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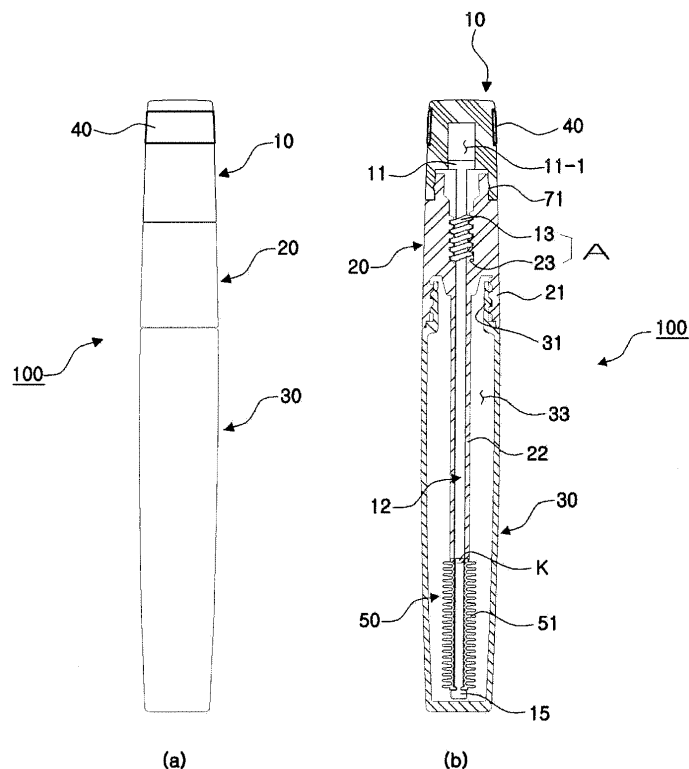
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(54) **Mascara brush with controllable brush length**

(57) The present invention relates to a mascara brush for women to care for the eyelashes. In particular, the present invention relates to a mascara brush with controllable brush length of which the brush can be easily

lengthened and shortened by simply turning a rolling grip, which can be achieved by a simply structure using simple turn of a screw and related operations, because users select a long brush or a short brush in accordance with their preferences.

【Fig. 1】



Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a mascara brush for women to care for the eyelashes. In particular, the users select long brushes or short brushes in accordance with the length of their eyelids to use mascara brushes. The present invention relates to a mascara brush with controllable brush length of which the brush can be easily lengthened and shortened by simply turning the grip, which can be achieved by a simply structure using simple turn of a screw and linked operations.

2. Description of the Related Art

[0002] In general, mascara brushes are tools for women to make up the eyelashes.

[0003] They are tools for make-up to make the eyelashes darker in order to stress the eyelashes to be smooth and clear such that the outlines of the eyes are emphasized. Various types of mascara brushes are required because the length and density of the eyelashes are different and the eyelids where the eyelashes are formed are also different in accordance with the users.

[0004] That is, the users should use mascara brushes fitting to the length of their eyelids with the eyelashes. The users have to further apply the mascara several times, if they using short mascara brushes for make-up, and in this case, the eyelashes are likely not to be uniformly made up due to the repetitive applying. The amount of mascara is different over the eyelashes, such that it is difficult to improve the aesthetic feeling. Once the mascara is applied, it is difficult to clean and apply it again. It is preferable to prevent water from contacting the mascara because it spreads throughout the face.

[0005] Therefore, it was difficult for the mascara brush makers to manufacture mascara brushes in various shapes and structures for consumer's various features, and manufacturing those various mascara brushes increases the manufacturing cost and makes mass production difficult.

[0006] In order to overcome this problem in the related art, mascara brushes with controllable brush length have been developed, but users have many inconveniences due to problems in design.

SUMMARY OF THE INVENTION

[0007] The present invention relates to a mascara brush for women to make up the eyelashes and provides a mascara brush with controllable brush length of which the brush can be easily lengthened and shortened by simply turning a rolling grip, which can be achieved by a simply structure using simple turn of a screw and related operations, because users select a long brush or a short

brush in accordance with the length of the eyelids with the eyelashes.

[0008] A mascara brush with controllable brush length according to the present invention includes: an uppermost rolling grip 10 having a vertical linking hole 11-1 therein and a rotation guide groove 18 formed on the inner circumference of a rotation space 19 in the end; a middle support grip 20 having a rotary protrusion 70 and a guide protrusion 71 fitted in the rotation space and the guide groove 18 at one end, an integrated linking guide pipe 22 extending from a linking control portion A at the center therein, and a screw 21 at the other side of the rotary protrusion 70; an end cover pipe 30 having a counter-screw 31 that corresponds to the screw 21 and has a mounting space 33 therein; an operation pole 12 passing through the rolling grip 10, the linking hole 11-1 of the support grip 20, and the linking guide pipe 22; and a brush 50 fitted on the end fitting portion 15 of the operation pole 12, in which, when the rolling grip 10 is turned, the operation pole 12 vertically moves and the elastic brush 50 fitted on the outer circumference is lengthened and shortened.

[0009] Further, in the mascara brush with controllable brush length, the linking control portion A includes: the linking screw 13 formed by forming a plurality of threads on a portion of the outer circumference of the operation pole 12; and a corresponding guider 23 formed on the inner circumference of the support grip 20, corresponding to the linking screw 13, in which, as the rolling grip 10 is turned and the operation pole 12 therein is turned, the linking screw 13 of the operation pole 12 moves up/down on the corresponding guider 23 formed of the screw corresponding to the linking screw 13, such that the brush 50 connected to the fitting portion 15 at the end of the operation pole is lengthened or shortened; the linking hole 11-1 of the rolling grip 10 is formed in a polygonal shape and a corresponding polygonal guider 11 is formed at the end of the operation pole 12 that is inserted, such that the operation pole 12 can vertically move up/down but cannot turn; and one end of the brush 50 is fitted on the end fitting portion 15 of the operation pole 12 and the other end is fastened to a rotary tip K rotatably connected to the end of the linking guide pipe 22, such that the brush 50 can only be lengthened and shortened by the turn of the operation pole 12.

[0010] Further, in the mascara brush with controllable brush length, one end of the brush 50 is fitted on the end fitting portion 15 of the operation pole 12 and the other end is fastened to a rotary tip K firmly connected to the end of the linking guide pipe 22, such that the brush 50 can be lengthened and shortened, with the body twisted, by the turn of the operation pole 12, in which the brush 50 is made of rubber, silicon, or synthetic resin which has elasticity and restoring force; and the rolling grip 10 is provided with a scale 62 on the outer circumference, and the support grip 20 is provided with a reference bar 61 on the outer circumference such that the amount of increase and decrease in length of the brush 50 is checked.

[0011] Further, in the mascara brush with controllable brush length, a rubber pad 40 is provided on the outer circumference of the rolling grip 10 to prevent sliding.

[0012] A mascara brush with controllable brush length according to another embodiment of the present invention includes: an uppermost support grip 10 having a vertical linking hole 11-1 therein, a rotation guide groove 18 formed on the inner circumference of a rotation space 19 in the end, and a linking control portion A extending and protruding down from the linking hole 11-1; a middle support grip 20 having a rotary protrusion 70 fitted in the rotation space 19 and the guide groove 18, and a guide protrusion 71 formed on the outer circumference, at one end, an integrated linking guide pipe 22 extending and communicating with an operation space 27 at the center therein, and a screw portion 21 at the other side of the rotary protrusion 70; an end cover pipe 30 having a counter-screw 31 that corresponds to the screw 21 and has a mounting space 33 therein; an operation pole 12 passing through the support grip 10, the linking hole 11-1 of the rolling grip 20, and the linking guide pipe 22 and including the linking control portion A; and a brush 50 fitted on the end fitting portion 15 of the operation pole 12, in which, when the rolling grip 20 is turned, the operation pole 12 vertically moves and the elastic brush 50 fitted on the outer circumference is lengthened and shortened.

[0013] Further, in the mascara brush with controllable brush length, the linking control portion A includes: the linking screw 13 formed by forming a plurality of threads on a portion of the outer circumference of the operation pole 12; and a corresponding guider 23 formed on the inner circumference of the support grip 10, corresponding to the linking screw 13, in which, as the rolling grip 20 is turned and the operation pole 12 therein is turned, the linking screw 13 of the operation pole 12 moves up/down on the corresponding guider 23 formed of the screw corresponding to the linking screw 13, such that the brush 50 connected to the fitting portion 15 at the end of the operation pole 12 is lengthened or shortened, the operation space 27 of the rolling grip 20 is formed in a polygonal shape and a corresponding polygonal guider 17 is formed on the outer circumference of the operation pole 12 that is inserted, such that the operation pole 12 can vertically move up/down but cannot turn, and one end of the brush 50 is fitted on the end fitting portion 15 of the operation pole 12 and the other end is fastened to a rotary tip K rotatably connected to the end of the linking guide pipe 22, such that the brush 50 can only be lengthened and shortened by the turn of the operation pole 12.

[0014] Further, in the mascara brush with controllable brush length, one end of the brush 50 is fitted on the end fitting portion 15 of the operation pole 12 and the other end is fastened to a rotary tip K firmly connected to the end of the linking guide pipe 22, such that the brush 50 can be lengthened and shortened, with the body twisted, by the turn of the operation pole 12, in which the brush 50 is made of rubber, silicon, or synthetic resin which has elasticity and restoring force; and the rolling grip 20 is

provided with a scale 62 on the outer circumference, and the support grip 10 is provided with a reference bar 61 on the outer circumference such that the amount of increase and decrease in length of the brush 50 is checked.

[0015] Further, in the mascara brush with controllable brush length, a rubber pad 40 is provided on the outer circumference of the rolling grip 20 to prevent sliding.

[0016] A mascara brush according to the present invention has the advantage of lengthening or shortening the mascara brush by simply turning a grip, and adjusting again the length ever time when using it, thereby conveniently using it.

[0017] Further, the mascara brush according to the present invention has the advantage of being easily and accurately used and having high durability, by selecting turning and forward moving of a screw for changing the length of the brush.

[0018] Further, the mascara brush according to the present invention has the advantage of more accurately making up the eyelashes, because it is possible to see the length only from the mark on the grip, without directly measuring the length of the mascara brush.

[0019] Further, the mascara brush according to present invention has the advantage of changing the brush into various shapes that users can conveniently use, by implementing the hairs of the brush in various shapes by twisting the brush, in addition to lengthening and shortening the mascara brush.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020]

FIG. 1 is a cross-sectional view showing a mascara brush according to a first embodiment of the present invention;

FIG. 2 is an exploded view showing the first embodiment of the present invention;

FIG. 3 is a view showing the inside of the mascara brush according to the first embodiment of the present invention;

FIG. 4 is a view showing when the mascara brush according to the first embodiment of the present invention is lengthened and shortened;

FIG. 5 is a view showing an identification mark on the mascara brush according to the first embodiment of the present invention;

FIG. 6 is a view showing the mascara brush with a main portion cut, according to the first embodiment of the present invention;

FIG. 7 is a view showing the inside of the mascara brush according to a second embodiment of the present invention;

FIG. 8 is an exploded view of the mascara brush according to the second embodiment of the present invention;

FIG. 9 is a view showing when the mascara brush according to the second embodiment of the present

invention is shortened;

FIG. 10 is a view showing an identification mark on the mascara brush according to the second embodiment of the present invention; and

FIG. 11 is a view showing the mascara brush with a main portion cut, according to the second embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] Hereinafter, the configuration and the operation of the present invention are described in detail with reference to FIGS. 1 to 11.

[0022] The present invention, as shown in FIGS. 1 to 6, includes: an uppermost rolling grip 10 having a vertical linking hole 11-1 therein and a rotation guide groove 18 formed on the inner circumference of a rotation space 19 in the end; a middle support grip 20 having a rotary protrusion 70 and a guide protrusion 71 fitted in the rotation space and the guide groove 18 at one end, an integrated linking guide pipe 22 extending from a linking control portion A at the center therein, and a screw 21 at the other side of the rotary protrusion 70; and an end cover pipe 30 having a counter-screw 31 that corresponds to the screw 21 and has a mounting space 33 therein. Further, it includes an operation pole 12 passing through the rolling grip 10, the linking hole 11-1 of the support grip 20, and the linking guide pipe 22, and a brush 50 fitted on the end fitting portion 15 of the operation pole 12. Therefore, when they are combined and the rolling grip 10 is turned, the operation pole 12 vertically moves and the elastic brush 50 fitted on the outer circumference is lengthened and shortened.

[0023] First, the present invention is composed of two types of embodiments. Both achieve the same objects in the same operation. Both are configured to lengthen and shorten the operation pole 12 by turning the grip, such that the brush 50 at the end correspondingly moves with the length increasing and decreasing. However, the structural shapes are different. Accordingly, the first embodiment of the present invention shown in FIGS. 1 to 6 is described first, and then the second embodiment shown in FIGS. 7 to 11 is described.

[0024] The mascara brush of the first embodiment is, as shown in the figures, composed of the rolling grip 10, the support grip 20, the cover pipe 30, the operation pole 12, and the brush 50. The uppermost portion is the rolling grip 10 in the figures, the support grip 20 is connected to the lower end of the rolling grip, and the linking guide pipe 22 integrally protrudes from the lower end of the support grip 20. Further, the operation pole 12 and the brush 50 pass down through the linking guide pipe 22 and the cover pipe 30 is fitted to close the cover pipe 30, the operation pole 12, and the brush 50, every time it needs. Obviously, mascara is filled in the cover pipe 30, such that the brush 50 fully absorbs the mascara when the brush is positioned in the cover pipe 30, and the brush

50 is pulled to make up the eyelashes.

[0025] The operation is described in detail. In the mascara brush 100 of the first embodiment, the rolling grip 10 at the uppermost end is combined with the support grip 20. The rotary protrusion 70 at the upper end of the support grip 20 is fitted in the guide groove 18 formed at the lower end of the rolling grip 10, in which the guide protrusion 71 formed by increasing the diameter on the outer circumference of the rotary protrusion 70 is fitted in the guide groove 18 formed on the inner circumference of the guide groove 18. Therefore, as a user holds and turns the rolling grip 10, the guide protrusion 71 of the rotary protrusion 70 smoothly moves and turns along the guide groove 18.

[0026] In this operation, the upper end of the operation pole 12 is fitted in the linking hole 11-1 inside the rolling grip 10. Accordingly, the operation pole 12 is turned in the same way. The brush 50 is connected to the other end, that is, the lowermost end of the operation pole 12. Since one end of the brush 50 is fitted on the fitting portion 15 of the operation pole 12, it can move in the same direction as the operation pole 12. As a result, as the rolling grip 10 is turned, the operation pole 12 fitted therein is turned, such that the operation pole vertically moves with the turning due to the operation of the linking control portion A formed on the outer circumference at a side of the operation pole 12 and in the support grip 20. The linking control portion A is configured to convert rotation into vertical movement, using screw operation.

[0027] Therefore, in the mascara brush 100 of the present invention, as the rolling grip 10 at the uppermost end is turned, the operation pole 12 therein is vertically moved down and the brush 50 at the end of the operation pole is lengthened. The operation pole moves up/down along the linking guide pipe 22, because it is accommodated in the linking guide pipe 22 of the support grip 20.

[0028] In detail, lengthening and shortening the brush 50 are described with reference to FIG. 4.

[0029] As the rolling grip 10 at the uppermost end is turned, with the operation pole 12 and the brush 50 at the initial position (shortened position), the operation pole 12 fitted in rolling grip 10 is turned in the same way and the linking control portion A is operated by the turn. That is, the turn is converted into vertical motion. The operation moves the operation pole 12 down in the (enlarged) figure such that the operation pole 12 is vertically pushed. Obviously, the brush 50 having one end connected to the end of the linking guide pipe 22 is lengthened by the tensile force of the fitting portion of the operation pole 12 at the other end, such that brush 50 is lengthened, as shown in the (enlarged) figure.

[0030] That is, in order to make up the eyelashes with the brush 50 lengthened, the user lengthens the brush 50 as shown in the (enlarged) figure, or uses the brush 50 shortened, in order to make up with a short brush.

[0031] Detailed configuration and operation of the linking control portion A for implementing the operation is described.

[0032] The linking control portion A of the present invention includes the linking screw portion 13 formed by forming a plurality of threads on a portion of the outer circumference of the operation pole 12 and a corresponding guider 23 formed on the inner circumference of the support grip 20, corresponding to the linking screw portion 13. Accordingly, as the rolling grip 10 is turned and the operation pole 12 therein is turned, the linking screw portion 13 of the operation pole 12 moves up/down on the corresponding guider 23 formed of the screw corresponding to the linking screw portion 13, such that the brush 50 connected to the fitting portion 15 at the end of the operation pole is lengthened or shortened.

[0033] The linking control portion A of the present invention is formed in very simple shape. The linking screw portion 13 is formed at a portion of the outer circumference of the operation pole 12, as shown in the figures. Further, the corresponding guider 23 is formed in the support grip 20. The linking screw portion 13 is formed in a protrusion shape, such as a bolt, and the corresponding guider 23 is formed in a screw groove corresponding to the linking screw portion 13. The linking screw portion 13 vertically moves up/down while turning on the groove of the corresponding guide 23. The vertical motion is implemented by very simple structural fitting.

[0034] In this configuration, the fitting structure of the operation pole 12 and the rolling grip 10 is very important. The linking hole 11-1 of the rolling grip 10 is formed in a polygonal shape and a corresponding polygonal guider 11 is formed at the end of the operation pole 12 that is inserted, such that the operation pole 12 can vertically move up/down but cannot turn.

[0035] The upper end (end) of the operation pole 12 fitted in the linking hole 11-1 formed in the rolling grip 10 has a corresponding shape. That is, although the upper guider 11 of the operation pole 12 is shown in a rectangular shape in FIGS. 2 and 6, a triangular or octagonal shape may be possible, other than the rectangular shape. The operation pole 12 of the present invention has the polygonal shape without a circular guider 11, because it has to keep turning in the same way as the turn of the rolling grip 10. Obviously, the inner circumference of the linking hole 11-1 may be formed in a corresponding shape such that the operation pole can be turned by the turn of the rolling grip 10.

[0036] It is important to keep the inner circumference of the linking hole and the guider 11 of the operation pole 12 completely fastened, because the operation pole 12 has to vertically move up/down. The guider 11 should be able to turn while vertically moving up/down on the inner circumference of the linking hole 11-1.

[0037] A structural method for lengthening and shortening the brush 50 by using the turn is described. That is, in the present invention, one end of the brush 50 is fitted on the end fitting portion 15 of the operation pole 12 and the other end is fastened to a rotary tip K rotatably connected to the end of the linking guide pipe 22, such that the brush 50 can only be lengthened and shortened

by the turn of the operation pole 12.

[0038] The fitting portion 15 that is a groove depressed inward if formed at the end of the operation pole 12, as shown in the figures. One end of the brush 50 is fitted on the fitting portion 15. Therefore, as the operation pole 12 vertically moves up/down, the fitting portion 15 holds and moves the brush 50 in the same direction. In this configuration, the other end of the brush 50 is connected to the end of the linking guide pipe 22 by the rotary tip K. Therefore, the end fitting portion 15 of the operation pole 12 pulls down one end of the brush 50 and the other end is connected to the end of the linking guide pipe 22, and as a result, the brush 50 is lengthened. Obviously, the turn of the rolling grip 10 decreases the length of the brush 10.

[0039] The rotary tip K is important in this operation. The rotary tip K holds one end of the brush 50 to keep it at the position, but can turn, such that the turning motion of the operation pole 12 is absorbed and not twisted. Whether the operation pole 12 is turned left or right, the rotary tip K prevents the brush 50 from being twisted by absorbing the turning motion, such as a bearing.

[0040] Alternatively, it is possible to twist the hairs of the brush 50 in the present invention. That is, in the present invention, one end of the brush 50 is fitted on the end fitting portion 15 of the operation pole 12 and the other end is fastened to a rotary tip K firmly connected to the end of the linking guide pipe 22, such that the brush 50 can be lengthened and shortened, with the body twisted, by the turn of the operation pole 12.

[0041] Although the operation way of the rotary tip K is the same as the rotary tip K described above, according to this embodiment, as shown in FIG. 6, vertical motion and turning are prevented by firmly fastening the brush 50 to the linking guide pipe 22 with a fixing tip P. Since one end of the brush 50 is fitted and fixed to the end fitting portion 15 of the operation pole 12 and the other end is fastened to the end of the linking guide pipe 22 by the fixing tip P, as the operation pole 12 is turned and moved down, the length increases and the body twists.

[0042] As the body of the brush 50 twists, the hairs of the brush 50 do not keep protruding uniformly and twist each other while non-uniformly protruding, such that it is possible to make up the eyelashes in various shapes.

[0043] It is preferable to use an elastic material having restoring force, such as rubber, silicon, or synthetic resin, for the brush 50, in order to easily lengthen, shorten, turn, and twist the brush 50, as described above. The brush has elasticity to be easily lengthened when the operation pole 12 holding one end of the brush 50 pulls the brush 50. Further, the brush 50 can be shortened and restored in the same way, when the operation pole 12 moves up to decrease the length. For this configuration, an elastic material is required for the brush 50.

[0044] Accordingly, rubber, silicon, or synthetic resin, which has elasticity, makes it easy to make up the eyelashes, and can absorb an appropriate amount of mascara is used.

[0045] Further, in the present invention, as shown in

FIG. 5, a scale 62 is marked on the outer circumference of the rolling grip 10 and a reference bar 61 is formed on the outer circumference of the support grip 20. Therefore, it is possible to check the amount of increase and decrease in length of the brush 50. As the rolling grip 10 is turned, the brush 50 is lengthened or shortened. It is possible to see the increase or decrease by the scale and the reference bar.

[0046] It is possible to accurately measure and adjust the length of the brush 50 by fitting the scale on the rolling grip 10 to the corresponding reference bar 61 of the support grip 20. Therefore, it is possible to more accurately estimate the length of the brush 50 in this way.

[0047] According to the scope of the first embodiment of the present invention, a rubber pad 40 is provided on the outer circumference of the rolling grip 10 to prevent sliding. As shown in FIGS. 1 to 6, the user holds the support grip 20 of the grip with the left or right hand and turns the rolling grip 10 with the fingers of the other hand. In this operation, the user can easily turn it by holding the rubber pad 40 on the outer circumference of the rolling grip 10.

[0048] Next, the second embodiment of the present invention is described. The second embodiment achieves substantially the same objects and effects as the first embodiment. The configuration is slightly different and the operational way is different. That is, the rolling grip 10 is formed at the uppermost end and the user holds the support grip 20 under the rolling grip and turns the rolling grip 10 with the fingers of the other hand in the first embodiment described above, but in the second embodiment, the operation pole 12 is lengthened and shortened by turning the rolling grip 10 while holding the support grip 20 at the uppermost end. Accordingly, the second embodiment is described in consideration of this difference.

[0049] A mascara brush according to the second embodiment, as shown in FIGS. 7 to 11, includes: an uppermost support grip 10 having a vertical linking hole 11-1 therein, a rotation guide groove 18 formed on the inner circumference of a rotation space 19 in the end, and a linking control portion A extending and protruding down from the linking hole 11-1; a middle support grip 20 having a rotary protrusion 70 fitted in the rotation space 19 and the guide groove 18, and a guide protrusion 71 formed on the outer circumference, at one end, an integrated linking guide pipe 22 extending and communicating with an operation space 27 at the center therein, and a screw portion 21 at the other side of the rotary protrusion 70; and an end cover pipe 30 having a counterscrew 31 that corresponds to the screw 21 and has a mounting space 33 therein. Further, it includes an operation pole 12 passing through the support grip 10, the linking hole 11-1 of the rolling grip 20, and the linking guide pipe 22 and including the linking control portion A, and a brush 50 fitted on the end fitting portion 15 of the operation pole 12. Therefore, when the rolling grip 20 is turned, the operation pole 12 vertically moves and the

elastic brush 50 fitted on the outer circumference is lengthened and shortened.

[0050] The mascara brush of the first embodiment is, as shown in the figures, composed of the supporting grip 10, the rolling grip 20, the cover pipe 30, the operation pole 12, and the brush 50. The uppermost portion is the support grip 10 in the figures, the rolling grip 20 is connected to the lower end of the rolling grip, and the linking guide pipe 22 integrally protrudes from the lower end of the rolling grip 20. Further, the operation pole 12 and the brush 50 pass down through the linking guide pipe 22 and the cover pipe 30 is fitted to close the cover pipe 30, the operation pole 12, and the brush 50, every time it needs. Obviously, mascara is filled in the cover pipe 30, such that the brush 50 fully absorbs the mascara when the brush is positioned in the cover pipe 30, and the brush 50 is pulled to make up the eyelashes.

[0051] The operation is described in detail. In the mascara brush 100 of the second embodiment, the support grip 10 at the uppermost end is combined with the rolling grip 20. The rotary protrusion 70 at the upper end of the rolling grip 20 is fitted in the guide groove 18 formed at the lower end of the support grip 10, in which the guide protrusion 71 formed by increasing the diameter on the outer circumference of the rotary protrusion 70 is fitted in the guide groove 18 formed on the inner circumference of the guide groove 18. Therefore, as a user holds and turns the rolling grip 20, the guide protrusion 71 of the rotary protrusion 70 smoothly moves and turns along the guide groove 18.

[0052] In this configuration, the operation pole 12 is positioned in the operation space 27 inside the rolling grip 20. Accordingly, the operation pole 12 is turned in the same way. The brush 50 is connected to the other end, that is, the lowermost end of the operation pole 12. Since one end of the brush 50 is fitted on the fitting portion 15 of the operation pole 12, it can move in the same direction as the operation pole 12. As a result, as the rolling grip 20 is turned, the operation pole 12 fitted therein is turned, such that the operation pole vertically moves with the turning due to the operation of the linking control portion A formed on the outer circumference at a side of the operation pole 12 and in the rolling grip 20. The linking control portion A is configured to convert rotation into vertical movement, using screw operation.

[0053] Therefore, in the mascara brush 100 of the present invention, as the rolling grip 20 is turned, the operation pole 12 therein is vertically moved down and the brush 50 at the end of the operation pole is lengthened. The operation pole moves up/down along the linking guide pipe 22, because it is accommodated in the linking guide pipe 22 of the support grip 10 and the rolling grip 20.

[0054] In detail, lengthening and shortening the brush 50 are described with reference to FIGS. 7 and 9.

[0055] As shown in FIG. 9, as the rolling grip 20 at the middle portion is turned, with the operation pole 12 and the brush 50 at the initial position (shortened position),

the operation pole 12 fitted in rolling grip 20 is turned in the same way and the linking control portion A is operated by the turn. That is, the turn is converted into vertical motion. The operation moves the operation pole 12 down in FIG. 7 such that the operation pole 12 is vertically pushed. Obviously, the brush 50 having one end connected to the end of the linking guide pipe 22 is lengthened by the tensile force of the fitting portion 15 of the operation pole at the other end, such that brush 50 is lengthened, as shown in FIG. 9.

[0056] That is, in order to make up the eyelashes with the brush 50 lengthened, the user lengthens the brush 50 as shown in FIG. 7, or uses the brush 50 shortened, as shown in FIG. 9, in order to make up with a short brush.

[0057] Detailed configuration and operation of the linking control portion A for implementing the operation is described.

[0058] The linking control portion A of the present invention includes the linking screw portion 13 formed by forming a plurality of threads on a portion of the outer circumference of the operation pole 12 and a corresponding guider 23 formed on the inner circumference and communicating with the linking hole 11-1 of the support grip 10, corresponding to the linking screw portion 13. Accordingly, as the rolling grip 20 is turned and the operation pole 12 therein is turned, the linking screw 13 of the operation pole 12 moves up/down on the corresponding guider 23 formed of the screw corresponding to the linking screw 13, such that the brush 50 connected to the fitting portion 15 at the end of the operation pole 12 is lengthened or shortened.

[0059] The linking control portion A of the present invention is formed in very simple shape. The linking screw 13 is formed at a portion of the outer circumference of the operation pole 12, as shown in the figures. Further, the corresponding guider 23 is formed in the rolling grip 20. The linking screw portion 13 is formed in a protrusion shape, such as a bolt, and the corresponding guider 23 is formed in a screw groove corresponding to the linking screw portion 13. The linking screw portion 13 vertically moves up/down while turning on the groove of the corresponding guide 23. The vertical motion is implemented by very simple structural fitting.

[0060] In this configuration, the fitting structure of the operation pole 12 and the rolling grip 20 is very important. The operation space 27 of the rolling grip 20 is formed in a polygonal shape and a corresponding polygonal guider 17 is formed on the outer circumference of the operation pole 12 that is inserted, such that the operation pole 12 can vertically move up/down but cannot turn.

[0061] A portion of the outer circumference of the operation pole 12 fitted in the operation space formed in the rolling grip 20 has a corresponding shape. That is, although the guider 17 of the operation pole 12 is shown in a rectangular shape in FIG. 11, a triangular or octagonal shape may be possible, other than the rectangular shape. The operation pole 12 of the present invention has the polygonal shape without a circular guider 17,

because it has to keep turning in the same way as the turn of the rolling grip 20. Obviously, it is possible to turn the operation pole 12 with the turn of the rolling grip 20, by correspondingly forming the inner circumference of the operation space.

[0062] It is important to keep the inner circumference of the operation space 27 and the guider 17 of the operation pole 12 completely fastened, because the operation pole 12 has to vertically move up/down. The guider 147 should be able to turn while vertically moving up/down on the inner circumference of the operation space 27.

[0063] A structural method for lengthening and shortening the brush 50 by using the turn is described. That is, in the present invention, one end of the brush 50 is fitted on the end fitting portion 15 of the operation pole 12 and the other end is fastened to a rotary tip K rotatably connected to the end of the linking guide pipe 22, such that the brush 50 can only be lengthened and shortened by the turn of the operation pole 12.

[0064] The fitting portion 15 that is a groove depressed inward if formed at the end of the operation pole 12, as shown in the figures. One end of the brush 50 is fitted on the fitting portion 15. Therefore, as the operation pole 12 vertically moves up/down, the fitting portion 15 holds and moves the brush 50 in the same direction. In this configuration, the other end of the brush 50 is connected to the end of the linking guide pipe 22 by the rotary tip K. Therefore, the end fitting portion 15 of the operation pole 12 pulls down one end of the brush 50 and the other end is connected to the end of the linking guide pipe 22, and as a result, the brush 50 is lengthened. Obviously, the turn of the rolling grip 20 decreases the length of the brush 50.

[0065] The rotary tip K is important in this operation. The rotary tip K holds one end of the brush 50 to keep it at the position, but can turn, such that the turning motion of the operation pole 12 is absorbed and not twisted. Whether the operation pole 12 is turned left or right, the rotary tip K prevents the brush 50 from being twisted by absorbing the turning motion, such as a bearing.

[0066] Alternatively, it is possible to twist the hairs of the brush 50 in the present invention. That is, in the present invention, one end of the brush 50 is fitted on the end fitting portion 15 of the operation pole 12 and the other end is fastened to a rotary tip K firmly connected to the end of the linking guide pipe 22, such that the brush 50 can be lengthened and shortened, with the body twisted, by the turn of the operation pole 12.

[0067] Although the operation way of the rotary tip K is the same as the rotary tip K described above, according to this embodiment, as shown in FIG. 11, vertical motion and turning are prevented by firmly fastening the brush 50 to the linking guide pipe 22 with a fixing tip P. Since one end of the brush 50 is fitted and fixed to the end fitting portion 15 of the operation pole 12 and the other end is fastened to the end of the linking guide pipe 22 by the fixing tip P, as the operation pole is turned and moved down, the length increases and the body twists.

[0068] As the body of the brush 50 twists, the hairs of

the brush 50 do not keep protruding uniformly and twist each other while non-uniformly protruding, such that it is possible to make up the eyelashes in various shapes.

[0069] It is preferable to use an elastic material having restoring force, such as rubber, silicon, or synthetic resin, for the brush 50, in order to easily lengthen, shorten, turn, and twist the brush 50, as described above. The brush has elasticity to be easily lengthened when the operation pole 12 holding one end of the brush 50 pulls the brush 50. Further, the brush 50 can be shortened and restored in the same way, when the operation pole 12 moves up to decrease the length. For this configuration, an elastic material is required for the brush 50.

[0070] Accordingly, rubber, silicon, or synthetic resin, which has elasticity, makes it easy to make up the eyelashes, and can absorb an appropriate amount of mascara is used.

[0071] Further, in the present invention, as shown in FIG. 10, a scale 62 is marked on the outer circumference of the rolling grip 20 and a reference bar 61 is formed on the outer circumference of the support grip 10. Therefore, it is possible to check the amount of increase and decrease in length of the brush 50. As the rolling grip 20 is turned, the brush 50 is lengthened or shortened. It is possible to see the increase or decrease by the scale and the reference bar.

[0072] It is possible to adjust the length of the brush 50 by fitting the scale 62 on the rolling grip 20 to the corresponding reference bar 61 of the support grip 10. Therefore, it is possible to more accurately estimate the length of the brush 50 in this way.

[0073] According to the scope of the second embodiment of the present invention, a rubber pad 40 is provided on the outer circumference of the rolling grip 20 to prevent sliding. As shown in FIGS. 7 to 11, the user holds the support grip 10 at the end of the grip with the left or right hand and turns the rolling grip 20 at the middle portion with the fingers of the other hand. In this operation, the user can easily turn it by holding the rubber pad 40 on the outer circumference of the rolling grip 20.

Claims

1. A mascara brush with controllable brush length, comprising:

an uppermost rolling grip (10) having a vertical linking hole (11-1) therein and a rotation guide groove (18) formed on the inner circumference of a rotation space (19) in the end;

a middle support grip (20) having a rotary protrusion (70) and a guide protrusion (71) fitted in the rotation space and the guide groove (18) at one end, an integrated linking guide pipe (22) extending from a linking control portion (A) at the center therein, and a screw (21) at the other side of the rotary protrusion (70);

an end cover pipe (30) having a counter-screw (31) that corresponds to the screw (21) and has a mounting space (33) therein;
an operation pole (12) passing through the rolling grip (10), the linking hole (11-1) of the support grip (20), and the linking guide pipe (22); and
a brush (50) fitted on the end fitting portion (15) of the operation pole (12), wherein, when the rolling grip (10) is turned, the operation pole (12) vertically moves and the elastic brush (50) fitted on the outer circumference is lengthened and shortened.

2. The mascara brush according to claim 1, wherein the linking control portion (A) includes:

the linking screw (13) formed by forming a plurality of threads on a portion of the outer circumference of the operation pole (12); and
a corresponding guider (23) formed on the inner circumference of the support grip (20), corresponding to the linking screw (13), wherein, as the rolling grip (10) is turned and the operation pole (12) therein is turned, the linking screw (13) of the operation pole (12) moves up/down on the corresponding guider (23) formed of the screw corresponding to the linking screw (13), such that the brush (50) connected to the fitting portion (15) at the end of the operation pole is lengthened or shortened.

3. The mascara brush according to claim 1, wherein the linking hole (11-1) of the rolling grip (10) is formed in a polygonal shape and a corresponding polygonal guider (11) is formed at the end of the operation pole (12) that is inserted, such that the operation pole (12) can vertically move up/down but cannot turn.

4. The mascara brush according to claim 1, wherein one end of the brush (50) is fitted on the end fitting portion (15) of the operation pole (12) and the other end is fastened to a rotary tip (K) rotatably connected to the end of the linking guide pipe (22), such that the brush (50) can only be lengthened and shortened by the turn of the operation pole (12).

5. The mascara brush according to claim 1, wherein one end of the brush (50) is fitted on the end fitting portion (15) of the operation pole (12) and the other end is fastened to a rotary tip (K) firmly connected to the end of the linking guide pipe (22), such that the brush (50) can be lengthened and shortened, with the body twisted, by the turn of the operation pole (12).

6. The mascara brush according to claim 1, wherein the rolling grip (10) is provided with a scale (62) on the outer circumference, and the support grip (20) is

provided with a reference bar (61) on the outer circumference such that the amount of increase and decrease in length of the brush (50) is checked.

7. The mascara according to claim 1, wherein a rubber pad (40) is provided on the outer circumference of the rolling grip (10) to prevent slip.

8. A mascara brush with controllable brush length, comprising:

an uppermost support grip (10) having a vertical linking hole (11-1) therein, a rotation guide groove (18) formed on the inner circumference of a rotation space (19) in the end, and a linking control portion (A) extending and protruding down from the linking hole (11-1);

a middle support grip (20) having a rotary protrusion (70) fitted in the rotation space (19) and the guide groove (18), and a guide protrusion (71) formed on the outer circumference, at one end, an integrated linking guide pipe (22) extending and communicating with an operation space (27) at the center therein, and a screw portion (21) at the other side of the rotary protrusion (70);

an end cover pipe (30) having a counter-screw (31) that corresponds to the screw (21) and has a mounting space (33) therein;

an operation pole (12) passing through the support grip (10), the linking hole (11-1) of the rolling grip (20), and the linking guide pipe (22) and including the linking control portion (A); and a brush (50) fitted on the end fitting portion (15) of the operation pole (12), wherein, when the rolling grip (20) is turned, the operation pole (12) vertically moves and the elastic brush (50) fitted on the outer circumference is lengthened and shortened.

9. The mascara brush according to claim 8, wherein the linking control portion (A) includes:

the linking screw (13) formed by forming a plurality of threads on a portion of the outer circumference of the operation pole (12); and

a corresponding guider (23) formed on the inner circumference and communicating with the linking hole (11-1) of the support grip (10), corresponding to the linking screw portion (13),

wherein, as the rolling grip (20) is turned and the operation pole (12) therein is turned, the linking screw (13) of the operation pole (12) moves up/down on the corresponding guider (23) formed of the screw corresponding to the linking screw (13), such that the brush (50) connected to the fitting portion (15) at the end of the operation pole (12) is lengthened or shortened.

10. The mascara brush according to claim 8, wherein the operation space (27) of the rolling grip (20) is formed in a polygonal shape and a corresponding polygonal guider (17) is formed on the outer circumference of the operation pole (12) that is inserted, such that the operation pole (12) can vertically move up/down but cannot turn.

11. The mascara brush according to claim 8, wherein one end of the brush (50) is fitted on the end fitting portion (15) of the operation pole (12) and the other end is fastened to a rotary tip (K) rotatably connected to the end of the linking guide pipe (22), such that the brush (50) can only be lengthened and shortened by the turn of the operation pole (12).

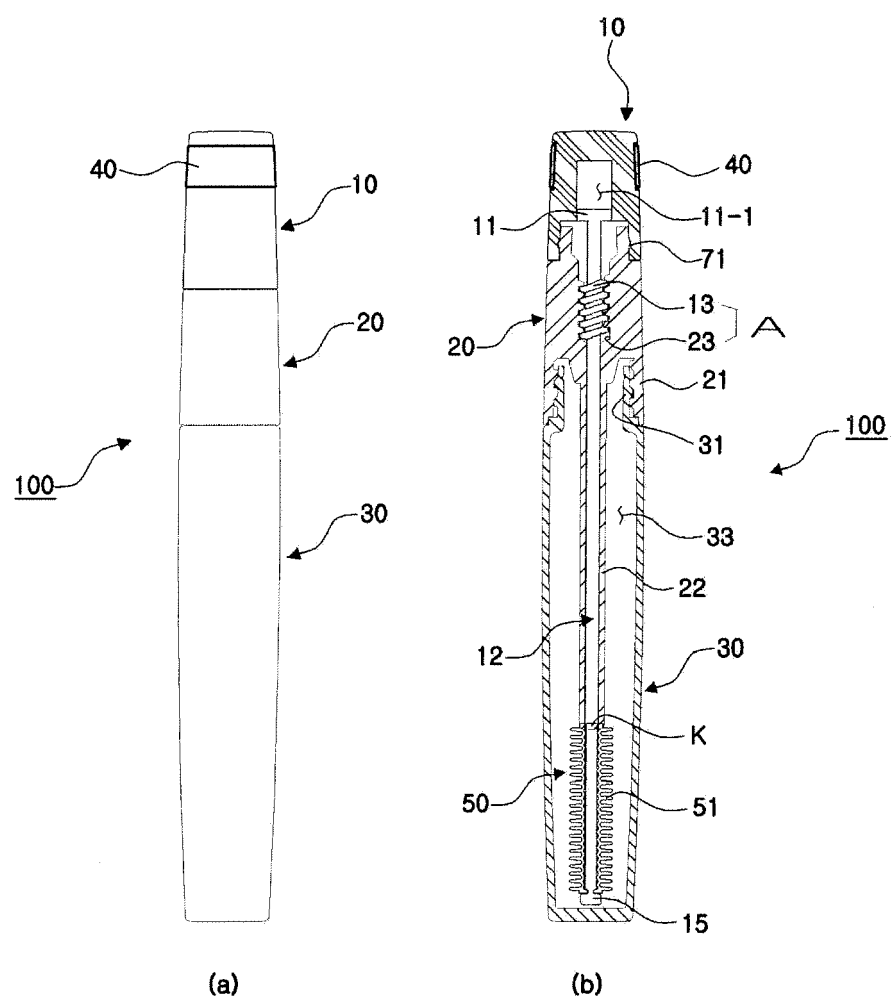
12. The mascara brush according to claim 8, wherein one end of the brush (50) is fitted on the end fitting portion (15) of the operation pole (12) and the other end is fastened to a rotary tip (K) firmly connected to the end of the linking guide pipe (22), such that the brush (50) can be lengthened and shortened, with the body twisted, by the turn of the operation pole (12).

13. The mascara brush according to claim 1 or 8, wherein the brush (50) is made of rubber, silicon, or synthetic resin which has elasticity and restoring force.

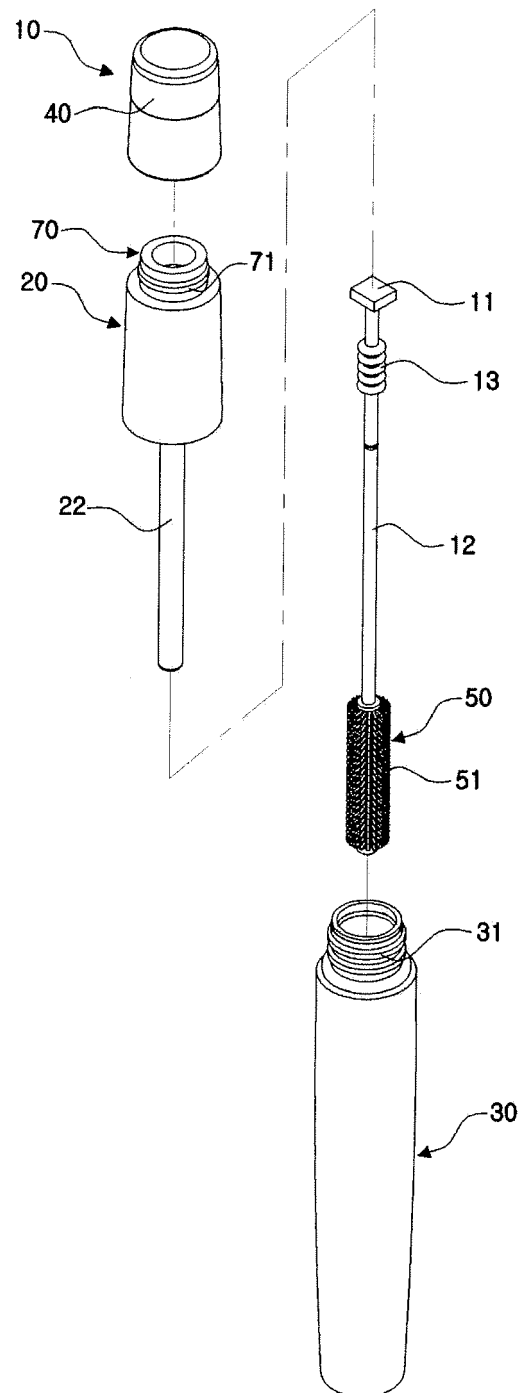
14. The mascara brush according to claim 8, wherein the rolling grip (20) is provided with a scale (62) on the outer circumference, and the support grip (10) is provided with a reference bar (61) on the outer circumference such that the amount of increase and decrease in length of the brush (50) is checked.

15. The mascara according to claim 8, wherein a rubber pad (40) is provided on the outer circumference of the rolling grip (20) to prevent slip.

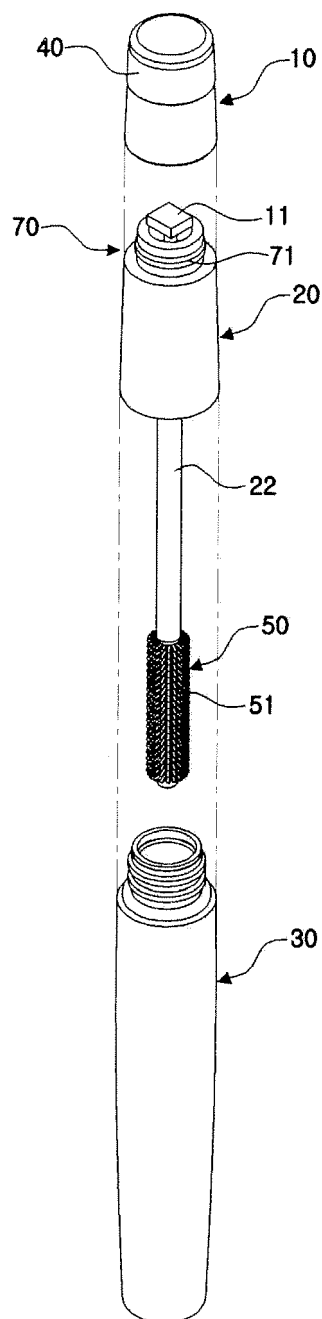
【Fig. 1】



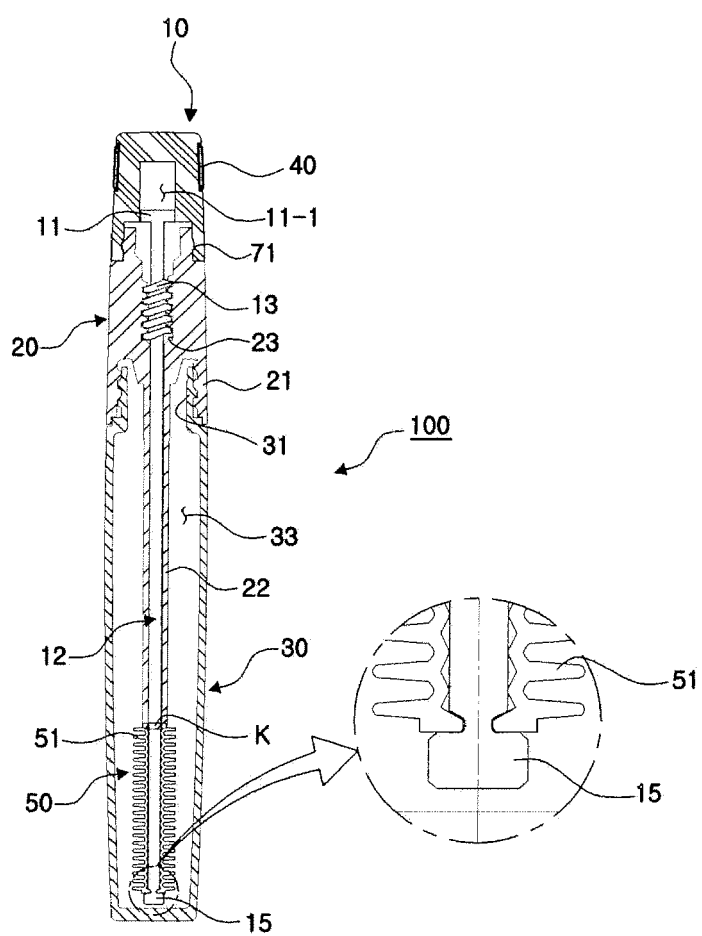
【Fig. 2a】



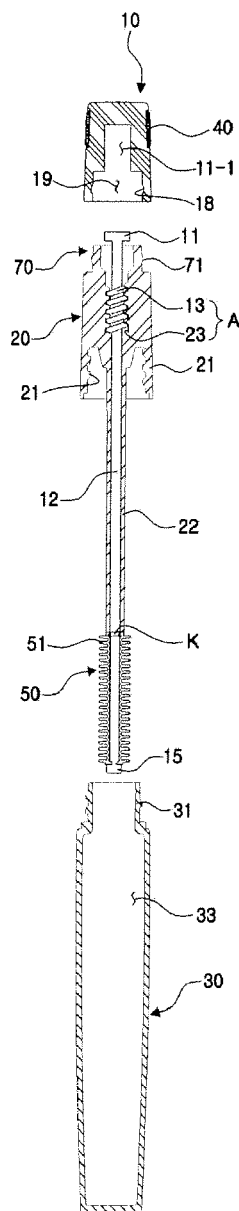
【Fig. 2b】



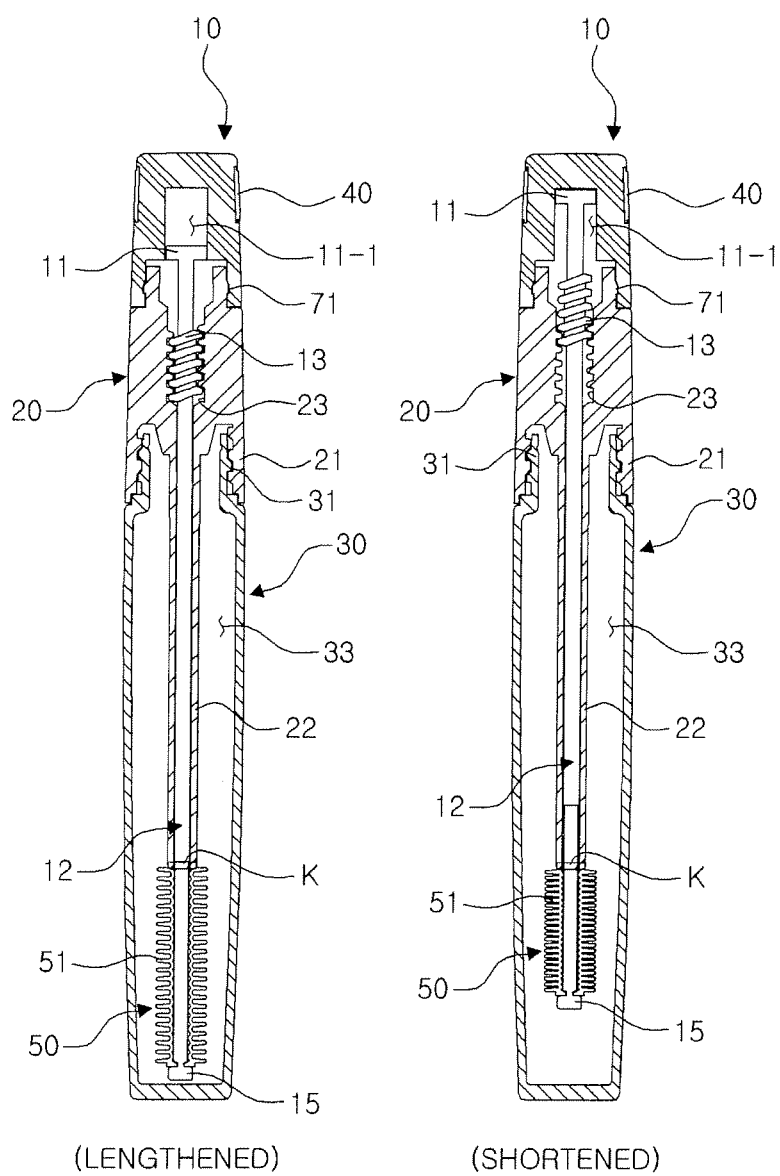
【Fig. 3a】



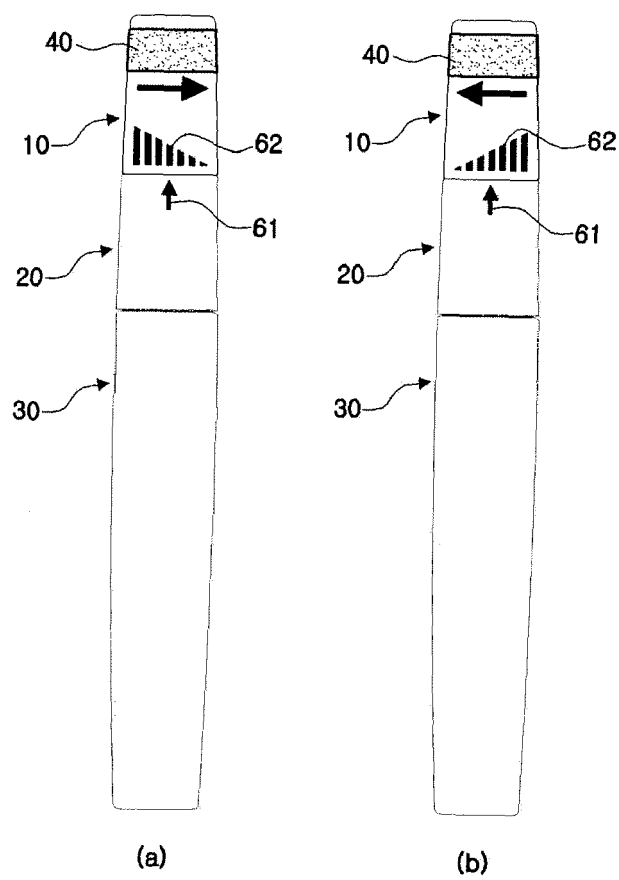
【Fig. 3b】



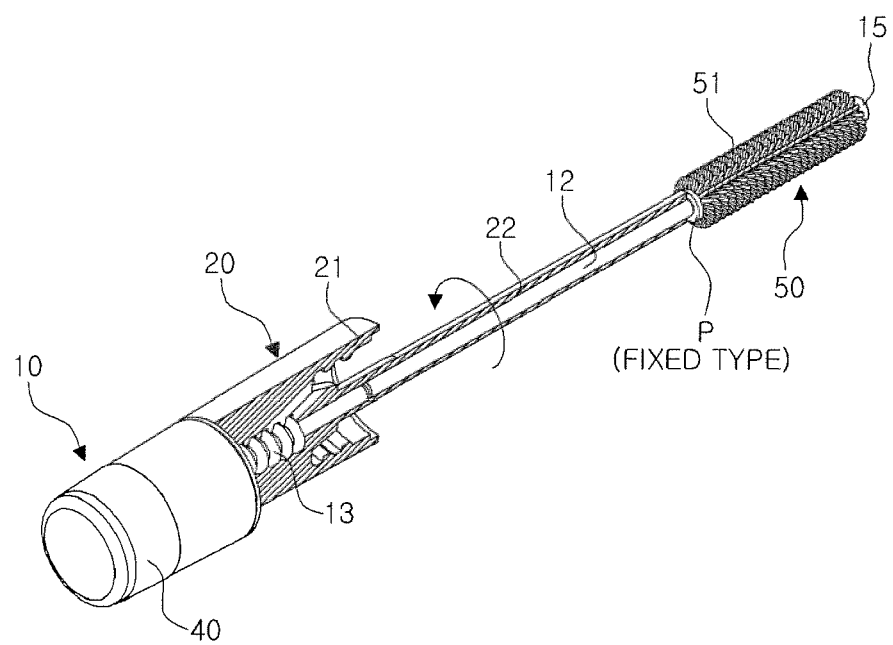
【Fig. 4】



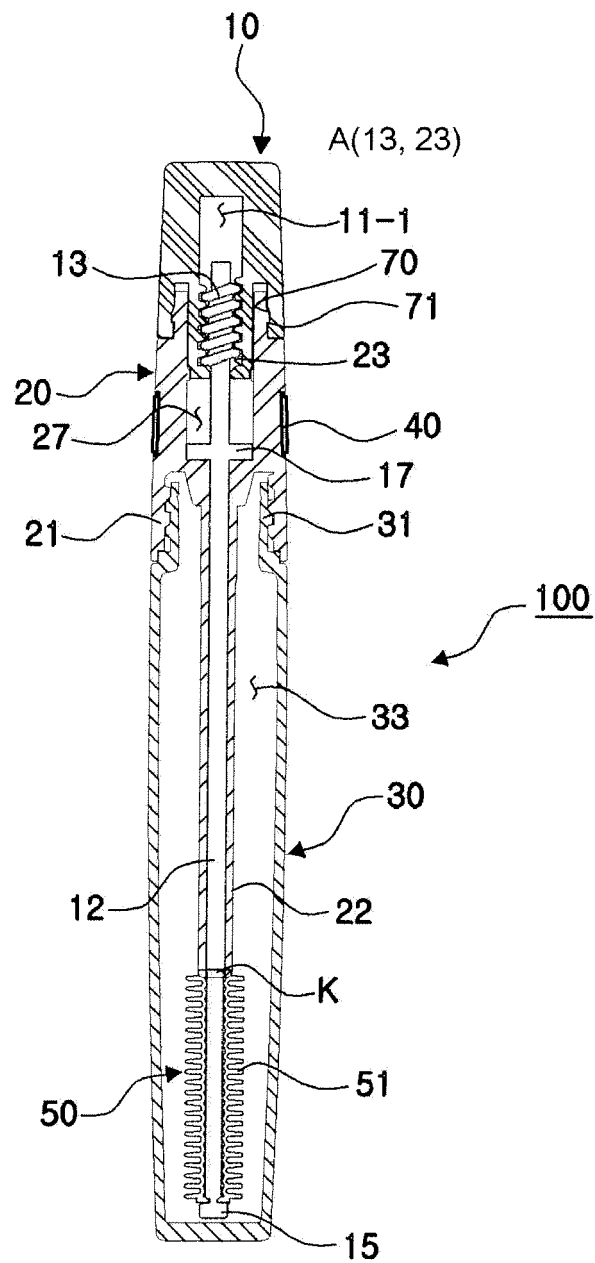
【Fig. 5】



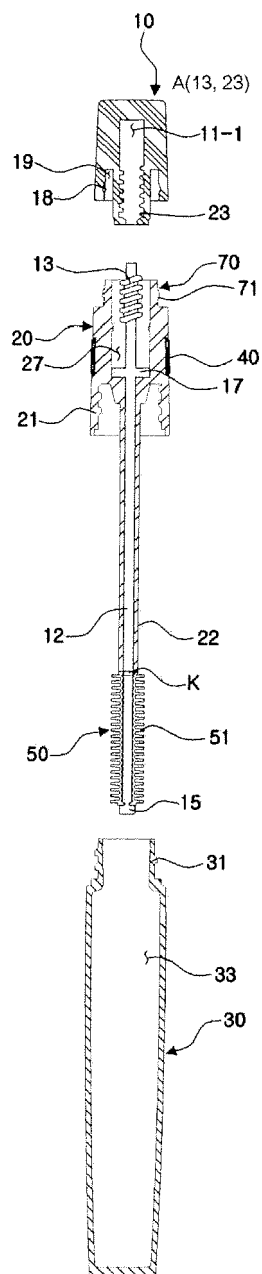
【Fig. 6】



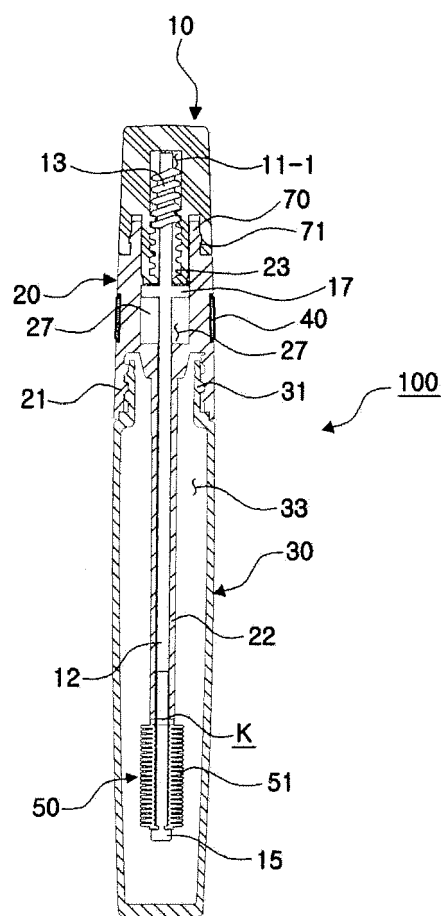
【Fig. 7】



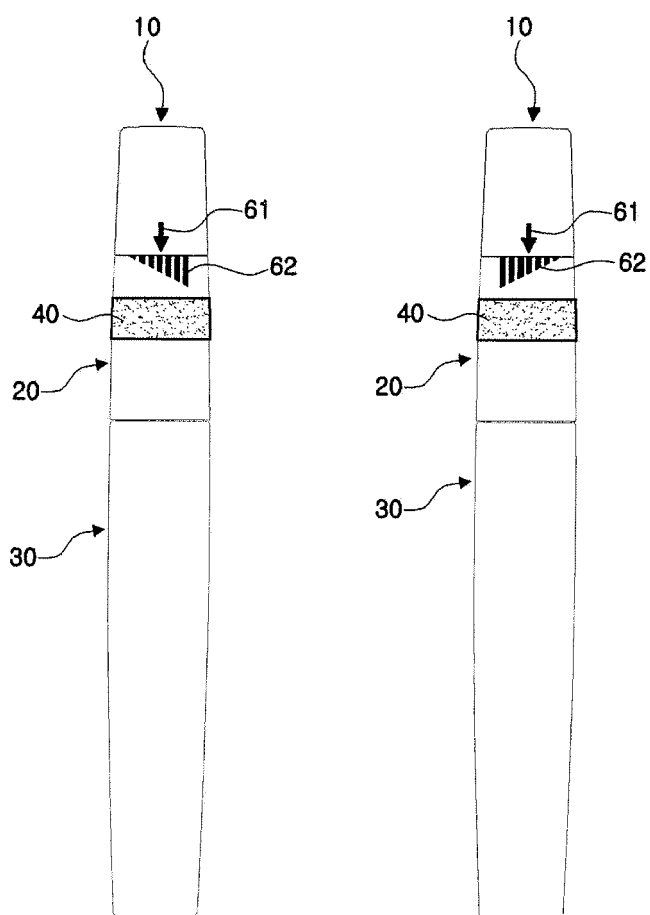
【Fig. 8】



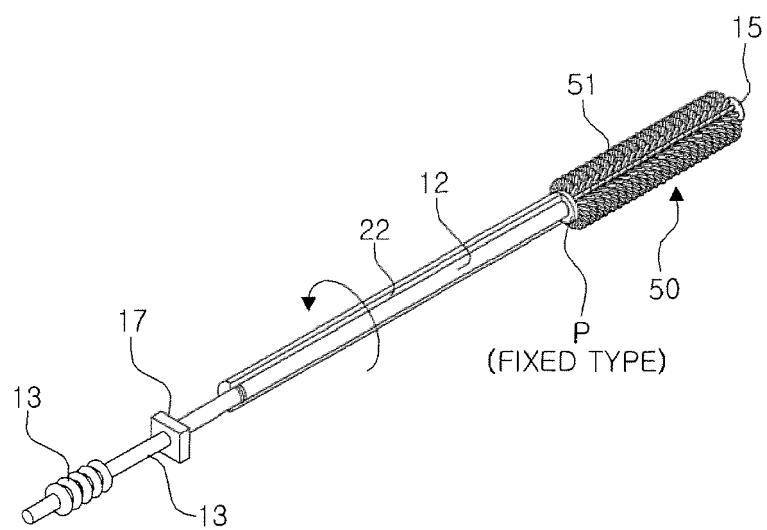
【Fig. 9】



【Fig. 10】



【Fig. 11】





EUROPEAN SEARCH REPORT

Application Number
EP 10 18 6956

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Place of search Munich		Date of completion of the search 8 November 2011	Examiner Fouquet, Michèle
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