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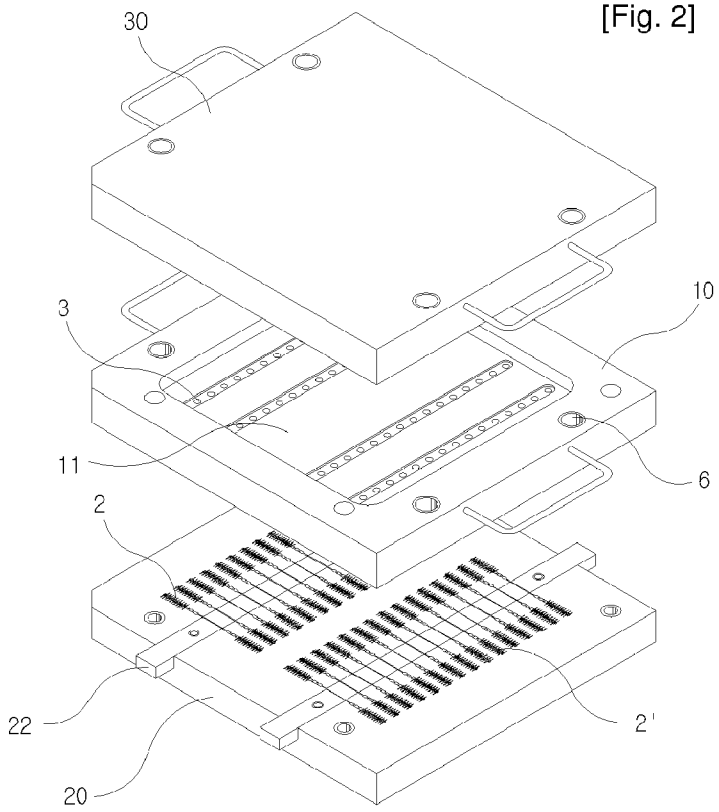
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[Continued on next page]

(54) Title: METHOD TO MANUFACTURE REINFORCEMENT INSERTION TYPE MASCARA BRUSH AND MANUFACTURING FOR TRANSFER MOLD

[Fig. 2]



(57) Abstract: A transfer molding box and a method to produce a plurality of brushes with an applicator is provided. The transfer molding box includes a pressing plate 30, an upper molding box 10 where at least a brush molding groove is formed and a lower molding box 20 where at least another brush molding groove corresponding to the brush molding groove of the upper molding box is formed and placed under the upper molding box 10. A wick 1 is settled in horizontal direction between the brush molding groove of the upper molding box and the brush molding groove of the lower molding box. Further material inserting portion 11 and a projected pressing portion 31 which has corresponding shape to the material inserting portion 11 are provided at the top of the upper molding box 10 and at the top of the lower molding box 20, respectively.

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Description

METHOD TO MANUFACTURE REINFORCEMENT INSERTION TYPE MASCARA BRUSH AND MANUFACTURING FOR TRANSFER MOLD

Technical Field

[1] The present invention relates to a method for producing a mascara brush for eyelash makeup, more particularly, to a method for producing a large amount of brushes with applicator and a transfer molding box therefor.

Background Art

[2] Mascara, a kind of makeup instruments, is used to makeup eyelash to look longer and thicker than it is. Mascara makes eyelash, which stretches itself out upward or downward, waved so that it looks beautiful.

[3] The method to makeup eyelash with the mascara is described in brief.

[4] To makeup upper eyelash, the brush with an appropriate amount of mascara solution brushes upper eyelash downward from the root of the upper eyelash with a soft touch and then brushes the upper eyelash upward with a stroke while eyes are kept being turned down. A batter makeup can be achieved when the brush is stroked up in zigzag.

[5] To makeup lower eyelash, the brush brushes the lower eyelash from side to side and then the brush brushes the lower eyelash along its grain softly.

[6] Fine makeup can be achieved when the lower eyelash is brushed finely one by one.

[7] To achieve a fine and clear makeup, one should wait until mascara solution is dried up because mascara solution can be applied to other parts when he/she moves eyes impatiently.

[8] Such a brush to makeup eyelash can be divided into two types, one is made in the manner that two strings of steel, where nylon is provided between them, is twisted as many turns as desired in the form of a screw; and the other, so called a rubber brush, is made in the manner that a thread and a trough are formed in series on the surface of a rubber having a wick.

[9] Because the brush with the nylon is limited in many ways such as the number of brush strings per each twist, its shape, a processing method, etc, there are many problems in developing a novel and advanced brush.

[10] In the meantime, because the rubber brush has an applicator in which circular blades or disks of soft rubber or elastic silicon are formed in series, a high degree of accuracy and an amount of technical difficulty exist in making a corresponding molding box.

[11] Further, because a special kind of the machine is needed to mold the rubber brush there is a factor to increase cost.

Disclosure of Invention

Technical Problem

[12] The present invention is designed to solve those problems.

[13] An object of the present invention is to provide a method for producing a large amount of brushes with an applicator.

[14] Another object of the present invention is to provide a molding box for producing a large amount of brushes with an applicator.

Technical Solution

[15] According to the present invention, a method to produce a brush with an applicator, where at least a thread and a through are formed on the surface of rubber or silicon which are fixed to a wick includes the steps of;

[16] cutting step for cutting the wick;

[17] arranging step for arranging the wick between an upper molding box and a lower molding box;

[18] inserting step for inserting molding material into the upper portion of the upper molding box;

[19] transfer-molding step for pressing a pressing plate so that the molding material is injected into a brush molding groove between the upper molding box and the lower molding box;

[20] separating step for separating the pressing plate and the upper molding box from the lower molding box; and

[21] extracting step for extracting the brush, where the applicator is formed on the circumference of the end portion of the wick, from the lower molding box.

[22] According to the present invention, a transfer molding box to produce a brush with an applicator, where at least a thread and a through are formed on the surface of rubber or silicon which are fixed to a wick includes

[23] a pressing plate;

[24] a upper molding box where at least a brush molding groove, which has the shape corresponding to the shape of the half of the applicator, is formed and placed under the pressing plate; and

[25] a lower molding box where at least another brush molding groove, which has the shape corresponding to the brush molding groove of the upper molding box and on which the wick is settled in the horizontal direction, is formed and placed under the upper molding box;

[26] in which a material inserting portion and a projected pressing portion which has

corresponding shape to the material inserting portion are provided at the top of the upper molding box and at the top of the lower molding box, respectively;

[27] a material gate is formed at the material inserting portion to perforate to the brush molding groove of the upper molding box.

Advantageous Effects

[28] According to the present invention, because a large amount of brushes can be produced through a transfer molding box so that increase of earnings through decrease of cost can be achieved.

[29] Further, according to the present invention, because brushes with a good quality can be produced in a large mount at once by a single molding box, stability of quality can be kept easily,

[30] Still further, according to the present invention, because the variation of the shape of the brush and the variation of the material with softness and elasticity of the brush can be done easily, various need of customer can be met.

Brief Description of the Drawings

[31] The above and other features and advantages of the present invention will become more apparent by describing in detail preferred embodiments thereof with reference to the attached drawings in which:

[32] Fig. 1 shows a block diagram illustrating the method for producing a brush with an applicator according to the present invention step by step;

[33] Fig. 2 shows a separated perspective view of the molding box for producing a brush with an applicator according to the present invention;

[34] Fig. 3 shows a bottom separated perspective view of the molding box according to the present invention;

[35] Fig. 4 shows a sectional view of the molding box according to the present invention illustrating the state when the upper molding box and the lower molding box are joined;

[36] Fig. 5 shows an enlarged sectional view of the molding box according to the present invention;

[37] Fig. 6 shows an enlarged sectional view illustrating the state when a wick is inserted in the extracting block of the molding box according to the present invention;

[38] Fig. 7 shows an enlarged sectional view illustrating the state when molding material is inserted into the upper molding box according to the present invention;

[39] Fig. 8 shows an enlarged sectional view illustrating the state when molding material is injected into the brush molding groove of the molding box according to the present invention;

[40] Fig. 9 shows an enlarged sectional view illustrating the state when the pressing

plate and the upper molding box are separated from the lower molding box after pressing the pressing plate according to the present invention;

[41] Fig. 11 shows an enlarged perspective view illustrating the state when the brush with an applicator and the extracting block are separated from the lower molding box according to the present invention; and

[42] Fig. 12 shows the brush made by the molding box according to the present.

[43] [brief description of numerals in drawings]

[44] 1.....wick 2, 2.....brush molding groove

[45] 3.....material gate 4.....applicator

[46] 5.....guide pin 6.....guide bussing

[47] 10.....upper molding box 11.....material injection portion

[48] 20.....lower molding box 21.....block groove

[49] 22.....extracting block 23.....wick settling groove

[50] 30.....ressing plate 31.....projected pressing portion

Mode for the Invention

[51] Reference will now be made in detail to the embodiments of the present invention, examples of which are illustrated in the accompanying drawings, wherein like refe rence numerals refer to the like elements throughout. The embodiments are described below to explain the present invention by referring to the figures. For the sake of clearness and concision, technology related to the present invention that is not novel and is well known in the art to which present invention pertains will not be described herein.

[52] Fig. 1 shows a block diagram illustrating the method for producing a brush with an applicator according to the present invention step by step. The method according to the present invention can produce a large amount of brushes by a single molding box.

[53] The method according to the present invention includes the steps of;

[54] cutting step for cutting the wick;

[55] applying and drying step for applying an adhesion to the cut wick and drying;

[56] arranging step for arranging the wick between an upper molding box and a lower molding box;

[57] inserting step for inserting molding material into the upper portion of the upper molding box;

[58] transfer-molding step for pressing a pressing plate so that the molding material is injected into a brush molding groove between the upper molding box and the lower molding box;

[59] separating step for separating the pressing plate and the upper molding box from the lower molding box; and

[60] extracting step for extracting the brush, where the applicator is formed on the circumference of the end portion of the wick, from the lower molding box.

[61] Fig. 2 shows a separated perspective view of the molding box for producing a brush with an applicator according to the present invention, Fig. 3 shows a bottom separated perspective view of the molding box according to the present invention, Fig. 4 shows a sectional view of the molding box according to the present invention illustrating the state when the upper molding box and the lower molding box are joined and Fig. 5 shows an enlarged sectional view of the molding box according to the present invention;

[62] The transfer molding box according to the present invention is largely divided into an upper molding box 10, a lower molding box 20 and a pressing plate 30 which is located on the upper molding box 10.

[63] The upper molding box 10, a lower molding box 20 and a pressing plate 30 are piled up. At the bottom of the upper molding box 10 and at the top of the lower molding box, brush molding grooves 2 and 2 are arranged in series.

[64] Each of the brush molding grooves 2 and 2 of the upper molding box 10 and the lower molding box 20 are formed to face each other and each of them is formed to have a shape corresponding to the half of the applicator.

[65] The wicks 1 of ceramic-like or resin-like are settled between the brush molding grooves 2 and 2 of the upper molding box 10 and the lower molding box 20. A material injection portion 11 and a projected pressing portion 31 are provided at the bottom of the upper molding box 10 and at the top of the pressing plate 31, respectively.

[66] Material gates 3, which perforates to the brush molding grooves 2 and 2 of the upper molding box 10, is provided in the material injection portion 11. Molding material on the material injection portion 11 is injected in to the brush molding grooves 2 and 2 through the material gates 3 while the pressing plate 30 is pressed.

[67] The brush, which is composed of the wick 1 of metal-like, ceramic-like of resin-like and the applicator 4 formed by the brush molding grooves 2 and 2 is extracted from the lower molding box 20.

[68] A block groove 21 is provided on the top of the lower molding box 20. The location of the block groove 21 corresponds to the middle portion of the wick 1 where the applicator 4 is not formed. An extracting block 22 is provided. The extracting block 22 can be inserted into the block groove 21 or pulled out from the block groove 21 in the vertical direction. A wick settling grooves 23, where the wick 1 is settled in the horizontal direction, are arranged in series on the top of the extracting block 22.

[69] When the applicator 4 is formed at the both ends of the wick 1 by the brush molding grooves 2 and 2 of the upper molding box 10 and the lower molding box 20, the wick 1

and the applicator 4 can be separated at once from the lower molding box 20 by separating the extracting block 22 upward.

[70] A guide pin 5 and a guide bushing 6, which faces each other, are provided at the top of lower molding box 20 and the bottom of the pressing plate 30, respectively. The upper molding box 10 and the pressing plate 20 can be elevated in the vertical direction by the operation of the guide pin 5 and the guide bushing 6.

[71] The transfer molding box according to the present invention will be described in detail by referring the figures accompanied.

[72] As shown in Fig. 2, the transfer bolding box according to the present is largely divided into the pressing plate 30 which is located at the top, the upper molding box 10 which is located at the beneath of the pressing plate 30 and the lower molding box 20 which is jointed to the bottom of the upper molding box 10.

[73] The material injection portion 11 which has a concave type groove is provided at the top of the upper molding box 10. The projected pressing portion 31 which has a corresponding shape to the material injection portion 11 is provided at the bottom of the pressing plate 30.

[74] At the bottom of the upper molding box 10 and at the top of the lower molding box 20, the brush molding grooves 2 and 2 are arranged in series. Each of the brush molding grooves 2 and 2 are formed to face each other and each of them is formed to have a shape corresponding to the half of the applicator.

[75] Because the brush molding grooves 2 and 2 are connected to the material injection portion 11 through the material gates 3, molding material in the material injection portion 11 can be injected into the brush molding groove 2 and 2 through the material gates 3.

[76] The extracting block 22 is inserted on the top of the lower molding box 20. The middle portion of the wick 1, which corresponds to the portion where the applicator 4 is not formed, is settled on the top of the extracting block 22. The extracting block can be inserted into the block groove 21 or pulled out from the block groove 21 in the vertical direction.

[77] The wick settling grooves 23, where the wick 1 is settled in the horizontal direction, are arranged in series on the top of the extracting block 22. When a plurality of the wick 1 is arranged and settled in the wick settling grooves 23, both ends of the wick 1 are located between the brush molding grooves 2 and 2 of the upper molding box 10 and the brush molding grooves 2 and 2 of the lower molding box 20.

[78] If the molding material is injected into the brush molding grooves 2 and 2 of the upper molding box 10 when the brush molding grooves 2 and 2 of the upper molding box 10 and the brush molding grooves 2 and 2 of the lower molding box 20 are jointed, the applicator 4 of ceramic-like or resin-like is formed at the both ends of the

wick 1.

[79] Each steps of the method which uses the transfer molding box according to the present invention will be described in detail by referring the figures accompanied.

[80] After the wick 1 such as a metal-like, a ceramic-like or a resin-like is cut at the regular length, an adhesion, which is needed to fix the molding material well on the wick 1, is applied on the surface of the wick 1 and dried. A plurality of the wicks 1 are settled in series into the wick settling groove 23 on the extracting block 22 and then, the extracting block 22 is inserted into the block grove 21 of the lower molding box 20, as shown in Fig. 6.

[81] After the upper molding box 10 is settled on the lower molding box 20 in the correct direction and location by using the guide pin 5 and the guide bushing 6, a soft molding material, which can be transformed by pressure, is inserted into the material insertion portion 11, which is provided on the top of the upper molding box 10, as shown in Fig. 7.

[82] When the pressing plate 30, which is settled over the upper molding box 10, is pressed downward by a separate pressing machine, as shown in Fig. 8, the projected pressing portion 31 at the bottom of the pressing plate 30 is inserted into the material insertion portion 11, so that the molding material with a characteristic to be transformed easily by pressure is injected into the molding groove 2 and 2 of the upper molding box 10 along the material gate 3.

[83] After the pressing operation is completed, the pressing plate 30 and the upper molding box 10 are separated from the lower molding box 20. The applicator 4 is formed at the both ends of the wick 1 by the operation of the brush molding grooves 2 and 2 of the upper molding box 10 and the lower molding box 20. The material gate 3 is disconnected from the molding material in the brush molding groove 2 and 2 naturally during the separating operation of the upper molding box 10 and the lower molding box 20.

[84] When the upper molding box 10 is separated, the middle portion of the wick 1 on the extracting block 22 and applicators 4 at the both ends of the wick 1 is half-exposed on the top of the lower molding box 20, as shown in Fig. 10.

[85] When the extracting block 22 is lifted up, as shown in Fig. 11, the extracting block 22, where the wick 1 and the applicator 4 only are settled, is extracted separately.

[86] When the wicks 1, which are arranged on the extracting block 22, is pulled out separately, the brush with an applicator 4 of rubber or resin can be achieved.

[87] The shape of the applicator 4 can be varied according to the variation of the transfer molding box and the molding material can be varied to have various colors or various elasticity. Thus method according to the present invention has reasonable and economical merits.

Industrial Applicability

[88] According to the present invention, a large amount of brushes with an applicator, which is used to makeup eyelash, can be produced with a single molding box of a simple structure and a simple producing method so that reduction of cost and mass production of brushes with a good quality can be achieved.

Claims

[1] A method to produce a brush with an applicator, where at least a thread and a through are formed on the surface of rubber or silicon which are fixed to a wick, the method composing the steps of;
cutting step for cutting the wick;
arranging step for arranging the wick between a upper molding box and a lower molding box;
inserting step for inserting molding material into the upper portion of the upper molding box;
transfer-molding step for pressing a pressing plate so that the molding material is injected into a brush molding groove between the upper molding box and the lower molding box;
separating step for separating the pressing plate and the upper molding box from the lower molding box; and
extracting step for extracting the brush, where the applicator is formed on the circumference of the end portion of the wick, from the lower molding box.

[2] The method in claim 1, further comprising;
applying and drying step for applying an adhesion to the cut wick and drying between the cutting step and the arranging step.

[3] The method in claim 1, the wick is made by metal-like, ceramic-like or resin-like.

[4] The method in claim 1, the molding material is made by rubber or resin which has a characteristic to be transformed by pressure.

[5] A transfer molding box to produce a brush with an applicator, where at least a thread and a through are formed on the surface of rubber or silicon which are fixed to a wick, the transfer molding box comprising;
a pressing plate 30;
a upper molding box 10 where at least a brush molding groove, which has the shape corresponding to the shape of the half of the applicator, is formed and placed under the pressing plate 30; and
a lower molding box where at least another brush molding groove, which has the shape corresponding to the brush molding groove of the upper molding box and on which the wick is settled in the horizontal direction, is formed and placed under the upper molding box;
in which a material inserting portion 11 and a projected pressing portion 31 which has corresponding shape to the material inserting portion 11 are provided at the top of the upper molding box 10 and at the top of the lower molding box

20, respectively; and

a material gate 3 is formed at the material inserting portion 11 to perforate to the brush molding groove of the upper molding box 10,

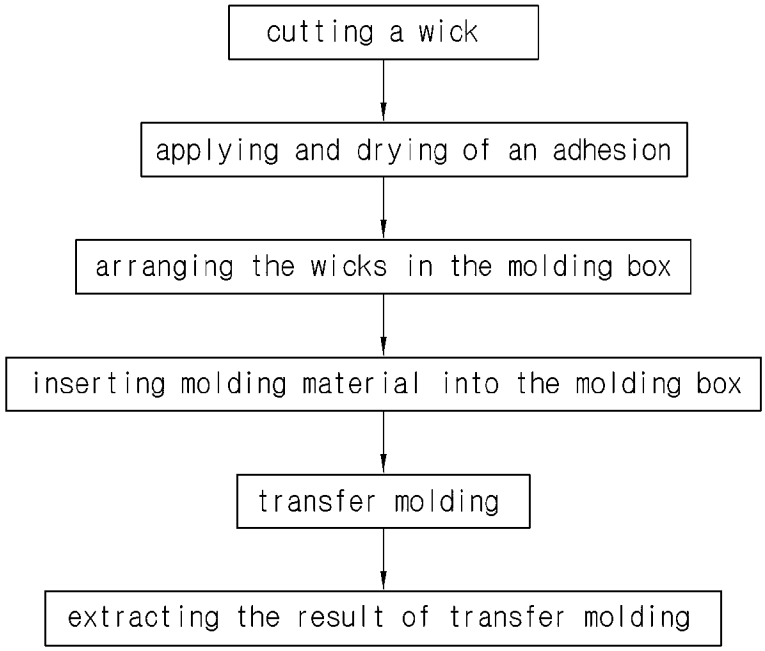
thereby, the molding material which is inserted in the material inserting portion 11 is injected to the brush molding grooves 2 and 2 of the upper molding box 10 when the brush molding grooves 2 and 2 of the upper molding box 10 and the brush molding grooves 2 and 2 of the lower molding box 20 are jointed, through the material gate 3 by the operation of the pressing plate 30 so that the brush, which has the wick 1 and the applicator 4 made by the brush molding grooves, can be extracted from the lower molding box 20.

[6] The transfer molding box in claim 5, in which a block groove 21 is provided at the position, corresponding to the middle portion of the wick 1 where the applicator is not formed, on the top of the lower molding box 20; and

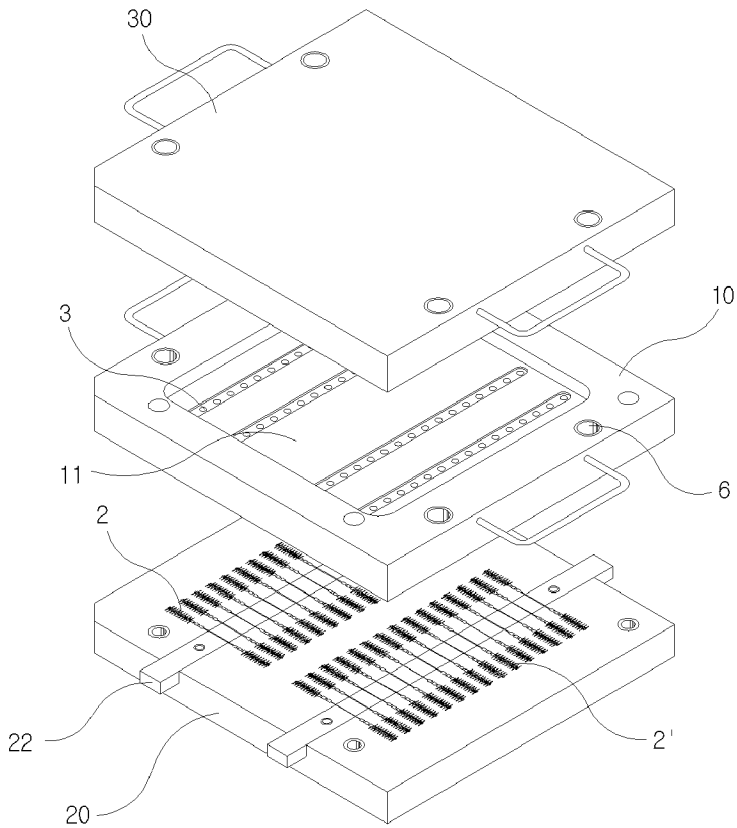
further comprising a extracting block 22 which is inserted into the block groove 21 or pulled out from the block groove 21 in the vertical direction and on which a wick settling groove 23 to settle the wick 1 in the horizontal direction is provided,

thereby, the extracting block 22 is separated from the block groove 21 when the applicator 4 is formed by the brush molding grooves of the upper molding box 10 and the lower molding box 20 so that the wick 1 and the applicator 4 are extracted at once.

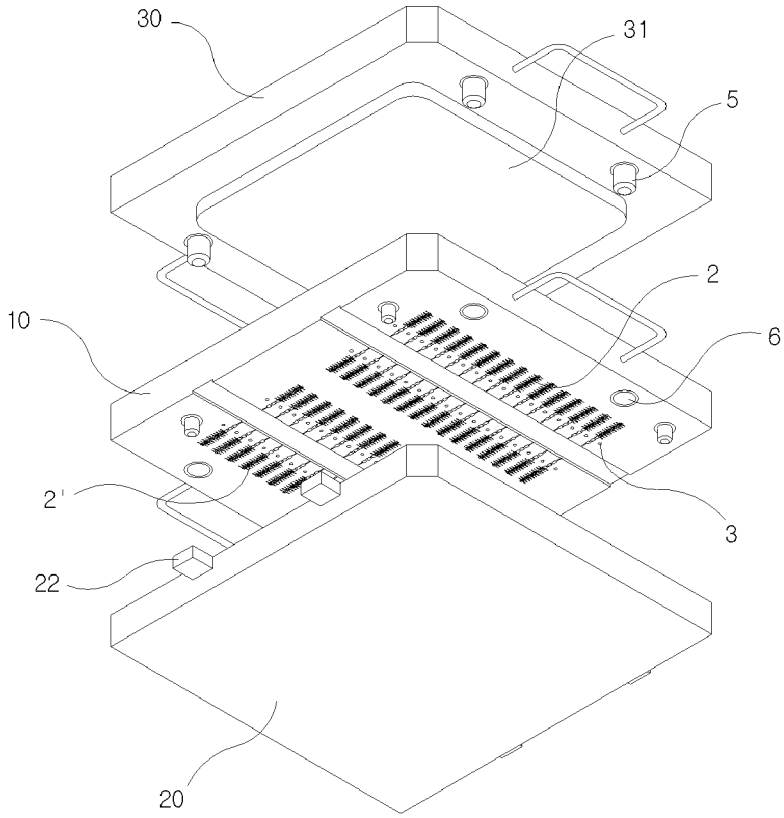
[Fig. 1]


cutting a wick
applying and drying of an adhesion
arranging the wicks in the molding box
inserting molding material into the molding box
transfer molding
extracting the result of transfer molding

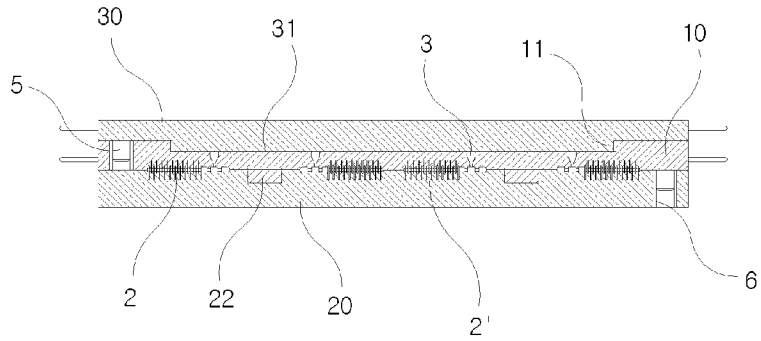
[Fig. 2]


30
3
10
11
6
2
22
2'
20

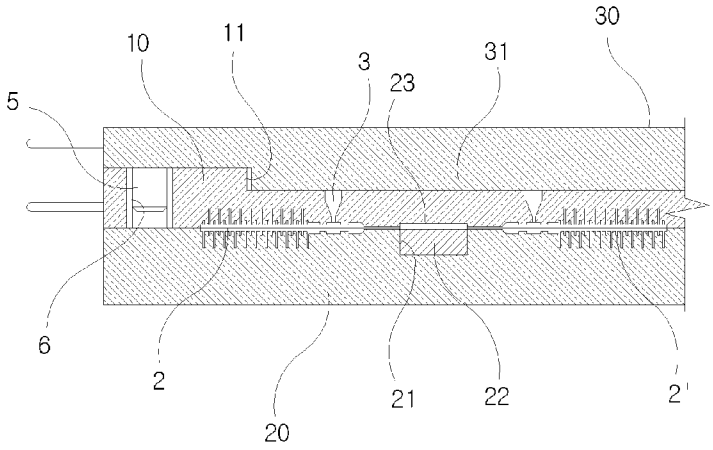
[Fig. 3]



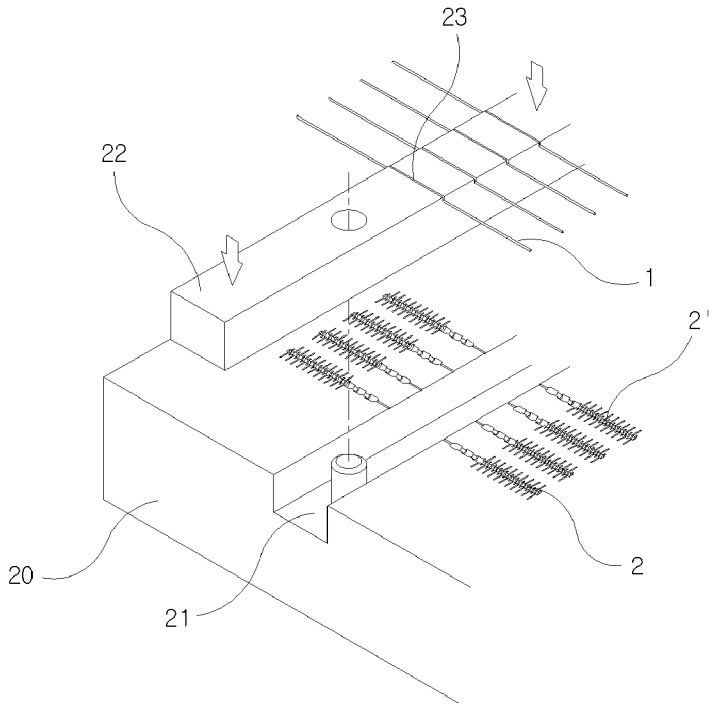
[Fig. 4]



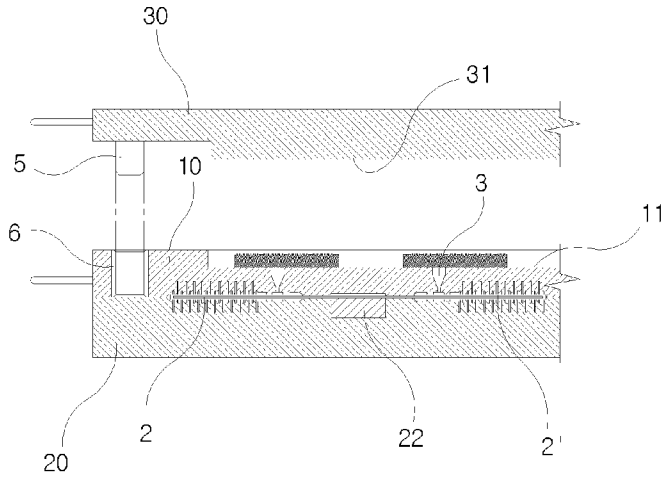
[Fig. 5]



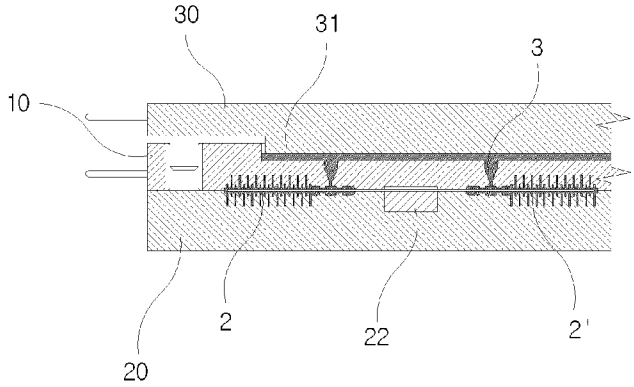
[Fig. 6]



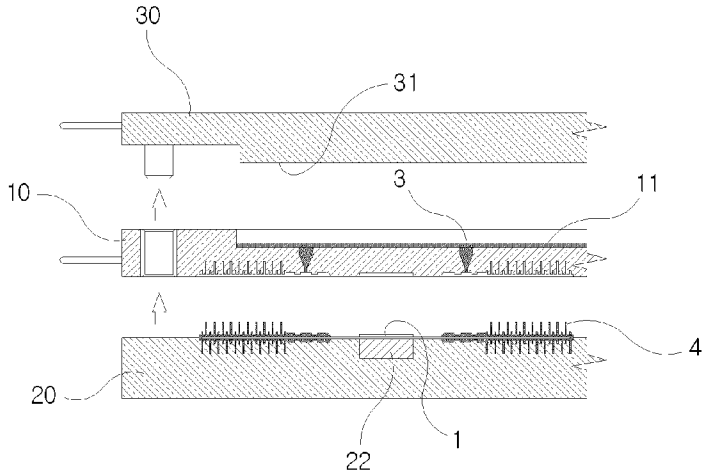
[Fig. 7]



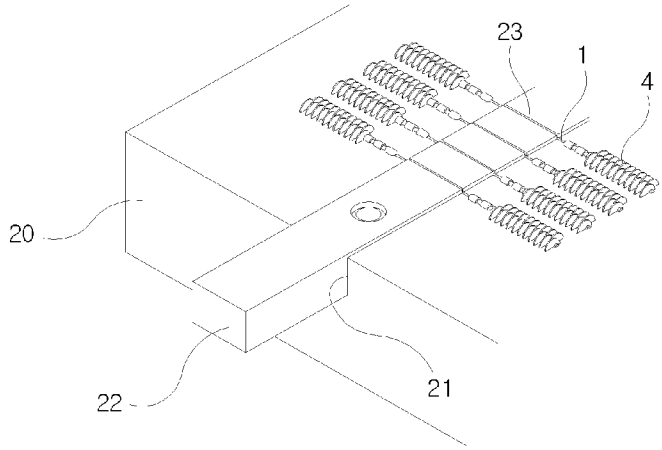
[Fig. 8]



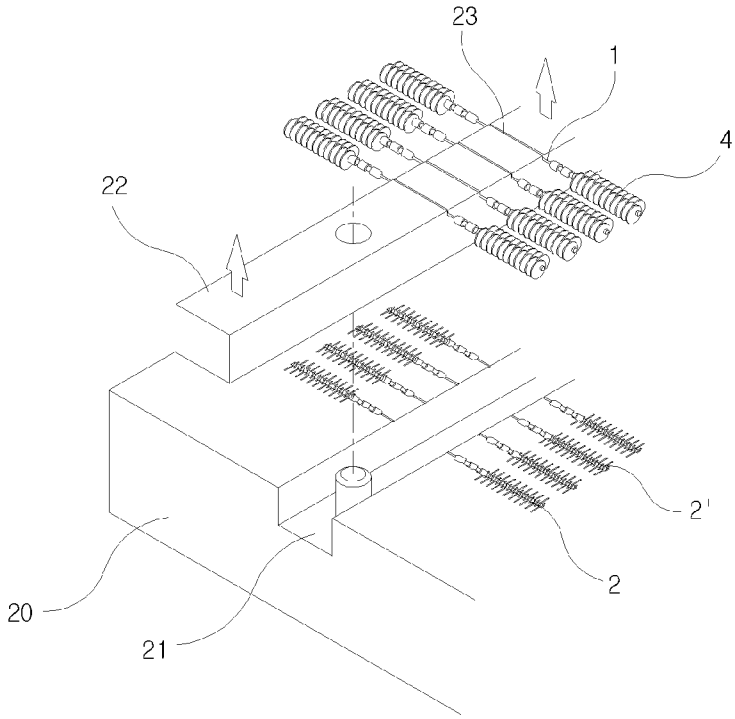
[Fig. 9]



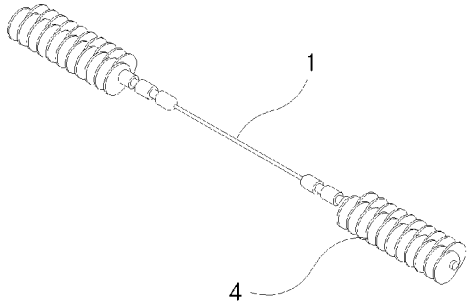
[Fig. 10]



[Fig. 11]



[Fig. 12]



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2007/002838

A. CLASSIFICATION OF SUBJECT MATTER

B29C 45/02(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)

IPC 8 : B29C

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

Korean Utility models and applications for Utility models since 1975
Japanese Utility models and applications for Utility models since 1975

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

eKIPASS(KIPO internal) , DELPHION, Espacenet, JPO, USPTO

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 75051 A1 (COLE, WILLIAM EDWARD) 30 MARCH 1983 See the abstract; drawings; claims; page 10, line 8 - page 13, line 8.	1-6
A	JP 2007-7188 A (YOSHINO KOGYOSHO CO., LTD.) 18 JANUARY 2007 See the abstract; drawings; claims; paragraphs <4> - <7>.	1-6
A	KR 20-0396785 Y1 (AMOREPACIFIC CORPORATION) 27 SEPTEMBER 2005 See the abstract; drawings; claims; page 3, line 45 - page 4, line 9.	1-6

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

☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
27 FEBRUARY 2008 (27.02.2008)	**27 FEBRUARY 2008 (27.02.2008)**

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2007/002838

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 75051 A1	30.03.1983	EP75051B1	26.11.1986
JP 2007-7188 A	18.01.2007	NONE	
KR 20-0396785 Y1	27.09.2005	WO2006132459A1	14.12.2006