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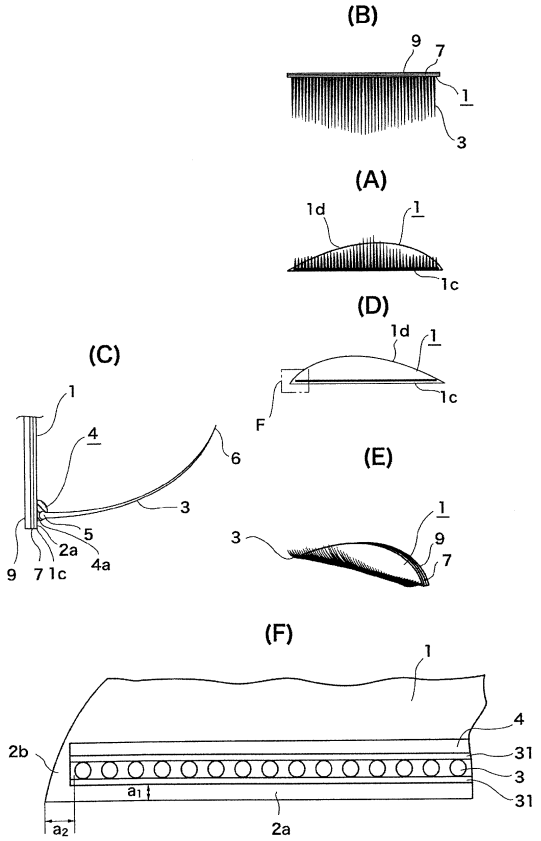
(54) FALSE EYELASHES

(57) To provide a false eyelash that is easily wearable and prevented from slippage and separation while in use. It comprises an extremely thin base 1, a bonding layer 4 formed linearly on a surface of said base, a plurality of hair segments 3 individually and separately adhered to said bonding layer, and an adhesive layer 7 formed on an entire underside of said base, wherein said base is formed into substantially a two-dimensional configuration or a three-dimensional configuration that contours a curved shape of an eyelid to which said base is fitted. Since the base is formed into a three-dimensional configuration that contours a curved shape of the eyelid, it may be fitted tightly to the eyelid. At this time, the hair segments are firmly adhered to the bonding layer in such manner that they remain linearly attached to the base, by which the false eyelash with the hair segments being kept in well aligned state can easily be fitted to the eyelid. Even when the base is formed into substantially a two-dimensional configuration, the base is extremely thin and, therefore, can be fitted tightly to the eyelid along the curved shape of the eyelid.

FIG.2



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Description

Technical Field

[0001] The present invention relates to a false eyelash.

Background Art

[0002] As shown in Fig.12, the prior art false eyelash 103 comprises an extremely thin linear base 101 having approximately 0.5mm width and artificial eyelash transplanted onto the base, which is attached with bonding agent to an eyelid just above an eyelash 122. Another type prior art is, as shown in Fig.13, adhered spottedly by using tweezers, for example, to a removed part of an eyelash 122 or to other reinforcing sites, at usually one or several points.

Prior Arts

Patent Documents

[0003]

Patent Document 1: JP1974-044493A(U)
Patent Document 2: JP2008-231632A

Summary of Invention

Problems to be Solved

[0004] The prior arts use bonding agent for adhesion of false eyelash, which has the risk that the eye could be damaged. Accordingly, the false eyelash adhering operation should be done with case, which requires prudent attention and take a long time. In some case, the false eyelash is used even though not sufficiently adhered.

[0005] This will result from the following reasons. As shown in Fig.14, the prior art false eyelash is linear and, therefore, may be variously deformed when it is to be adhered. It may be deformed in a vertical direction, in a horizontal direction and in any directions in 360 degrees. The false eyelash should be adhered to the lower edge of an upper eyelid, which is difficult enough as it is.
In addition, the linear false eyelash with full deformability should be adhered to such site. This makes it extremely difficult to fit the false eyelash in position, which requires high-level skill.

[0006] Even if it is once adhered successfully, it is adhered linearly or spottily only in an extremely small area so that it could be slipped off due to up-and-down movement of the eyelid while in use, which greatly spoils appearance.

[0007] The prior art false eyelash has a linear or spotly base 101 providing a small area for adhesion, which makes it impossible to wear the false eyelash for a long period of time. It could be detached or slipped off by face-washing.

[0008] Moreover, the prior art requires use of solvent-containing bonding agent, when it is to be fitted to the eyelid or while in use, so that a wearer cannot open her eyes for a predetermined time after the false eyelash is adhered, because solvent will volatilize.

[0009] Furthermore, the linear base, especially its opposite end portions may hit against the eyelid, which causes pain to a wearer. Because of the linear body to be attached, it lasts only six hours around at the longest. It would easily be removed by face-washing or tears.

[0010] To cope with these problems, the present inventors have offered Patent Document 2, which, however, still have the following defects.

[0011] The false eyelash of Patent Document 2 utilizes a base that has been developed for a hair-transplanted wig with a rugged underside. When such base is fitted onto a head, ruggedness on the underside will turn the other way around. Such inversion of ruggedness on the underside can be expected because the wig has relatively wide area for fitting. This, however, is not practically applicable to a false eyelash to be fitted to an eyelid. This is because why an eyelid is one of the thinnest human skin sites, usually having thickness of the order of 10-20 micrometers, which could not bear a great value of pressure applicable to a head when a wig is to be fitted.

[0012] Accordingly, an adhesive layer only on the convex of the base underside is adhered to the eyelid, but the adhesive layer on the concave is very hard to be adhered to the eyelid.

[0013] As a consequence, a gap is formed between the concave and the eyelid to lower the fitting power and also lower the fitting period, by which the false eyelash once adhered could be easy to be removed due to water flooded into the concave during face-washing or by tears.

[0014] The object of the present invention is to eliminate the above-described defects, more particularly to provide a false eyelash that is easily wearable with hair segments being aligned in good order and is prevented from slippage and separation while in use. Other objects will become apparent from the following description.

Means for Solving the Problems

[0015] To achieve the above-described objects, a false eyelash according to the present invention is characterized in that it comprises an extremely thin base, a bonding layer formed linearly on a surface of the base, a plurality of hair segments individually and separately adhered to the bonding layer, and an adhesive layer formed on an entire underside of the base, said base being formed into a three-dimensional configuration that contours a curved shape of an eyelid to which the base is fitted.
In another aspect, the false eyelash according to the present invention is characterized in that it comprises an extremely thin base, a bonding layer formed linearly on a surface of the base, a plurality of hair segments individually and separately adhered to the bonding layer, and an adhesive layer formed on an entire underside of the

base, said base being formed into substantially a two-dimensional shape.

The false eyelash according to Claim 1 is further characterized in that the base is smaller than the eyelid.

The false eyelash according to Claim 1 or Claim 2 is further characterized in that a base end portion of said base is cutting linearly, and its end portion opposite to said base end portion is cut into a convex arc shape.

The false eyelash according to Claim 1 or Claim 2 is further characterized in that the thickness of said base is equal to or smaller than 20 micrometers.

The false eyelash according to Claim 1 or Claim 2 is further characterized in that a root portion of said hair segment is formed to have a curved shape in cross-section.

The false eyelash according to Claim 6 is further characterized in that said root portion is formed to have a sphere in cross-section.

The false eyelash according to Claim 7 is further characterized in that said hair segment is cut by a laser beam.

The false eyelash according to Claim 1 or Claim 2 is further characterized in that a root portion of said hair segment is formed into a planar shape.

The false eyelash according to Claim 9 is further characterized in that said hair segment is cut by a cutter.

The false eyelash according to Claim 1 or Claim 2 is further characterized in that said hair segments are adhered to said bonding layer while they are connected and aligned with each other by one or more linear members.

The false eyelash according to Claim 11 is further characterized in that said hair segments are entwined with said linear members.

The false eyelash according to Claim 11 is further characterized in that said hair segments are bonded to said linear members.

The false eyelash according to Claim 12 or Claim 13 is further characterized in that said linear member(s) comprises a single one.

The false eyelash according to Claim 12 or Claim 13 is further characterized in that said linear member(s) comprises plural ones.

The false eyelash according to Claim 12 or Claim 13 is further characterized in that said linear member(s) and said hair segments are formed in one body.

The false eyelash according to any one of Claim 6 to Claim 16 is further characterized in that said hair segments are adhered to a lower end portion of said bonding layer.

The false eyelash according to any one of Claim 6 to Claim 17 is further characterized in that said root portion of said hair segment is adhered perpendicularly to said bonding layer.

The false eyelash according to any one of Claim 6 to Claim 17 is further characterized in that said root portion of said hair segment is adhered aslant to said bonding layer.

The false eyelash according to any one of Claim 6 to Claim 17 is further characterized in that a leading end portion of said hair segment is curled outwardly in relation to a base end portion of said base.

Effects of Invention

[0016] In the false eyelash according to the present invention, since the base is formed into a three-dimensional configuration that contours a curved shape of the eyelid, it may be fitted tightly to the eyelid. Even when the base is formed into substantially a two-dimensional configuration, the base is extremely thin and, therefore, can be fitted tightly to the eyelid along the curved shape of the eyelid. At this time, the hair segments are firmly adhered to the bonding layer in such manner that they remain linearly attached to the base, by which the false eyelash with the hair segments being kept in well aligned state can easily be fitted to the eyelid.

[0017] Further, when it is fitted to the eyelid, because the hair segments are linearly attached to the lower end portion of the base, it can be fitted in such manner that the hair segments are substantially aligned with the own eyelash. Accordingly, the false eyelash could not be distinguished from the own eyelash, providing very good appearance. In addition, the remaining portion of the bonding layer is not visible, providing good visibility.

[0018] The false eyelash according to the present invention provides a planar, wide area for adhesion, and said wide adhesive area is adhered to an upper eyelid, for example. Accordingly, in addition to the fact that the surfaces of the base held by the user are wide, planar, easily-handled surfaces, it is very easy to position the base end portion to align with the lower edge of the upper eyelid when fitting the false eyelash, thereby greatly saving labor and time required for the fitting operation. Further, the adhesive surface is planar and has a wide area for adhesion to the eyelid, which prevent slippage and separation of the false eyelash while in use.

Brief Description of Drawings

[0019]

Fig.1: (A) is a front view showing an embodiment of a false eyelash according to the present invention, (B) is a plan view of (A), (C) is an enlarged left-side view of (A), (D) is a rear view of (A), (E) is an oblique view of (A), and (F) is an enlarged view showing F portion in (D);

Fig.2: (A) is a front view showing another embodiment of a false eyelash according to the present invention, (B) is a plan view of (A), (C) is an enlarged left-side view of (A), (D) is a rear view of (A), (E) is an oblique view of (A), and (F) is an enlarged view showing F portion in (D);

Fig.3: (A) is an upper surface view of a base, for use to a left eye, of Fig.2, (B) is an upper surface view of a base, for use to a right eye, of the same, and (C) is a C-C cross-section of (A);

Fig.4: (A) is a front view showing another embodiment of hair segments used in a false eyelash according to the present invention, (B) is a right-side view of (A), (C) is a front view showing still another embodiment, (D) is a right-side view of (C), (E) is a front view showing still another embodiment, (F) is a right-side view of (E), (G) is a front view showing still another embodiment, and (H) is a right-side view of (G);

Fig.5: (A) is a front view showing still another embodiment of a false eyelash according to the present invention, (B) is a plan view of (A), (C) is a left-side view of (A), (D) is a rear view of (A), (E) is an oblique view of (A), (F) is an enlarged view showing F portion in (C), and (G) is an enlarged view showing G portion in (D);

Fig.6 shows an example of process of manufacturing a false eyelash according to the present invention, wherein (A) shows a first step, (B) shows a second step, (C) shows a third step, and (D) shows fourth and fifth steps;

Fig.7: (A) is a front view showing an example of a size pattern scale of a false eyelash according to the present invention, (B) is a front view showing another embodiment, and (C) is a front view showing still another embodiment;

Fig.8: (A) is a schematic front view showing the false eyelash according to the present invention in a fitted state, (B) is a right-side view of (A), and (C) is an enlarged view showing C portion in (B);

Fig.9 is a view explaining the false eyelash according to the present invention in a fitted state;

Fig.10: (A) is a view explaining the cutting of the base, and (B) is a view showing the cutting of the base according to the present invention;

Fig.11: (A) is an enlarged side view showing another embodiment of a false eyelash according to the present invention, (B) is an enlarged view of B portion in (A), and (C) is an enlarged side view showing still another embodiment of a false eyelash according to the present invention;

Fig.12: (A) is a schematic front view showing an example of the prior art false eyelash, and (B) is a front view showing in general the fitted state of the false eyelash (A);

Fig.13(A) is a schematic front view showing another example of the prior art false eyelash, and (B) is a front view showing in general the fitted state of the false eyelash (A); and

Fig.14 is a view explaining the fitted state of the prior art false eyelash.

Embodiments for Practicing the Invention

[0020] Next, the false eyelash according to the present invention will be described in more detail based on the drawings that illustrate embodiments thereof. As a matter of convenience, any part having the same facility will be represented by the same reference numeral and their explanation will be omitted.

[0021] In Fig.1, a reference numeral 1 denotes a base consisting of an extremely thin sheet. Its thickness is equivalent to a human skin (of the order of 20 micrometers, for example). The base 1 is made from elastic material such as polyurethane, tinged with a transparent light skin color and contoured into a three-dimensional configuration in conformity to a curved shape of an eyelid. The base 1 has a space 2a on its surface, which extends along a lower end portion 1c in a lengthwise direction, and also has a bonding layer 4 on the lower end portion 1c, leaving the space 2a. At the opposite ends of the bonding layer 4, there are spaces 2b of substantially equal size. The bonding layer 4 comprises UV-curable agent and is formed linearly on the base 1 (shown in Fig. 6(B)), to which hair segments 3 are adhered. A reference numeral 1d denotes an upper end portion of the base 1, which is formed into a convex arc. On the entire underside of the base 1 is formed an adhesive layer 7 comprising a medical-grade adhesive agent for fitting to a human body. The adhesive layer 7 comprises, for example, acrylic adhesive agent, which is formed with even thickness on the entire underside of the base 1 by transfer process. More particularly, acrylic adhesive agent having release papers (PET) on the opposite sides thereof is prepared, and one of the release papers is separated from one side so that the said side is firmly fixed to the entire underside of the base 1. For use, a release paper 9 at the other side is separated, and then the base is adhered to an application site of an upper eyelid 20 (shown in Fig.7(A)-(C)). Reference numerals 3 denote hair segments that are individually and separately adhered to the base 1, which comprises polyester fiber, for example. The hair segment 3 is formed such that its leading end portion is curled upwardly.

[0022] A root portion 5 of the hair segment 3 is formed into substantially a sphere, which is adhered to the bonding layer 4. The adhesion is carried out in such a manner that the root portion 5 is positioned on the lower end portion 4a of the bonding layer 4, as shown in Fig.1(C). Its reason will be described later.

[0023] In the embodiment shown in Fig.1, the base 1 is curved into a three-dimensional configuration, after being cut into a predetermined false eyelash shape, as described later. In this case, the length (f) of the base end portion 1 c of the base 1 a might be greater than the length (i) of the eyelid 20 (shown in Fig.8(A)) between the inner corner and the tail of a human eye (f>i), equal to the latter (f=i) or smaller than the latter (f<i). As a result of experiment, it has been revealed that the case of (f>i) can provide the same effect as in the case of the embodiment shown in Fig.2, and more particularly will prevent separation of the false eyelash due to presence of the spaces 2a, 2b on the base 1. This will be described later based on Fig.10. It has also been found that the case of (f=i) is preferable, because it will, in addition to achieving the above effect, prevent wrinkling of the base end portion

1 c when fitted onto the upper eyelid 20, more effectively than in the embodiment of Fig.2. It has also been found that the case of (f<i) is still more preferable, because it will, in addition to achieving the above effects, facilitate the fitting to the upper eyelid 20 and prevent wrinkling of the base end portion 1 c more effectively, when compared with the embodiment shown in Fig.2.

[0024] Fig.2 shows the second embodiment of a false eyelash according to the present invention. A base 1 of this embodiment is formed substantially planar, not customized. Hair segments 3 are adhered to the bonding layer 4 in a state wherein they are connected with each other by linear members 31. The structure excepting these points will be similar to the embodiment of Fig.1.

[0025] Fig.3 shows the base 1 used in the false eyelash of Fig.2. The spaces will be explained here. The spaces 2a, 2b should be somewhat smaller than the diameter of a single hair. More particularly, a distance a_1 should preferably be about 0.1-0.6mm, and a distance a_2 should preferably be about 0.1-0.6mm. The base 1 in this embodiment has length L of about 26mm, considering that an average eye size i of a Japanese (shown in Fig.8(A)) is about 30mm. Its maximum width is about 2.6mm (W_1) for a single-edged eyelid, and about 4mm (W_2) for double-edged or internally double-edged eyelid. The base 1 may have various shapes depending upon the shape of an eyelid to which it is to be fitted, as described later based on Fig.7. Accordingly, the maximum width is represented generally as W in Fig.3.

[0026] The hair segments 3 will be explained here. In this embodiment, the plural hair segments 3 are adhered individually and separately to the bonding layer 4 in such manner that they are connected with each other by linear members 31. The above-described arrangement of the hair segments 3 may have various embodiments. For example, plural hair segments 3 may be entwined and combined with one or more linear members 31. For example, Fig.4(a) and (B) show embodiments wherein plural hair segments 3 are incorporated into two linear members 31, 31 entangling with each other and inserted into the bonding component of the bonding layer 4. Fig.4(C) and (D) show embodiments wherein plural hair segments 3 are clamped between two parallel-extending linear members 31,31 and inserted into the bonding component of the bonding layer 4. Fig.4(E) and (F) show embodiments wherein plural hair segments 3 are bonded to a single linear member 31 by bonding agent and inserted, in this state, into the bonding component of the bonding layer 4. Fig.4(G) and (H) show embodiments wherein plural hair segments 3 are tied with a single linear member 31 and inserted, in this state, into the bonding component of the bonding layer 4. The linear member 31 may be thread, silk gut or the like. The length d of the hear segment 3 is formed to be about 2-12mm. In most cases, the width e of the hair segment 3 to be adhered is 10-50mm. Each hair segment 3 is curled upwardly even in a hair segment unit 3A shown in Fig.4(A)-(H). The hair segments 3 at center are longer than those in other areas.

[0027] The embodiments of Fig.1 and Fig.2 will be shipped, after being cut in a factory to a predetermined shape of a false eyelash, whereas the third embodiment of the present invention shown in Fig.5 is of a type wherein it is cut by the user. In this embodiment, the base 1 is cut into a rectangular shape 1 M that is larger than a predetermined false eyelash shape. For use, the user should cut by herself the base 1 of the false eyelash along a cutting line shown in Fig.7. In Fig.5(A), a reference numeral 1a denotes the base after having been cut. The structure excepting these points will be similar to the embodiment of Fig.1.

[0028] Regarding the size of various parts of the false eyelash shown in Fig.5, the vertical length of a pre-use base 1 is about 20-30mm (a) for business use, and about 10-05mm (b) for personal use where it is cut near to the base end portion 1 c. The lateral length (c) is about 10-40mm in common. The longitudinal size (d) of the hair segment 3 is about 2-12mm. Each hair segment 3 is curled upwardly even in a hair segment unit 3A (shown in Fig.6(C)). Several hair segments 3 at center are longer than those in other areas. The width L (shown in Fig.1 (A)), to which the hair segments 3 are adhered, is about 10-50mm. The base 1a in this embodiment has length L of about 26mm, considering that an average eye size i of a Japanese (shown in Fig.8(A)) is about 30mm. Its maximum width W is about 2.6mm for a single-edged eyelid, and about 4mm for double-edged or internally double-edged eyelid. The base 1 may have various shapes depending upon the shape of eyelid to which it is to be fitted, as described before based on Fig.7.

[0029] Fig.1, Fig.2 and Fig.5 are schematic views, in which the number of the transplanted hair segments 3 is shown in a simplified manner.

<Manufacturing Process>

[0030] The false eyelash according to the present invention is, for example, manufactured by the following process. The process will be explained for manufacturing the false eyelash shown in Fig.5.

First Step (Base Supplying Step)

[0031] A base 1 for one section is supplied from long-length base material 1 M wound around a reel 13 to above a working position T on a workbench 12 (Fig.6(A)). The underside of the base material 1M is provided with a medical-grade adhesive agent that forms an adhesive layer 7 for fitting the base to a human body, which is backed with a release paper 9.

Second Step (Bonding Agent Supplying Step)

[0032] A bonding agent that will form a bonding layer 4 is supplied to an appropriate position on the base 1 of a single section (Fig.6(B)). Although two bonding layers 4 are disposed along a horizontal direction in Fig.6(B)

and Fig.6(D), any number of the bonding layers may be mounted on the single-sectional base material 1 M to provide better yield. Supply of the bonding agent is carried out in such manner that it is supplied linearly by horizontally moving a supply pipe, not shown, above the base 1 firmly fixed to the workbench.

Third Step (Hair Segment Cutting Step)

[0033] The hair segment unit 3A comprising the hair segments 3 with their end portions 3b being connected to each other are held by a pair of robot shafts 15 that can open and close. In this state, this is cut between the end portion 3b and the robot shafts 15 by a laser beam, not shown (Fig.6(C)). The cutting line L is shown by alternate long and short dash lines in Fig.6(C)).

Fourth Step (Hair Segment Adhering Step)

[0034] The hair segment will remain held by the robot shafts 15, even after completing the cutting step. Still in this clamped state, the robot shafts 15 are lowered so that the cut hair segments 3 are adhered to the bonding agent (that forms "bonding layer 4") that has been supplied in the above-mentioned step (Fig.6(D)). The robot shafts 15 are controlled to be in appropriate position, so that the hair segments 3 are adhered to the lower end portion 4a (shown in Fig.5(F)) of the bonding layer 4.

Fifth Step (Productization Step)

[0035] Once the hair segments are adhered to the base 1 in the above-described manner, the base 1 is cut by alternate long and short dash lines in Fig.6(D)) which defines a single section. In the false eyelash shown in Fig.2, the base 1 is shipped after being cut by a laser beam R along the cutting line shown in Fig.7 into a predetermined shape. The cutting operation by which the base 1 is cut by the laser beam R will be described in reference to Fig. 10.

[0036] Then, the next single section of the base 1 is supplied onto the working position T and the above-described operation is practiced. Such operation will be repeated continuously.

[0037] Fig.7 shows size pattern scales 11 for false eyelashes. Fig.7(A) shows scales for large-size eyes, Fig.7 (B) shows scales for medium-size eyes and Fig.7(C) shows scales for partial fitting. In these figures, a reference numeral 11A denotes the scale for a left eye and a reference numeral 11 B denotes the scale for a right eye. In these patterns, the scale provides a straight-extending cutting line 11 d along which the base is cut to define the end portion 3b and cutting lines 11a, 11b, 11 c at the leading ends that are formed into a patternized convex arc shape in conformity to an upper curve 21 a of an eyeball 21 (shown in Fig.8(A)).

[0038] In Fig.7(A) and (B), a cutting line 11 a is used for forming a double-edged or internally double-edged eyelid that is formed to have a size of 5mm at the maximum, a cutting line 11 b is used for forming an internally double-edged or single-edged eyelid that is formed to have a size of 4-3mm at the maximum, and a cutting line 11c is used for forming a double-edged or single-edged eyelid that is formed to have a size of 2mm at the maximum. The cutting line 11d in Fig.7(A) is 30mm in length and the cutting line 11d in Fig.7(B) is 23mm in length, which may be cut to conform with the eye size. In Fig.7 (C), a cutting line 11a is used for forming a double-edged or multi-edged eyelid that is formed to have a size of 5mm at the maximum, and a cutting line 11 b is used for forming a double-edge or internally double-edged eyelid that is formed to have a size of 4-3mm at the maximum. The cutting line 11d is 15mm in length, which may be cut to conform with the size of a portion to which it is to be fitted.

<Usage>

[0039] The false eyelash according to the present invention has two types. One is productized in a state wherein it has been cut into a predetermined shape shown in Fig.1 and Fig.2, whereas the other is shown as "1M" in Fig.5, which is cut by the user. The former type may directly be fitted to the upper eyelid after removing the release paper 9. On the other hand, the latter type is first placed on a desired one of the size pattern scales 11 shown in Fig.7 with the hair segments 3 upward. Then, the cutting line depicted on the size pattern scale 11 is transcribed onto the base 1 by the user. Then, the base 1 is cut along the cutting line by the user. Then, the release paper 9 is removed, and the false eyelash is used by adhering the adhering surface onto the eyelid.

<Cutting Effect by Laser Beam>

[0040] In each of the above-described embodiments, the hair segment unit 3A is cut into the hair segments 3 by a laser beam, which will provide the following effects.

(1) Non-Contact Cutting

[0041] Non-contact cutting by the laser beam will prevent the hair segments 3 from unraveling and being scattered in various directions, when cut. The hair segment unit 3A is cut by the laser beam while it remains held by the robot shafts 15, so that it may be cut at the connecting portion with the hair tips maintaining the original curled shape, to thereby separating the hair segments 3 from each other. Accordingly, the hair segments 3 remain in alignment.

(2) Cutting with Heating

[0042] The cutting by the laser beam will generate heat, so that the root portion 5 at which each hair segment 3 is cut will melt into a spherical shape. As a result, this spherical root portion 5 may be used as a tab for adhe-

sion, which will make it unnecessary to have a separate step for providing a tab for adhesion to the base 1.

[0043] Since the root portion 5 of the hair segment 3 is formed into a spherical shape, any part of the spherical surface of the root portion 5 may be adhered to the bonding layer 4. The hair segments 3 may be firmly adhered to the bonding layer 4, while they remain held by the robot shafts 15, with the tips thereof maintaining the original curled orientation. Accordingly, in spite that the respective hair segments 3 are adhered spottedly, the hair tips will not scatter in various directions, which makes it possible that the hair segments are fixed to the surface of the base 1 while maintaining the original orientation of the hair tips, that is the curled shape thereof as it is. Accordingly, the underside of the base 1 do not have an uneven surface, which was required in the prior arts, thereby preventing entry of water, etc. while in use and preventing displacement and separation of the false eyelash.

(3) Effect of Enlargement of Eyelid, Effect of Harmonization with Own Hairs

[0044] Although the hair segments 3 are adhered to the base 1 while maintaining the upwardly curled shape and being separated from each other, once fitted to the eyelid, the upper eyelid 20 will open into a convex arcuate shape so that the root portions 5 of the hair segments 3 adhered will also shaped into a convex arc along the upper eyelid 20. Consequently, the hair segments 3 that have originally been adhered in parallel will become angled radially, thereby enlarging the gaps formed between the hair segments 3.

[0045] The lines of the hair segments 3 are adhered just above the own eyelash 22, as shown in Fig.8(A) through Fig.8(C), so that the own eyelash 22 will appear from the enlarged gaps to be in alignment with the lines of the hair segments 3. Accordingly, there is the effect that the false eyelash fitted will be well in harmonization with the own hairs.

(4) Effect of Spherically Forming Root Portion of Hair Segment 3

[0046] Since the root portion 5 of the hair segment 3 is formed into a spherical shape, any part of the spherical surface of the root portion 5 may be adhered to the bonding layer 4. This makes it possible to adjust the angle of adhesion of the hair segments 3, which facilitate grouping of the products depending upon their use and extension of the products. For example, a product wherein the hair segments 3 are adhered to the bonding layer 4 in a crosswise manner will be suitable to the youth because the eyelash looks longer, whereas another produce wherein the hair segments 3 are adhered to the bonding layer 4 in an oblique manner will be suitable to the aged because the eyelash looks thicker.

[0047] In addition, any part of the spherical surface of the root portion 5 may be adhered to the bonding layer 4, which facilitates speedy and effective production.

<Other Effects>

[0048] The above-described embodiments will further provide the following effects.

[0049] The false eyelash according to the present invention has a wide, planar adhesive surface, and this wide adhesive surface is adhered to the upper eyelid 20. When adhered, the planar base 1 having the substantially straight-extending base end portion 1c and the convex arcuate leading end portion 1d will be deformed only in one direction (up-and-down direction), as shown in Fig. 9. Deformation in other directions could be ignored in substance. In contrast, the prior art base is deformable in all directions around 360 degrees.

[0050] Accordingly, in addition to the fact that the surfaces of the base 1 held by the user are wide, planar, easily-handled surfaces, it is very easy to position the hair segments 3 along the lower edge of the upper eyelid 20 when fitting the false eyelash, thereby greatly saving labor and time required for the fitting operation. Further, the adhesive surface is planar and has a wide area for adhesion to the upper eyelid 20, which prevent slippage and separation of the false eyelash while in use. When, as shown in Fig.1, the base 1 is formed into a three-dimensional shape that conforms to the curvature of the eyelid onto which the base is fitted, it will further improve good-fit and easy-fit to the upper eyelid 20.

[0051] The good-fit and easy-fit to the upper eyelid 20 will be described in more detail in relation to the above-described cutting effect by the laser beam. First, the hair segments 3 in clamped condition are cutting linearly by the laser beam, so that the root portions 5 of the hair segments 3 are formed into spherical shape, and any part of the spherical surface of the root portion 5 may be adhered to the bonding layer 4. Accordingly, it may easily be adhered to the upper eyelid 20 while remaining the orientation of the curled hair tips.

[0052] The base 1 is adhered along the own hair extending from the lower edge of the upper eyelid 20. The root portion 5 of the hair segment 3 is adhered to the lower end portion 4a of the bonding layer 4, which makes it possible to cut the base 1 just along the adhered hair segment 3 with only a small space 2a therebetween. Accordingly, as shown in Fig.8(A) through Fig.8(C), the hair segment 3 is substantially aligned with the own eyelash 22 and, therefore, could not be distinguished from the own eyelash 22, which provides very good appearance. In addition, the remaining portion of the bonding layer 4 will not come into view, which provides good visibility. If the root portion 5 of the hair segment 3 should be adhered to the center of the bonding layer 4, the own eyelash 22 and the hair segment 3 are vertically overlapped with each other to thereby greatly reduce appearance, and the remaining portion of the bonding layer 4 should come into view to thereby worsen the visibility as if it is in a fog.

Such is prevented by the present invention.

[0053] Let us talk about this in more detail. To cut the base 1 into a predetermined shape shown in Fig.1 and Fig.2, the laser beam R is irradiated from the underside of the base 1. If this cutting operation should be carried out such that, as shown by an alternate long and short dash line in Fig.10(A), the laser beam R is irradiated at right angle to the base 1, especially just along the line to which the hair segment 3 is adhered, it would damage the hair segment 3 in most cases. Accordingly, the laser beam R should be irradiated at an angle of inclination with respect to the bonding layer 4 (for example, at an angle of 60 degrees inclined to the bonding layer 4) to cut the base 1, as shown by a solid line in Fig.10(A). This manner of irradiation will prevent the hair segment 3 from being damaged adhered near to the bonding layer 4. However, when the laser beam R is irradiated aslant, whole or a part of the adhesive layer 7a formed on the underside of the base 1 would melt, so that it could separate or partly peel off from the underside. Under such conditions, even when it is fitted to the upper eyelid, the fittability to the upper eyelid should be lost, which reduce the fitting power. Moreover, when a part of the base 1 peels off from the upper eyelid, there is formed a gap between the base 1 and the upper eyelid, so that it really looks a false eyelash, which can easily be distinguished over the natural hair in appearance.

[0054] Moreover, when the laser beam R is irradiated in a slant angle to the bonding layer 4, as shown by the solid line in Fig.10(A), it might damage a part of the bonding layer 4 adhering the hair segment 3, by which the hair segment 3 could be separated from the base 1.

[0055] In accordance with this embodiment, as shown by a solid line in Fig.10(B), there is the space 2a on a site corresponding to the lower end portion 1c of the surface of the base 1 along the longitudinal direction, and the spaces 2b of equivalent size at the opposite ends of the bonding layer 4. Accordingly, even if the laser beam R is irradiated at a slant angle (for example, about 60 degrees to the base 1) to a site to be formed as the lower end portion 1c, it will not damage the hair segment 3. The output of the laser beam R may be small, which prevents melting of the adhesive layer 7 in the vicinity to the irradiated area. Accordingly, it prevents removal of the fitted false eyelash from the upper eyelid and separation of the hair segments 3 from the base 1.

[0056] The hair segments 3 are adhered to the base 1 just along the lower edge thereof, leaving the small space 2a that is hardly be recognized by the naked eyes. Accordingly, as shown in Fig.8(A) through Fig.8(C), the hair segment 3 is substantially aligned with the own eyelash 22 and, therefore, could not be distinguished from the own eyelash 22, which provides very good appearance. In addition, the remaining portion of the bonding layer 4 will not come into view, which provides good visibility. If the hair segment 3 should be adhered not just along with the lower edge of the base 1, the own eyelash 22 and the hair segment 3 are vertically overlapped with each other to thereby greatly reduce appearance, and the remaining portion of the bonding layer 4 should come into view to thereby worsen the visibility as if it is in a fog. Such is prevented by the present invention.

[0057] In addition, there also remain the spaces 2b at the opposite ends of the base 1, to which no hair segment 3 is adhered, so that the receding hairline of the own eyelash 22 is conformable with the adhesion site of the hair segments 3. This will provide an effect such that the false eyelash thus produced looks more naturally.

[0058] Furthermore, cosmetic material drawing an eye linear may be applied to a small gap g (shown in Fig.8 (C)) formed between the space 2a and the own eyelash 22.

[0059] In the embodiments shown in Fig.2 and Fig.5, the base 1 is formed planar, which is not processed for specific users, neither in two-dimensional or three-dimensional shape. The embodiment of Fig.5 of a type wherein it is cut by the user, the upper space 1 b (shown in Fig.5(A)) of the adhered base 1 has a sufficient area for cutting, so that this can be used by cutting the leading end portion 1d of the base 1 to form a convex arc shape. This will provide the effect of lifting up the skin above the upper eyelid 20.

[0060] The skin above the upper eyelid 20 will deteriorate with time and become flabby little by little, but this lift-up effect makes it possible to adjust an area to be cut depending upon the flabby state of the skin above the upper eyelid 20, lift up the upper eyelid 20 and thereby providing an appearance of a bright pair of eyes, which is so-called anti-aging effect.

[0061] Furthermore, in the embodiment wherein the base 1 is formed planar and the hair segments 3 are formed linearly along the lower end portion of the base 1, when the base 1 is adhered to the upper eyelid 20, the base 1 is deformed in a convex arc shape in alignment with the upper lid 20 that has a convex arc shape, so that the respective hair segments 3, which are adhered separately and individually, are enlarged radially. As a result, the eyelash (that comprises the false one in fact) provides a thick line, thereby providing an appearance of a bright pair of eyes.

[0062] The false eyelash according to the present invention is not limited to the above-identified embodiments. For example, the root portion 5 of the hair segment 3 may be of any curved shape (an arc shape in cross-section, for example) other than sphere. When it is cut flat, as shown in Fig.11 (A) and (B), the same effect with those described above will be achieved.

[0063] The root portion 5 of the hair segment 3 is adhered perpendicular in the preceding embodiments shown in the drawings, but may extend aslant downwardly, as shown in Fig.11 (C). The angle of inclination in this case is 45 degrees, for example, but may be appropriately determined depending upon the use's purpose, age, etc.

[0064] A plurality of hair segment 3 may be directly adhered to the bonding layer 4, without use of linear

member 31, as shown in Fig.1. The hair segment 3 and the linear member 31 may be formed in one body.

[0065] Regarding the site of application, the false eyelash according to the present invention is adhered to the upper eyelid in the above-identified embodiments, but it may be adhered to the lower eyelid.

[0066] It is to be understood that numeral values indicating the size of various portions of the base 1, the hair segment 3 and the like are described merely as examples. Especially, the base 1 may have various thickness, including, for example, 30 micrometers, 40 micrometers, 50 micrometers, 60 micrometers, 70 micrometers, 80 micrometers and 90 micrometers, as far as it can be called an extremely thin sheet. The length of the hair segment 3 is not limitative.

[0067] Non-contact cutting means with heat may alternatively be carried out by using high frequency such as ultrasonic waves.

[0068] The bonding agent forming the bonding layer 4 may be any one, as far as it provides instant, firm bonding capability, which may be an instantaneous bonding agent including cyanoacrylate as a main ingredient.

[0069] Regarding supply of the bonding agent to the base 1, when the bonding agent is supplied to the base 1 that remains stationary, as described in connection with the preceding embodiments, the base 1 is cut into several sections that are placed on the workbench 12, to which the bonding agent may be supplied. In another embodiment, the long continuous base 1 is placed on the workbench 12, to which the bonding agent is supplied, and then the base is cut into several sections.

[0070] On the contrary, it can be imagined that the bonding agent is supplied to the moving base. In this case, the supply pipe is moved onto the base 1 while the base 1 is moved in one direction, which is turned on for a predetermined time during movement of the base 1, to thereby supply the bonding agent linearly to the base 1.

[0071] The cutting of the hair segments at the connecting portion may be done before application of the bonding layer 4 or at the same time of supplying the bonding agent.

[0072] The length of the cutting line 11d in the size pattern scale 11 may be changed to different size.

Industrial Applicability

[0073] The present invention is applicable to a false eyelash.

Explanation of Reference Numerals

[0074]

1	Base
1a	Base
1 b	Upper Space
1 c	Base End Portion
1d	Leading End Portion
1 M	Base Material
2a	Space
2b	Space
3	Hair Segment
3A	Hair Segment Unit
3b	End Portion
31	Linear Member
4	Bonding Layer
4a	Lower End Portion
5	Root Portion
6	Leading End Portion
7	Adhesive Layer
9	Release Paper
11	Size Pattern Scale
12	Workbench
13	Reel
15	Robot Shaft
20	Upper Eyelid
21	Eye
21a	Upper Curve
22	Own Eyelash
L	Cutting line
M	Cutting line
T	Working Position

Claims

1. A false eyelash comprising an extremely thin base, a bonding layer formed linearly on a surface of said base, a plurality of hair segments individually and separately adhered to said bonding layer, and an adhesive layer formed on an entire underside of said base, said base being formed into a three-dimensional configuration that contours a curved shape of an eyelid to which said base is fitted.

2. A false eyelash comprising an extremely thin base, a bonding layer formed linearly on a surface of said base, a plurality of hair segments individually and separately adhered to said bonding layer, and an adhesive layer formed on an entire underside of said base, said base being formed into substantially a two-dimensional shape.

3. The false eyelash according to Claim 1 wherein said base is smaller than said eyelid.

4. The false eyelash according to Claim 1 or Claim 2 wherein a base end portion of said base is cut linearly, and its end portion opposite to said base end portion is cut into a convex arc shape.

5. The false eyelash according to Claim 1 or Claim 2 wherein the thickness of said base is equal to or smaller than 20 micrometers.

6. The false eyelash according to Claim 1 or Claim 2

wherein a root portion of said hair segment is formed to have a curved shape in cross-section.

7. The false eyelash according to Claim 6 wherein said root portion is formed to have a sphere in cross-section.

8. The false eyelash according to Claim 7 wherein said hair segment is cut by a laser beam.

9. The false eyelash according to Claim 1 or Claim 2 wherein a root portion of said hair segment is formed into a planar shape.

10. The false eyelash according to Claim 9 wherein said hair segment is cut by a cutter.

11. The false eyelash according to Claim 1 or Claim 2 wherein said hair segments are adhered to said bonding layer while they are connected and aligned with each other by one or more linear members.

12. The false eyelash according to Claim 11 wherein said hair segments are entwined with said linear members.

13. The false eyelash according to Claim 11 wherein said hair segments are bonded to said linear members.

14. The false eyelash according to Claim 12 or Claim 13 wherein said linear member(s) comprises a single one.

15. The false eyelash according to Claim 12 or Claim 13 wherein said linear member(s) comprises plural ones.

16. The false eyelash according to Claim 12 or Claim 13 wherein said linear member(s) and said hair segments are formed in one body.

17. The false eyelash according to any one of Claim 6 to Claim 16 wherein said hair segments are adhered to a lower end portion of said bonding layer.

18. The false eyelash according to any one of Claim 6 to Claim 17 wherein said root portion of said hair segment is adhered perpendicularly to said bonding layer.

19. The false eyelash according to any one of Claim 6 to Claim 17 wherein said root portion of said hair segment is adhered aslant to said bonding layer.

20. The false eyelash according to any one of Claim 6 to Claim 17 wherein a leading end portion of said hair segment is curled outwardly in relation to a base end portion of said base.

Amended claims under Art. 19.1 PCT

1. (amended) A false eyelash comprising a base having extremely small thickness, a bonding layer formed linearly on a surface of said base, a plurality of hair segments individually and separately adhered to said bonding layer, and an adhesive layer formed on an entire underside of said base, said base being formed into a three-dimensional configuration that contours a curved shape of an eyelid to which said base is fitted.

2. (amended) A false eyelash comprising a base having extremely small thickness, a bonding layer formed linearly on a surface of said base, a plurality of hair segments individually and separately adhered to said bonding layer, and an adhesive layer formed on an entire underside of said base, said base being formed into substantially a two-dimensional shape.

3. The false eyelash according to Claim 1 wherein said base is smaller than said eyelid.

4. The false eyelash according to Claim 1 or Claim 2 wherein a base end portion of said base is cut linearly, and its end portion opposite to said base end portion is cut into a convex arc shape.

5. The false eyelash according to Claim 1 or Claim 2 wherein the thickness of said base is equal to or smaller than 20 micrometers.

6. The false eyelash according to Claim 1 or Claim 2 wherein a root portion of said hair segment is formed to have a curved shape in cross-section.

7. The false eyelash according to Claim 6 wherein said root portion is formed to have a sphere in cross-section.

8. The false eyelash according to Claim 7 wherein said hair segment is cut by a laser beam.

9. The false eyelash according to Claim 1 or Claim 2 wherein a root portion of said hair segment is formed into a planar shape.

10. The false eyelash according to Claim 9 wherein said hair segment is cut by a cutter.

11. The false eyelash according to Claim 1 or Claim 2 wherein said hair segments are adhered to said bonding layer while they are connected and aligned with each other by one or more linear members.

12. The false eyelash according to Claim 11 wherein said hair segments are entwined with said linear members.

13. The false eyelash according to Claim 11 wherein said hair segments are bonded to said linear members.

14. The false eyelash according to Claim 12 or Claim 13 wherein said linear member(s) comprises a single one.

15. The false eyelash according to Claim 12 or Claim 13 wherein said linear member(s) comprises plural ones.

16. The false eyelash according to Claim 12 or Claim 13 wherein said linear member(s) and said hair segments are formed in one body.

17. The false eyelash according to any one of Claim 6 to Claim 16 wherein said hair segments are adhered to a lower end portion of said bonding layer.

18. The false eyelash according to any one of Claim 6 to Claim 17 wherein said root portion of said hair segment is adhered perpendicularly to said bonding layer.

19. The false eyelash according to any one of Claim 6 to Claim 17 wherein said root portion of said hair segment is adhered aslant to said bonding layer.

20. The false eyelash according to any one of Claim 6 to Claim 17 wherein a leading end portion of said hair segment is curled outwardly in relation to a base end portion of said base.

Statement under Art. 19.1 PCT

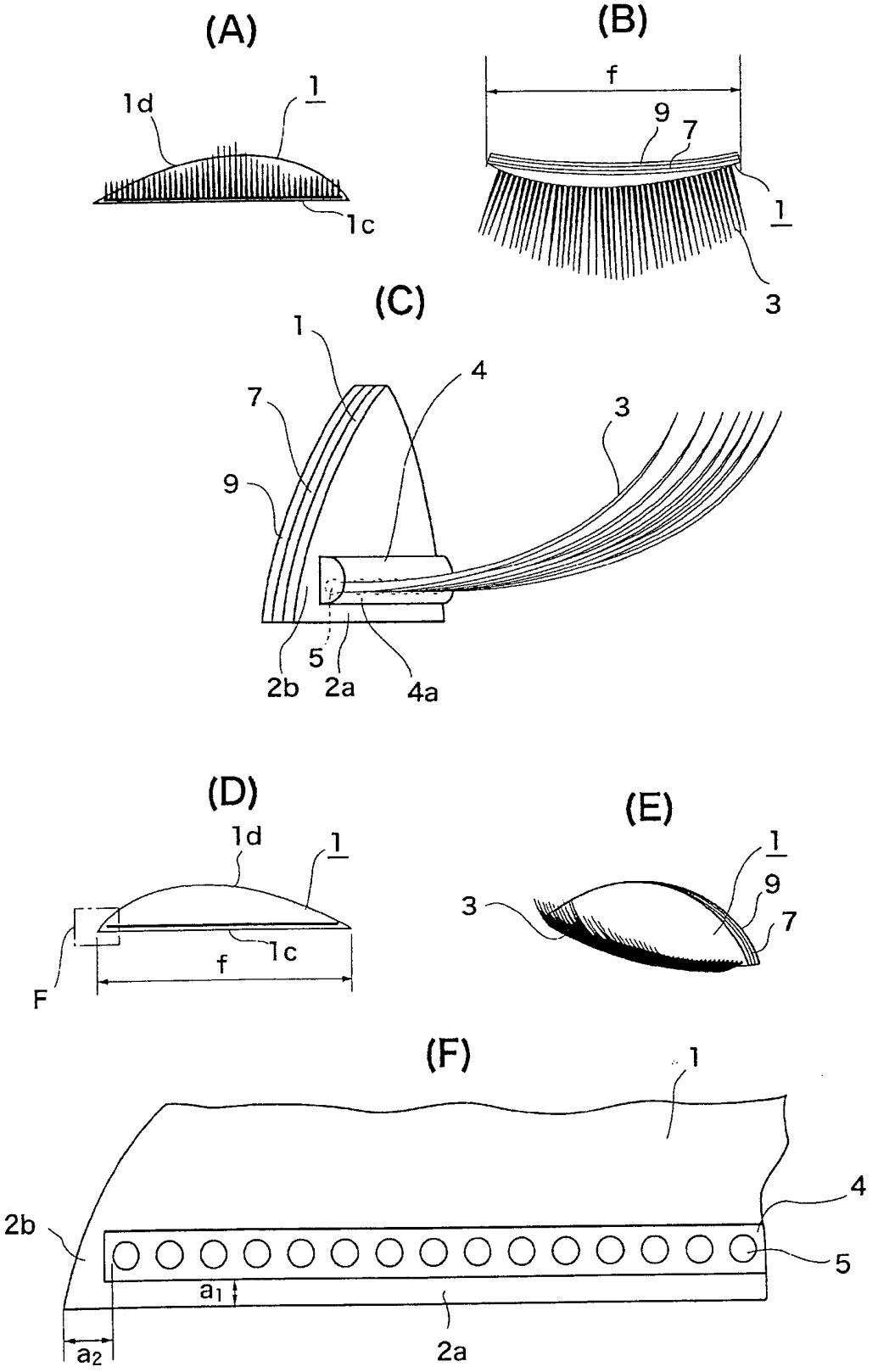
1. At the beginning of Claim 1, "thickness" is inserted. This will make it clear that the "thickness" of the base is extremely small.
At the beginning of Claim 2, "thickness" is inserted. This will make it clear that the "thickness" of the base is extremely small.

2. The false eyelash according to the present invention has a base having extremely small thickness, so that it may be fitted tightly to the eyelid with the base being in alignment with the curved shape of the eyelid, thereby achieving the objects and effects described in paragraphs 0014 and 0016-0018.
However, in Document 1, "the narrow belt-shaped piece 1 is a thin plate having thickness of about 0.05mm to 1.00mm" (paragraph 0009), which means that even its the minimum thickness is more than twice of that of the base disclosed by way of example in the present invention. Moreover, Document 1 has no disclosure of "adhesive layer". Document 1 is a technology relating lift-up of the hung-down eyelid, and even when Document 1 is combined with another document (Document 2), a man skilled in the art could not invent the present invention.

3. By the way, Claim 1 is the same as Claim 1 of the basic application 3 (JP Patent Application No. 2010-179711) and Claim 2 is the same as Claim 1 of the basic application 1 (JP Patent Application No. 2009-215955). Accordingly, the advantage of claiming the priorities based on Article 4C(4) of Paris Convention for the Protection of the Industrial Property dated March 20, 1883 should be approved.
According to Notification Concerning Submission, Obtention or Transmittal of Priority Document according to Regulation under the PCT, PCT Administrative Instructions, Section 411, we have been informed that, regarding Claim 2, the International Bureau do not have received (NR) the priority document of the basic application 1. However, the priority document of the basic application 1 has already been sent to the International Bureau by the JPO, Receiving Office, on November 2, 2010.

4. Accordingly, when referring to the priority document of the basic application 1, it will become apparent that Claim 2 is the same as Claim 1 of the basic application 1 (JP Patent Application No.2009-215955), which means that Document 1 is not at all entitled as a material to be used in judgment of inventive step. Accordingly, Claims 1-10 and Claims 17-20 should preserve the inventive step.

FIG. 1


(A)
1d
1
1c
(B)
f
9
7
1
3
(C)
1
4
7
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9
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2b
2a
4a
(D)
1d
1
1c
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F
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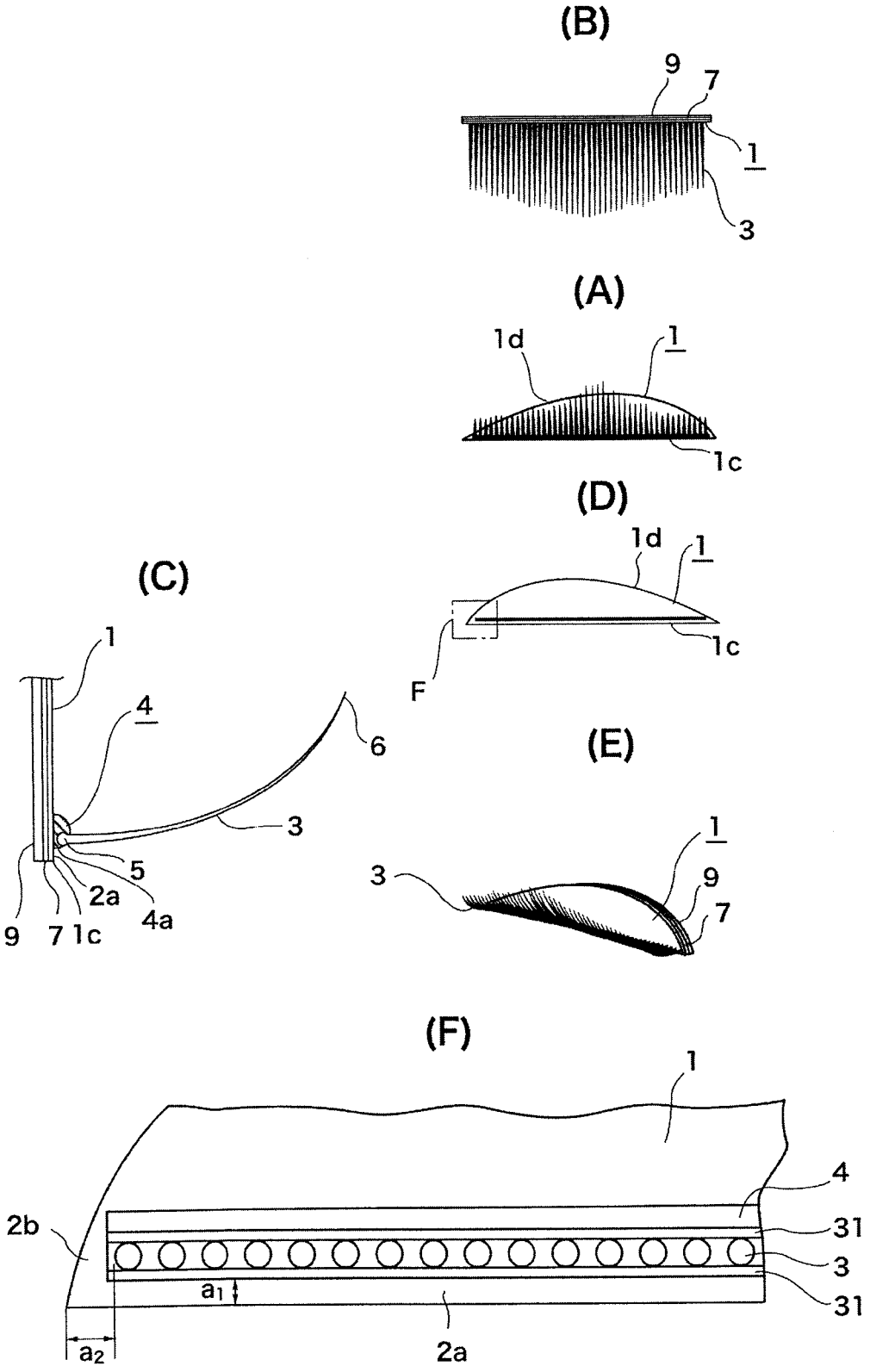
(F)
1
4
2b
5
a1
2a
a2

FIG.2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(D)
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5
2a
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9
7
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a2

FIG.3

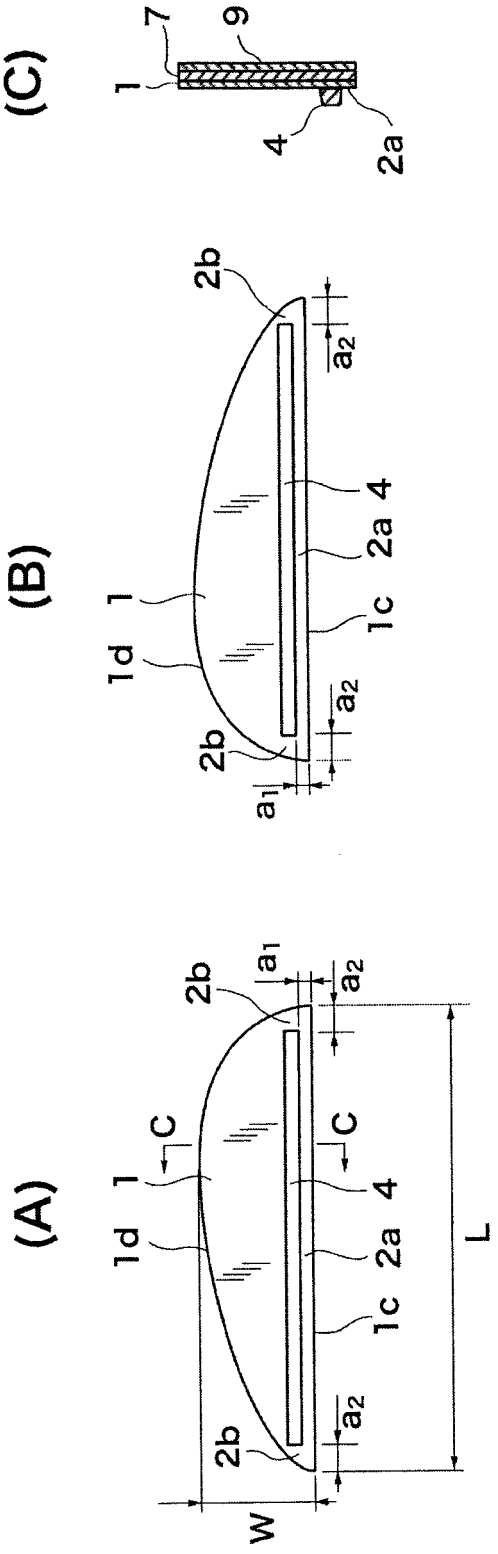


FIG.4

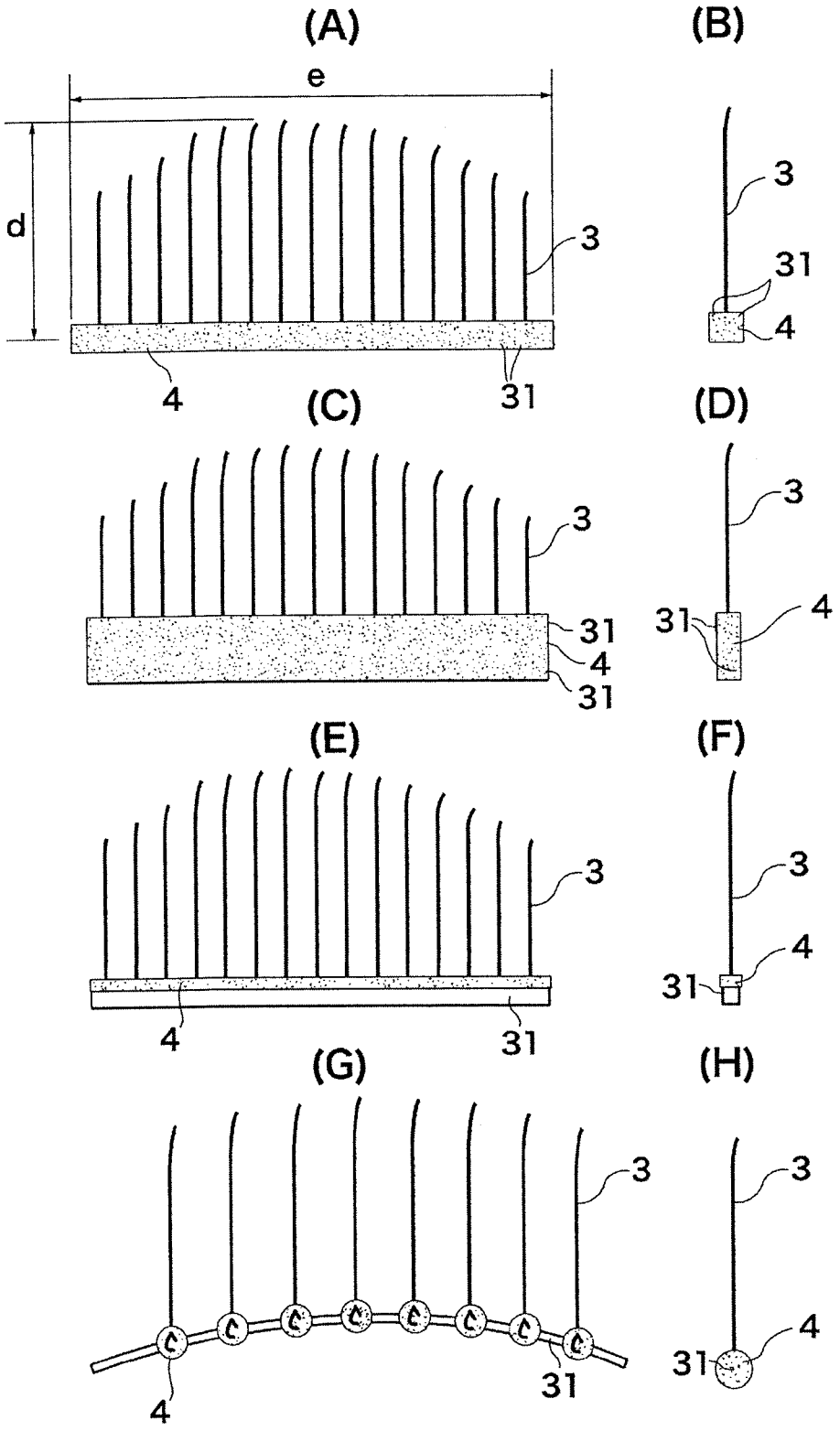
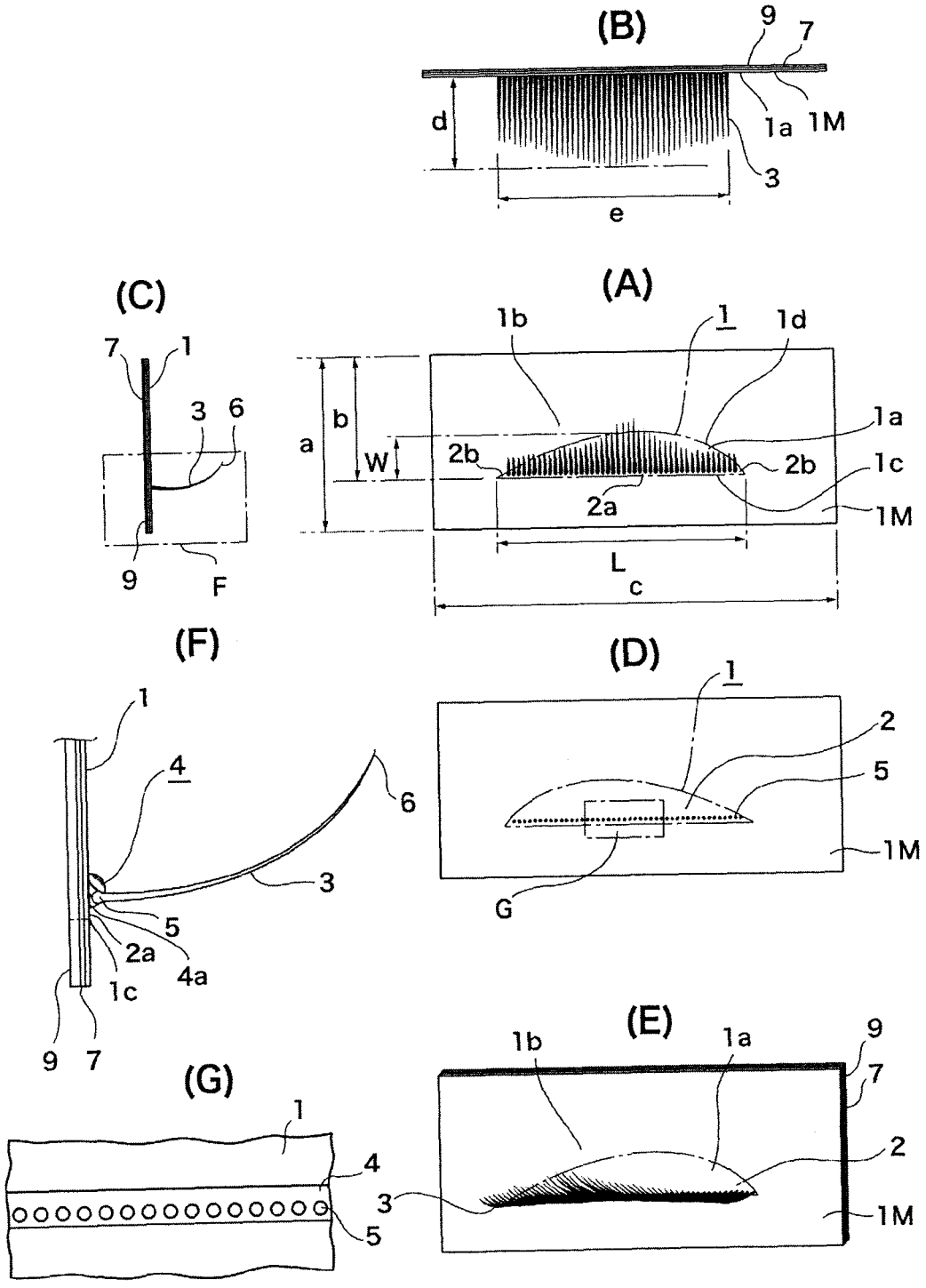


FIG.5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e
(C)
7
1
3
6
9
F
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1
1d
a
b
W
2b
2b
1a
1c
2a
1M
L
c
(F)
1
4
6
3
5
2a
4a
1c
9
7
(D)
1
2
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G
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(G)
1
4
3
5

FIG.6

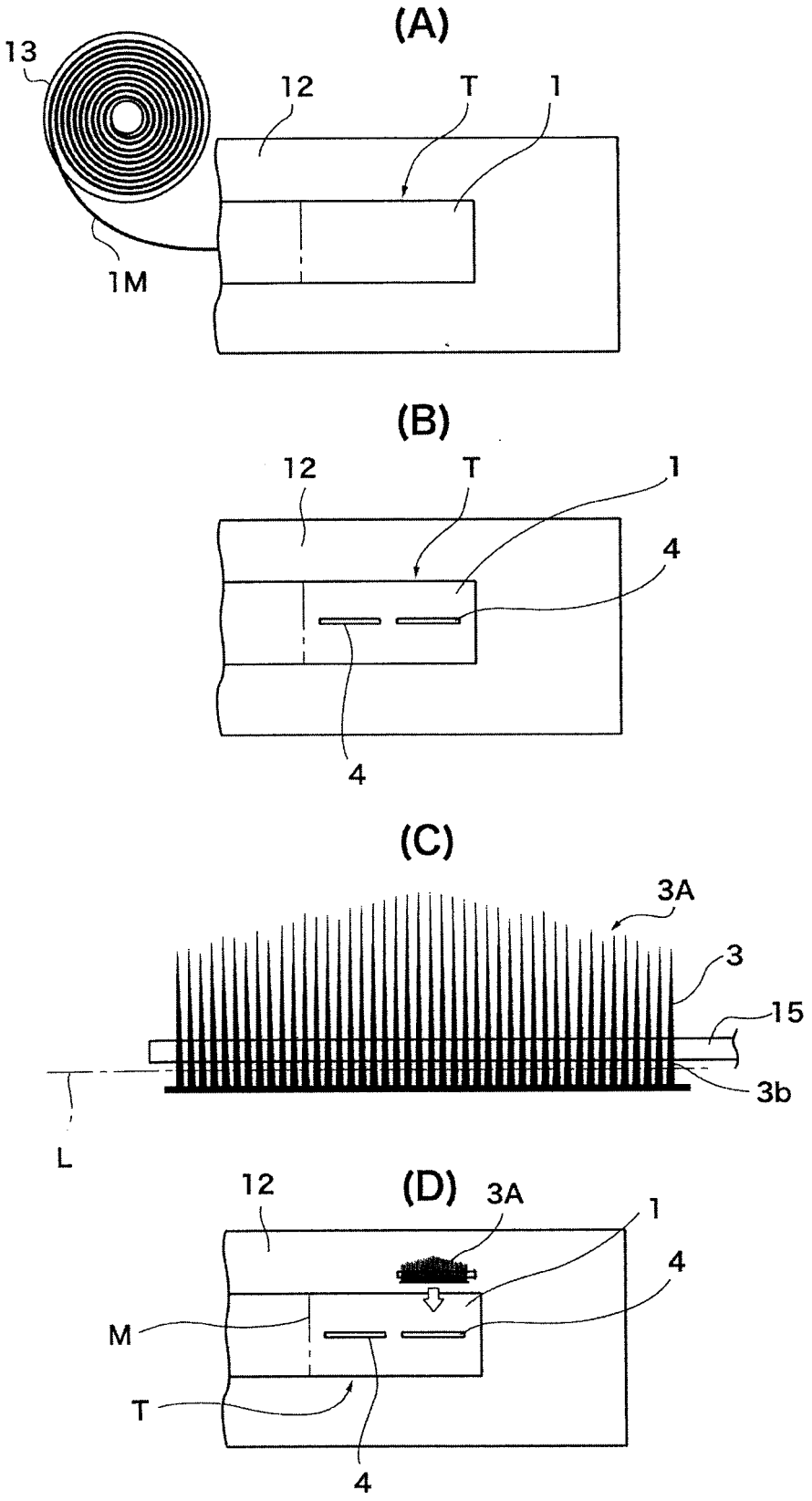
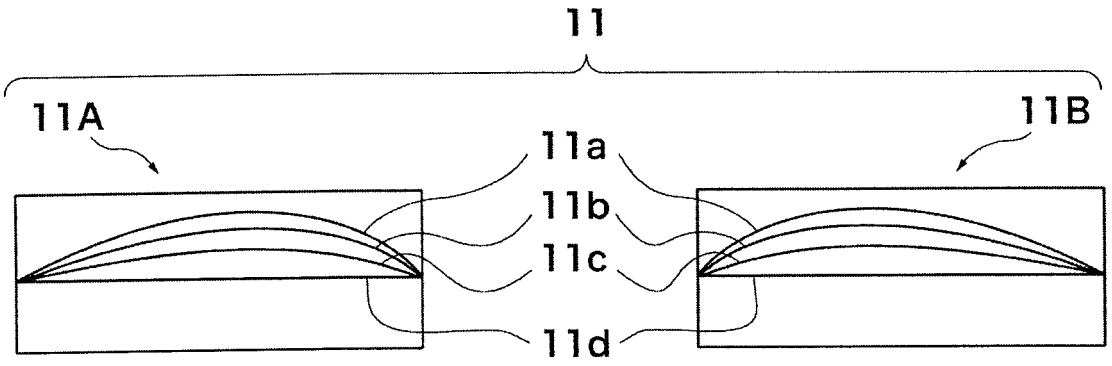
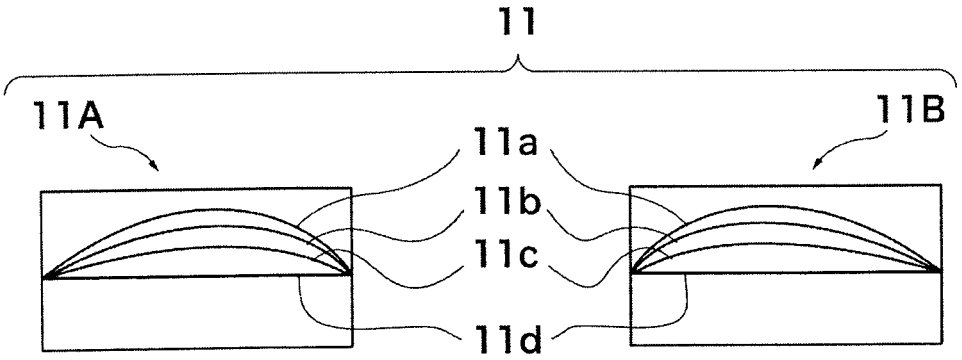


FIG.7

(A)


11
11A
11B
11a
11b
11c
11d

(B)


11
11A
11B
11a
11b
11c
11d

(C)

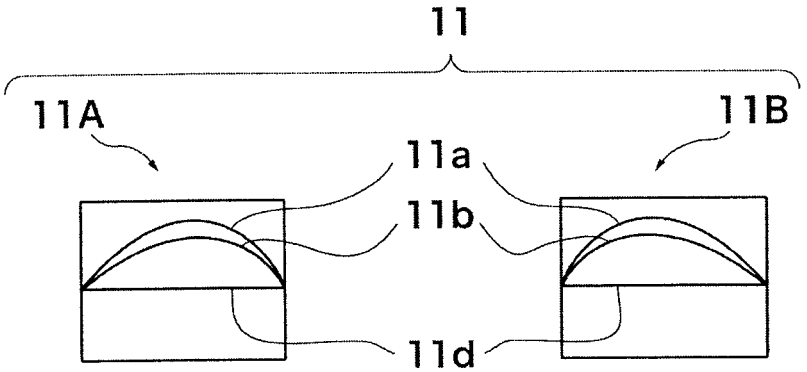
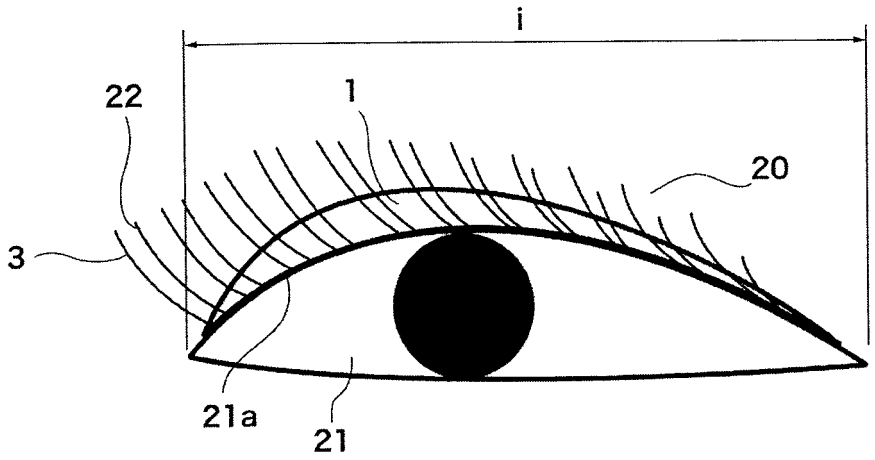

11
11A
11B
11a
11b
11d

FIG.8

(A)



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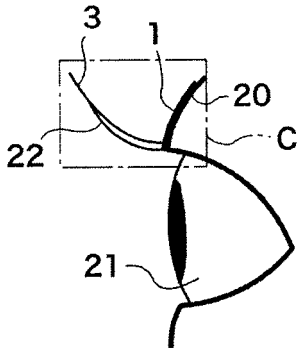


(C)

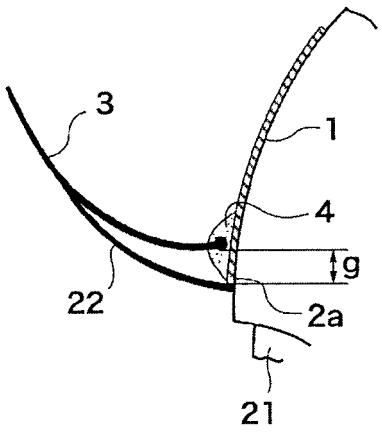


FIG.9

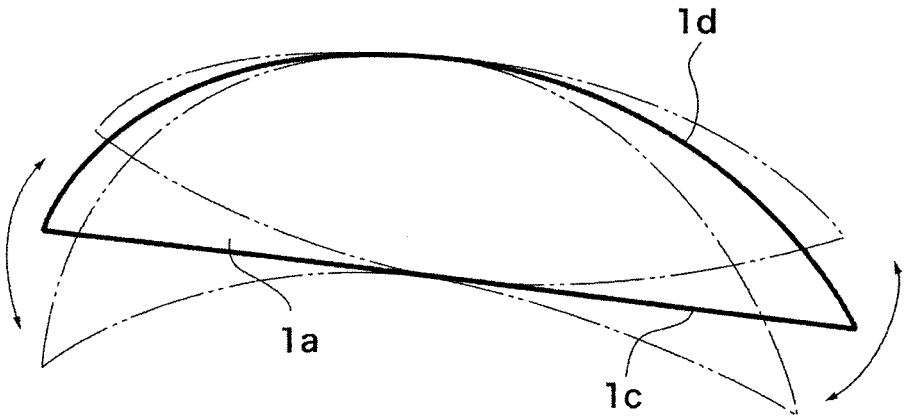
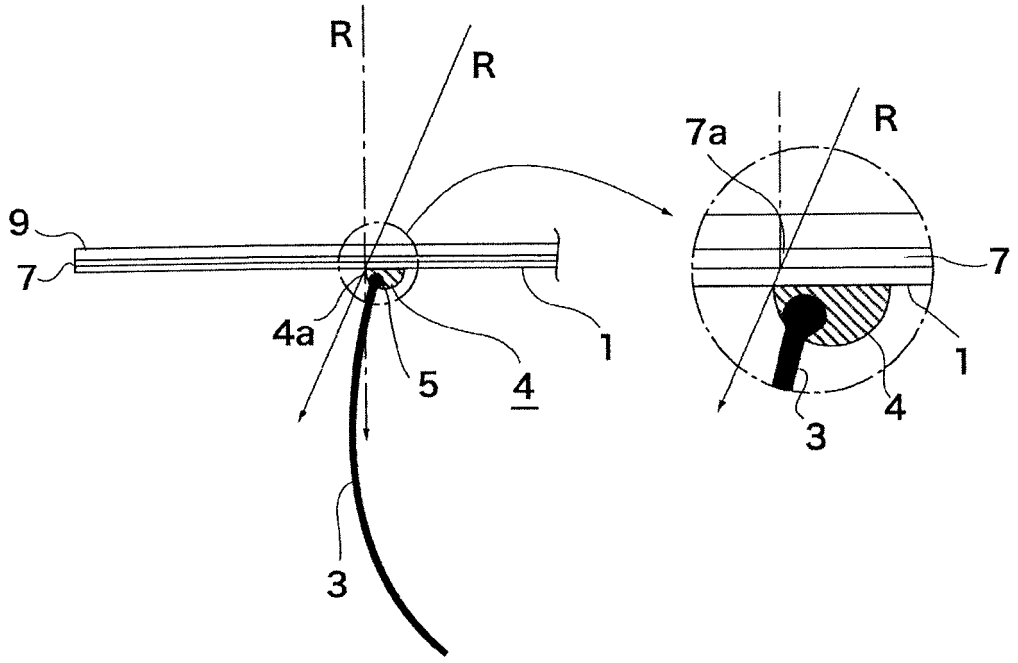


FIG.10

(A)



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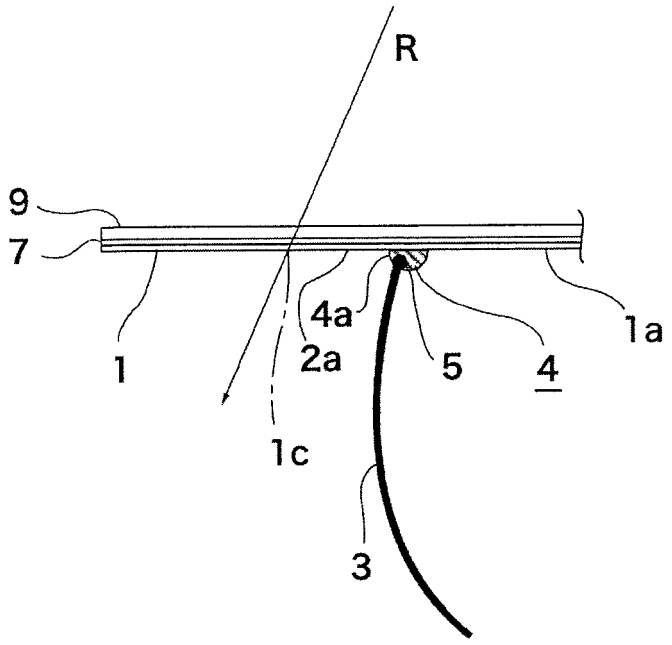


FIG.11

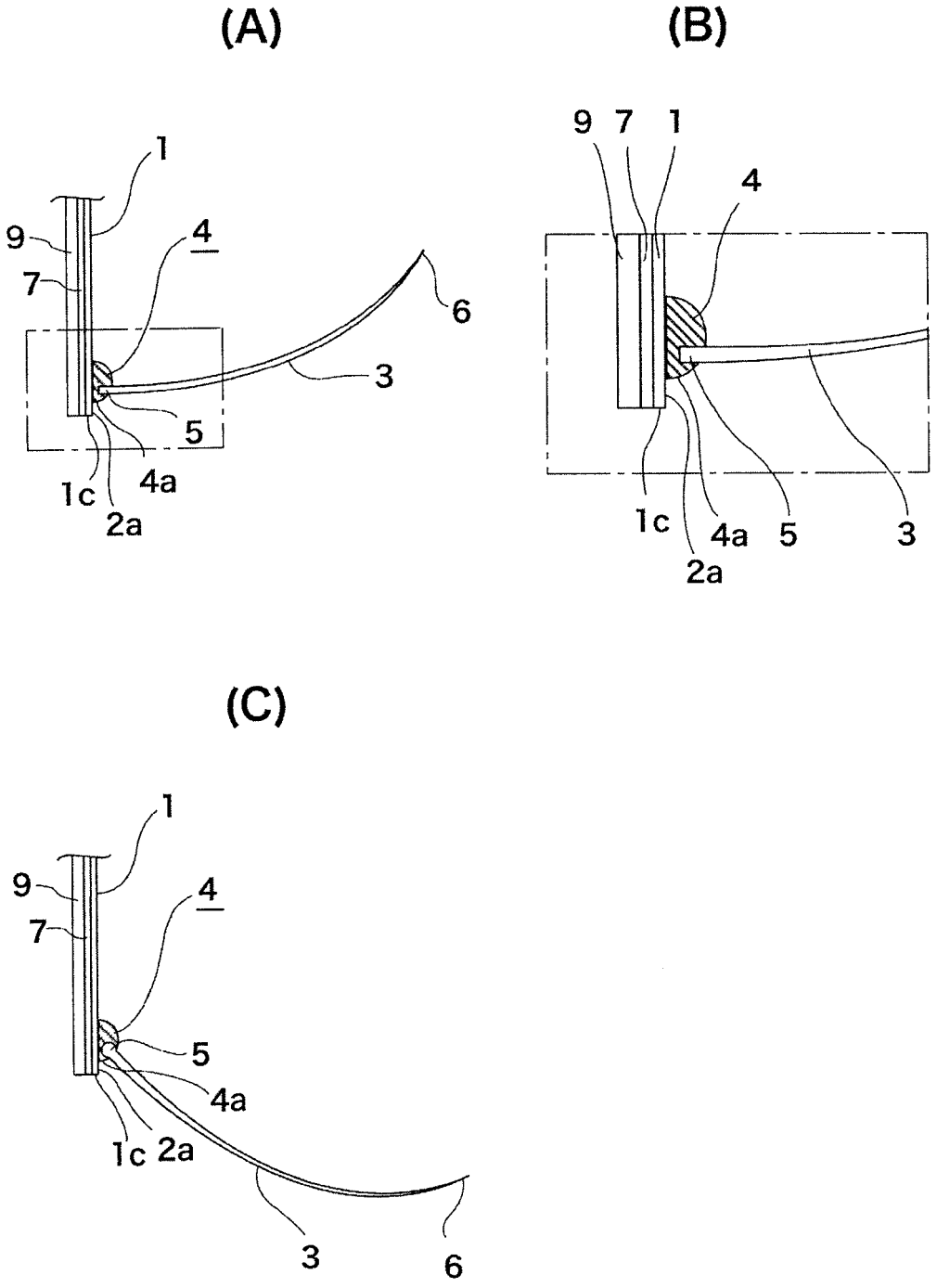
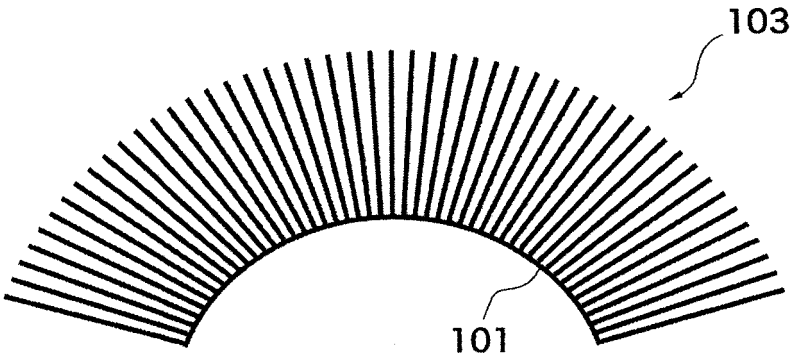


FIG.12

(A)



(B)

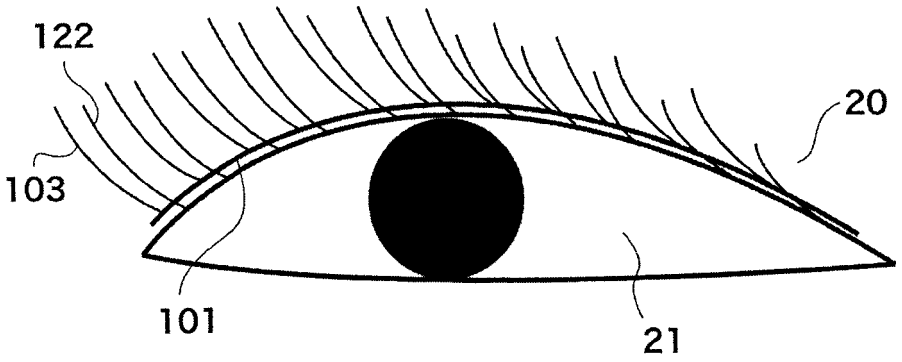
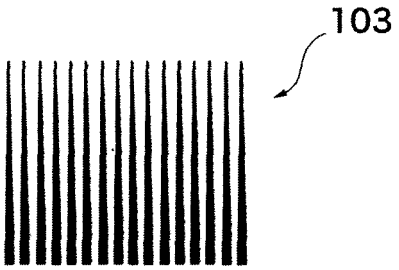


FIG.13

(A)



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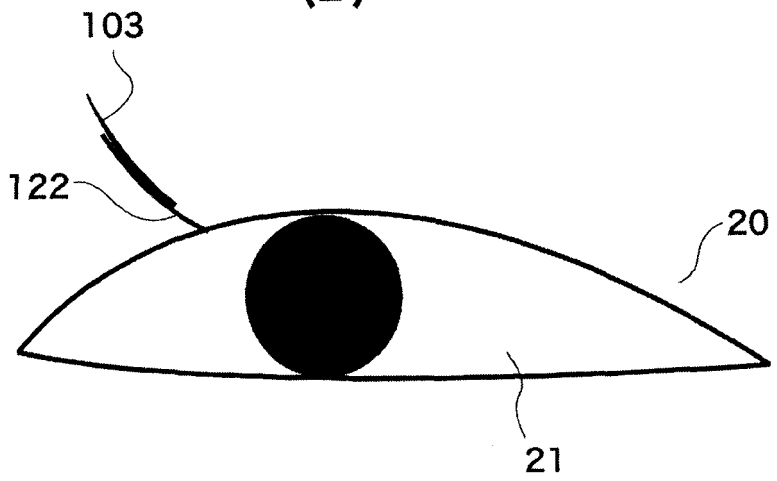
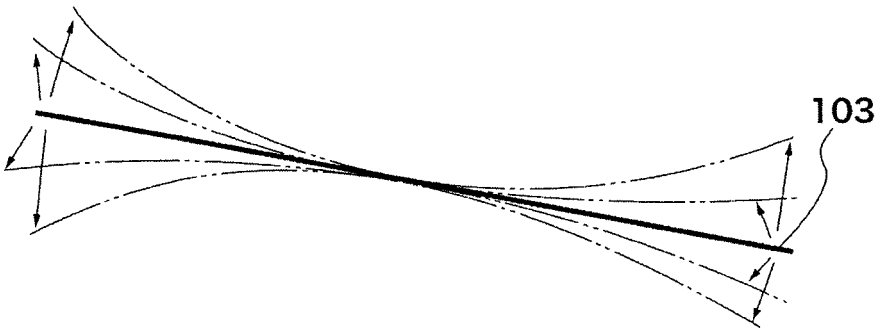


FIG.14



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2010/065848

A. CLASSIFICATION OF SUBJECT MATTER
A41G5/02(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A41G5/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2010
Kokai Jitsuyo Shinan Koho	1971-2010	Toroku Jitsuyo Shinan Koho	1994-2010

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,Y P,A	JP 2010-7217 A (Hideaki TAKECHI), 14 January 2010 (14.01.2010), (Family: none)	1-10,17-20 11-16
Y A	JP 2008-308807 A (Yugen Kaisha KT-2), 25 December 2008 (25.12.2008), (Family: none)	1-10,17-20 11-16

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
28 October, 2010 (28.10.10)	16 November, 2010 (16.11.10)
Name and mailing address of the ISA/ Japanese Patent Office Facsimile No.	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (July 2009)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 49044493 A **[0003]**
- JP 2008231632 A **[0003]**