

[NAME OF DOCUMENT] SPECIFICATION

[TITLE OF THE INVENTION] EYELASH CURLER

[TECHNICAL FIELD]

[0001]

The present invention relates to an eyelash curler for curling eyelashes.

[BACKGROUND ART]

[0002]

There is a conventionally well-known eyelash curler for making the entire eyelashes curl by operating a handle portion as if using scissors in a state that the entire eyelashes are sandwiched in the up and down direction. In recent years, various improvements have been made for this eyelash curler. For example as in Patent Literature 1, an eyelash curler in which an effort is made for easily and properly curling the eyelashes is disclosed.

[0003]

[Patent Literature 1] Japanese Patent No.3143410 (Fig. 1)

[0004]

A description will be given to such a conventional eyelash curler on the basis of Fig. 7.

The conventional eyelash curler is comprised of a pair of left and right supporting columns 50, a fixing member 52 in a curved shape fixed to upper ends of a pair of the supporting columns, link arms 62 moved in the up and down direction by an operation of handle portions 58 and 60, a movable member 54 in a curved shape fixed to the link arms 62 and capable of moving in the up and down direction along a pair of the supporting columns 50, and an elastic body 56 attached on the movable member 54.

Therefore, in the case where this eyelash curler is used, the supporting columns 50 are put onto both left and right outer ends of an eye, eyelashes are sandwiched between the fixing member 52 and the movable member 54, the handle portions 58 and 60 are operated by placing fingers thereon, and then the eyelashes are pressed onto the fixing member 52 side by an upper surface of the elastic body 56 so as to make the eyelashes curl.

[DISCLOSURE OF THE INVENTION]

[PROBLEMS TO BE SOLVED BY THE INVENTION]

[0005]

In the conventional eyelash curler, as shown in Fig. 7(b), an angle θ_2 formed by the supporting column 50 and a lower edge of the fixing member 52 in a side view is substantially a right angle. That is, as shown in Fig. 7(a), in a front view, the lower edge of the fixing member 52 and the elastic body 56 are set in a substantially horizontal state. In such a conventional eyelash curler, as shown in Fig. 8(a), a line 60 on which the lower edge of the fixing member 52 and the elastic body 56 mesh with each other so as to make the eyelashes curl is off the eyelashes partly due to short length of the eyelashes in the vicinity of inner and outer corner of the eye, and hence there is a disadvantage that the eyelash curler does not effectively function. Therefore, it is not possible to make the entire eyelashes curl by using the eyelash curler once, and there is a need for changing positions thereof many times for parts of the eyelashes to be curled such as the center of the eye and the inner and outer corner of the eye, and then operating the handles.

As shown in Fig. 6(b), curls of the eyelashes essentially look the most beautiful in a state that the entire eyelashes are curled in a radial state in a front view. However, in the conventional eyelash curler, as shown in Fig. 8(b), the eyelashes are curled in an almost vertical state, and hence it is difficult to beautifully curl the eyelashes in a radial state.

[0006]

The present invention is achieved in consideration to the above point. An object of the present invention is to provide an eyelash curler capable of easily and beautifully curling eyelashes in a radial state by using the eyelash curler once.

[MEANS FOR SOLVING THE PROBLEMS]

[0007]

In order to achieve the above object, the present invention provides an eyelash curler comprising a pair of supporting columns, a movable member in a curved shape capable of moving in the up and down direction

along supporting column upper parts in a linear shape of a pair of the supporting columns, an elastic body attached to the movable member, a fixing member in a curved shape fixed to the upper parts of a pair of the supporting columns, and operation means for moving the movable member in the up and down direction, wherein the movable member is raised by the operation means in a state that eyelashes are sandwiched between the fixing member and the movable member and pressed onto the fixing member so as to make the eyelashes curl, and in a front view where the two supporting columns are seen on the left and right sides respectively, a curvature radius R_3 of a lower edge of the fixing member (excluding the vicinities of both ends) is set to 16.5 to 22.5mm. In the present invention, in a plan view seen from a vertical line in the axial direction of the supporting column upper parts, a curvature radius R_1 of the lower edge of the fixing member (excluding the vicinities of the both ends) is set to 18.5 to 24.5mm.

[EFFECT OF THE INVENTION]

[0008]

According to the eyelash curler of the present invention, a curved shape of the members for sandwiching the eyelashes in the up and down direction is set so as to exactly fit with a curve of the eye around root parts of the eyelashes in a front view. Therefore, there is no need for using the eyelash curler many times for the parts of the eyelashes to be curled such as the center of the eye and the inner and outer corner of the eye, and it is possible to curl the entire eyelashes easily and beautifully in an ideally radial state by using the eyelash curler once.

[BEST MODE FOR CARRYING OUT THE INVENTION]

[0009]

Next, a description will be given to the present invention on the basis of the drawings. Fig. 1(a) is a front view of an eyelash curler according to the present invention, Fig. 1(b) is a right side view thereof, and Fig. 2 is a view showing an operation state of the eyelash curler according to the present invention.

As shown in Figs. 1 and 2, the eyelash curler is comprised of a pair of

left and right supporting columns 10, a fixing member 12 in a curved shape fixed to upper ends of a pair of the supporting columns, link arms 26 moved in the up and down direction by an operation of handle portions 18 and 22 serving as operation means, a movable member 14 in a curved shape fixed to the link arms 26 and capable of moving in the up and down direction along a pair of the supporting column upper parts 10a, and an elastic body 16 attached on the movable member 14.

[0010]

To the upper ends of a pair of the left and right supporting columns 10, the fixing member 12 in a curved shape is attached. This is a part to be pressed onto an eyelid when curling the eyelashes. A lower edge of the fixing member 12 is a part of meshing with the elastic body 16 so as to make the eyelashes curl.

A pair of the left and right supporting columns 10 form the supporting column upper parts 10a serving as parts for slidably supporting the movable member 14, and a supporting column lower parts 10b continuing thereto. Further, on the lower side thereof, a first lever 20 is formed, and further on the lower side of the first lever 20, the first handle 18 to be operated by placing a finger thereon is formed. A pair of the left and right supporting columns 10 are made by bending one linear material, and hence formed integrally with the supporting column upper parts 10a, the supporting column lower parts 10b, the first lever 20 and the first handle 18.

[0011]

A pin 28 inserted into between the supporting column lower parts 10b and the first lever 20. Through this pin 28, a second lever 24 and the second handle 22 made by bending one linear material are rotatably attached.

In an upper end of the second lever 24, an insertion hole 30 to which the link arms 26 are inserted is formed. The link arms 26 made by bending one linear material into a V shape are inserted into the insertion hole 30, and an upper ends thereof are fixed to a lower surface of the movable member 14 in a curved shape. The movable member 14 is formed so as to be capable of

moving in the up and down direction along the supporting column upper parts 10a. Therefore, when the first handle 18 and the second handle 22 are operated by placing the fingers thereon as if using scissors, the link arms 26 are moved in the up and down direction following this operation, and the movable member 14 moves in the up and down direction with the link arms 26.

It should be noted that Fig. 2 shows a state that space between the movable member 14 and the fixing member 12 is expanded to the maximum by opening the first handle 18 and the second handle 22 so as to pull the link arms 26 and the movable member 14 to the lower side.

[0012]

The fixing member 12 fixed so as to lie over the upper parts 10a of a pair of the left and right supporting columns is curved in an arc shape in a plan view seen from a vertical line in the axial direction of the supporting column upper parts 10a (in the arrow Y direction in Fig. 2). As shown in Fig. 3, a curvature radius R_1 of a lower edge 12a of the fixing member 12 is preferably about 18.5 to 24.5mm, more preferably about 20.5mm. It should be noted that the curvature radius R_1 of the lower edge 12a of the fixing member 12 excludes the vicinities of both ends of the lower edge 12a. This is because there is sometimes a case where the vicinities of the both ends of the lower edge 12a are slightly expanded to the outside or slightly narrowed to the inside in relation to attachment to the supporting column upper parts 10a. That is, there is sometimes a case where the entire lower edge 12a of the fixing member 12 is not a fine arc shape. In such a case, at least the curvature radius R_1 at a point P substantially in the vicinity of the arc center of the lower edge 12a may be about 18.5 to 24.5mm as mentioned above.

[0013]

As shown in Fig. 1(b), such a fixing member 12 is attached to the supporting column upper parts 10a so that an angle θ_1 formed by the lower edge 12a of the fixing member 12 and the supporting column upper parts 10a is preferably 40 to 60 degrees, more preferably about 45 to 50 degrees in a side view where the two supporting columns 10 look as one member by

exactly overlapping with each other.

[0014]

The movable member 14 moving in the up and down direction along the supporting column upper parts 10a is made by curving a frame body in a housing shape having a U shape section as shown in Fig. 4(a) serving as a sectional view by line A-A of Fig. 2, and Fig. 4(b) serving as a sectional view by line B-B of Fig. 4(a). The elastic body 16 such as rubber is fitted in a state that an upper part thereof partly protrudes in space of the frame body in a housing shape.

[0015]

As shown in Fig. 4(a), the entire shape of the movable member 14 to which this elastic body 16 is fitted is curved in an arc shape in a plan view seen from a vertical line in the axial direction of the supporting column upper parts 10a (in the arrow Y direction in Fig. 2). A curvature radius R_2 of an arc part thereof is preferably about 18.5 to 24.5mm, more preferably about 20.5mm. It should be noted that a center line 34 in a section of the elastic body 16 in Fig. 4(a) is a part on which the lower edge 12a of the fixing member 12 and the elastic body 16 mesh with each other (a part of sandwiching the eyelashes). That is, a value of the curvature radius R_2 of the elastic body 16 and the movable member 14 corresponds to a value of the curvature radius R_1 of the lower edge 12a of the fixing member 12 mentioned above.

As shown in Fig. 4(a), rings 32 are integrally formed in both left and right ends of the movable member 14, and the supporting column upper parts 10a are inserted into the inside of the left and right rings respectively. Therefore, the entire movable member 14 is capable of moving in the up and down direction along the supporting column upper parts 10a.

[0016]

The fixing member 12 fixed so as to lie over the supporting column upper parts 10a and the movable member 14 to which the elastic body 16 is fitted form an arc shape as shown in Fig. 1(a) in a front view where the two supporting columns are seen on the left and right sides respectively and seen

in the direction perpendicular to the supporting column upper parts 10a (in the arrow X direction in Fig. 1(b)). An enlarged view of the fixing member 12, the elastic body 16 and the movable member 14 in this front view is shown in Fig. 5. A curvature radius R_3 of an arc part of the lower edge 12a of the fixing member 12 is preferably about 16.5 to 22.5mm, more preferably about 18.5mm. It should be noted that the curvature radius R_3 of the lower edge 12a of the fixing member 12 excludes the vicinities of the both ends of the lower edge 12a as well as the above.

[0017]

In such an eyelash curler according to the present invention, the handle portions 18 and 22 are firstly opened by placing the fingers thereon as if using the scissors (Fig. 2) and the space between the fixing member 12 and the movable member 14 is opened. Next, the supporting column upper parts 10a is put onto both left and right outer ends of the eye. After pressing the fixing member 12 onto the eyelid so as to stabilize a main body of the eyelash curler, the eyelashes are sandwiched between the fixing member 12 and the movable member 14. The handle portions 18 and 22 are operated and closed by placing the fingers thereon, and then the eyelashes are strongly pressed onto the fixing member 12 side by an upper surface of the elastic body 16 attached to the movable member 14. Then, the lower edge 12a of the fixing member 12 seemingly bites into the elastic body 16 so as to properly make the eyelashes curl.

[0018]

According to the eyelash curler of the present invention, as shown in Fig. 6(a), the line 34 on which the lower edge 12a of the fixing member 12 and the elastic body 16 mesh with each other so as to sandwich the eyelashes is set to exactly fit with a curve of the eye around root parts of the eyelashes. Therefore, it is possible to easily and properly curl the eyelashes by using the eyelash curler once. As understood from Fig. 6(a), the lower edge 12a of the fixing member 12 and the elastic body 16 mesh with each other even in the vicinity of inner and outer corner of the eye. Therefore, even in a part of short eyelashes in the vicinity of the inner and outer corner of the eye, it is

possible to properly curl the eyelashes from the roots thereof. It is also possible to curl the eyelashes beautifully in an ideally radial state as curls of the eyelashes as shown in Fig. 6(b), by using the eyelash curler once.

[BRIEF DESCRIPTION OF THE DRAWINGS]

[0019]

Fig. 1(a) is a front view of an eyelash curler according to the present invention; and Fig. 1(b) is a right side view thereof.

Fig. 2 is a view showing an operation state of the eyelash curler according to the present invention.

Fig. 3 is a partly enlarged plan view of the eyelash curler according to the present invention.

Fig. 4(a) is a sectional view by line A-A of Fig. 2; and Fig. 4(b) is a sectional view by line B-B of Fig. 4(a).

Fig. 5 is a partly enlarged front view of the eyelash curler according to the present invention.

Fig. 6(a) is a view showing a state that eyelashes are sandwiched by the eyelash curler according to the present invention; and Fig. 6(b) is a view showing a curling state of the eyelashes at the time.

Fig. 7(a) is a front view of a conventional eyelash curler; and Fig. 7(b) is a right side view thereof.

Fig. 8(a) is a view showing a state that the eyelashes are sandwiched by the eyelash curler according to the conventional invention; and Fig. 8(b) is a view showing a curling state of the eyelashes at the time.

[EXPLANATION OF THE REFERENCE NUMERALS]

[0020]

10: Supporting column

10a: Supporting column upper part

12: Fixing member

14: Movable member

16: Elastic body

18: First handle

20: First lever

22: Second handle

24: Second lever

26: Link arm

32: Ring

[NAME OF DOCUMENT] CLAIMS

[Claim 1]

An eyelash curler, comprising a pair of supporting columns, a movable member in a curved shape capable of moving in the up and down direction along supporting column upper parts in a linear shape of a pair of the supporting columns, an elastic body attached to the movable member, a fixing member in a curved shape fixed to the upper parts of a pair of the supporting columns, and operation means for moving the movable member in the up and down direction, wherein the movable member is raised by the operation means in a state that eyelashes are sandwiched between the fixing member and the movable member and pressed onto the fixing member so as to make the eyelashes curl, and in a front view where the two supporting columns are seen on the left and right sides respectively, a curvature radius R_3 of a lower edge of the fixing member (excluding the vicinities of both ends) is set to 16.5 to 22.5mm.

[Claim 2]

The eyelash curler according to claim 1, wherein in a plan view seen from a vertical line in the axial direction of the supporting column upper parts, a curvature radius R_1 of the lower edge of the fixing member (excluding the vicinities of the both ends) is set to 18.5 to 24.5mm.