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(54) **MASCARA BRUSH WITH CONTROLLABLE BRUSH LENGTH**

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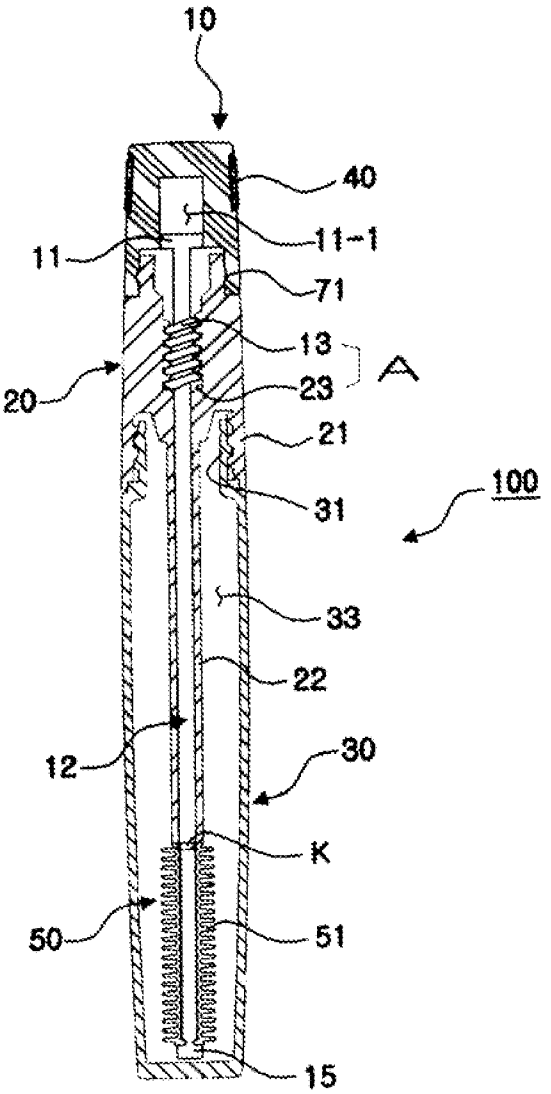
(57) **ABSTRACT**

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.



(b)

FIG. 1

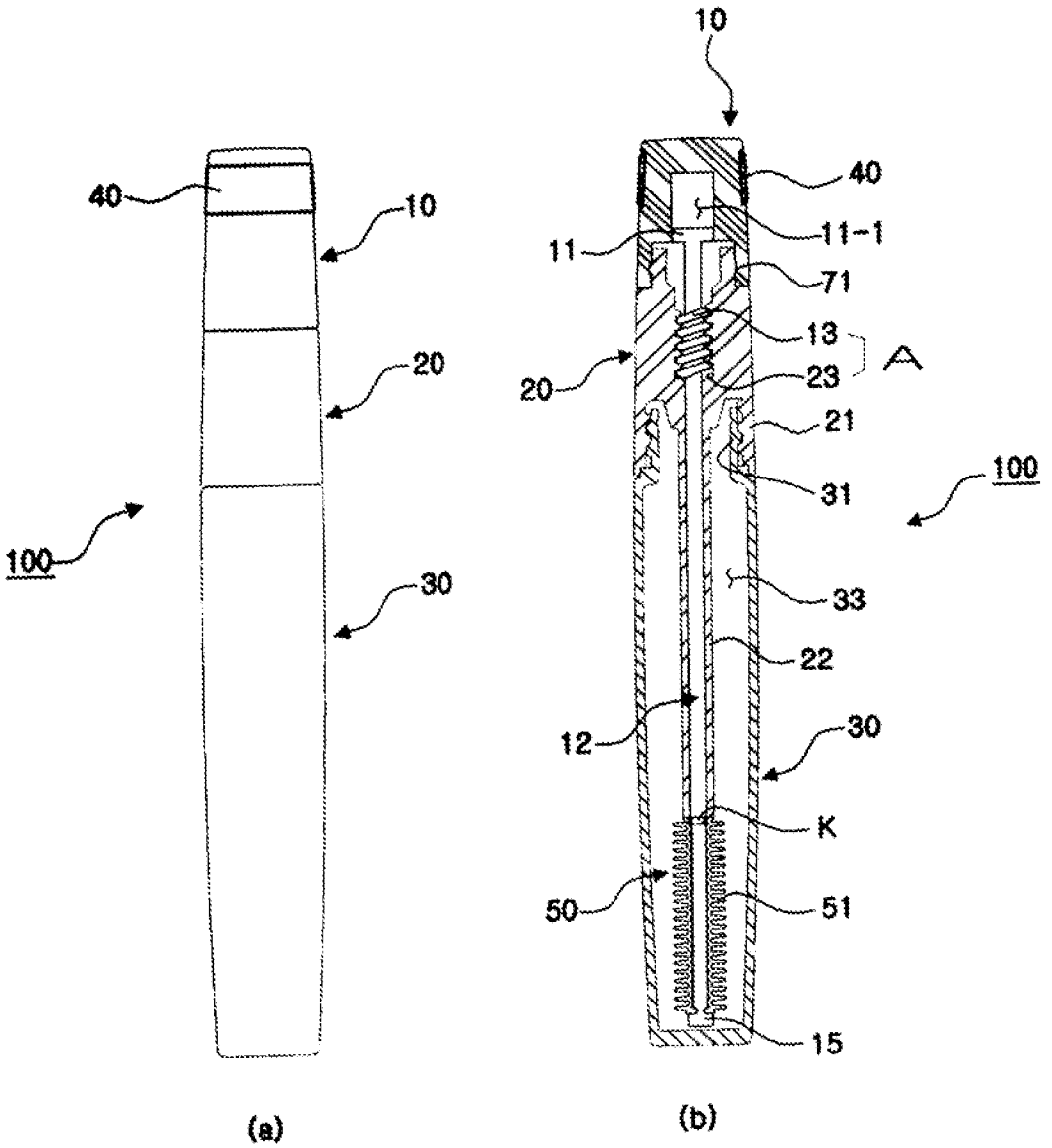

40
10
20
100
30
(a)
10
40
11
11-1
71
13
A
20
23
21
100
31
33
22
12
30
K
50
51
15
(b)

FIG. 2A

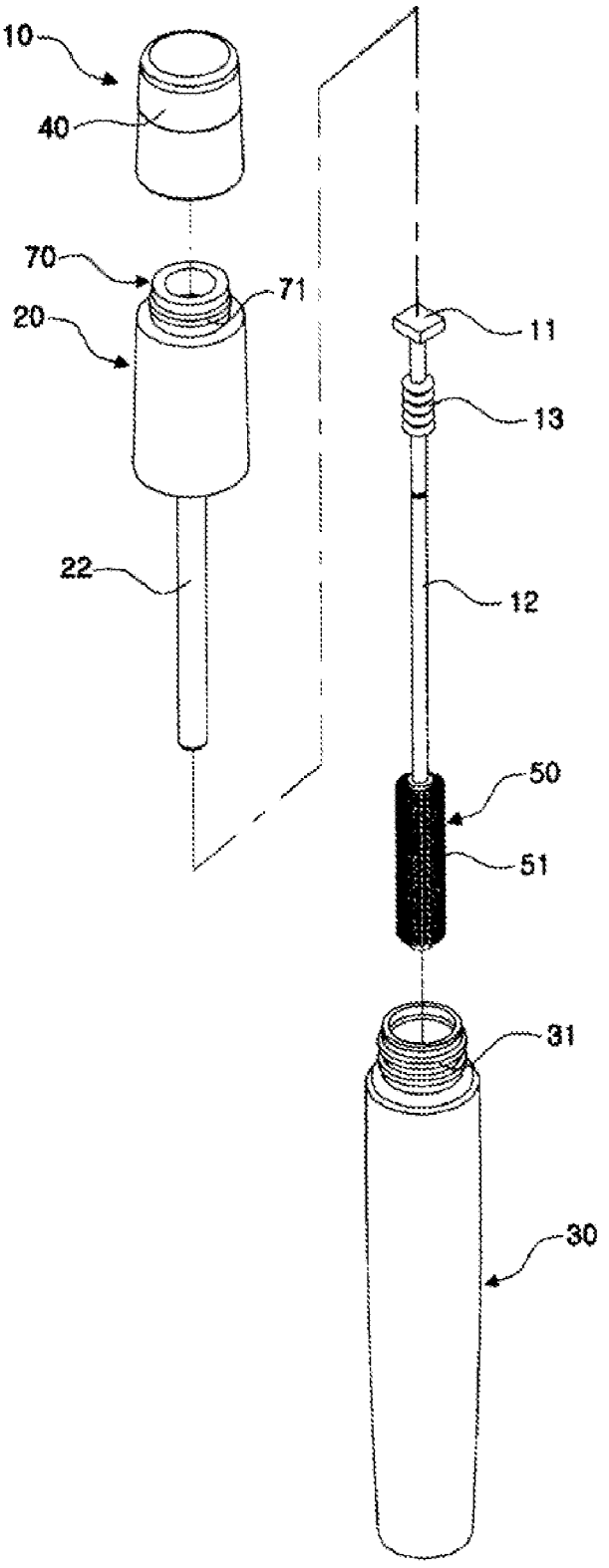


FIG. 2B

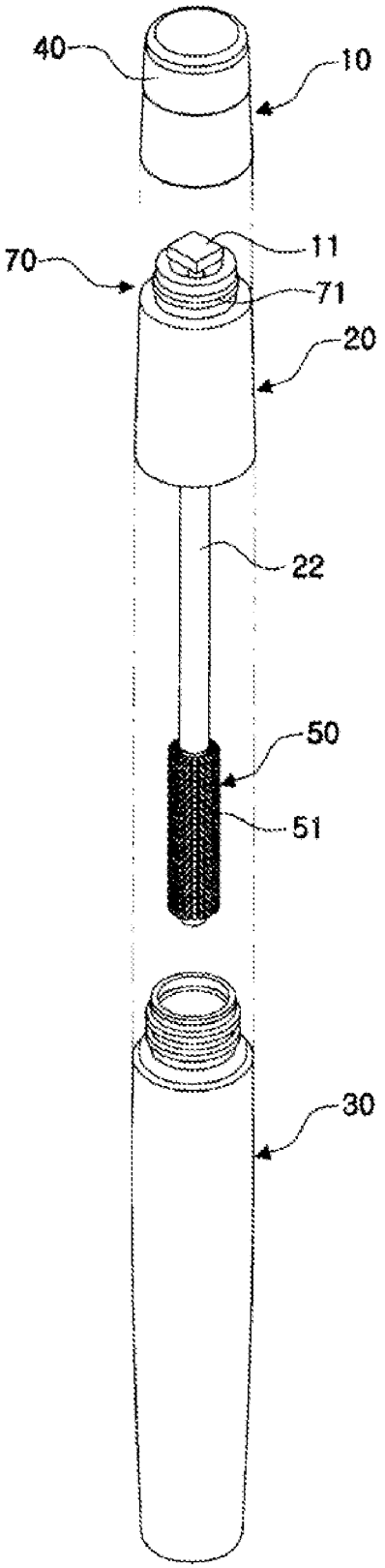


FIG. 3A

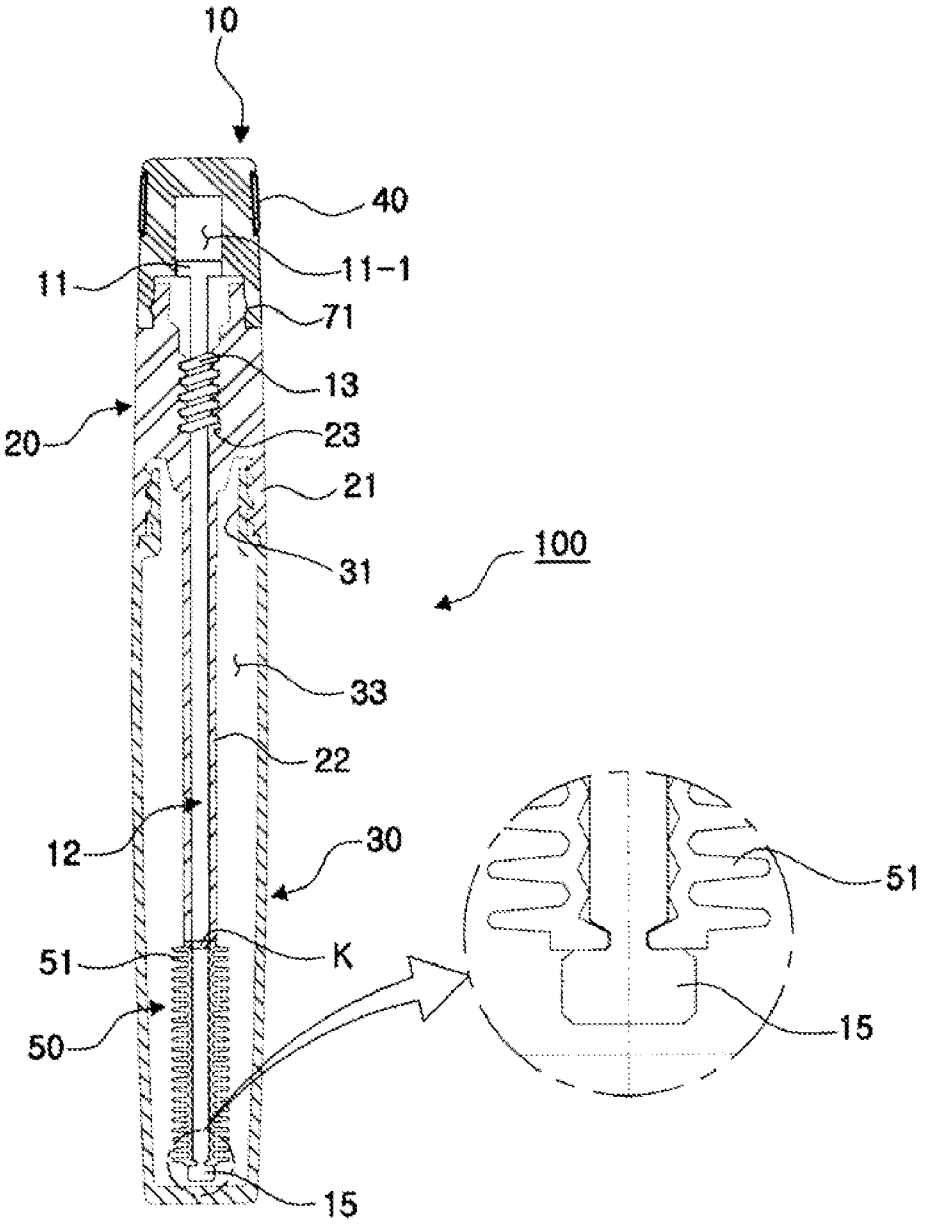


FIG. 3B

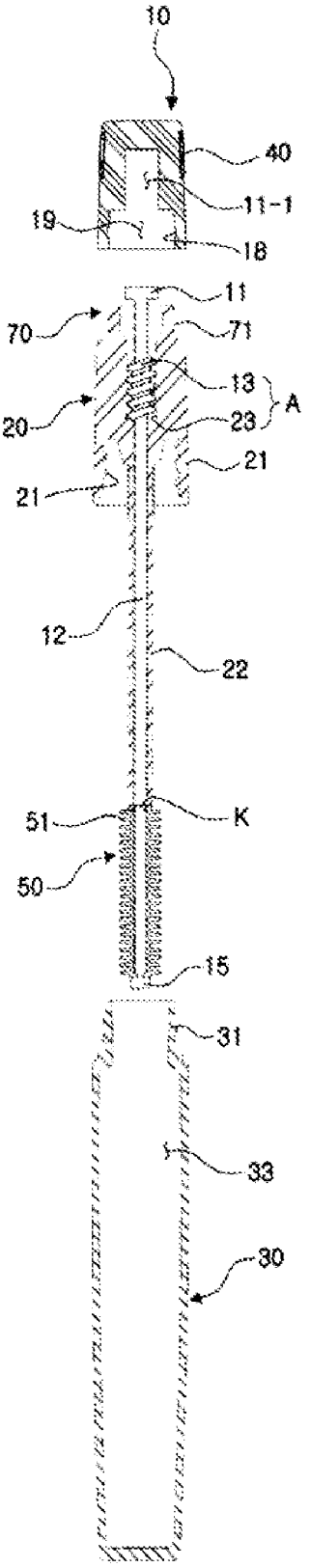


FIG. 4

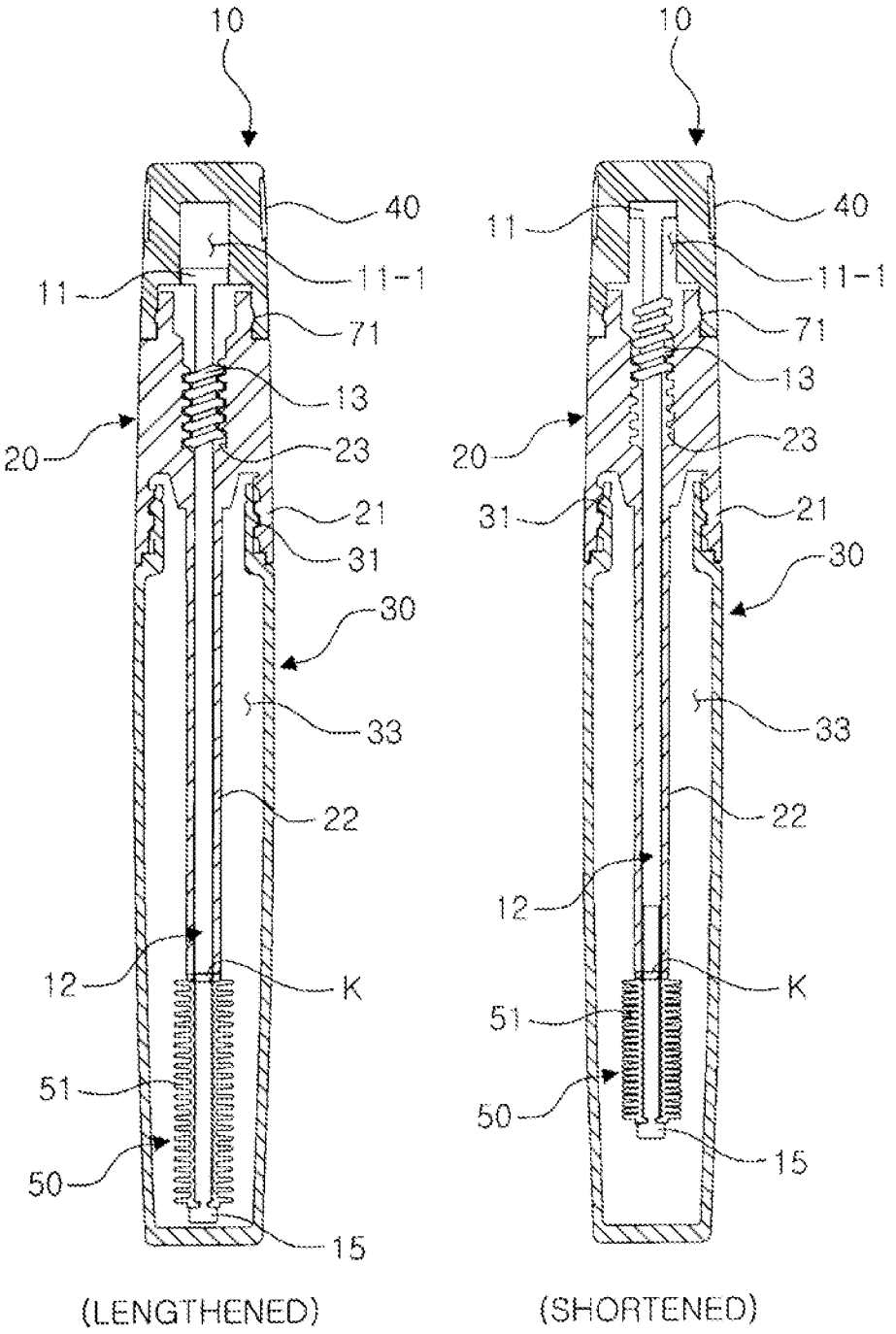

10
40
11
11-1
71
13
20
23
21
31
30
33
22
12
K
51
50
15
(LENGTHENED)
10
40
11
11-1
71
13
20
23
31
21
30
33
22
12
K
51
50
15
(SHORTENED)

FIG. 5

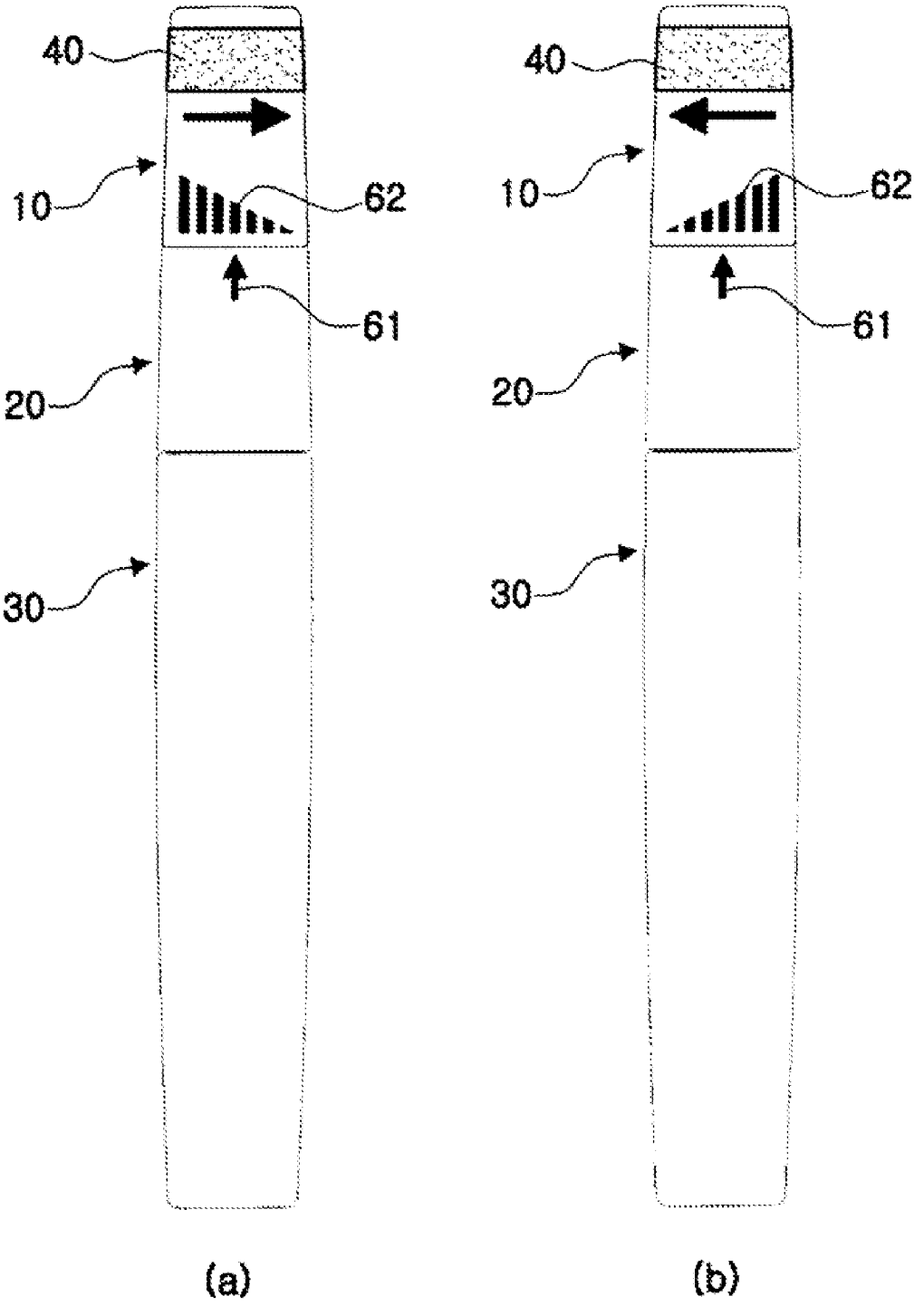


FIG. 6

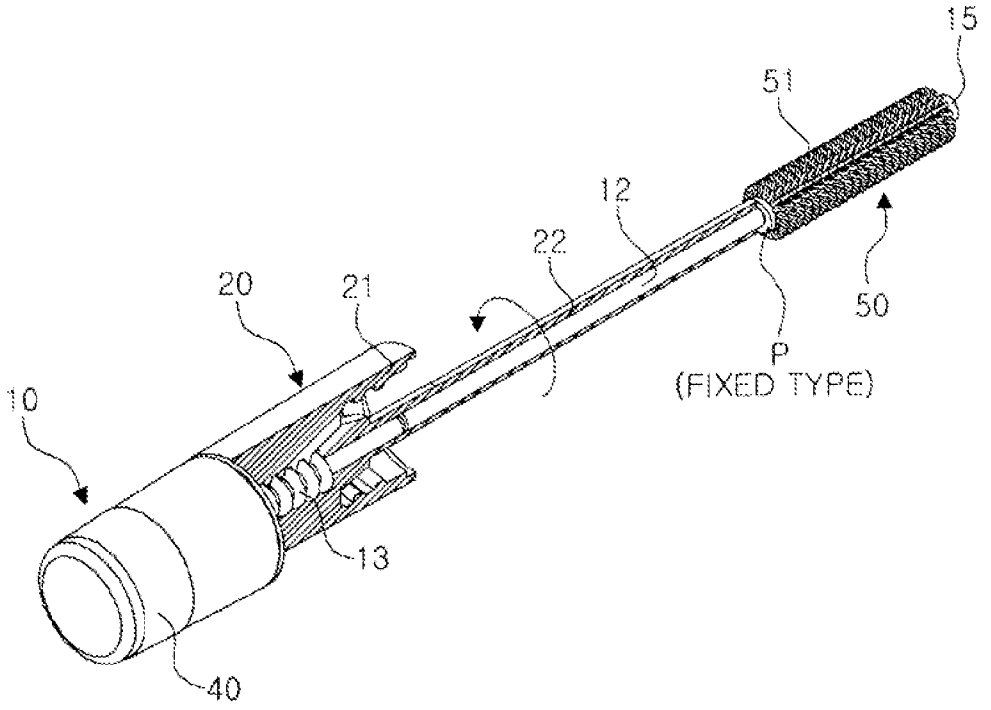


FIG. 7

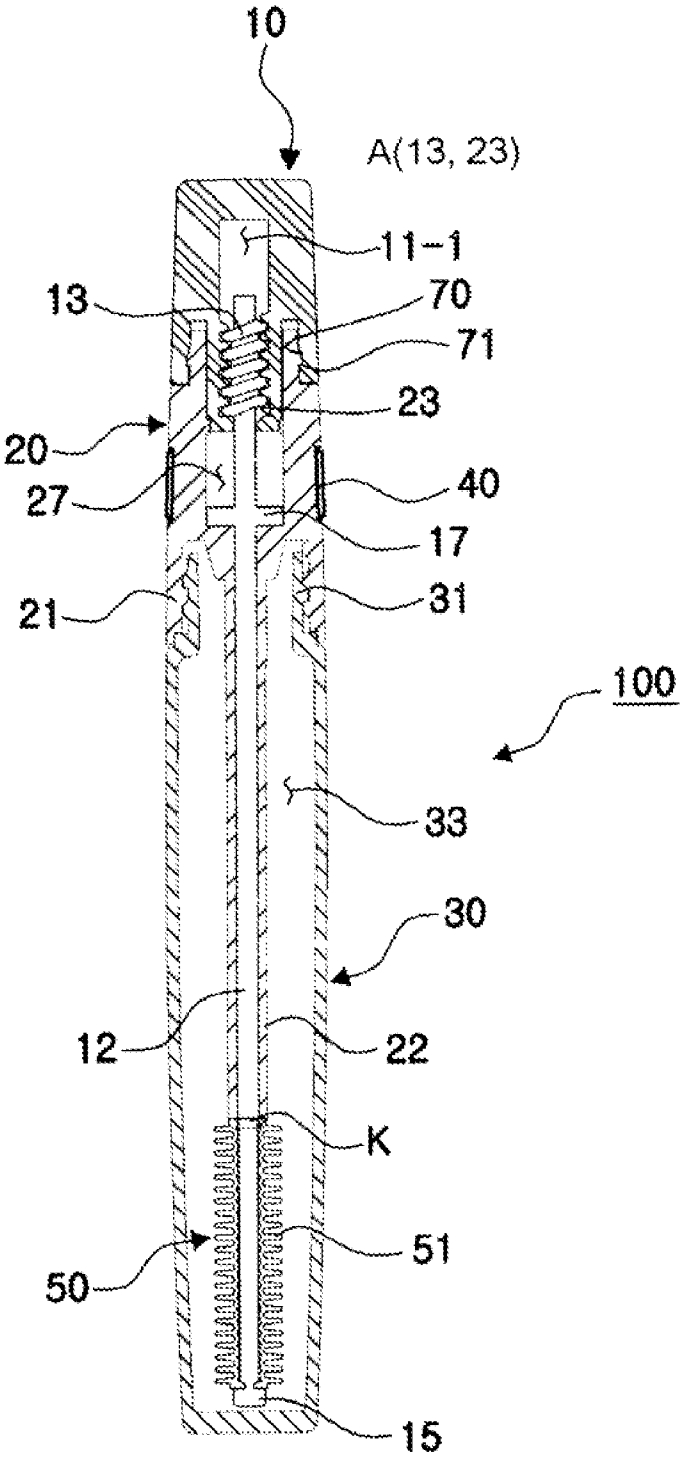


FIG. 8

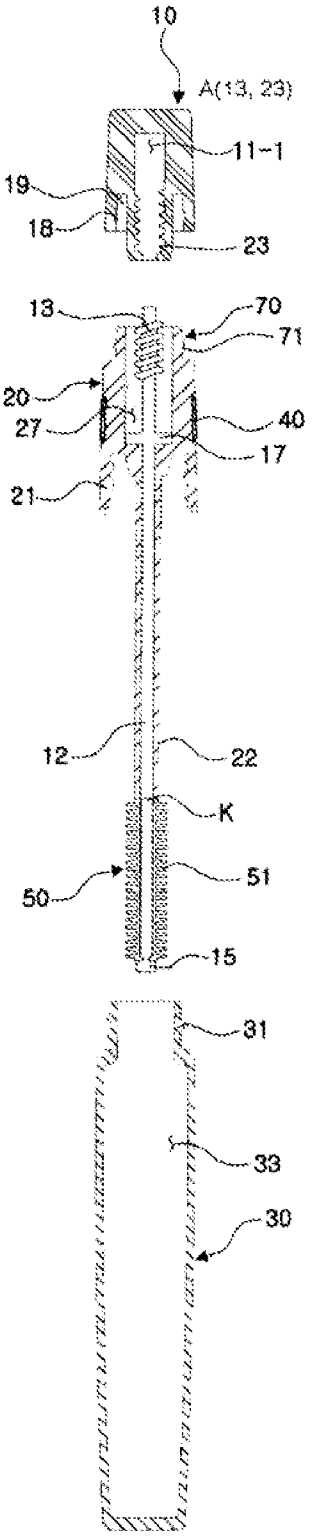


FIG. 9

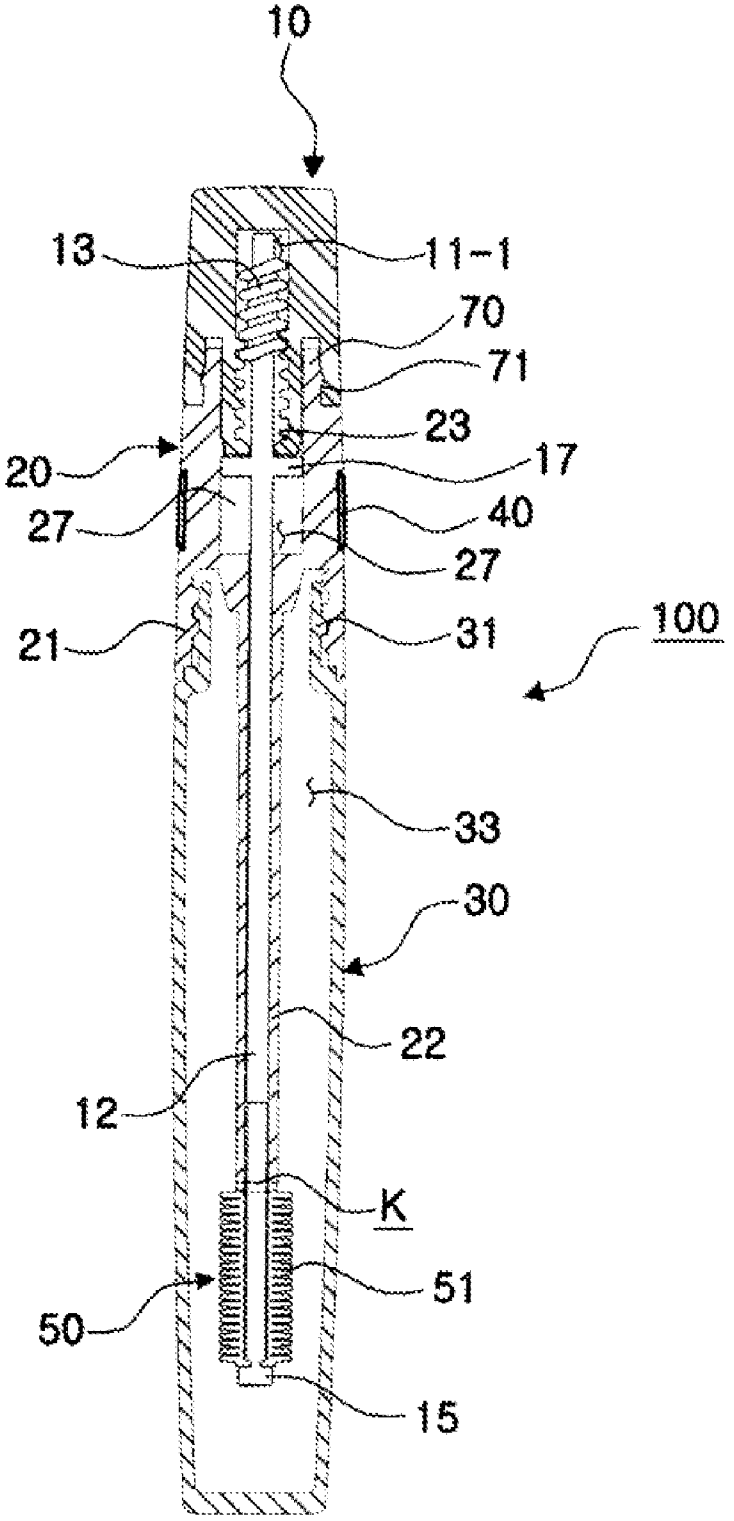


FIG. 10

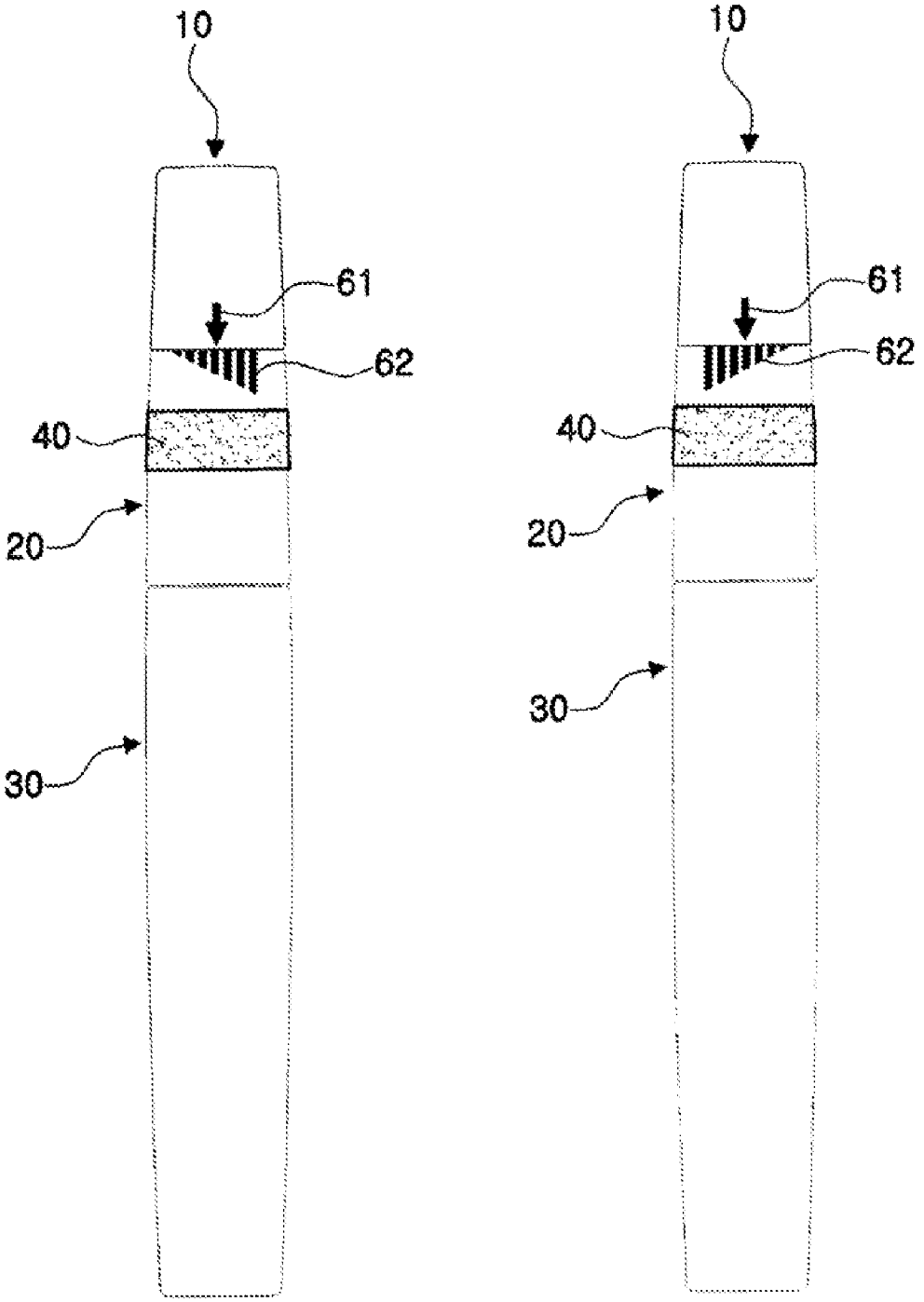
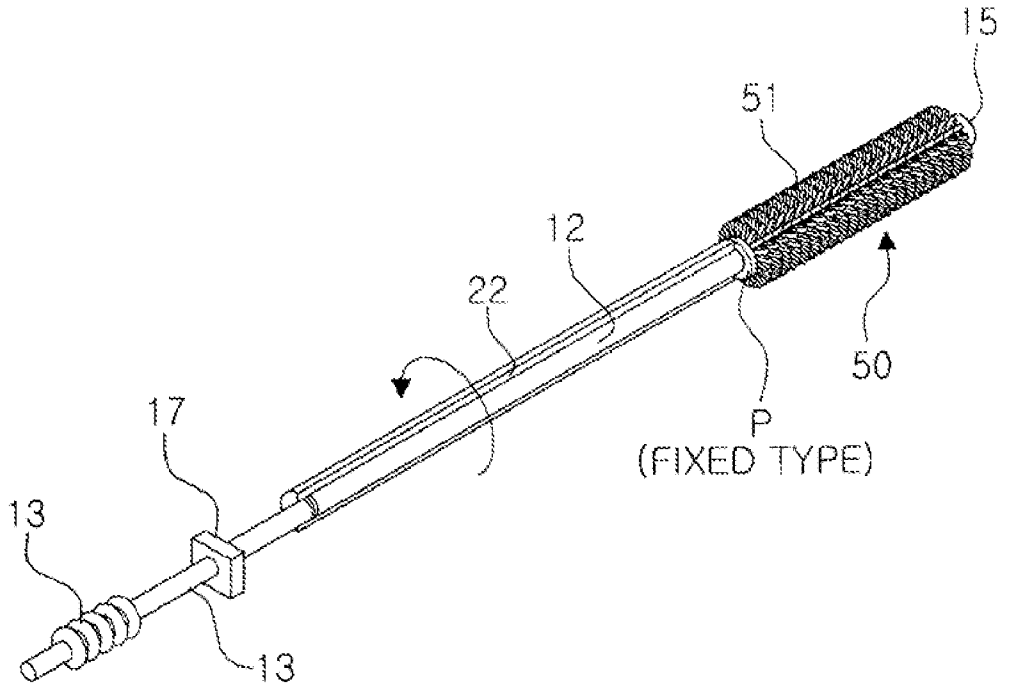


FIG. 11



MASCARA BRUSH WITH CONTROLLABLE BRUSH LENGTH

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] 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.

[0003] 2. Description of the Related Art

[0004] In general, mascara brushes are tools for women to make up the eyelashes.

[0005] 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.

[0006] 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.

[0007] 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.

[0008] 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

[0009] 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.

[0010] A mascara brush with controllable brush length according to the present invention includes: an uppermost rolling grip having a vertical linking hole therein and a rotation guide groove formed on the inner circumference of a rotation space in the end; a middle support grip having a rotary protrusion and a guide protrusion fitted in the rotation space and the guide groove at one end, an integrated linking guide pipe extending from a linking control portion A at the center therein, and a screw at the other side of the rotary protrusion; an end cover pipe having a counter-screw that corresponds to the screw and has a mounting space therein; an operation pole passing through the rolling grip, the linking hole of the support grip, and the linking guide pipe; and a brush fitted on the end fitting portion of the operation pole, in which, when the rolling grip is turned, the operation pole vertically moves and the elastic brush fitted on the outer circumference is lengthened and shortened.

[0011] Further, in the mascara brush with controllable brush length, the linking control portion A includes: the linking screw formed by forming a plurality of threads on a portion of the outer circumference of the operation pole; and a corresponding guider formed on the inner circumference of the support grip, corresponding to the linking screw, in which, as the rolling grip is turned and the operation pole therein is turned, the linking screw of the operation pole moves up/down on the corresponding guider formed of the screw corresponding to the linking screw, such that the brush connected to the fitting portion at the end of the operation pole is lengthened or shortened; the linking hole of the rolling grip is formed in a polygonal shape and a corresponding polygonal guider is formed at the end of the operation pole that is inserted, such that the operation pole can vertically move up/down but cannot turn; and one end of the brush is fitted on the end fitting portion of the operation pole and the other end is fastened to a rotary tip K rotatably connected to the end of the linking guide pipe, such that the brush can only be lengthened and shortened by the turn of the operation pole.

[0012] Further, in the mascara brush with controllable brush length, one end of the brush is fitted on the end fitting portion of the operation pole and the other end is fastened to a rotary tip K firmly connected to the end of the linking guide pipe, such that the brush can be lengthened and shortened, with the body twisted, by the turn of the operation pole, in which the brush is made of rubber, silicon, or synthetic resin which has elasticity and restoring force; and the rolling grip is provided with a scale on the outer circumference, and the support grip is provided with a reference bar on the outer circumference such that the amount of increase and decrease in length of the brush is checked.

[0013] Further, in the mascara brush with controllable brush length, a rubber pad is provided on the outer circumference of the rolling grip to prevent sliding.

[0014] A mascara brush with controllable brush length according to another embodiment of the present invention includes: an uppermost support grip having a vertical linking hole therein, a rotation guide groove formed on the inner circumference of a rotation space in the end, and a linking control portion A extending and protruding down from the linking hole; a middle support grip having a rotary protrusion fitted in the rotation space and the guide groove, and a guide protrusion formed on the outer circumference, at one end, an integrated linking guide pipe extending and communicating with an operation space at the center therein, and a screw portion at the other side of the rotary protrusion; an end cover pipe having a counter-screw that corresponds to the screw and has a mounting space therein; an operation pole passing through the support grip, the linking hole of the rolling grip, and the linking guide pipe and including the linking control portion A; and a brush fitted on the end fitting portion of the operation pole, in which, when the roiling grip is turned, the operation pole vertically moves and the elastic brush fitted on the outer circumference is lengthened and shortened.

[0015] Further, in the mascara brush with controllable brush length, the linking control portion A includes: the linking screw formed by forming a plurality of threads on a

portion of the outer circumference of the operation pole; and a corresponding guider formed on the inner circumference of the support grip, corresponding to the linking screw, in which, as the rolling grip is turned and the operation pole therein is turned, the linking screw of the operation pole moves up/down on the corresponding guider formed of the screw corresponding to the linking screw, such that the brush connected to the fitting portion at the end of the operation pole is lengthened or shortened, the operation space of the rolling grip is formed in a polygonal shape and a corresponding polygonal guider is formed on the outer circumference of the operation pole that is inserted, such that the operation pole can vertically move up/down but cannot turn, and one end of the brush is fitted on the end fitting portion of the operation pole and the other end is fastened to a rotary tip K rotatably connected to the end of the linking guide pipe, such that the brush can only be lengthened and shortened by the turn of the operation pole.

[0016] Further, in the mascara brush with controllable brush length, one end of the brush is fitted on the end fitting portion of the operation pole and the other end is fastened to a rotary tip K firmly connected to the end of the linking guide pipe, such that the brush can be lengthened and shortened, with the body twisted, by the turn of the operation pole, in which the brush is made of rubber, silicon, or synthetic resin which has elasticity and restoring force; and the rolling grip is provided with a scale on the outer circumference, and the support grip is provided with a reference bar on the outer circumference such that the amount of increase and decrease in length of the brush is checked.

[0017] Further, in the mascara brush with controllable brush length, a rubber pad is provided on the outer circumference of the rolling grip to prevent sliding.

[0018] 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.

[0019] 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.

[0020] 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.

[0021] 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

[0022] FIG. **1** is a cross-sectional view showing a mascara brush according to a first embodiment of the present invention;

[0023] FIG. **2** is an exploded view showing the first embodiment of the present invention;

[0024] FIG. **3** is a view showing the inside of the mascara brush according to the first embodiment of the present invention;

[0025] FIG. **4** is a view showing when the mascara brush according to the first embodiment of the present invention is lengthened and shortened;

[0026] FIG. **5** is a view showing an identification mark on the mascara brush according to the first embodiment of the present invention;

[0027] FIG. **6** is a view showing the mascara brush with a main portion cut, according to the first embodiment of the present invention;

[0028] FIG. **7** is a view showing the inside of the mascara brush according to a second embodiment of the present invention;

[0029] FIG. **8** is an exploded view of the mascara brush according to the second embodiment of the present invention;

[0030] FIG. **9** is a view showing when the mascara brush according to the second embodiment of the present invention is shortened;

[0031] FIG. **10** is a view showing an identification mark on the mascara brush according to the second embodiment of the present invention; and

[0032] 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

[0033] Hereinafter, the configuration and the operation of the present invention are described in detail with reference to FIGS. **1** to **11**.

[0034] 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.

[0035] 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.

[0036] 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.

[0037] 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**.

[0038] 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.

[0039] 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**.

[0040] In detail, lengthening and shortening the brush **50** are described with reference to FIG. **4**.

[0041] 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.

[0042] 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.

[0043] Detailed configuration and operation of the linking control portion A for implementing the operation is described.

[0044] 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.

[0045] 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.

[0046] 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.

[0047] 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 was 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**.

[0048] 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**.

[0049] 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**.

[0050] 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**.

[0051] 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 turns, 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.

[0052] 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**.

[0053] 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.

[0054] 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.

[0055] 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**.

[0056] 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.

[0057] 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.

[0058] 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.

[0059] 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**.

[0060] 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.

[0061] 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 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 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.

[0062] 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.

[0063] 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**.

[0064] 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.

[0065] 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**.

[0066] In detail, lengthening and shortening the brush **50** are described with reference to FIGS. **7** and **9**.

[0067] 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**.

[0068] 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.

[0069] Detailed configuration and operation of the linking control portion A for implementing the operation is described.

[0070] 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.

[0071] 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.

[0072] 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.

[0073] 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 was 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.

[0074] 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**.

[0075] 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**.

[0076] 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**.

[0077] 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 turns, 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.

[0078] 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**.

[0079] 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.

[0080] 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.

[0081] 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**.

[0082] 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.

[0083] 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.

[0084] 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.

[0085] 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**.

What is claimed is:

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

an uppermost rolling grip having a vertical linking hole therein and a rotation guide groove formed on the inner circumference of a rotation space in the end;

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

an end cover pipe having a counter-screw that corresponds to the screw and has a mounting space therein;

an operation pole passing through the rolling grip, the linking hole of the support grip, and the linking guide pipe; and

a brush fitted on the end fitting portion of the operation pole,

wherein, when the rolling grip is turned, the operation pole vertically moves and the elastic brush 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 formed by forming a plurality of threads on a portion of the outer circumference of the operation pole; and

a corresponding guider formed on the inner circumference of the support grip, corresponding to the linking screw,

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

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

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

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

6. The mascara brush according to claim **1**, wherein the brush is made of rubber, silicon, or synthetic resin which has elasticity and restoring force.

7. The mascara brush according to claim **1**, wherein the rolling grip is provided with a scale on the outer circumference, and the support grip is provided with a reference bar on the outer circumference such that the amount of increase and decrease in length of the brush is checked.

8. The mascara according to claim **1**, wherein a rubber pad is provided on the outer circumference of the rolling grip to prevent slip.

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

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

a middle support grip having a rotary protrusion fitted in the rotation space and the guide groove, and a guide protrusion formed on the outer circumference, at one end, an integrated linking guide pipe extending and communicating with an operation space at the center therein, and a screw portion at the other side of the rotary protrusion;

an end cover pipe having a counter-screw that corresponds to the screw and has a mounting space therein;

an operation pole passing through the support grip, the linking hole of the rolling grip, and the linking guide pipe and including the linking control portion A; and

a brush fitted on the end fitting portion of the operation pole,

wherein, when the rolling grip is turned, the operation pole vertically moves and the elastic brush fitted on the outer circumference is lengthened and shortened.

10. The mascara brush according to claim **9**, wherein the linking control portion A includes:

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

a corresponding guider formed on the inner circumference and communicating with the linking hole of the support grip, corresponding to the linking screw portion,

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

11. The mascara brush according to claim **9**, wherein the operation space of the rolling grip is formed in a polygonal shape and a corresponding polygonal guider is formed on the outer circumference of the operation pole that is inserted, such that the operation pole can vertically move up/down but cannot turn.

12. The mascara brush according to claim **9**, wherein one end of the brush is fitted on the end fitting portion of the operation pole and the other end is fastened to a rotary tip K rotatably connected to the end of the linking guide pipe, such that the brush can only be lengthened and shortened by the turn of the operation pole.

13. The mascara brush according to claim **9**, wherein one end of the brush is fitted on the end fitting portion of the operation pole and the other end is fastened to a rotary tip K firmly connected to the end of the linking guide pipe, such that the brush can be lengthened and shortened, with the body twisted, by the turn of the operation pole.

14. The mascara brush according to claim **9**, wherein the brush is made of rubber, silicon, or synthetic resin which has elasticity and restoring force.

15. The mascara brush according to claim **9**, wherein the rolling grip is provided with a scale on the outer circumference, and the support grip is provided with a reference bar on the outer circumference such that the amount of increase and decrease in length of the brush is checked.

16. The mascara according to claim **9**, wherein a rubber pad is provided on the outer circumference of the rolling grip to prevent slip.

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