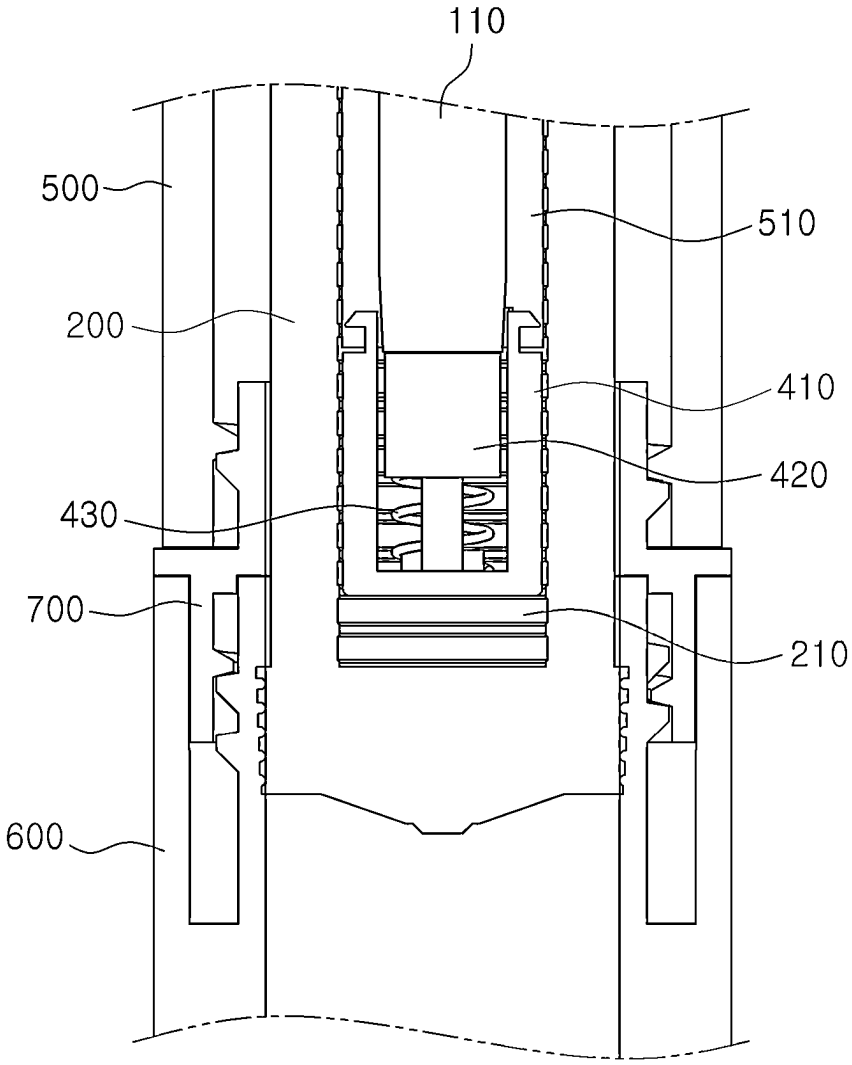

FIG. 7

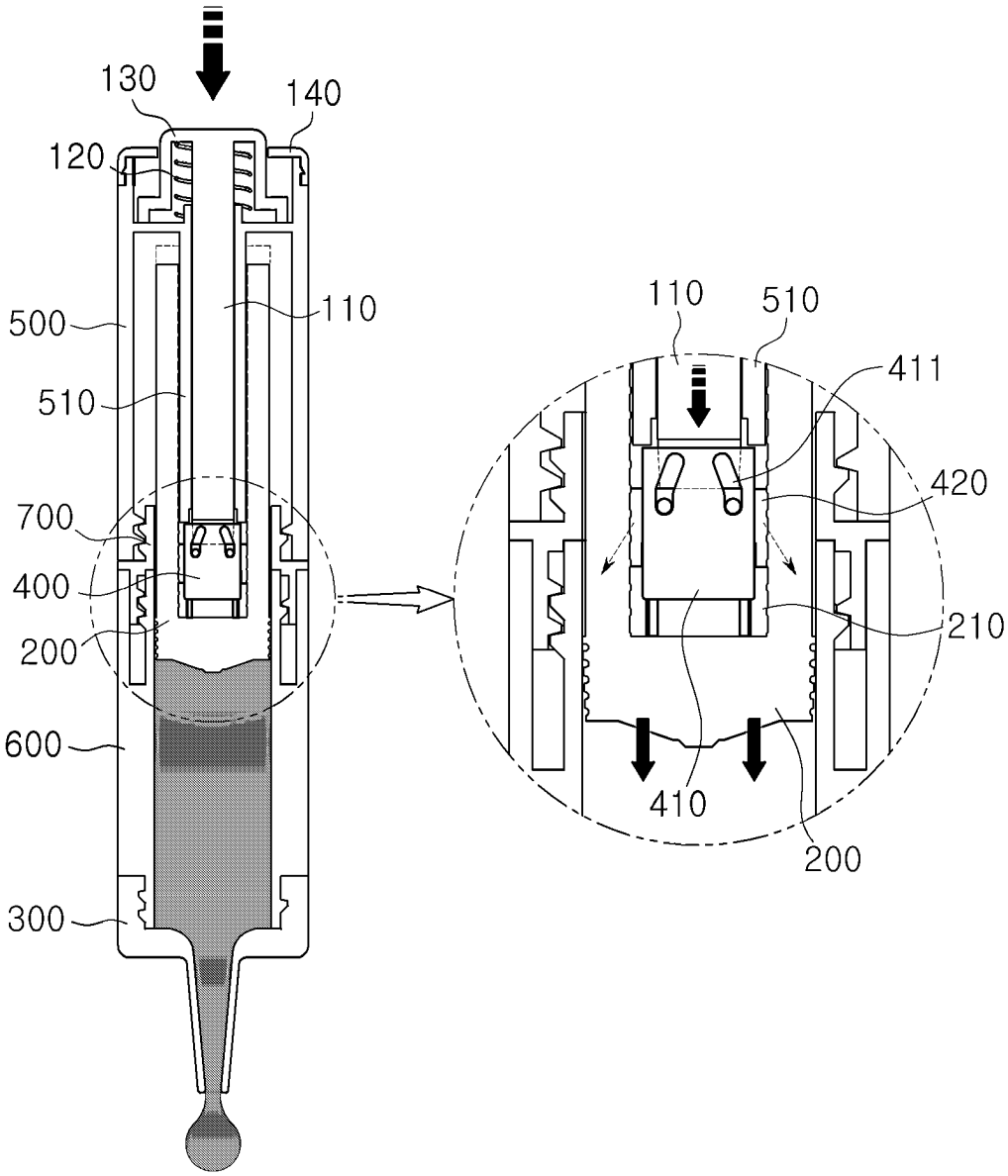
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FIG. 8

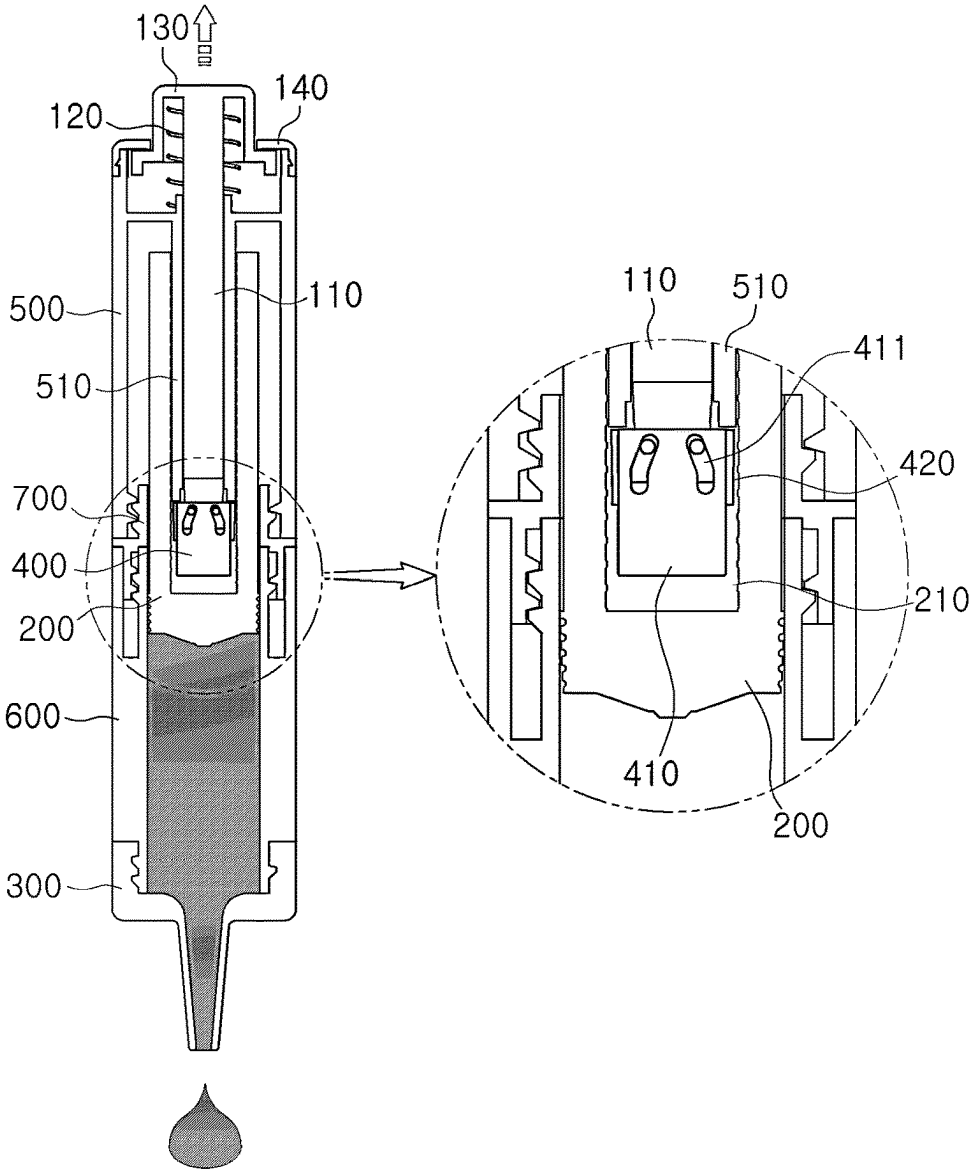
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FIG. 9

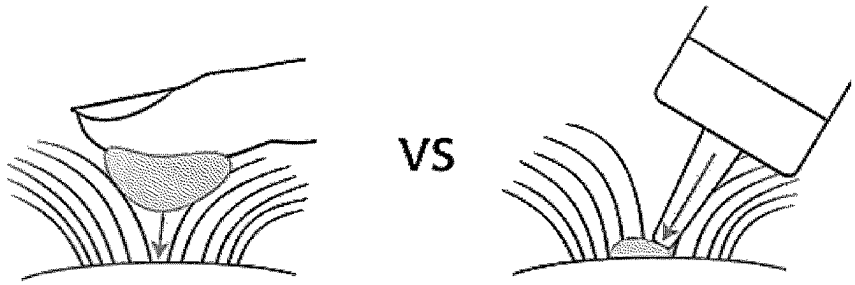
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FIG. 10

FIG. 11

FOAM-TYPE MATERIAL APPLICATOR

TECHNICAL FIELD

[0001] The present disclosure relates to a foam-type material applicator and, more particularly, to a foam-type material applicator that discharges a certain amount of foam-type material so that the foam-type material can be effectively applied to the skin, including the scalp.

BACKGROUND ART

[0002] In recent years, as the age at which hair loss begins decreases, the importance of early hair loss management is increasing. Early hair loss can be prevented by changing lifestyle habits and visiting a scalp clinic for proper care, but severe hair loss needs to be treated with medication or treatment. As the importance of consistent hair loss management is emphasized, topical hair loss treatments that can be easily used at home at a relatively low cost are attracting the attention of consumers.

[0003] The topical hair loss treatments contain minoxidil as the main ingredient, which helps hair growth by dilating blood vessels in the scalp. Initially developed as a liquid type, a foam version of topical minoxidil that solved problems such as dripping when applied was later released. Due to the nature of the foam-type hair loss treatment, the minoxidil foam does not flow out, and thus the foam can be applied in an appropriate amount only to the affected area of the scalp, and has the advantage of being absorbed into the scalp and drying quickly.

[0004] When using a typical foam-type hair loss treatment, a user should squeeze a certain amount of foam into the cap of the product, then apply the foam to the scalp with his/her fingers. However, because the fingerbreadth is large, while trying to apply the foam to the scalp, a significant amount is unwantedly applied to the hair around the hair loss area, which reduces efficiency and results in the failure to meet expectations for hair growth effects. It especially gets worse when the user applies the foam with his/her fingers to areas of the scalp that are hard to see, such as the crown or the back of the head. Moreover, if the foam turns into liquid due to the body temperature of the fingers, it becomes more difficult to apply to the scalp.

[0005] Eventually, a larger amount is used to meet hair growth expectations, and it becomes impossible to confirm whether the correct amount of minoxidil (1 g per time) was used. When more than the recommended amount of minoxidil is used, side effects such as headaches and eye tenderness may occur due to excessive vasodilation.

DISCLOSURE

Technical Problem

[0006] The present disclosure is intended to solve the above problems occurring in the related art. An objective of the present disclosure is to provide a foam-type material applicator that discharges a fixed amount of temperature-sensitive foam-type material near an application area, such as the scalp.

Technical Solution

[0007] In order to achieve the above-mentioned objectives, there is provided a foam-type material applicator including: an applicator body in which a piston provided thereinside advances by a certain distance when a button is pressed so that a foam-type material accommodated thereinside is discharged outside through a nozzle, wherein the applicator body may be configured such that the piston remains in an advanced state when the button is released so that a certain amount of the foam-type material may be discharged whenever the button is pressed.

[0008] In addition, the piston may be provided with a movement guide hole recessed from a top thereof downward, and the applicator body may further include a pad member provided at a certain position in the movement guide hole, configured to contact a wall of the movement guide hole and advance the piston a certain distance when the button is pressed, and spaced apart from the wall of the movement guide hole when the button is released.

[0009] In addition, the pad member may include: a pad support (**410**) fixed at a certain position in the movement guide hole (**210**); and a pad movably coupled to the pad support, and configured to move downwardly outward when the button is pressed and push the wall of the movement guide hole to move the piston a certain distance.

[0010] In addition, the button may include a pressing column provided in the movement guide hole to face the pad member so as to press the pad member, the applicator body may include a guide container in which a guide column is provided that surrounds the pressing column within the movement guide hole and provides a movement path for the pressing column, and in which the piston is provided thereinside, and the pad support may be fixed to a bottom of the guide column.

[0011] In addition, the applicator body may include an accommodation container configured to accommodate the foam-type material thereinside and keep the foam-type material from changing phase, and the nozzle may be detachably coupled to a bottom of the accommodation container.

Advantageous Effects

[0012] According to the present disclosure, a foam-type material can be discharged close to an application area such as the scalp. Thus, compared to a conventional application method using fingers, the temperature-sensitive foam-type material can be efficiently applied to the application area, which is the target area, without phase change.

[0013] Particularly, when applying to hard-to-see areas such as the top of the head, by using an applicator, unlike the conventional method of applying based on the feel of user's fingertips, a user can apply the foam more easily and conveniently by simply placing a nozzle close to the application area and pressing a button.

[0014] Furthermore, compared to the conventional application method using fingers, the applicator discharges a certain amount of foam over a small area, allowing a user to spread the foam evenly without clumping over a wider area, maximizing efficiency.

[0015] As a result, the amount applied to the target area, the scalp, is increased compared to the conventional case, thereby meeting the expected effect on hair growth and reducing product abuse/overuse.

DESCRIPTION OF DRAWINGS

[0016] FIG. **1** is a perspective view showing a foam-type material applicator of the present disclosure.

[0017] FIG. **2** is an exploded perspective view showing the foam-type material applicator of the present disclosure.

[0018] FIG. **3** is a cut-off exploded perspective view showing the foam-type material applicator of the present disclosure.

[0019] FIG. **4** is a cross-sectional view showing the foam-type material applicator of the present disclosure.

[0020] FIG. **5** is a cross-sectional view showing the structure of an accommodation container applied to the foam-type material applicator of the present disclosure.

[0021] FIG. **6** is an exploded perspective view showing a pad member applied to the foam-type material applicator of the present disclosure.

[0022] FIG. **7** is a cross-sectional view showing a state in which a pad support and a guide column applied to the foam-type material applicator of the present disclosure are combined.

[0023] FIG. **8** is a cross-sectional view showing a piston advancing a certain distance when a button applied to the foam-type material applicator of the present disclosure is pressed.

[0024] FIG. **9** is a cross-sectional view showing that the piston maintains an advanced state when the button applied to the foam-type material applicator of the present disclosure is released.

[0025] FIG. **10** is a view showing a comparative example of applying a foam-type material using fingers and the present disclosure.

[0026] FIG. **11** is an exemplary view showing the use of the foam-type material applicator of the present disclosure.

MODE FOR INVENTION

[0027] In the present disclosure, proposed is a foam-type material applicator including an applicator body in which a piston provided thereinside advances by a certain distance when a button is pressed, and a temperature-sensitive foam-type material accommodated thereinside is discharged in a fixed amount through a nozzle to the outside near an application area such as the scalp, wherein the applicator body is configured such that the piston remains in an advanced state when the button is released such that a certain amount of the foam-type material is discharged whenever the button is pressed.

[0028] The scope of the present disclosure is not limited to the embodiments described below, and various modifications may be made by a person having ordinary knowledge in the relevant technical field without departing from the technical spirit of the present disclosure.

[0029] Hereinafter, a foam-type material applicator of the present disclosure will be described in detail with reference to the attached drawings **1** to **11**.

[0030] As shown in FIGS. **1** to **4**, the foam-type material applicator of the present disclosure includes an applicator body A that discharges a certain amount of a foam-type material contained thereinside to the outside. In this case, the foam-type material may be substances with various ingredients such as hair loss agents and nutrients that form a foam, and may also be temperature-sensitive substances that change phase from a solid to a liquid when heat is applied.

[0031] In the present disclosure, the applicator body A includes a button **100**, a piston **200**, and a nozzle **300**. In the following description of the applicator body A, the side provided with the nozzle **300** is defined as the downward direction, and the opposite side is defined as the upward direction. The applicator body A is configured such that when the button **100** is pressed, the piston **200** provided inside the applicator body A advances a certain distance and pressurizes the foam-type material contained therein so that the foam-type material is discharged to the outside through the nozzle **300**. At this time, the certain distance preferably means a distance equal to or shorter than half the maximum distance that the piston **200** can move within the applicator body A. That is, the applicator body A may be configured so that all of the foam-type material contained therein may be discharged to the outside only when the button **100** is pressed at least twice.

[0032] In addition, the applicator body A is configured to maintain the piston **200** in an advanced state when the button **100** pressed to discharge the foam-type material to the outside is released. As an example, when the button **100** is pressed once for the first time, the piston **200** moves 0.25 mm toward the nozzle **300** and a certain amount of foam-type material is discharged to the outside. At this time, when the button **100** is released, the piston **200** remains moved by 0.25 mm toward the nozzle **300**. Afterwards, when the button **100** is pressed once again, the piston **200** moves 0.25 mm from the point where the piston **200** is first advanced toward the nozzle **300**, and a certain amount of foam-type material is ejected. That is, when the button **100** is pressed twice and then released, the piston **200** is positioned at a point moved by 0.5 mm from the initial position thereof toward the nozzle **300**.

[0033] As such, since the piston **200** does not return to the initial position thereof when the button **100** is released, the piston **200** gradually advances each time the button **100** is pressed, thereby ejecting a certain amount of foam-type material each time. Thus, it is possible to spread and apply a certain amount of foam-type material evenly to various targeted scalp areas, thereby reducing side effects such as pain caused when applying a large amount of foam to one area.

[0034] As a specific example, the applicator body A includes the button **100**, the piston **200**, and the nozzle **300** as shown in FIGS. **1** to **4**, and may further include a pad member **400**, a guide container **500**, an accommodation container **600**, and a joint **700**.

[0035] First, the accommodation container **600**, the nozzle **300**, and the joint **700** will be described. The accommodation container **600** is open at both ends and is formed in the form of an empty cylinder, and the foam-type material may be accommodated therein. The nozzle **300** may be coupled to the lower end of the accommodation container **600**, and the joint **700** for connection to the guide container **500** may be coupled to the upper end of the accommodation container **600**.

[0036] The accommodation container **600** may be configured to maintain the foam-type material contained therein from undergoing phase change. As an example, the wall of the accommodation container **600** may have a double structure. That is, as shown in FIG. **5**, the accommodation container **600** may consist of an inner container **610** in which the foam-type material contained therein is accommodated, and an outer container **620** surrounding the inner container **610** and forming a filling space **630** between the inner container **610** and the outer container **620**.

[0037] To be specific, the inner container **610** may be formed to have a longer length than the outer container **620**, so that the lower end of the inner container **610** protrudes

downward than the outer container **620**, and the nozzle **300** may be coupled to the lower end of the inner container **610**. The lower end of the outer container **620** is connected to the inner container **610** to form a structure in which the lower side of the filling space **630** is blocked. Accordingly, a material that prevents the phase change of the foam-type material may be injected into the filling space **630** through the upper side of the filling space **630**, which can be opened by separating the joint **700** coupled to the top of the accommodation container **600**. At this time, the material that prevents the phase change of the foam-type material may be air, a cooling material, etc.

[0038] In this case, after the material that prevents phase change of the foam-type material is injected into the filling space **630**, the top of the accommodation container **600** and the joint **700** coupled thereto may be separately coupled to enable additional injection. The top of the accommodation container **600** and the joint **700** coupled thereto may be bonded to prevent additional injection.

[0039] Meanwhile, the nozzle **300** may include a coupling portion coupled to the lower end of the inner container **610** and a discharge portion extending downward from the coupling portion, and the coupling portion may be detachably coupled to the lower end of the accommodation container **600**. The joint **700** connects the accommodation container **600** and the guide container **500** to each other and serves to seal the filling space **630**. As an example, the joint **700** may include: a sealing portion that forms a ring shape and covers the top of the accommodation container **600** to seal the filling space **630**; a first joint portion extending downward from the sealing portion and screwed to the inner container **610**; and a second joint portion extending upward from the sealing portion and screwed to the guide container **500**. Due to the joint **700**, the accommodation container **600** may be separated from the guide container **500**.

[0040] Thus, if cleaning is necessary due to continuous use, a user may separate the nozzle **300** from the accommodation container **600**, and the guide container **500** coupled to the joint **700** may be separated to allow separation between the accommodation container **600** and the guide container **500**. Accordingly, after washing the nozzle **300**, the accommodation container **600**, and the piston **200**, which are components covered with the foam-type material, the nozzle **300**, the accommodation container **600**, and the piston **200** may be reassembled and recycled in a clean state.

[0041] Next, the configuration for pressurizing the foam-type material contained in the accommodation container **600** to be discharged to the outside through the nozzle **300** will be described. Especially, the button **100**, the piston **200**, the pad member **400**, and the guide container **500** will be described.

[0042] First, the guide container **500** is formed in a cylinder shape with the piston **200** inside, as shown in FIGS. **2** to **4**, and is provided with the button **100** at the top thereof, and the joint **700** coupled to the accommodation container **600** may be coupled to the bottom of the guide container **500**. The space formed inside the guide container **500** is preferably formed to have a length shorter than the length of the piston **200**, so that when the piston **200** provided in the space is located at the uppermost side of the space, the lower end of the piston **200** is located within the accommodation container **600**. In addition, because the piston **200** moves along the spaces formed inside the guide container **500** and the accommodation container **600** when the button **100** is pressed, the spaces formed inside the guide container **500** and the accommodation container **600** are preferably formed to have the same diameter.

[0043] The piston **200**, which moves along the spaces formed inside the guide container **500** and the accommodation container **600**, may be formed so that the remaining portion, excluding the lower end, has a diameter somewhat smaller than the diameter of each of the spaces formed inside the guide container **500** and the accommodation container **600**. The lower end of the piston **200** is preferably formed to have a diameter somewhat larger than the diameter of each of the spaces formed inside the guide container **500** and the accommodation container **600**, so that the piston **200** may be moved while being in close contact with the inner wall of the accommodation container **600**. The lower end of the piston **200** may be formed in a concave-convex shape toward the inner wall of the accommodation container **600** so that the piston **200** may move when pressed without excessive friction.

[0044] In addition, the piston **200** may have a movement guide hole **210** recessed from the top downward, and the movement guide hole **210** may extend to near the lower end of the piston **200**, and the pad member **400** that moves the piston **200** forward in conjunction with the button **100** may be provided in the movement guide hole **210**.

[0045] The pad member **400** is provided at a certain position within the movement guide hole **210** so as not to move even if the piston **200** is moved. The pad member **400** comes into contact with the wall of the movement guide hole **210** when the button **100** is pressed and advances the piston **200** a certain distance, and when the button **100** is released, the movement guide hole **210** is separated from the wall of the movement guide hole **210**. As an example, as shown in FIGS. **3**, **4**, and **6**, the pad member **400** may include: a pad support **410** fixed at a certain position in the movement guide hole **210**; and a pad **420** that is movably coupled to the pad support **410** and moves downwardly outward when the button **100** is pressed, pushing the wall of the movement guide hole **210** to move the piston **200** a certain distance.

[0046] To be specific, the pad support **410** may be coupled to the lower end of a guide column **510** formed in the guide container **500** as shown in FIG. **7** so as to be fixed at a certain position within the movement guide hole **210**. The guide column **510** has a rod shape with both ends open, and is formed downward from the center of the upper end of the guide container **500**, and may be disposed in the movement guide hole **210**. At this time, the lower end of the guide column **510** is preferably located at the lower part of the guide container **500**. As the lower end of the guide column **510** and the upper end of the pad support **410** are coupled, the pad member **400** may be fixed at a certain position even if the piston **200** moves.

[0047] In addition, as an example, the pad support **410** may be arranged to be open upward, with side walls thereof formed upward so as to face each other on opposite sides of the bottom surface of the pad support **410**, so that the longitudinal cross-section of the pad support **410** forms a "E" shape. A movement hole **411** may be formed in a diagonal direction on the side wall of the pad support **410** to provide a path so that the pad **420** may be coupled and moved downward toward the outside. As an example, the pad **420** may be pin-coupled to the movement hole **411** so that two pads **420** can be moved symmetrically, and when placed at the top of the movement hole **411**, the pad **420** does

not contact the wall of the movement guide hole **210**. As shown in FIG. **8**, when a downward force is applied by pressing the button **100**, a pin of the pad **420** moves away from the top of the movement hole **411** so that the outer surface of the pad **420** comes into contact with the movement guide hole **210**, and as the pin moves to the bottom of the movement hole **411**, the outer surface of the pad **420** pushes the movement guide hole **210** in a downwardly inclined direction outward. As a result, the piston **200** moves downward, and the foam-type material contained inside the accommodation container **600** is discharged to the outside through the nozzle **300**.

[0048] At this time, to enable the piston **200** to move easily according to the movement of the pad **420**, wrinkles may be formed at regular intervals on the wall of the movement guide hole **210**, and a locking protrusion corresponding to the wrinkles may be formed on the outer surface of the pad **420**.

[0049] As shown in FIG. **9**, when the button **100** is released, the pad **420** moves upward along the movement hole **411**, and the pad member **400** may include a second spring **430** so that the pad **420** may be elastically returned when the button **100** is released. The second spring **430** has one end fixed to the bottom surface of the pad support **410** and the other end in contact with the bottom of the two pads **420**, so that the second spring **430** is compressed when the button **100** is pressed, and then elastically expands when the button **100** is released, thereby moving the pad **420** upward.

[0050] The pad **420** operating as described above moves a certain distance along the movement hole **411** each time the button **100** is pressed and causes the piston **200** to advance a certain distance, so that a fixed amount of foam-type material may be ejected each time.

[0051] The button **100** may be configured to apply downward force to the pad **420** when pressed, and not apply force to the pad **420** when the button **100** is released. For this purpose, as shown in FIGS. **2** to **4**, the button **100** may include: a pressing member **130** on which a user presses; a first spring **120** provided inside the pressing member **130** so that the pressing member **130** may be elastically returned to the original position thereof; a button cover coupled to the top of the guide container **500** to prevent the pressing member **130** from coming off; and a pressing column **110** that extends from the pressing member **130** and is formed to face the pad member **100** and is provided in the movement guide hole **210** to press the pad member **400**.

[0052] Since the pressing column **110** is inserted into the guide column **510** located within the movement guide hole **210**, the guide column **510** serves to provide a movement path for the pressure column **110**. The pressing column **110** does not press the pad **420** coupled to the bottom of the guide column **510** when the pressing member **130** is not pressed, and presses the pad **420** when the pressing member **130** is pressed.

[0053] At this time, the pressing column **110** has one end in contact with the pad **420** formed in a wedge shape, and the two pads **420** that are pressed by the pressing column **110** and move symmetrically may have downwardly sloping surfaces on the upper surface thereof adjacent to each other so as to have an inclination corresponding to one end of the pressing column **110** formed in a wedge shape. Accordingly, when the pressing member **130** is pressed, the pressing column **110** has one end dug into the upper slopes of the pads **420**, allowing the pads **420** to move smoothly outward and downward.

[0054] According to the foam-type material applicator of the present disclosure as described above, since a foam-type material may be discharged close to an application area such as the scalp, compared to applying with fingers as shown in FIG. **10**, the temperature-sensitive foam-type material may be efficiently applied to the application area without phase change by not using fingers, and as shown in FIG. **11**, a user may easily apply the foam-type material even to areas that are difficult to apply alone, such as the top of the head.

Sequence Listing Free Text

DESCRIPTION OF REFERENCE NUMERALS

[0055] A: applicator body
[0056] **100**: button **110**: pressing column
[0057] **120**: first spring **130**: pressing member
[0058] **140**: button cover
[0059] **200**: piston **210**: movement guide hole
[0060] **300**: nozzle
[0061] **400**: pad member **410**: pad support
[0062] **411**: movement hole **420**: pad
[0063] **430**: second spring
[0064] **500**: guide container **510**: guide column
[0065] **600**: accommodation container **610**: inner container
[0066] **620**: outer container **630**: filling space
[0067] **700**: joint

1. A foam-type material applicator, comprising:
an applicator body (A) in which a piston (**200**) provided thereinside advances by a certain distance when a button (**100**) is pressed so that a foam-type material accommodated thereinside is discharged outside through a nozzle (**300**),
wherein the applicator body (A) is configured such that the piston (**200**) remains in an advanced state when the button (**100**) is released so that a certain amount of the foam-type material is discharged whenever the button (**100**) is pressed.

2. The foam-type material applicator of claim **1**, wherein the piston (**200**) is provided with a movement guide hole (**210**) recessed from a top thereof downward, and
the applicator body (A) further comprises a pad member (**400**) provided at a certain position in the movement guide hole (**210**), configured to contact a wall of the movement guide hole (**210**) and advance the piston (**200**) a certain distance when the button (**100**) is pressed, and spaced apart from the wall of the movement guide hole (**210**) when the button (**100**) is released.

3. The foam-type material applicator of claim **2**, wherein the pad member (**400**) comprises:
a pad support (**410**) fixed at a certain position in the movement guide hole (**210**); and
a pad (**420**) movably coupled to the pad support (**410**), and configured to move downwardly outward when the button (**100**) is pressed and push the wall of the movement guide hole (**210**) to move the piston (**200**) a certain distance.

4. The foam-type material applicator of claim **3**, wherein the button (**100**) comprises a pressing column (**110**) pro-

vided in the movement guide hole (**210**) to face the pad member (**400**) so as to press the pad member (**400**),

the applicator body (A) comprises a guide container (**500**) in which a guide column (**510**) is provided that surrounds the pressing column (**110**) within the movement guide hole (**210**) and provides a movement path for the pressing column (**110**), and in which the piston (**200**) is provided thereinside, and

the pad support (**410**) is fixed to a bottom of the guide column (**510**).

5. The foam-type material applicator of claim **1**, wherein the applicator body (A) comprises an accommodation container (**600**) configured to accommodate the foam-type material thereinside and keep the foam-type material from changing phase, and

the nozzle (**300**) is detachably coupled to a bottom of the accommodation container (**600**).

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