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Remarks:
Amended claims in accordance with Rule 137(2) EPC.

(54) **Hair brush and the bristle structure thereof formed as a latch**

(57) A hair brush (30,31,32,40) and its pin (41) structure thereof, which provide a way of embedding and fixing brush pins onto a brush pin base of the hair comb by a simple insertion without the need of using any other fixing element or adhesive. The hair brush and its pin structure not just facilitate an automated mass production, substantially simplifying the assembling process of the brush

pins and a handle (30) of the hair brush, and improving efficiency only, but also add a heat resisting material into the brush pins for improving the heat resisting effect of the brush pins. In addition, the brush pin base of the hair brush can be made of a hard material, and it is no longer limited to be made of a flexible extensible and contractible material anymore.

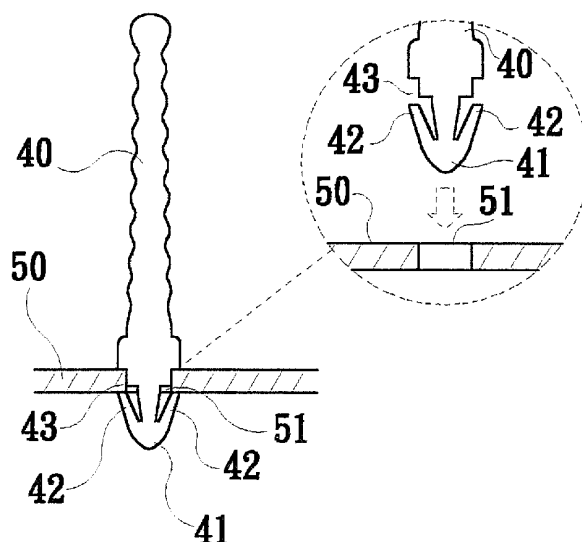


FIG. 5

Description

BACKGROUND OF THE INVENTION

1 Field of the Invention

[0001] The present invention relates to a hair brush and a brush pin structure of the hair brush, and more particularly to the hair brush with a novel brush pin structure capable of achieving the effects of improving the manufacturing and assembling processes of brush pins, providing a heat resisting function to the brush pins of the hair brush, and enhancing the utilization efficiency of the hair brush.

2 Description of the Prior Art

[0002] As known, prior art hair brushes having a basic structure including a handle and a plurality of brush pins, such that when the hair brush is used, a user simply needs to hold the handle of the hair brush by a hand and then the hair brush along the user's hair stream by the brush pins of the hair brush, such that the user's hair can be arranged tidily and free of hair knots. Furthermore, the hair brush of a professional hair stylist can be used for blowing, setting and straightening hairs.

[0003] With reference to FIGS. 1 to 3 for various methods of fixing brush pins of a conventional hair brush, a first conventional hair brush as shown in FIG 1 adopts a method of folding brush pins 11, and passing each brush pin 11 through a pin hole 21 formed on a brush pin base 20, and using the arc folded position of the brush pin 11 to maintain the brush pin 11 on the brush pin base 20, and then fixing the brush pins 11 by a glue. However, the drawback of this method resides on that the brush pins passed through the pin holes and coated with glue do not provide a mechanical function, and thus the conventional hair brush requires improvements.

[0004] In FIG 2, a second conventional hair brush includes a groove 121 formed at the bottom of the brush pin 12 and limited by a through hole 22 of the brush pin base 20, such that the brush pin 12 can be fixed onto the brush pin base 20. However, the drawback of the second conventional hair brush resides on that the brush pin base 20 must be made of a flexible extensible and contractible material such as rubber, or else the brush pin 12 cannot be passed through the hole 22 of the brush pin base 20 to achieve the pin embedment effect. Therefore, it is a main subject for related manufactures to provide an innovative brush pin structure that allows the brush pin 12 to be passed and inserted into the brush pin base 20 without the limitation of being made of a flexible extensible and contractible material.

[0005] With reference to FIG. 3 for a third conventional hair brush, a U-shaped bent portion is formed at the bottom of a brush pin 13, and a fixing element 14 is provided for nailing a bent portion at the bottom of the brush pin or bristle 13 into the brush pin base 20, such that the

brush pin 13 is fixed onto the brush pin base 20. However, the drawback of such conventional hair brush is the same as the conventional hair brush as shown in FIG 1. Although the third conventional hair brush provides a mechanical function, the manufacturing process is too complicated, and the fixing element 14 is required for fixing the brush pins 13, and thus incurring a higher cost. This is another issue for related manufacturers to overcome.

[0006] For pin fixing structure of the third and other conventional hair brush, it is a main subject for related manufacturers to provide an innovative brush pin structure for the hair brush, such that the assembling process of the brush pin and the handle can be simplified and automated to provide a reasonable and mechanical function of the hair brush.

[0007] For the conventional brush pin structure of hair brush, particularly the cylindrical hair brush, used by professional hair stylists, the brush pin is usually made of nylon or other plastic materials by extrusion method. Such conventional hair brush or brush pin has a poor heat resistance, and heat resisting materials cannot be added for the manufacture of such hair brush. When the hair is brushed while it is being blown dry by a high-temperature hair dryer, the brush pins on the hair brush can be deformed easily. Furthermore, the conventional brush pins are manufactured by the extrusion method, and thus heat resisting materials cannot be added to meet its use together with the high-temperature hair dryer.

OBJECTS OF THE INVENTION

[0008] It is a primary object of the present invention to provide a novel hair brush and its brush pin structure in order to overcome the shortcomings of the prior arts.

[0009] A secondary object of the present invention is to provide a hair brush with the novel brush pin structure.

[0010] Another object of the present invention is to provide a hair brush and a brush pin structure of the hair brush that can waive the process of fixing the brush pins by glues and simplify the manufacturing or assembling process of the brush pins, allow an automated manufacture, and provide a mechanical function. The invention can achieve the effects of simplifying the manufacturing process, improving efficiency, and complying with the environmental protection requirements.

[0011] A further object of the present invention is to provide a hair brush and a brush pin structure of the hair brush, wherein brush pins can be passed into a brush pin base of the hair brush, and the brush pin base is not limited to be made of a flexible extensible and contractible material. In other words, even if the brush pin base of the hair brush is made of a hard material such as a circular aluminum tube, the brush pins can be embedded into the brush pin base easily.

[0012] Another further object of the present invention is to provide a hair brush and a brush pin structure of the hair brush, wherein the brush pins manufactured by the conventional extrusion method (of which a heat resisting

material cannot be added) are no longer used, and the brush pins manufactured by an injection molding method (of which a heat resisting material can be added) is adopted instead, such that before the brush pins are formed by the injection molding process, a heat resisting and/or a heat refractory and/or other additives can be added, and the brush pins of the present invention can be provided for the hair brush to be used together with a high-temperature hair dryer.

SUMMARY OF THE INVENTION

[0013] To achieve the foregoing objects, the present invention provides a hair brush and its brush pin structure, wherein the brush pin structure of the hair brush is look like as a slightly wavy rod structure, and the brush pin includes an embedded pin substantially in an anchor shape and disposed at the bottom of the brush pin, and the embedded pin comes with a design of an elastic inverted hook, and two elastic plates are formed naturally at the position of the inverted hook of the embedded pin, and a latch portion formed naturally at an upper end of the embedded pin which is also an upper edge of the elastic plate, so that the brush pin can be latched and fixed onto the pin embedment hole through the latch portion.

[0014] In a preferred embodiment of the present invention, the brush pin includes an embedded pin at the bottom of the brush pin and passed through a pin embedment hole of a cylinder (such as an aluminum tube) of the hair brush, such that elastic plates of the embedded pin can be compressed towards the middle. After the embedded pin is passed through the pin embedment hole of the cylinder, the elastic plates can be released elastically to resume their original shape and position, and the latch portion is latched to the pin embedment hole of the cylinder and cannot be retracted, so that the brush pin passed through the pin embedment hole can be fixed onto the hair brush.

[0015] In another preferred embodiment of the present invention, the hair brush with the brush pin structure in accordance with the present invention comprises a handle, a cylinder and a plurality of brush pins.

[0016] Wherein, a brush pin base of the hair brush is formed at an end of the handle of the hair brush and provided for sheathing the aforementioned cylinder, and a plurality of insert spaces formed on the brush pin base are provided for passing the brush pins, and each insert space is a space for accommodating a protruding portion of the embedded pin at the bottom of the brush pin.

[0017] In practice, the handle of the hair brush handle includes an extended ditch having a width greater than the handle and disposed on the brush pin base, and a cylinder sheathed onto an external surface of the brush pin base, wherein the cylinder has a diameter corresponding to the pin embedment hole, such that the pin embedment hole of the cylinder and the insert space of the brush pin base can be engaged to define a space for

passing the brush pin.

[0018] When the brush pin and the handle of hair brush of the present invention are assembled, the embedded pin at the bottom of each brush pin can be aligned with the pin embedment hole of the cylinder and an opening of the insert space of the handle quickly, and the brush pin can be embedded in a direction towards the pin embedment hole of the cylinder. With the abutting effect of the elastic plate, the brush pins can be inserted into the cylinder easily and smoothly until the latch portion at the upper edge of the elastic plate is latched and fixed into the pin embedment hole, so that the embedded pin can reach an accommodating position of the insert space. Now, the elastic plates elastically restore their open shape, so as to fix the brush pin onto the brush pin base of the handle securely, and the brush pin cannot be retracted or pulled out easily by forces.

[0019] In the present invention, the brush pin structure of the hair brush no longer requires any additional fixing element or adhesive, and the brush pin can be simply inserted and embedded into the brush pin base of the hair brush easily, so as to simplify the embedment of the brush pins significantly.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020]

Figure 1 is a cross-sectional drawing of the brush pin fixing structure in a first prior art hair brush.

Figure 2 is a cross-sectional drawing of the brush pin fixing structure in a second prior art hair brush.

Figure 3 is a cross-sectional drawing of the brush pin fixing structure in a third prior art hair brush;

Figure 4 is a schematic drawing of the brush pin structure in the present invention.

Figure 5 is a cross-sectional drawing of the passing brush pins into a cylinder (or aluminum barrel) in the first embodiment of the present invention;

Figure 6 is an exploded drawing of the hair brush in the second embodiment of the present invention as shown in Figure 7.

Figure 7 is a perspective drawing of the hair brush in the second embodiment of the present invention.

Figure 8 is a schematic drawing of the third embodiment of the present invention which showing the relative positions of brush pins when a hair brush is formed by an injection molding process.

Figure 9 is a schematic drawing of the brush pin in the fourth embodiment of the present invention.

Figure 10 is a schematic drawing of the brush pin in the fifth embodiment of the present invention, and Figure 11 is a schematic drawing of the brush pin in the sixth embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] The technical characteristics of the present invention will become apparent with the detailed description of the preferred embodiments and the illustration of related drawings.

[0022] Referring to FIG 4, a brush pin 40 of the present invention is look like as a rod structure substantially in a wavy shape, and the brush pin 40 includes an embedded pin 41 substantially in an anchor shape and disposed at the bottom of the brush pin 40, and the embedded pin 41 comes with a design of an elastic inverted hook, and two elastic plates 42 are formed naturally at the position of the inverted hook of the embedded pin 41, and a latch portion 43 is formed naturally at an upper end of the embedded pin 41, which is also an upper edge of the elastic plate 42, such that the brush pin 40 can be latched onto the pin embedment hole 51 directly by a latch portion 43.

[0023] In a preferred embodiment of the present invention as shown in FIG. 5, the embedded pin 41 at the bottom of the brush pin 40 is passed through a pin embedment hole 51 formed on a cylinder 50 (such as an aluminum tube) of the hair brush, such that the elastic plates 42 can be compressed towards the middle. After the elastic plates 42 are passed through the pin embedment hole 51 of the cylinder 50, the elastic plates 42 will be released elastically to resume their original position and shape, so that the latch portion 43 is latched into the pin embedment hole 51 of the cylinder 50 and cannot be retracted, so as to easily pass and securely fix the brush pin 40 into the cylinder 50 of the hair brush.

[0024] In another preferred embodiment of the present invention, the hair brush with the brush pin structure of the present invention comprises a handle 30, a cylinder 50 and a plurality of brush pins 40 as shown in FIG 6 and FIG 7.

[0025] Wherein, a brush pin base 31 is extended from an end of the handle 30 of the hair brush and provided for sheathing the cylinder 50, and the brush pin base 31 includes a plurality of insert spaces 32 formed thereon for passing the brush pins 40, and each insert space 32 is provided for accommodating a protruding portion of the embedded pin 41 at the bottom of the brush pin 40.

[0026] In the embodiment, the handle 30 of the hair brush includes an extended ditch having a greater width than the handle 30 and disposed on the brush pin base 31, and a cylinder 50 is sheathed onto an external surface of the brush pin base 31, and the cylinder 50 has a pin embedment hole 51 with a corresponding hole diameter, and the pin embedment hole 51 of the cylinder 50 and the insert space 32 of the brush pin base 31 are engaged to define a space for passing the brush pin 40.

[0027] When the brush pin 40 and the handle 30 of the hair brush of the present invention are assembled, the embedded pin 41 of each brush pin 40 can be aligned with the pin embedment hole 51 at the bottom of the cylinder 50 with an opening of the insert space 32 of the

handle 30 quickly, and the brush pin 40 is embedded into the pin embedment hole 51 of the cylinder 50. With the abutting effect of the elastic plates 42, the brush pin 40 can be inserted successfully and easily until the latch portion 43 at the upper edge of the elastic plate 42 is latched and fixed into the pin embedment hole 51, such that the embedded pin 41 can reach the accommodating position of the insert space 32. Now, the elastic plates 42 elastically restore their original open form to fix the brush pin 40 onto the brush pin base 31 of the handle 30 securely, and the brush pins can not be retracted or pulled out easily by forces.

[0028] In the hair brush and the brush pin structure of the present invention, the brush pins can be embedded and fixed into the brush pin base of the handle of the hair brush handle by a simple insertion without requiring any fixing element or adhesive, and thus the invention can simplify the assembling process of the brush pin and the handle significantly, or the brush pins 40 can be arranged and formed with an interval apart from each other during the injection molding process, so that a related clamping tool can be used for manufacturing and assembling a whole row of brush pins 40 by an automated mechanical process. Obviously, the invention can achieve the effects of simplifying the manufacturing process, improving the efficiency, and complying with the environmental protection requirements.

[0029] Particularly, with the brush pin structure of the hair brush of the present invention, the brush pin base of the hair brush can be made of a hard material such as metal, plastic or wood, and it is no longer limited to be made of a flexible extensible and contractible material anymore.

[0030] Furthermore, in the brush pin structure of hair brush of the present invention, the manufacture of the brush pins 40 no longer adopts the conventional extrusion method of which heat resisting materials cannot be added, and uses the injection molding method for the manufacture of the brush pins 40 of the novel brush pin structure of the present invention instead, so that the present invention not just provides a way of changing the shape of the brush pins 40 easily, but also allows manufactures to add a heat resisting material into the brush pin material before the brush pins 40 are formed during the injection molding process. Therefore, the hair brush of the present invention can improve the heat resisting effect and provide a hair brush to be used together with a high-temperature hair dryer.

[0031] In addition, the brush pin structure of the brush pin 40 of hair brush of the present invention can be in a shape as shown in FIG 4, or in other various different shapes as shown in FIG. 9 to FIG. 11 respectively for improving the brushing effect of the hair brush and the comfort of using the hair brush.

[0032] In summation of the above description, the present invention herein enhances the performance than the conventional structure and further complies with the present patent application requirements and is duly sub-

mitted for patent application. While the present invention is described in some detail herein below with reference to certain illustrated embodiments, it is to be understood that there is no intent to limit it to those embodiments. On the contrary, the aim is to cover all modifications, alternatives and equivalents falling within the spirit and scope of the present invention as defined by the appended claims.

Claims

1. A hair brush and its pin structure thereof, wherein the brush pin body of the hair brush is look like as a rod structure, and the brush pin includes an embedded pin substantially in an anchor shape and disposed at the bottom of the brush pin, and the embedded pin has design with an elastic inverted hook, and two elastic plates are formed naturally at a position of the inverted hook of the embedded pin, and a latch portion formed naturally at an upper end of the embedded pin which is an upper edge of the elastic plate, thereby the latch portion can be fixed directly into the pin embedment hole.

2. A hair brush and its pin structure thereof, wherein the hair brush formed by the brush pin structure comprising:

a handle, having a brush pin base disposed at an end of the handle for installing a brush pin, and an insert space formed at the brush pin base for passing and installing the brush pin, a plurality of brush pins, each having an embedded pin substantially in an anchor shape and being disposed at the bottom of each brush pin, and the embedded pin having a design with an elastic inverted hook, and two elastic plates being formed naturally at a position of the inverted hook of the embedded pin, and a latch portion being formed naturally at an upper end of the embedded pin which is an upper edge of the elastic plate, thereby the latch portion can be fixed directly into the pin embedment hole, thereby, each brush pin is inserted till the elastic plate reaches the position of the insert space and fixed onto the brush pin base of the handle.

3. The hair brush and its pin structure thereof recited in claim 2, wherein the handle of the hair brush formed with the brush pin structure includes an extended ditch with a width greater than the width of the handle and formed on the brush pin base, and a cylinder sheathed onto an external surface of the brush pin base, and the cylinder includes a pin embedment hole having a hole diameter corresponding to the cylinder, and the pin embedment hole and the

extended ditch are engaged to define an insert space for fixing the brush pins.

4. The hair brush and its pin structure thereof recited in claim 1, wherein the brush pin of the hair brush is look like as a rod structure in various different shapes.

Amended claims in accordance with Rule 137(2) EPC.

1. A hair brush and its pin structure thereof, wherein the brush pin body of the hair brush looks like a rod structure, wherein each brush pin includes an embedded pin substantially in an anchor shape and disposed at the bottom of the brush pin, the brush pin being integral with the embedded pin and wherein the embedded pin includes an elastic inverted hook, two elastic plates are formed integral with the pin at a position of the inverted hook of the embedded pin, and a latch portion being formed at an upper end of the embedded pin which is an upper edge of the elastic plate, thereby the latch portion can be fixed directly into a pin embedment hole.

2. The hair brush and its pin structure thereof of claim 1, wherein the hair brush comprising:

a handle, having a brush pin base disposed at an end of the handle for installing a plurality of brush pins, and embedment holes formed at the brush pin base for passing and installing the brush pin, wherein each brush pin is inserted into a embedment hole till the elastic plate reaches the position of the insert space and fixed onto the brush pin base.

3. The hair brush and its pin structure thereof of claim 2, wherein the handle of the hair brush formed with the brush pin structure includes extended ditches with a width greater than the width of the handle and formed on the brush pin base, and a cylinder sheathed onto an external surface of the brush pin base, the cylinder including pin embedment holes having a hole diameter corresponding to the cylinder, and the pin embedment holes and the extended ditches are engaged to define insert spaces for fixing the brush pins after their insertion into the pin embedment holes.

4. The hair brush and its pin structure thereof of claim 1, wherein the brush pin of the hair brush is look like as a rod structure in various different shapes.

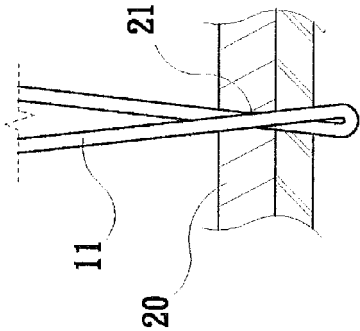


FIG. 1 PRIOR ART

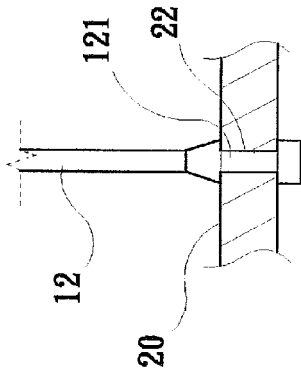


FIG. 2 PRIOR ART

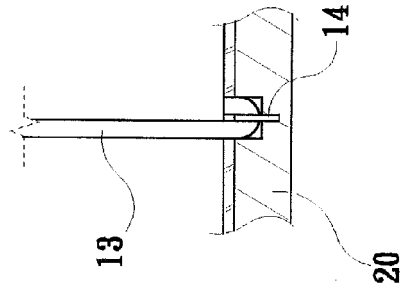


FIG. 3 PRIOR ART

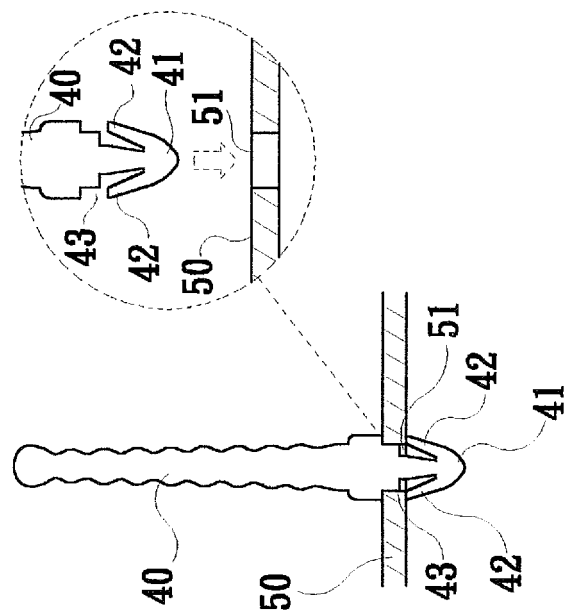


FIG. 5

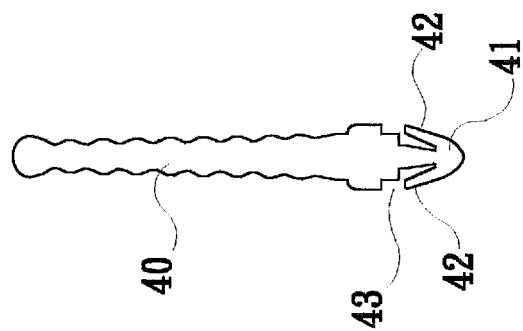


FIG. 4

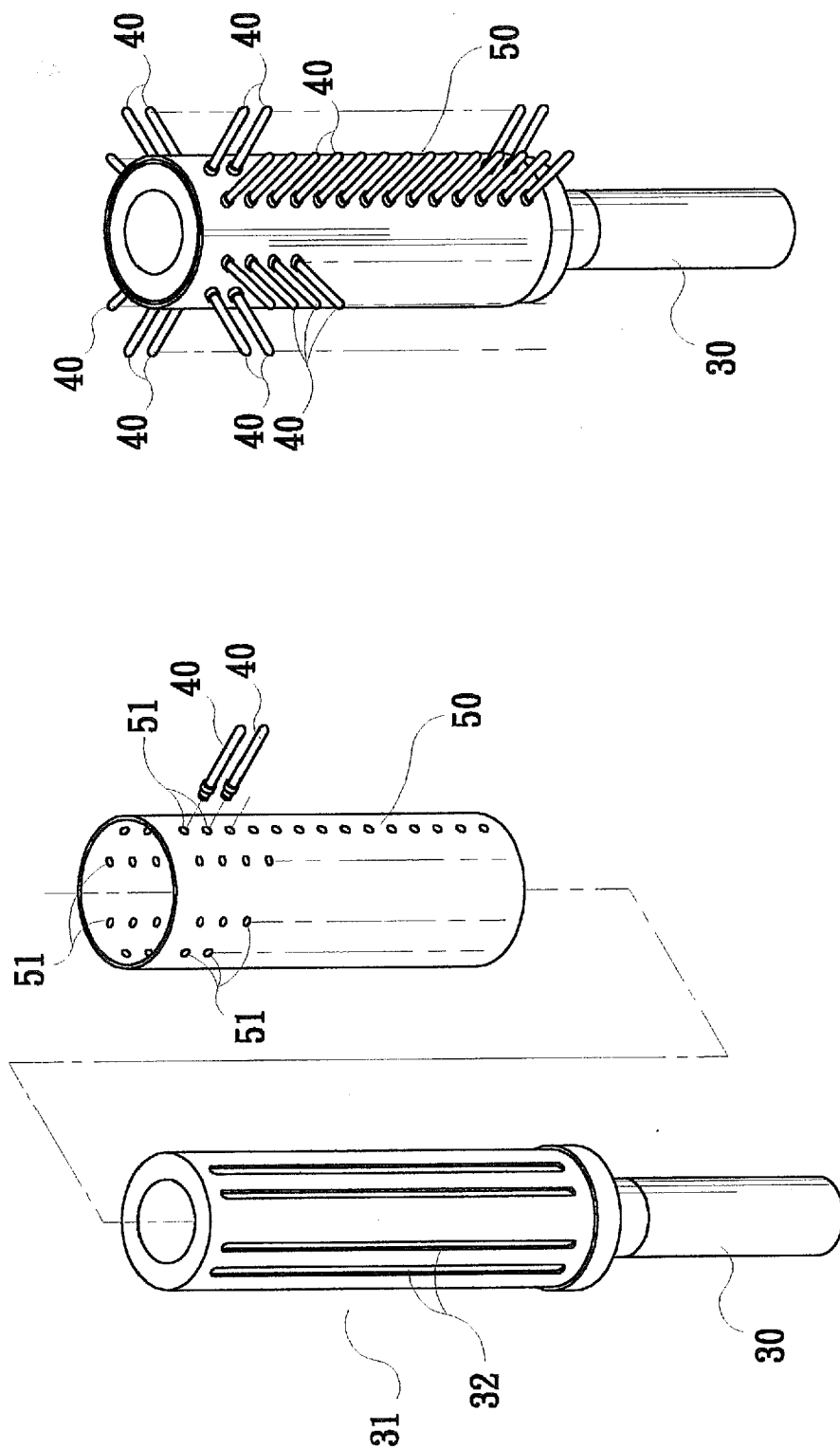


FIG. 7

FIG. 6

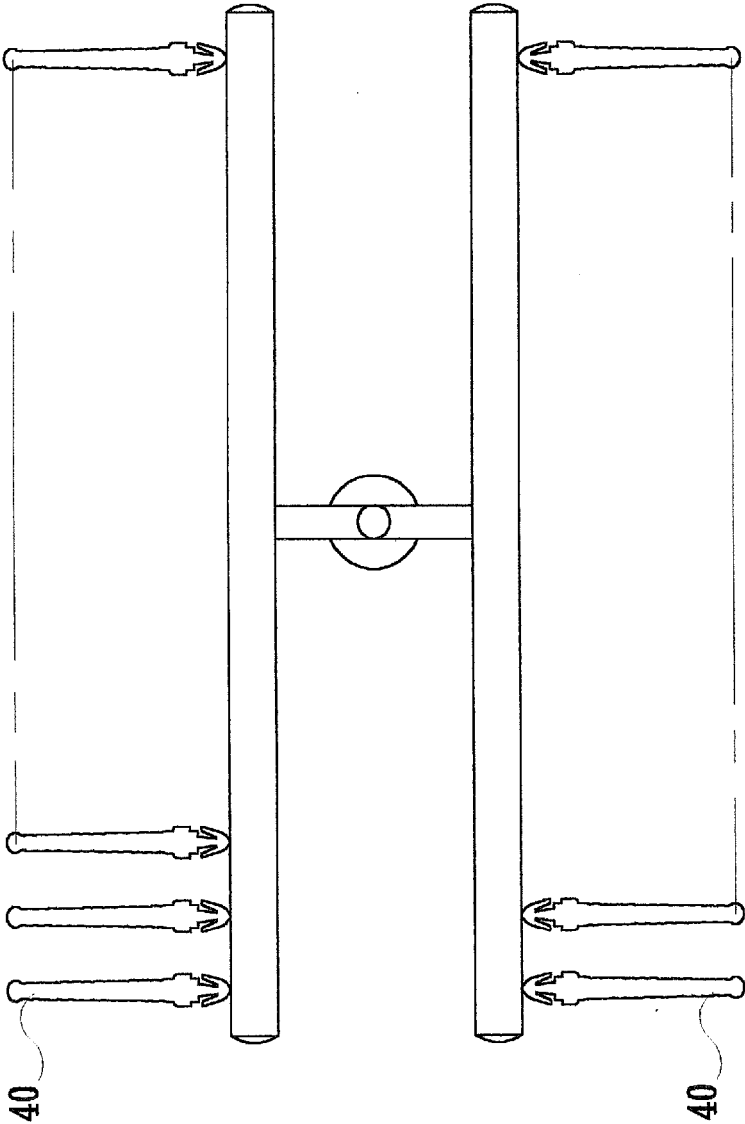


FIG. 8

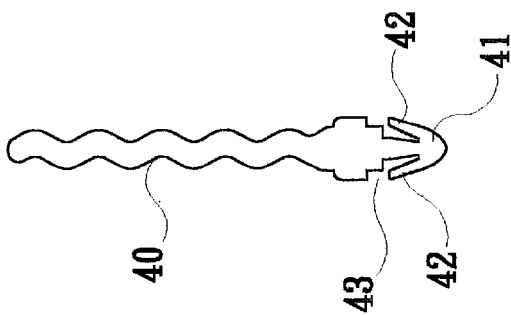


FIG. 11

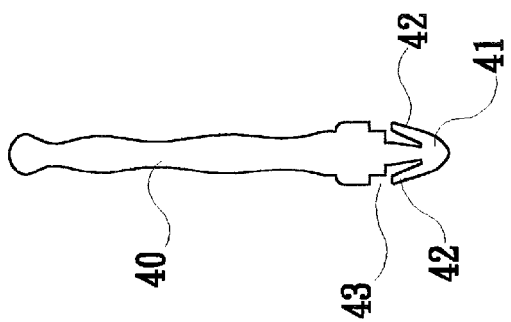


FIG. 10

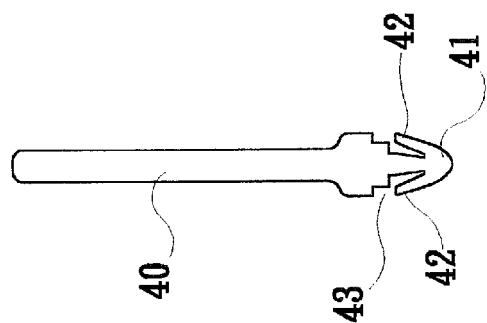


FIG. 9



EUROPEAN SEARCH REPORT

Application Number
EP 10 15 6771

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 35 18 120 A1 (SCHLERF CORONET WERKE [DE] CORONET WERKE GMBH [DE]) 27 November 1986 (1986-11-27)	1,2	INV. A46D1/00
A	* column 7, line 44 - column 7, line 60; figure 4 *	3,4	

A	DE 10 2007 063154 A1 (BRAUN GMBH [DE]) 9 July 2009 (2009-07-09)	1-4	
	* figures 3,4 * * paragraph [0038] - paragraph [0039]; figures 3,4 *		

A	US 2 621 369 A (HARRY GANTZ ET AL) 16 December 1952 (1952-12-16)	1-4	
	* figures 2,4 * * column 3, line 45 - column 3, line 54; figures 2,4 *		

A	DE 43 19 257 A1 (HUANG JASON [TW]) 15 December 1994 (1994-12-15)	1-4	
	* column 5, line 7 - column 5, line 22; figures 7,8 *		

			TECHNICAL FIELDS SEARCHED (IPC)
			A46D
The present search report has been drawn up for all claims			
1	Place of search Munich	Date of completion of the search 26 August 2010	Examiner Murer, Michael
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

EPO FORM 1503 03-02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 15 6771

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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26-08-2010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 3518120 A1	27-11-1986	NONE	
DE 102007063154 A1	09-07-2009	WO 2009083077 A2	09-07-2009
US 2621369 A	16-12-1952	NONE	
DE 4319257 A1	15-12-1994	CN 1092716 A	28-09-1994
		US 5352025 A	04-10-1994