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(54) **WEFT HAIR EXTENSION**

(57) A weft hair extension (10), of the type used in particular for thickening hair, substantially shaped like a foil, particularly comfortable to be worn and easy to be assembled comprises: a flat foil (1) of hair aligned therebetween; a first linear connecting element (3) formed by a strip made of thermoplastic material wherein a proximal end (2) of hair of said flat foil is embedded; a second linear connecting element (5) formed by an additional

strip made of thermoplastic material arranged parallelly to said first linear connecting element (3) at a distance therefrom; and transversal connecting means constituted by one or more tab-like flexible elements (6) embeddable in said strips made of thermoplastic material and arranged transversally thereto so as to connect them once embedded therein.

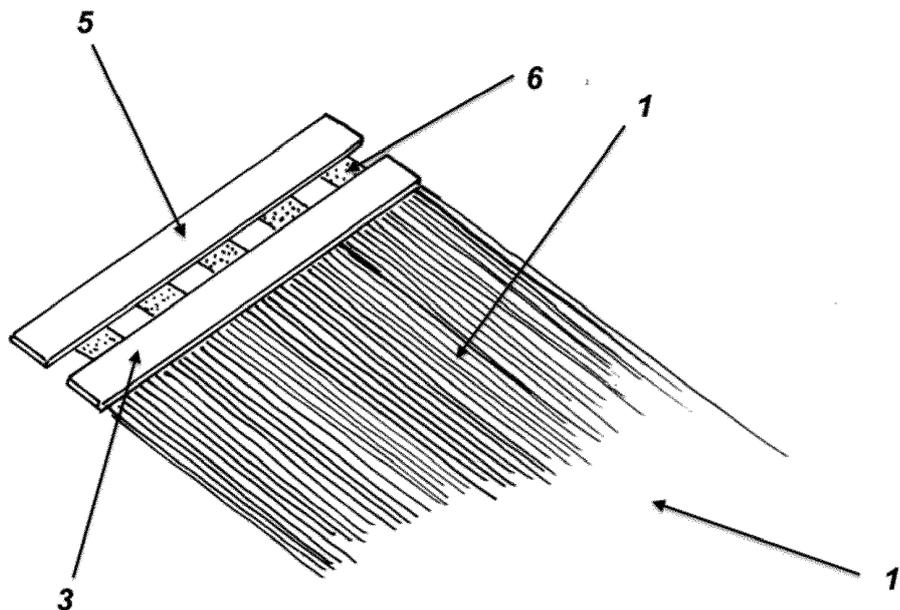


FIG.7

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Description

BACKGROUND OF THE INVENTION

1. Field of the invention

[0001] The present invention has as subject a *hair extension*, of the type used in particular for thickening hair, substantially shaped like a foil or weft, known under the term of *weft extension* or *weft hair extension*.

[0002] For thickening hair, herein and hereinafter the lengthening and/or increasing in volume of human hair is meant, by applying hair extension to receiving hair.

[0003] Under hair extension a lock of hair constituted by a plurality of human or artificial hair is meant, apt to be handled as single lengthening unit and to be applied on receiving hair thanks to a connecting element.

[0004] By referring instead to the weft hair extension, it has a linear connecting element therefrom natural or artificial hair branches perpendicularly, arranged in a planar configuration with a uniform distribution.

2. Description of prior art

[0005] Various systems to perform a thickening of hair and even a lengthening of the same are known. These systems generally adopt extensions with hair, of natural or artificial origin, which are fixed to hair according to modes determining, based upon the provided application modes, the acceptance and appreciation by the user requesting the treatment.

[0006] Another aspect contributing to increase the appreciation of this type of treatments is the speed in performing it.

[0007] The known systems then provide a step wherein the hair extensions are connected to the user's hair. In this step, the hair extensions can be substantially sewn, tied up or knotted to the user's hair.

[0008] Means for implementing the connection between hair extensions and hair is also known, providing the use of outer elements such as clips, combs, tweezers and the like. With these elements, hair extensions with great sizes can be associated to the user's receiving hair.

[0009] US patent No. 3,280,826 (Jenkins) describes a multi-layered weft hair extension, obtained by folding on itself a long weft of hair connected to a thread-like element; this extension is then fastened to hair by means of clips. Other extensions applicable by means of fastening mechanical means or stitcher are known from US patents No. 4,830,029 (Bird); No. 5,121,761 (Meister) and No. 5,881,737 (Nelson).

[0010] US patent No. 6,135,122 (Campbell et al.) describes a weft hair extension with a single layer, wherein the hair are kept in their position by a closely woven band provided with an adhesive layer; other extensions of this type are known from US patent applications No. 2001/0035192 (Townsend); No. 2006/0169296 (Gill et al.); No. 2009/0032041 (Ott); No. 2009/0120451 (Ken-

na); and No. 2013/0298925 (Gold); and from International patent application No. WO 2011/036654 (Gold).

[0011] European patent application No. EP 2,614,736 (Lee) describes a weft hair extension wherein hair is kept at one end thereof by a strip of plastic material (polyurethane), provided with holes for the passage of receiving hair which is used then for locking the extension thanks to the use of small fastening rings which are squeezed by means of suitable tweezers.

[0012] French patent No. FR 2,968,520 (L'Oréal) describes a weft hair extension with a first linear connecting element of thermoplastic type, used for connecting hair at one end thereof, and a second linear connecting element formed by an additional strip made of thermoplastic material, arranged parallelly to the first connecting element, but the application of this extension determines a thickening of the connecting area which can be noticed both by the carrying user and by third parties.

[0013] At last, US patent N. 8,025,065 (Gulliker) describes a weft hair extension with a double layer: such layers fold on themselves once performed the application to host hair with knot connections, thus determining a thickening of the connection.

[0014] The forced use of hands of the known systems involves a series of problems. First of all the operator, in order to be able to perform connections perfectly, should have great experience and practice, which obviously will not be always possible. Furthermore, apart experience, it will be extremely difficult to produce connections equal therebetween: they will be mostly different, not positioned exactly on the lines provided for the thickening, with variable qualities and sizes.

[0015] All this determines a not optimum quality of the finished work, more exposed to wear and with in reality unavoidable imperfections, a high cost as influenced by very long application time and by the not easy availability of expert operators.

[0016] However, one of the more relevant problems in the application of this type of weft-like thickening is represented by the thickness of the hair connecting element, and this problem is particularly felt in case of multi-layered systems.

SUMMARY OF THE INVENTION

[0017] The technical problem underlying the present invention is to provide a weft hair extension to thicken hair and a relative manufacturing method allowing to obviate the drawbacks mentioned with reference to the known art.

[0018] Such problem is solved by a weft hair extension as specified above, comprising:

- a flat foil of hair aligned therebetween;
- a first linear connecting element formed by a strip made of thermoplastic material wherein a proximal end of hair of said flat foil is embedded;

- a second linear connecting element formed by an additional strip made of thermoplastic material arranged parallelly to said linear connecting element at a distance therefrom; and
- transversal connecting means constituted by one or more tab-like flexible elements embeddable in said strips made of thermoplastic material and arranged transversally thereto so as to connect them once embedded therein.

[0019] The main advantage of the hair extension according to the present invention lies in the fact of allowing a quick application by using said tab-like elements as devices for anchoring the hair extension to host hair, without increasing the extension thickness.

[0020] Furthermore, a permanent application is possible by using the thermoplastic features of the second linear connecting element.

[0021] The method for manufacturing the weft hair extension according to the present invention comprises the steps of:

- arranging on a plane a flat foil of hair aligned therebetween;
- embedding an end of said flat foil in a first strip of thermoplastic material substantially perpendicular to said hair;
- arranging at a certain distance from said first strip a second strip made of thermoplastic material, substantially parallel thereto; and
- embedding, in said first and second strip, tab-like flexible elements by arranging them transversally to said strips to constitute a flexible connection.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] The present invention will be described hereinafter according to a preferred embodiment, provided by way of example and not for limitative purpose with reference to the enclosed drawings wherein:

- Figures 1 to 3 show respective perspective views illustrating the first three steps of a method for manufacturing weft hair extensions;
- Figure 4 show a magnification of the half-finished extension of figure 3;
- Figures 5 and 6 show respective perspective views illustrating two additional steps of a method for manufacturing weft hair extensions; and
- Figure 7 shows an overall perspective view of the so-produced resulting hair extension.

DETAILED DESCRIPTION OF A PREFERRED EXAMPLE OF THE INVENTION

[0023] By referring to figures, figure 1 illustrates a first step of the method for manufacturing, according to the present invention, a weft hair extension wherein a flat foil 1 of straight hair is arranged on a plane, for example made of steel.

[0024] The hairs are arranged in an orderly manner, parallel therebetween, with the respective proximal ends thereof, that is those cut near the scalp, arranged to form an almost straight line. The hairs are selected to that they substantially have the same length, and in case the respective distal ends will be evened with a rectilinear cut.

[0025] Hair can be of any type, preferably it is natural. I form a foil with almost uniform thickness, in the order of tenths of millimetre.

[0026] In a second step (figure 2), on the line corresponding to the proximal ends of hair of the foil 1, line which identifies the proximal end 2 of the extension, a first strip 3 made of thermoplastic material is placed, so as to soften temporarily by means of applying a predetermined temperature, for example 200°, or in case of ultrasounds. This softening allows to penetrate the hair strip, by applying a certain pressure.

[0027] The strip 3 is made of a resin or thermoplastic rubber, possibly a refoldable material, soft to the touch.

[0028] As it is noted, the strip 3 is arranged perpendicularly to the single hair of the foil 1.

[0029] Therefore, the strip 3 is pressed by a heated press 4 which softens the strip 3 by causing the penetration of the hair distal ends of the foil 1 in the thickness of the strip, penetration which takes place at a first face of said strip.

[0030] Once hair is embedded in the thickness of the first strip, this becomes a first linear connecting element 3 of the hair extension.

[0031] It is to be noted that the thickness of the thermoplastic strip could be about 1 mm or even smaller.

[0032] In order to obtain a weft hair extension with a perfectly rectilinear proximal end 2 and a first linear connecting element 3 with predetermined height, for example comprised between 3 and 7 mm, in a subsequent step (figure 3) one provides to trim the exposed margin of the connecting element 3 by means of a suitable knife 7.

[0033] In case, even the side ends of the connecting element 3 can be trimmed, so that the hair of the foil 1 end exactly at such end (figure 4).

[0034] In a subsequent step (figure 5), a second strip 5 made of thermoplastic material, in case equal to the previous one, is arranged at a certain distance from said first strip 3, substantially parallel thereto.

[0035] The distance is so as to allow the passage between the strips 3, 5 of connecting means of the extension, for example thin locks of host hair which could be used to apply said extension, for example comprised between 2 and 5 mm.

[0036] Subsequently, tab-like flexible elements 6 are provided, in the form of small strips with length so that they can extend transversally, and then preferably perpendicularly, to the thermoplastic strips 3, 5, by covering at least partially the height thereof of both of them.

[0037] The tab-like elements 6 are then so arranged like a bridge between said thermoplastic strips 3, 5, arranged each one at the same distance from the adjacent tab-like elements.

[0038] The tab-like elements 6 are made of porous material and with reduced thickness, so that they, or portions thereof, can be embedded, i.e. embeddable, with pressure within the strips made of thermoplastic material 3, 5.

[0039] By way of example, the material thereof they can be formed could be gauze or organza, in particular then a tissue formed by a plain weave, for example cotton or other natural textile fibre, nylon, polyester and so on. It is to be meant that the selected material should be flexible.

[0040] Once provided the tab-like elements 6, the are arranged as described previously. It is to be noted that, in this step, the foil 1 and the respective linear connecting element 3 have been turned, so as to expose the face of strip 3 opposite to that therethrough the hair of the foil 1 have been previously penetrated.

[0041] In this step, the tab-like elements are penetrated in the respective thicknesses of the two strips 3, 5 made of thermoplastic material by means of hot pressing, for example by means of the previously mentioned press 4, in similar way to what described previously for the distal end 2 of the foil 1.

[0042] Once the strips 3, 5 have cooled down (figure 6), the tab-like elements 6 will constitute flexible connecting means between the strips 3, 5, and the second strip will constitute a second linear connecting element 5.

[0043] The manufacturing of the weft hair extension, designated with 10 in figure 7, will be thus ended.

[0044] Such weft hair extension 10 then will include a flat foil 1 of hair aligned therebetween, kept together by a first linear connecting element 3 which is formed by a strip made of thermoplastic material wherein the proximal end 2 of hair of said flat foil 1 is embedded. It further comprises a second linear connecting element 5 formed by an additional strip made of thermoplastic material arranged parallelly to said first linear connecting element 3 at a distance therefrom.

[0045] The two connecting elements 3, 5 are hinged therebetween thanks to transversal connecting means which is constituted by one or more tab-like flexible elements 6, preferably at least two.

[0046] They have the peculiarity of being embeddable in said strips made of thermoplastic material and they are arranged transversally thereto so as to connect them once embedded therein.

[0047] Under "embeddable" it is meant that they are made of any shape and flexible material apt to be penetrated under pressure in a strip made of softened thermoplastic material.

[0048] It is to be meant that they could assume a different shape from the tissue strips described previously: they could have a shape like a double T, so as to implement a greater grasp with the strips. It is further meant that the open-worked tissue is only one of the possible variants applicable to such hinge elements.

[0049] The two strips of suitable material have the capability of keeping a fixed position once arranged between two locks of host hair covering them completely, by implementing a stable and poorly perceivable to the touch or by shaking her head, this because they adhere to the host locks by adapting to the shape and motions thereof.

[0050] The space between the linear connecting elements 3, 5 and between the tab-like elements 6 can be conveniently exploited for implementing the application of the extension to the receiving hair.

[0051] To the above-described weft hair extension a person skilled in the art, with the purpose of satisfying additional and contingent needs, could introduce several additional modifications and variants, all however comprised within the protective scope of the present invention, as defined by the enclosed claims.

Claims

1. A weft hair extension (10), of the type used in particular for thickening hair, substantially shaped like a foil, comprising:
 - a flat foil (1) of hair aligned therebetween;
 - a first linear connecting element (3) formed by a strip made of thermoplastic material wherein a proximal end (2) of hair of said flat foil is embedded;
 - a second linear connecting element (5) formed by an additional strip made of thermoplastic material arranged parallelly to said first linear connecting element (3) at a distance therefrom; and
 - transversal connecting means constituted by one or more flexible tab-like elements (6) embeddable in said strips made of thermoplastic material and arranged transversally thereto so as to connect them once embedded therein.
2. The weft hair extension (10) according to claim 1, wherein said strips are made of a resin or thermoplastic rubber, in case a refoldable material, soft to the touch.
3. The weft hair extension (10) according to claim 1, wherein the tab-like flexible elements (6) include strips with length so that they can extend transversally to the strips made of thermoplastic material, by covering at least the respective heights thereof.
4. The weft hair extension (10) according to claim 3,

wherein the tab-like flexible elements (6) are arranged like a bridge between said strips made of thermoplastic material, arranged each one at the same distance from the adjacent tab-like flexible elements (6).

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5. The hair extension (10) according to anyone of the previous claims, wherein the tab-like flexible elements (6) are made of porous material.

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6. The weft hair extension (10) according to claim 5, wherein the tab-like flexible elements (6) are made of a tissue formed by a weave such as gauze or organza.

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7. A method for manufacturing a weft hair extension of flat type, of the type used in particular for thickening hair, substantially shaped like a foil, comprising the steps of:

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- arranging on a plane a flat foil (1) of hair aligned therebetween;
- embedding an end of said flat foil (1) in a first strip (3) of thermoplastic material substantially perpendicular to said hair;
- arranging at a certain distance from said first strip (3) a second strip (5) made of thermoplastic material, substantially parallel thereto; and
- embedding, in said first and second strip (3, 5), tab-like flexible elements (6) by arranging them transversally to said strips (3, 5) to constitute a flexible connection.

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8. The method according to claim 7, wherein said strips (3, 5) are made of resin or thermoplastic rubber, in case a refoldable material, soft to the touch.

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9. The method according to claim 7, wherein the tab-like flexible elements (6) are made of porous material, in particular a tissue formed by a weave such as gauze or organza.

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10. The method according to claim 7, wherein the hair of said foil (1) and the tab-like flexible elements (6) are penetrated on opposite faces of said first strip (3) made of thermoplastic material.

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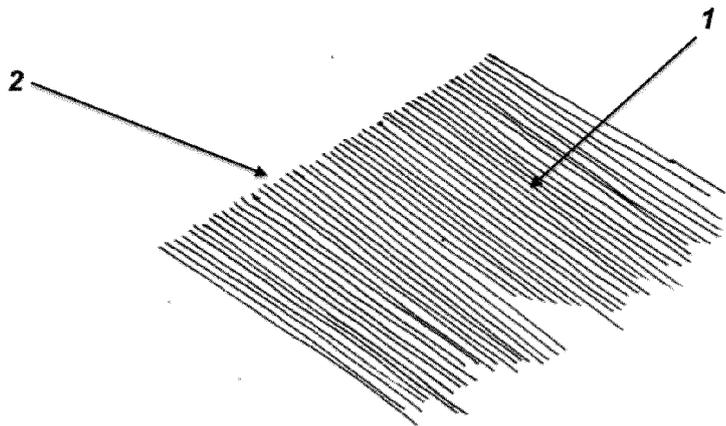


FIG. 1

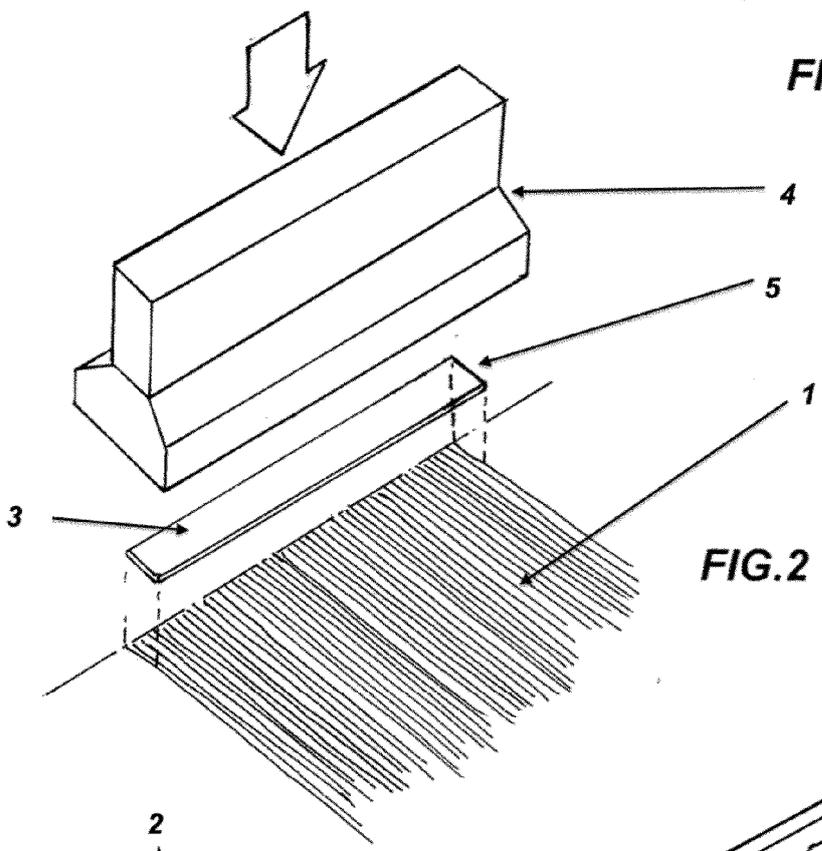


FIG. 2

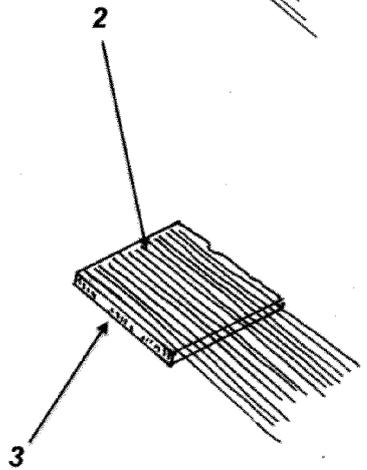


FIG. 4

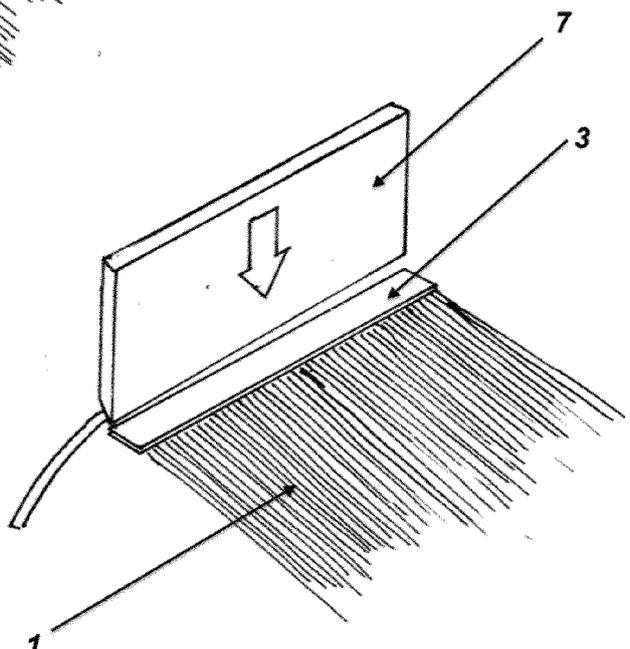
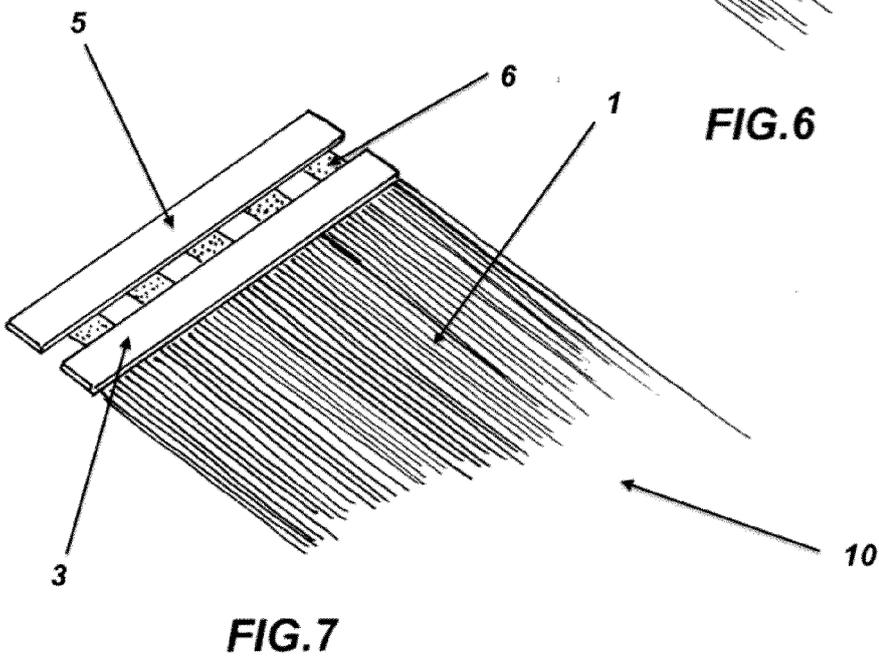
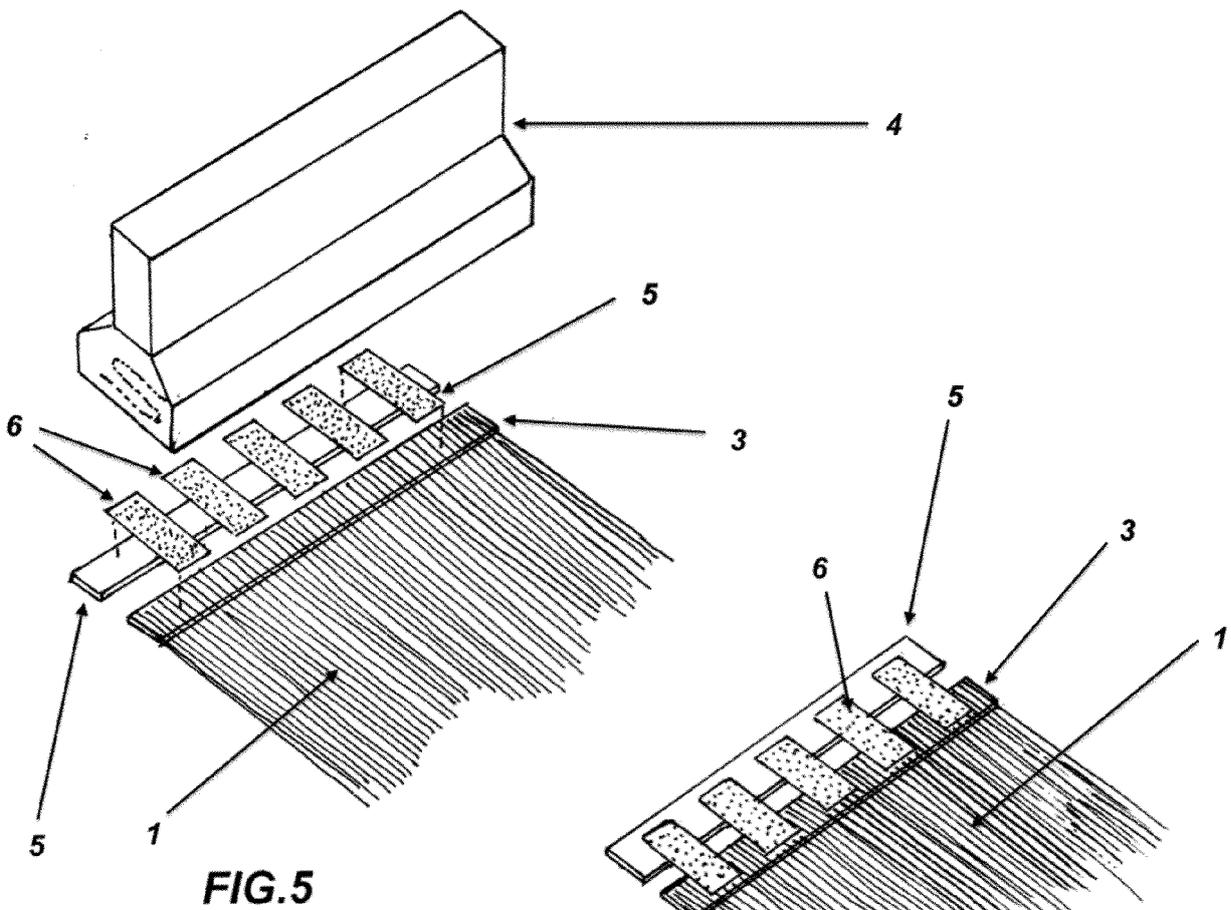


FIG. 3





EUROPEAN SEARCH REPORT

Application Number
EP 16 17 0180

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			A41G
Place of search		Date of completion of the search	Examiner
The Hague		13 October 2016	Monné, Eric
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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		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	

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EP 16 17 0180

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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