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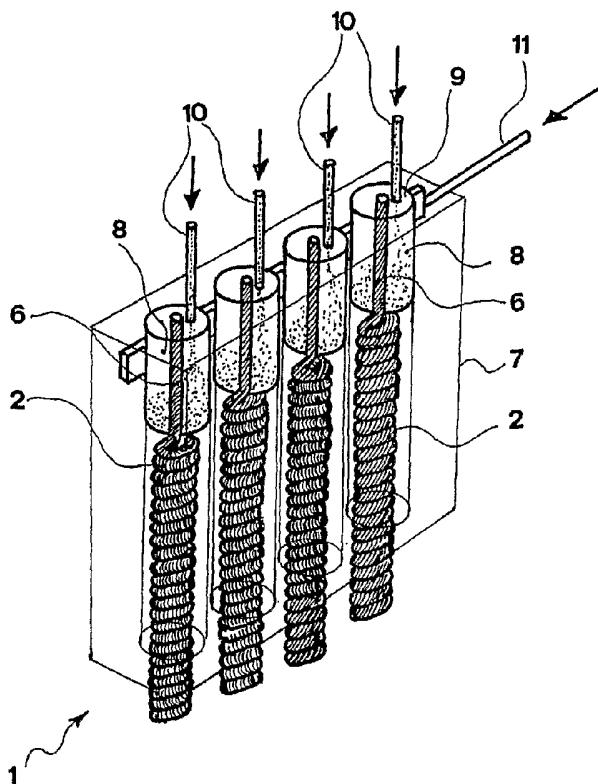
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(54) Title: METHOD FOR THE ASSEMBLY OF A PLURALITY OF HAIR EXTENSIONS AND RELATED HAIR EXTENSION ASSEMBLY



(57) Abstract: An assembling method includes the steps of providing a plurality (1) of hair extensions (2) substantially parallel to each other on a plane, with a section (6), at the respective proximal ends (5) thereof, placed according to a substantially straight configuration for receiving a corresponding connection element (4); placing the sections (6) of said hair extensions (2) in a mould (7) for injection moulding, comprising a chamber (8) at said sections (6) apt to shape a respective connecting element (4), and a continuous duct (9) linking said chambers (8); and injecting a thermoplastic material into said mould (8) at each chamber (7) and according to a direction substantially parallel to said sections (6) for preventing the intertwining of the extensions of the assembly according to the invention.

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METHOD FOR THE ASSEMBLYING OF A PLURALITY OF HAIR
EXTENSIONS AND RELATED HAIR EXTENSION ASSEMBLY

§§§§§§

DESCRIPTION

The present invention relates to the field of the hair extensions, and in particular it is referred to a method for the assembling of a plurality of hair extensions, and to a related assembly obtained through such a method.

The hair extensions represents an effective instrument for increasing the volume and/or the length of hairs. Generally, they consist of a plurality of hairs, gathered together in a lock and apt to be applied for receiving hairs of a user by means of a connection system. The latter may comprise, for instance, a connection element, provided at one end of said lock, being activated for securing the lock to the receiving hairs.

A peculiar embodiment of connection element is represented by an element made of a thermoplastic material, that is heated in the instant of the application, or anyway liquefied e.g. by ultrasounds, so as to be adhered to the receiving head hair. The fast cooling down of the thermoplastic material causes the securing of the extension.

Thermoplastic materials suitable to this purpose are polymeric resins melting at low temperatures, e.g. 120°C. Useful materials are polyamide-, polyester- or even polyurethane-based, e.g. nylon. The shape of the element is selected for minimizing the volume of the obtained connection, the commonly used shapes comprise a wallet or booklet shape, a rectangular plate with a limited thickness, a curved plate, a small barrel and so on.

Embodiments of such shapes are disclosed in US-6,820,625-B1; EP-1,433,395-A2; WO-04/023910-A1; US-5,107,867-A; DE 196 26 107 C.

The extensions may be packed in a single piece or in a certain number of them. However, this last embodiment of assembly, useful by virtue of a lot of practical reasons,

can lead to a mutual intertwining of the extensions, to the formation of knots and so on, events which may even jeopardize the application of the extensions themselves, besides representing a considerable loss of time.

Such a problem is particularly felt in case of curled extensions which are naturally inclined to interfere one to the other.

The problem of the intertwining is anyway felt also in the manufacturing phase of the hair extensions, wherein the connection element at the proximal end of the hair extension itself is formed. In fact, even if the individual formation of the connection element might be a system for preventing the intertwining, it considerably increases the manufacturing times.

On the other side, the common and simultaneous formation of a number of extensions with the respective connection element may cause the intertwining of hairs in a tricky phase, where the hairs may interfere also with the fluid thermoplastic material. In any case, a wrong implementation of this phase may lead to the disposing of large amounts of hairs, without any possibility of salvage. This risk is even more felt in case of curled extensions.

The formation method of the thermoplastic elements, disclosed for instance in DE 196 26 107 C, anyway lead to a separation among the different extensions, which need therefore to be packed again incurring in a further intertwining risk.

The technical problem at the root of the present invention consists in the substantial overcoming of the drawbacks of the prior art. Such a problem is solved by a method for the assembling including the following steps:

- * providing a plurality of hair extensions substantially parallel to each other on a plane, with a section, at the respective proximal ends thereof, placed according to a substantially straight pattern for receiving a corresponding connection element;
- * placing the sections of said hair extensions in a mould

for injection moulding, comprising a chamber at said sections apt to shape a respective connecting element, and a continuous duct linking said chambers; and

- * injecting a thermoplastic material into said mould at each chamber and according to a direction substantially parallel to said sections.

Such a problem is likewise solved by a hair extension assembly, comprising a plurality of hair extensions placed side by side and parallel to each other, each comprising a respective connection element formed with a thermoplastic material by injection moulding, having a linking filiform member linking all the connection elements and integrally formed with them.

The advantage allowed by the above defined method and assembly consists in manufacturing a hair extension assembly wherein the connection elements are already joined together and spaced with the respective extensions from the instant of the connection element formation, ready to be separated and applied or to be applied in a single operation.

With reference to the annexed figures, exclusively provided with an illustrating and non limiting purpose, two embodiments of hair extension assembly according to the invention will be disclosed in the following, also with reference to said method.

In the figures:

- * Figure 1 shows a partially sectioned perspective view of a plurality of hair extensions and a mould for injection moulding;
- * Figure 2 shows a perspective view of a hair extension assembly according to a first embodiment of the present invention;
- * Figure 3 shows a top view of the assembly of Figure 2;
- * Figure 4 shows a perspective view of a hair extension assembly according to a further embodiment of the present invention; and
- * Figure 5 shows a top view of the assembly of Figure 4.

With reference to Figures 1 to 3, a plurality of hair extension is generally indicated by 1. Each extension, indicated by 2, comprises a plurality of hairs joined together by a connection element 4, made of a thermoplastic material, i.e. a thermoplastic resin suitable to be shaped by injection moulding.

The extension 2 comprises, at one proximal end 5 thereof, i.e. intended to be applied at the head of the final user, a proximal section 6 of the extension on which said connection element 4 is formed.

The hair extensions 2 of the present embodiment are of the kind intended for the making of an "Afro" hairstyle, i.e. characterized by very dense curls and by a large volume. Each extension 2 comprises a plurality of hairs twined according to a rope-like pattern, i.e. helicoidally around a central line. The rope-like pattern is in turn twined according to a helicoidal line, maintained in this position by suitable permanent fixing materials, of the kind employed for the hairstyling. By the separation of the single hairs of each extension, a flock of curled hairs having a large volume is obtained.

With reference to Figure 1, in the following the method for the assembling of said hair extensions 2 will be disclosed, together with the assembly thereof.

Said plurality of hair extensions 2 are substantially placed on a plane, substantially parallel to each other, with said proximal section placed according to a substantially straight configuration.

Such a configuration may be obtained by applying a traction between the proximal end 5 and the body of each extension 2, for instance by enclosing the latter between two plates (not shown), possibly provided with channels for housing each single extension 2, and by securing said end 5 by pliers members (not shown). The proximal sections 6 are hence prepared for receiving a corresponding connection element 4.

Then, said proximal sections 6 of said hair extensions 2

are placed in a mould 7 for injection moulding, shown in figure 1 by dashed lines. Said mould 7 comprises a plurality of chambers 8 at each of said sections 6, each chamber being apt to shape a respective connection element 4.

The shape of the chamber 8 determines the shape assumed by the connection element 4. To a merely illustrating purpose, the embodiments of Figures 1 to 3 has connection elements 4, and hence chambers 8 inside the mould 7, having a barrel-like shape, but any other shape is possible, for instance a booklet-like shape, a curved-pad shape, a plate shape, a circular tablet shape and so on.

In the mould 7, said chambers 8 are linked by a continuous duct 9, filiform and straight.

In the method according the present embodiment, a thermoplastic material is injected inside said mould 7 at each chamber 8, according to a direction substantially parallel to said proximal sections 6, defined by respective injection ducts 10.

In turn, said continuous duct 9 may be fed through a respective auxiliary injection duct 11, coaxial with the continuous duct 9.

In such a way, the thermoplastic material, while it is injected inside the chamber 8, flows parallel to the hairs, i.e. to said proximal section 6; hence without causing a displacement of the section 6 itself. The thermoplastic material then flows through the continuous duct 9, thereby joining each extension 2 and each connection element 4.

The feeding of the continuous duct 9 through the auxiliary injection duct 11 may possibly ensure the stable joining of all the connection elements 4. The continuous duct 9, at adjacent positions and on both the sides of the chambers 8, has narrowings (not shown) determining a reduced section of the continuous duct 9. Once the moulding is over, with the solidification of the thermoplastic material, the single extensions 2 are joined in a sole assembly of a plurality 1 of extensions. Each connection element 4 is joined by a

transversal rod 3 which, due to said narrowings, is provided with breaking points 12 allowing an easy separation of each extension 2 from the others.

In such a way, the transversal rod 3 constitutes a filiform joining member, joining all the connection elements and integrally formed with them.

With reference to Figures 4 and 5, a second embodiment of the assembly according to the present invention is disclosed, wherein the connection elements 4 have an elongated shape, having a substantially beam-shaped cross section, so that such elements 4 are substantially divided in two portions 4' and 4'', apt to be folded on the other, so as to trap between them a portion of receiving hairs.

The transversal rod 3 is provided at the extrados of each connection element 4. The breaking points 12 are located at the sides of said extrados.

It is meant that this embodiment may be substantially obtained by a mould 7 corresponding to that disclosed with reference to the first embodiment, wherein the chambers 8 have a shape matching with that which is desired.

To the above disclosed method for the assembling of a plurality of hair extensions and hair extension assembly a man skilled in the art, with the purpose of fulfilling further and incidental requirements, may introduce further modifications and variants, however all of them falling within the protection scope of the present invention, as defined by the appended claims.

CLAIMS

1. Method for the assembling of a plurality of hair extensions including the following steps:

- * providing a plurality (1) of hair extensions (2) substantially parallel to each other on a plane, with a section (6), at the respective proximal ends (5) thereof, placed according to a substantially straight configuration for receiving a corresponding connection element (4);
- * placing the sections (6) of said hair extensions (2) in a mould (7) for injection moulding, comprising a chamber (8) at each of said sections (6), apt to shape a respective connection element (4), and a continuous duct (9) linking said chambers (8); and
- * injecting a thermoplastic material into said mould (8) at each chamber (8) and according to a direction substantially parallel to said sections (6).

2. Method according to claim 1, wherein each of said hair extensions (2) comprises a plurality of twined hairs according to a rope-like shape, i.e. helicoidally around a central line, in turn twined according to a helicoidal line, maintained in such a position by suitable permanent fixing materials.

3. Method according to claim 1 or 2, wherein said sections (6) are maintained in a straight configuration by applying a traction between the proximal end (5) and the body of each hair extension (2).

4. Method according to claim 3, wherein the hair extensions (2) are enclosed between two plates, possibly provided with channels for housing each hair extension (2), and wherein said proximal ends (5) are secured by pliers members.

5. Method according to one of the preceding claims, wherein said continuous duct (9) is filiform and straight.

6. Method according to one of the preceding claims,

wherein said continuous duct (9) is fed by a respective auxiliary injection duct (11), coaxial with said continuous duct (9).

7. Method according to one of the preceding claims, wherein the feeding of the continuous duct (9) occurs through an auxiliary injection duct (11).

8. Method according to one of the preceding claims, wherein the continuous duct (9), at adjacent positions and on both the sides of each chamber (8), has narrowings determining a reduced section of the continuous duct (9).

9. Hair extension assembly, comprising a plurality (1) of hair extensions (2) placed side by side and parallel to each other, each comprising a respective connection element (4) formed with a thermoplastic material by injection moulding, having a joining filiform member (3) joining all the connection elements (4) and integrally formed with them.

10. Assembly according to claim 9, wherein each hair extension (2) comprises a plurality of twined hairs according to a rope-like shape, i.e. helicoidally around a central line, in turn twined according to a helicoidal line, maintained in such a position by suitable permanent fixing materials.

11. Assembly according to one of claims 9 or 10, wherein said joining filiform member (3) is provided with breaking points (12).

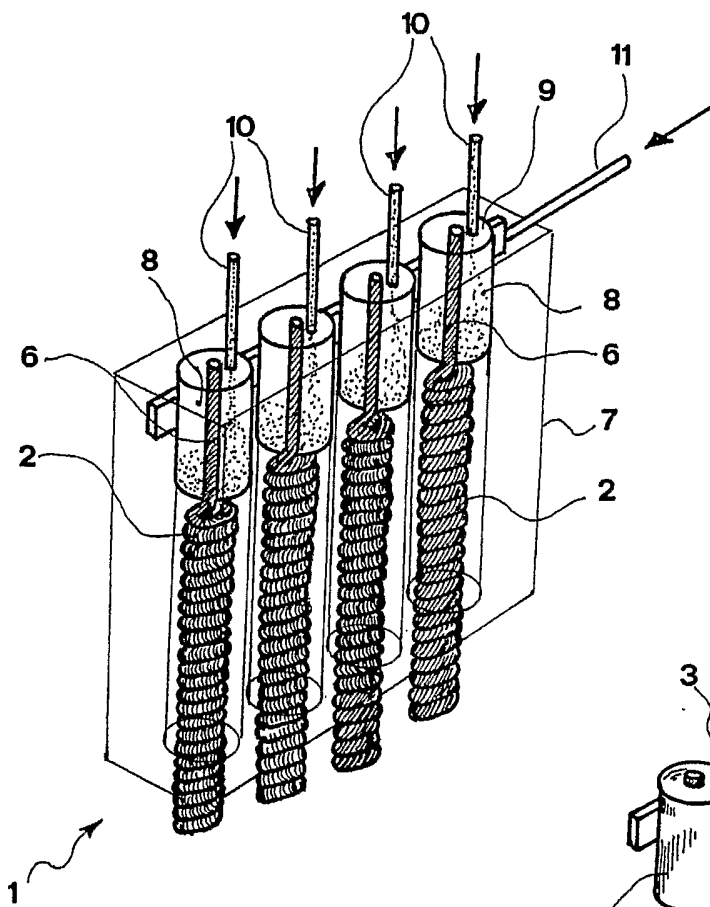


FIG. 1

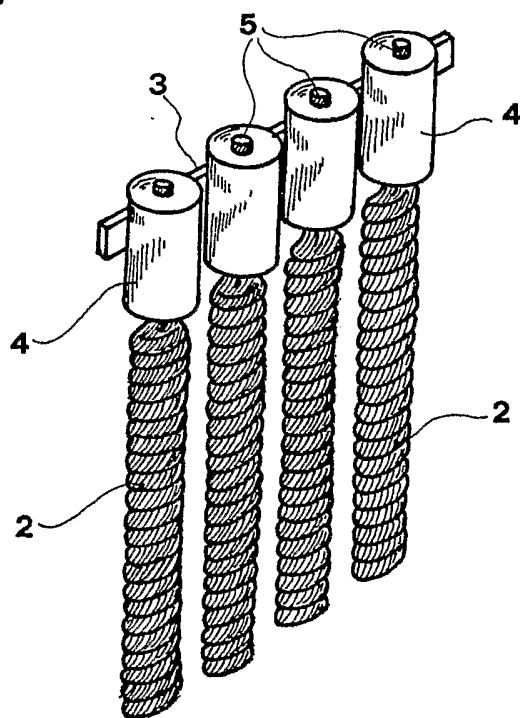


FIG. 2

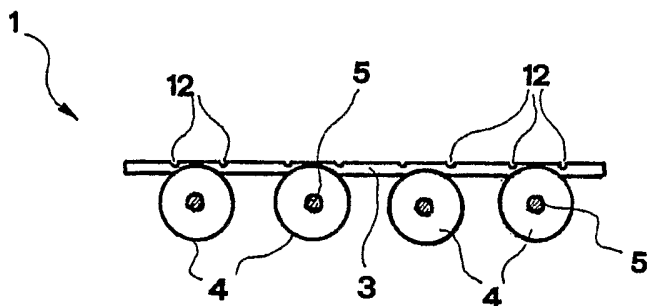


FIG. 3

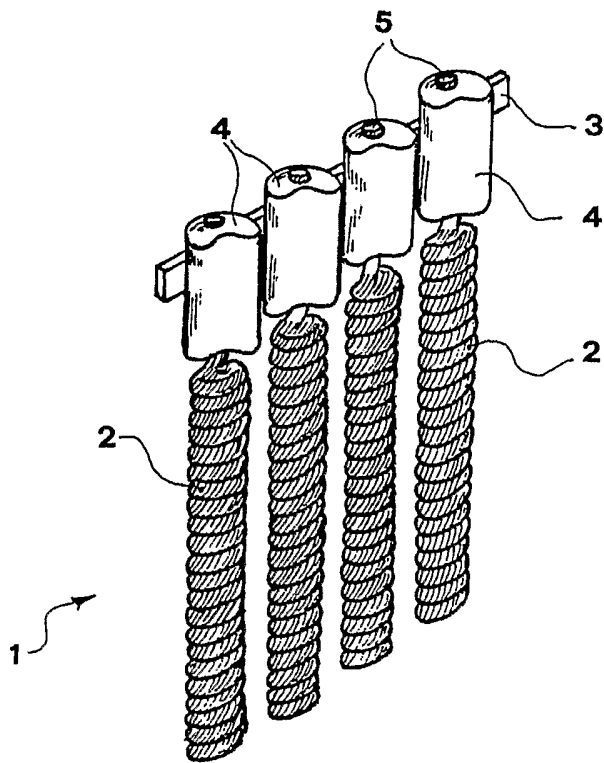


FIG. 4

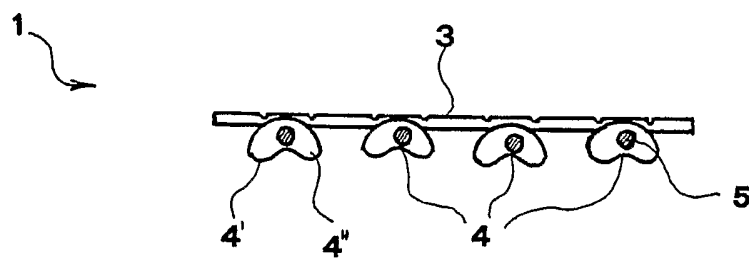


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No

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A. CLASSIFICATION OF SUBJECT MATTER INV. A41G3/00 B29C45/14 B29C70/76		
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) A41G B29C		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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<input type="checkbox"/> Further documents are listed in the continuation of Box C.		<input checked="" type="checkbox"/> See patent family annex.
* Special categories of cited documents :		
<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>		<p>"T" 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</p> <p>"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</p> <p>"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.</p> <p>"&" document member of the same patent family</p>
Date of the actual completion of the international search	Date of mailing of the international search report	
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Information on patent family members

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