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(72) Inventor: **SHIINA, Hideki,**
c/o Toto Kizai Kabushiki Kaisha,
Tokyo 1100015 (JP)

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(74) Representative: **Long, Giorgio et al**
Jacobacci & Partners S.p.A.
Via Senato, 8
20121 Milano (IT)

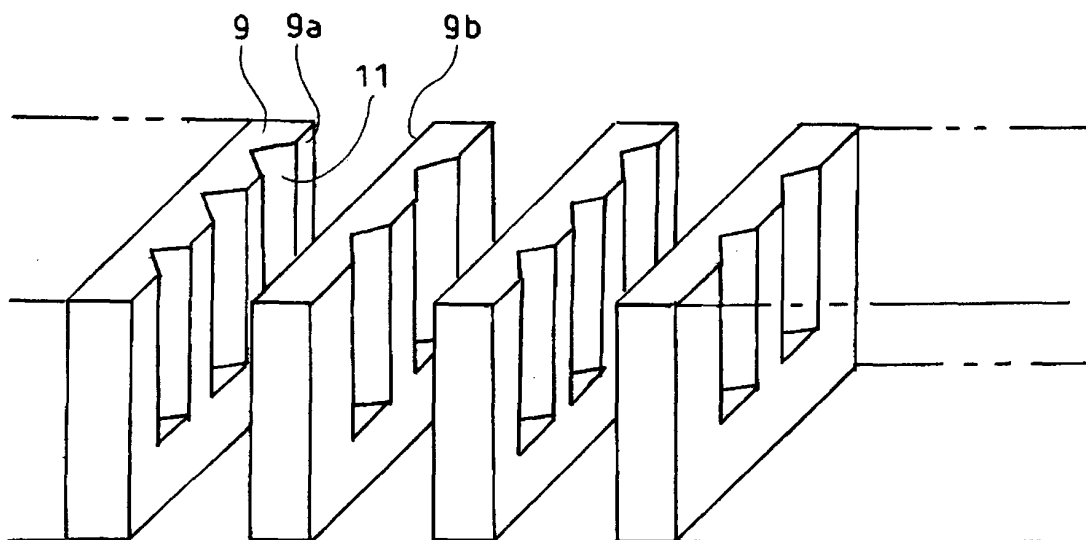
(71) Applicant: **Toto Kizai Kabushiki Kaisha**
Taito-ku
Tokyo 1100015 (JP)

(54) **METHOD OF MANUFACTURING APPLICATOR FOR COSMETICS AND APPLICATOR FOR COSMETICS**

(57) A method of manufacturing an applicator (1) for cosmetics by molding a shank (3) and a brush bristle (5) integrally with each other with a mold. The mold comprises a mold (7) for the shank and a plurality of molds (9) for brush bristle molding the brush bristle. A plurality of

brush grooves (11) are formed in the surfaces of the molds for brush bristle crossing the axial direction of the shank, the molds for brush bristle are disposed adjacent to each other along the axial direction of the shank, and a resin material is filled in the mold for the shank and the molds for brush bristle for molding.

FIG.1



Description

Technical Field

[0001] The present invention relates to a method for manufacturing an applicator for cosmetics and an applicator for cosmetics.

Background Art

[0002] In Unexamined Japanese Patent Publication No. 2004-159823, as an applicator for cosmetics formed by molding a brush bristle and a shank integrally with each other, there is disclosed a technique in which a plurality of columns of brush bristles are formed along the axial direction of the shank. In this patent document, a plurality of brush grooves are formed on surfaces of molds for brush bristles molding the brush bristles along the axial direction of the shank.

[0003] However, in the conventional technique described in the above patent document, since the brush grooves are formed on the surfaces of molds for brush bristles along the axial direction of the shank, the array of brush bristles is limited to be on a substantially straight line along the axial direction of the shank, causing a problem in which arrangement of brush bristles is limited, so that there has been desired an increase in degree of freedom of the arrangement of brush bristles.

[0004] In views of the aforementioned circumstances, it is an object of the present invention is to obtain a method for manufacturing an applicator for cosmetics that is capable of increasing freedom of arrangement of brush bristles and an applicator for cosmetics manufactured by the manufacturing method.

Disclosure of Invention

[0005] In order to solve the aforementioned problem, a first invention is a method for manufacturing an applicator for cosmetics by molding a shank and a brush bristle integrally with each other with a mold, wherein the mold comprises a mold for the shank molding the shank and a plurality of molds molding the brush bristles, a plurality of brush grooves are formed on surfaces of the molds for brush bristle crossing the axial direction of the shank, the molds for brush bristle are disposed adjacent to each other along the axial direction of the shank, and a resin material is filled in the mold for the shank and the molds for brush bristle for molding.

[0006] According to this invention, since the mold for brush bristle has the brush grooves in the direction crossing the axial direction of the shank, the brush grooves can be formed at any position in the direction crossing the axial direction of the shank, thereby making it possible to increase degree of freedom of the arrangement of brush bristles.

[0007] Moreover, since the brush grooves are formed on the surface in the direction crossing the axial direction

of the shank, one side surface of the bristle is aligned on substantially the same straight line in the direction crossing the axial direction of the shank, so that smooth brushing can be performed when mascara is applied to eyelashes.

[0008] Furthermore, the brush grooves are formed on only the one side surface of each mold for brush bristle, other side surface is flat shaped, and the one side surface of the mold for brush bristle may be fit to the other side surface of the adjacent mold for brush bristle.

[0009] In this case, since the brush grooves are formed on only the one side surface of each of the molds for brush bristles, there is no need to adjust the positions of the brush grooves with high precision, thereby making it easy to perform mold positioning as compared with the case in which the brush grooves are formed on both side surfaces of the mold for brush bristles.

[0010] The brush grooves of at least one of the molds for brush bristle disposed adjacent to each other may be arranged at positions shifted in the axial direction of the shank.

[0011] In this case, since the length of the brush grooves of the adjacent molds for brush bristles differs along the axial direction of the shank, it is possible to bring the brush bristles into contact with eyelashes or eyebrows to be adjusted to the length thereof, so that cosmetic material can be applied evenly.

[0012] The brush grooves of the mold for brush bristle may be aligned on substantially the same straight line along the axial direction of the shank. In this case, since the brush grooves of the mold for brush bristle are aligned on substantially the same straight line along the axial direction of the shank, it is possible to use the same mold for brush bristles and facilitate arrangement of the molds for brush bristles as the time of molding as compared with the case where the different types of molds for brush bristles are used.

[0013] Length of the brush grooves of the adjacent molds for brush bristle may differ along the axial direction of the shank. In this case, since the length of the brush grooves of the adjacent molds for brush bristles differs along the axial direction of the shank, it is possible to bring the brush bristles into contact with eyelashes or eyebrows to be adjusted to the length thereof, so that cosmetic material can be applied evenly.

[0014] The length of the brush grooves may be gradually increased from a top end portion side to a base end portion side. In this case, since the length of the brush grooves is gradually increased from the top end portion in the axial direction of the shank to the base end portion, a right-hander can easily apply cosmetic material to the eyelashes on his/her right eye.

[0015] The second invention is an applicator for cosmetics obtained by the aforementioned manufacturing method. In this case, it is possible to offer the same effect as that obtained by the aforementioned manufacturing method.

Brief Description of Drawings

[0016]

FIG 1 is a perspective view illustrating essential parts of a mold for an applicator for cosmetics according to a first embodiment of the present invention; FIG 2 is a cross-sectional view illustrating the mold for the applicator for cosmetics; FIG 3 is a perspective view illustrating essential parts of the mold for the applicator for cosmetics according to the first embodiment of the present invention; FIG 4 is a plane view illustrating essential parts of the mold for the applicator for cosmetics according to the first embodiment of the present invention; FIG 5 is a perspective view illustrating essential parts of a mold for an applicator for cosmetics according to a second embodiment of the present invention; FIG 6 is a schematic cross-sectional view illustrating a manufacturing example of color degeneration titanium oxide powder according to the present invention; FIG 7 is a plane view illustrating essential parts of an applicator for cosmetics according to a modification; and FIG 8 is a plane view illustrating essential parts of an applicator for cosmetics according to a modification.

Best Mode for Carrying Out the Invention

[0017] The following will specifically explain embodiments of the present invention with reference to the accompanying drawings. FIG 1 is a perspective view illustrating essential parts of a mold for an applicator for cosmetics according to a first embodiment of the present invention; FIG 2 is a cross-sectional view illustrating the mold for the applicator for cosmetics; FIG. 3 is a perspective view illustrating essential parts of the mold for the applicator for cosmetics according to the first embodiment of the present invention; and FIG 4 is a plane view illustrating essential parts of the mold for the applicator for cosmetics according to the first embodiment of the present invention, respectively.

[0018] An applicator 1 for cosmetics according to an embodiment of the present invention is mainly used as a mascara brush and includes a shank 3, brush bristles 5 molded integrally with the shank 3.

[0019] The shank 3 has a flat surface 3a on which the brush bristles 5 are formed and a rear side of the flat surface 3a has a curved surface 3b with a cross section of substantially semicircular shape.

[0020] The brush bristles 5 are arranged in a staggered manner where three brush bristles 5 and two brush bristles 5 are alternately formed along the axial direction of the shank 3. Each brush bristle 5 has a cross section of substantially triangular shape, and the brush bristles 5 are arranged in a direction crossing the axial direction of the

shank 3 are formed in such a way that their triangular bottom portions 5a are positioned on a substantially straight line in a direction crossing the axial direction of the shank 3.

[0021] An explanation will be next given of a mold for molding the applicator 1 for cosmetics according to an embodiment of the present invention. The mold for molding the applicator 1 for cosmetics includes a mold 7 for the shank molding the shank 3 and a plurality of molds 9 for brush bristles molding the brush bristles 5.

[0022] The mold 7 for the shank includes a mold 7a for a circular portion side molding a circular portion of the shank 3 and a pair of molds 7b, 7b for a flat portion side molding a flat surface portion of the shank 3.

[0023] The molds 9 for brush bristles are plate-shaped and each thickness in the axial direction of the shank is about 0.6 mm. The molds 9 for brush bristles are arranged in the axial direction of the shank 3 and the respective molds 9 for brush bristles are disposed to be adjacent to each other along the axial direction of the shank at the time of molding. Moreover, each of the molds 9, 9, ... for brush bristles has brush grooves 11 that form a column on the surface of the mold crossing the axial direction of the shank 3.

[0024] The brush grooves 11 are formed on only one side surface 9a of each of the molds 9 for brush bristles and other surface 9b is flat and the one side surface 9a of the mold 9 for brush bristles is fit onto the other surface 9b of the adjacent mold 9 for brush bristles. At the time of molding, a resin material is filled between the end surface 9b of the adjacent mold 9 for brush bristles and the brush grooves 11.

[0025] An explanation will be next given of the function and operation according to this embodiment. In the case of manufacturing the applicator 1 for cosmetics, the mold 7a for the circular portion side and molds 7b for the flat portion side and the mold 9 for brush bristles are disposed as illustrated in FIG 2, and the resin material is injected in a space 13 formed between the mold 7a for the circular portion side and the molds 7b for the flat portion side from an inflow entrance. The resin material injected in the space 13 enters the brush grooves 11 via the mold 7a for the circular portion side and the molds 7b for the flat portion side and the brush grooves 11 are filled with the resin material, and the space 13 is also filled with the resin material. The resin material is cooled and hardened after the resin material is filled in the space 13 and a predetermined time has passed, thereafter a resultant is extracted from the molds to make it possible to obtain the applicator 1 for cosmetics.

[0026] According to this embodiment, since the mold 9 for brush bristles has the brush grooves 11 in the direction crossing the axial direction of the shank 3, the brush grooves 11 can be formed at any position of the surface where the brush grooves are formed, thereby making it possible to increase degree of freedom of the arrangement of brush bristles 5.

[0027] Since the brush grooves 11 are formed on only

the one side surface 9a of each of the molds 9 for brush bristles, there is no need to adjust the positions of the brush grooves 11 with high precision, thereby making it easy to perform mold positioning as compared with the case in which the brush grooves 11 are formed on both side surfaces of each mold 9 for brush bristles.

[0028] Since the mold 9 for brush bristles has the brush grooves 11 in the direction crossing the axial direction of the shank 3, the side end surface of the bristle 5 is aligned on substantially the same straight line in a direction perpendicular to the axial direction of the shank, so that smooth brushing can be performed when mascara is applied to eyelashes.

[0029] Furthermore, the brush bristles 5 are arranged in a staggered manner along the axial direction of the shank 3, mascara can enter between the bristles while moving in a zigzag manner along the axial direction of the shank, resulting in a good application of mascara as compared with the case in which the brush bristles 5 are arranged to be on substantially the straight line along the axial direction of the shank 3.

[0030] A second embodiment of the present invention will be next explained with reference to FIGS. 5 and 6. In the following explanation, it should be noted that the portions of this embodiment having the same function and effect as those of the first embodiment are assigned the same reference numerals as those of corresponding portions in the first embodiment and the detailed explanation thereof is omitted, and the following will mainly explain the point different from the first embodiment. The second embodiment is different from the first embodiment in that depth of the brush grooves 11 is gradually increased from a top end portion 15 in the axial direction of the shank to a base end portion 17 ($H1 < H2 < H3 < H4$). Since the depth of the brush grooves 11 is gradually increased from the top end portion 15 in the axial direction of the shank 3 to the base end portion 17 as described above, the length of the brush bristles 5 can be obliquely provided along the axial direction, thereby making it possible to bring the brush bristles 5 into contact with eyelashes or eyebrows in such a way to be adjusted to the length thereof, so that a cosmetic material can be applied evenly and a right-hander can easily apply the cosmetic material to the eyelashes on his/her right eye.

[0031] Additionally, the depth of the brush grooves 11 may be gradually increased from the base end portion 17 in the axial direction of the shank 3 to the top end portion 15, in which case the right-hander can easily apply the cosmetic material to the eyelashes on his/her left eye.

[0032] It should be noted that the present invention is not limited to the aforementioned embodiment, but various modifications may be made within the range not departing from the gist of the present invention.

[0033] The aforementioned embodiment has been described for a case where the cross section of the brush bristle 5 is of substantially triangular shape in a plane view, but the present invention is not limited to the above

case, and is also applicable to other case where a rhombic shape in a plane view may be possible as illustrated in FIG.7. In this case, the brush grooves 11 are formed on not only one end surface 9a of the mold 9 for brush bristles but also the end surface 9b of the adjacent mold 9 for brush bristles to face to one end surface 9a.

[0034] Moreover, the cross section of the brush bristle 5 may be of pentagonal shape in a plane view as illustrated in FIG.8 or a semicircular shape in a plane view or circular shape in a plane view may be possible.

[0035] Although the brush grooves 11 of the molds 9 for brush bristles are arranged in the staggered manner along the axial direction of the shank 3, the brush grooves 11 of the adjacent mold 9 for brush bristles may be arranged at positions shifted in a direction perpendicular to the axis of the shank 3.

[0036] The brush bristles 5 may be aligned on substantially the same straight line along the axial direction of the shank 3, in which case the same mold for brush bristles can be used, thereby making it easy to arrange the molds for brush bristles at the time of molding as compared with the case where the different types of molds for brush bristles are used.

[0037] The applicator 1 for cosmetics is not limited to be used as the mascara brush but may be utilized as an eyebrow brush.

Industrial Applicability

[0038] As mentioned above, the present invention is useful as a method for manufacturing an applicator for cosmetics and an applicator for cosmetics, and is particularly suitable for increasing degree of freedom of the arrangement of brush bristles of the applicator for cosmetics.

Claims

1. A method for manufacturing an applicator for cosmetics by molding a shank and a brush bristle integrally with each other with a mold, wherein the mold comprises a mold for the shank molding the shank and a plurality of molds molding the brush bristles, a plurality of brush grooves are formed on surfaces of the molds for brush bristle crossing the axial direction of the shank, the molds for brush bristle are disposed adjacent to each other along the axial direction of the shank, and a resin material is filled in the mold for the shank and the molds for brush bristle for molding.
2. The method for manufacturing an applicator for cosmetics according to claim 1, wherein the brush grooves are formed on only one side surface of each mold for brush bristle, other side surface is flat shaped, and the one side surface of the mold for brush bristle is fit to the other side surface of the

adjacent mold for brush bristle.

3. The method for manufacturing an applicator for cosmetics according to claim 1 or 2, wherein the brush grooves of at least one of the molds for brush bristle disposed adjacent to each other are arranged at positions shifted in the axial direction of the shank. 5
4. The method for manufacturing an applicator for cosmetics according to any one of claims 1 to 3, wherein the brush grooves of the mold for brush bristle are aligned on substantially the same straight line along the axial direction of the shank. 10
5. The method for manufacturing an applicator for cosmetics according to any one of claim 1 to 4, wherein length of the brush grooves of the adjacent molds for brush bristle differs along the axial direction of the shank. 15
6. The method for manufacturing an applicator for cosmetics according to claim 5, wherein the length of the brush grooves is gradually increased from a top end portion side to a base end portion side. 20
7. An applicator for cosmetics is manufactured by the manufacturing method according to any one of claims 1 to 6. 25

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FIG.1

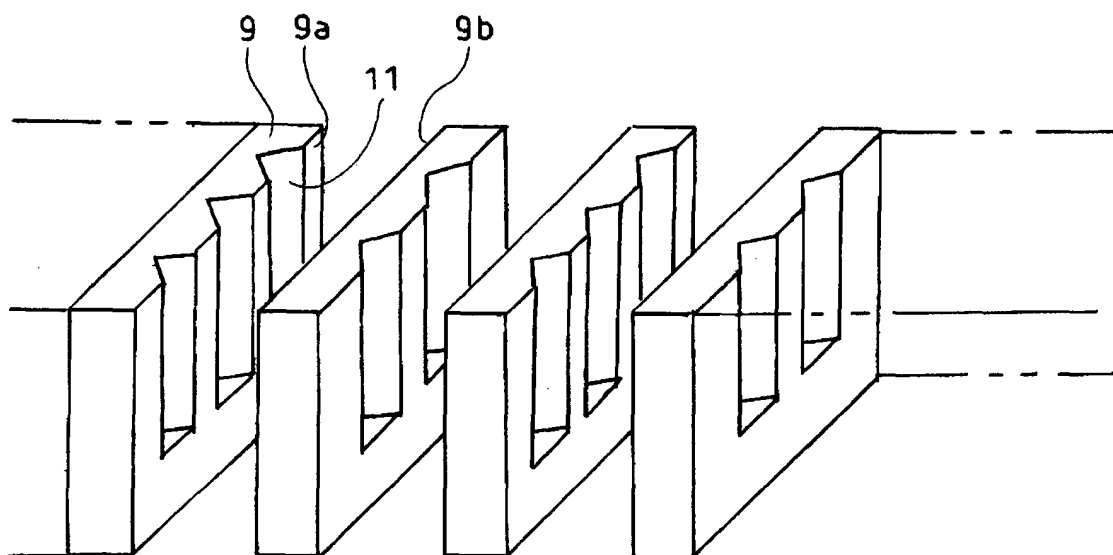


FIG.2

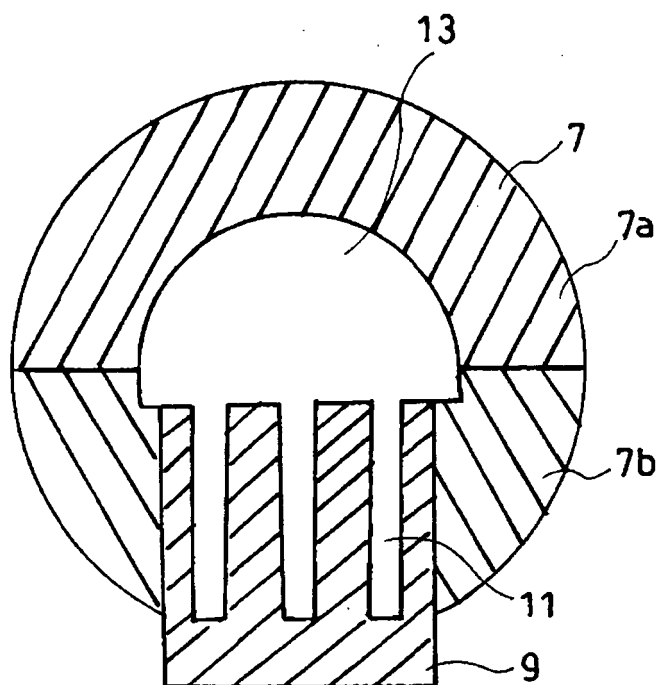


FIG.3

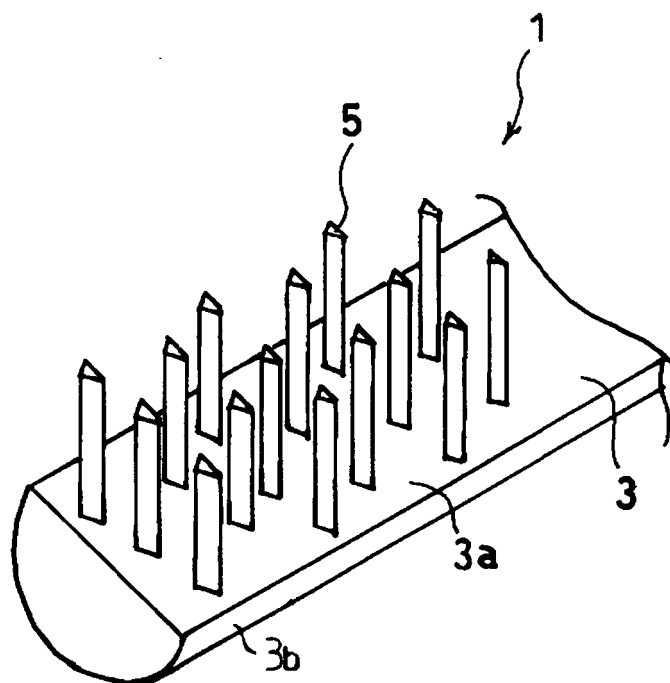


FIG.4

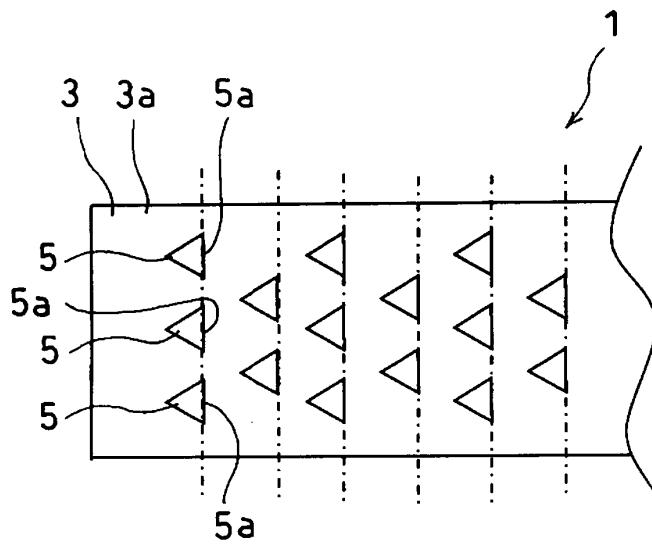


FIG.5

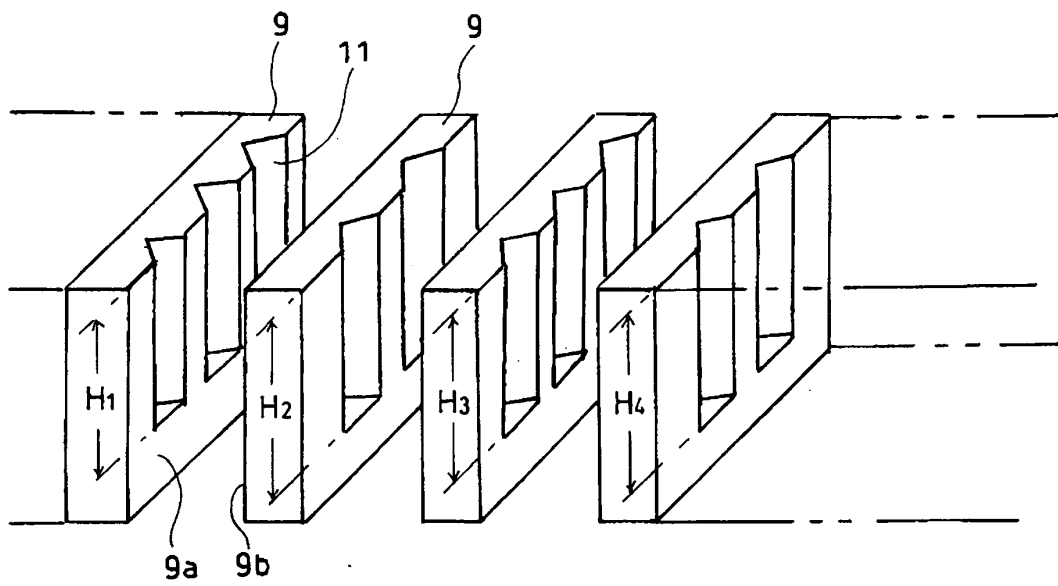


FIG.6

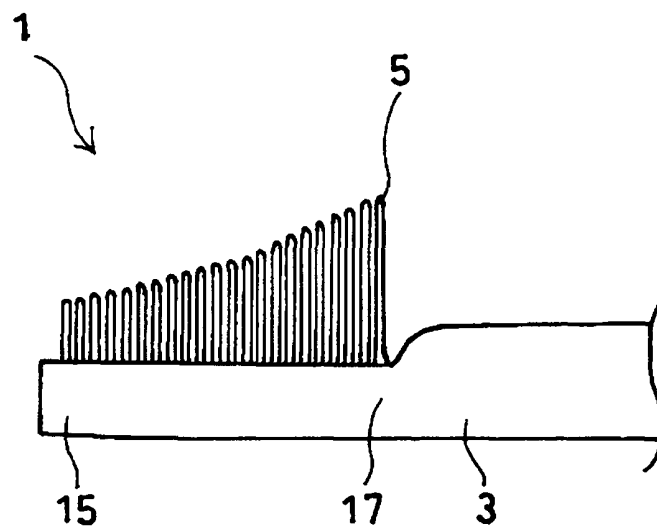


FIG.7

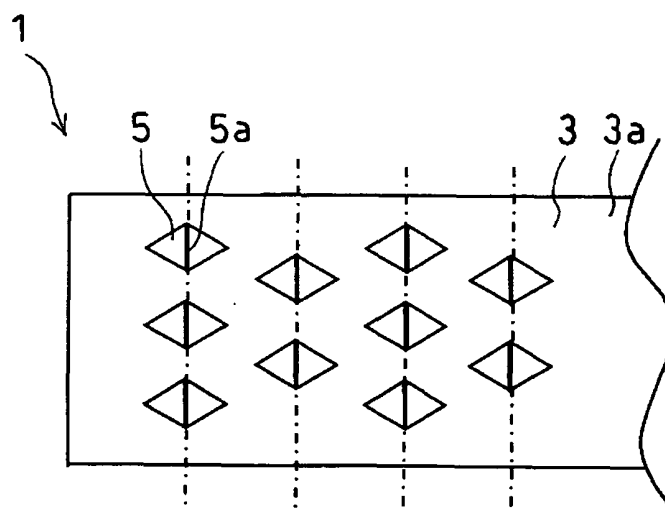
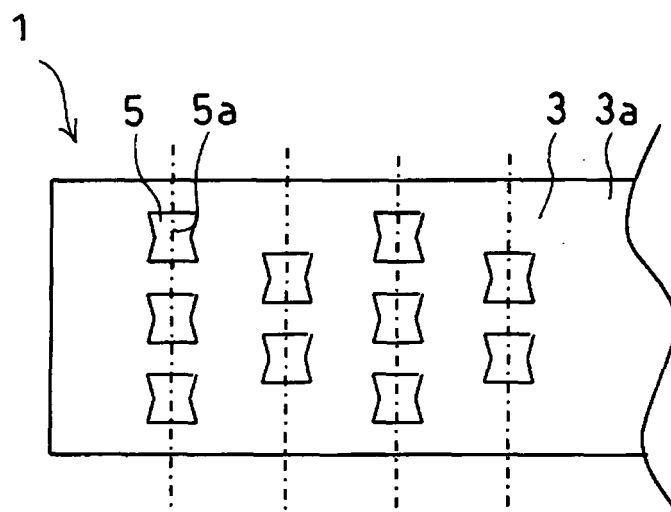


FIG.8



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2005/007944

A. CLASSIFICATION OF SUBJECT MATTER Int.Cl. ⁷ A46D3/00, A45D34/04, A46B1/00		
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) Int.Cl. ⁷ A46D3/00, A45D34/04, A46B1/00		
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 1996-2005 Kokai Jitsuyo Shinan Koho 1971-2005 Toroku Jitsuyo Shinan Koho 1994-2005		
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.
Y	JP 2004-159823 A (Kabushiki Kaisha Shinwa Seisakusho), 10 June, 2004 (10.06.04), Full text; all drawings (Family: none)	1-7
Y	JP 2002-119332 A (Pentel Co., Ltd.), 23 April, 2002 (23.04.02), Par. No. [0010]; Fig. 5 (Family: none)	1-7
Y	JP 2003-504136 A (L'Oreal), 04 February, 2003 (04.02.03), Par. No. [0080]; Fig. 12 & US 6581610 B1 & WO 01-005271 A1	3
☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "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 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 02 August, 2005 (02.08.05)		Date of mailing of the international search report 23 August, 2005 (23.08.05)
Name and mailing address of the ISA/ Japanese Patent Office		Authorized officer
Facsimile No.		Telephone No.

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2005/007944

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2-164308 A (L'Oreal), 25 June, 1990 (25.06.90), Page 3, lower left column, line 20 to lower right column, line 3; Fig. 1 & US 5020551 A1 & FR 2637471 A	5-7

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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