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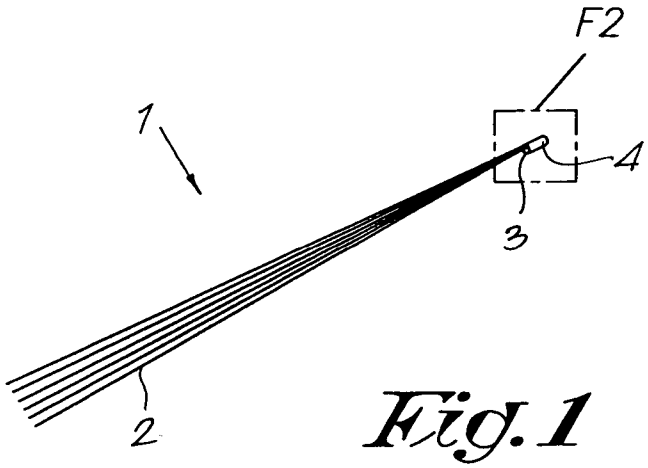

Fig. 1

(57) Abstract: Lock of hair formed of one or several hair filaments (2) onto which means are provided at one far end to fix said lock of hair (1) to other hair (5), characterised in that the above-mentioned means are formed of a strip (4) made of synthetic material which partly weakens when being heated and whereby the above-mentioned strip (4), in an unstressed condition, forms a tube (8) that is cut through lengthwise, whereby the longitudinal far ends (9) overlap.

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Lock of hair and its attaching method.

The present invention concerns a lock of hair and a method for fixing it.

In particular, this invention concerns a lock of hair of the type designed for hair extensions or to create colour effects in hair.

As is known, a lock of hair of the above-mentioned type is formed of one or several hair filaments which are mutually joined at one far end and which are provided with means at this far end which make it possible to fix the lock of hair to hair of the head, doll's hair or the like.

Known means for fixing a lock of hair to hair of the head are formed of a resin, acrylic glue, aluminium rings, silicone, polyurethane or tape, either or not combined with cylinders made of shrink plastic.

Resin is the most used joining means for attaching a lock of hair to another hair, whereby the resin is liquefied by means of heating and solidifies when it is cooled, such that a semi-permanent attachment can be obtained between the lock of hair and the hair of the head.

In some cases, the lock of hair is dipped in liquid resin with one far end just before it is fixed to other hair, after which the lock of hair is fixed to the other hair by rolling the above-mentioned far end of the lock of hair together with the free far end of the other hair between

the fingers while the resin is still liquid.

Rolling the hair between the fingers results in a good distribution of the resin round the above-mentioned far ends of the hairs to be mutually joined, while the resin solidifies and the hair is thus fixed.

In another case, the lock of hair is already provided with resin on one of its far ends, whereby, in order to fix this lock of hair to other hair, the resin is heated until it liquefies and the fixing proceeds according to the above-described method.

A disadvantage of resin as a means for attaching a lock of hair to other hair is that the fixing method is time-consuming and in practice can only be carried out by persons trained to do so.

Another disadvantage is that a lock of hair which is attached to hair of the head by means of a resin is hard to remove again and that its removal can be relatively time-consuming.

An additional disadvantage is that resin is very hard after it has cooled and as a result is not always so comfortable for the person to whom it has been applied. Moreover, it creates a lot of tension in the hair, which increases the risk for the hair between the scalp and the resin attachment to break off.

Further, attaching a lock of hair to hair of the head by

means of aluminium rings requires a special and relatively expensive pair of tongs which makes it possible to squeeze the rings round the hair filaments of the lock of hair and the hair of the head.

Another disadvantage of aluminium rings is that they are hard and hence feel uncomfortable when sleeping and combing.

Moreover, such aluminium rings are relatively large and consequently well visible when they are provided in hair of the head.

Another disadvantage when using aluminium rings is that when they are applied, the hair of the user, the lock of hair as well as the aluminium ring must be held until the ring has been squeezed, since the hair of the user or the lock of hair might otherwise slide out of the ring before it has been squeezed.

The use of acrylic glue for mutually attaching a lock of hair to other hair is disadvantageous in that the acrylic glue is hard to remove again, such that removing a lock of hair which has been attached to the hair of the head by means of acrylic glue is relatively time-consuming and requires the use of chemicals.

Finally, the use of tape is disadvantageous in that the attachment of the lock of hair is only of a good quality when the tape is sufficiently pressed round the lock of hair and the hair of the user. Otherwise, the lock of hair

might be accidentally pulled out while combing the hair or the like.

In another case, the lock of hair is fixed to the natural hair by means of cylinders made of shrink plastic. In some cases, the lock of hair must be pulled through the shrink plastic and the natural hair in the opposite direction with the help of auxiliary means, after which the plastic must be made to shrink by means of a pre-heated pair of tongs, which results in an attachment.

In all the cases whereby a cylinder is used, either aluminium rings or a cylinder made of shrink plastic, either with or without hair fixed in it and with or without hotmelt polyurethane and/or resin on the inside, the natural hair must be pulled through the ring by means of a kind of crochet hook before squeezing the ring and/or in the case of shrink plastic, making the latter shrink in order to attach the lock of hair to the hair.

The use of such a crochet hook or another auxiliary means to pull the natural hair through a relatively little hole is laborious, time-consuming and can hardly be carried out by the person himself/herself.

Generally speaking, we may say that the different above-mentioned fixing techniques are laborious and difficult, such that a lock of hair of a known type must always be provided by a specially trained person or by several trained persons if the time-consuming process must be speeded up.

The present invention aims a lock of hair that can be fixed in a simple, fast and sufficiently solid manner to other hair and which preferably enables persons to fix the lock of hair to their natural hair themselves, without any intervention of trained staff being required.

To this end, the invention concerns a lock of hair formed of one or several hair filaments onto which means are provided at one far end to fix said lock of hair to other hair, characterised in that the above-mentioned means are formed of a synthetic strip which partly weakens when being heated and whereby the above-mentioned strip, in an unstressed condition, forms a tube that is cut through lengthwise, whereby the longitudinal far ends overlap.

An advantage of the present invention is that the lock of hair according to the invention can be fixed to other hair in a simple and fast manner, as the other hair can be snapped or pushed in the tube, whereby the tube will stick to the hair thanks to the inherent bending forces alone, even before it has been heated.

Another possibility for fixing the lock of hair to the hair is by unrolling the tube until a strip is obtained, providing the synthetic strip round the other hair and releasing the strip, as a result of which it will roll up with the hair and hair filaments until the tube is unstressed, followed by the heating of the tube.

Another advantage of the present invention is that the

attachment obtained is of good quality and is immediately obtained through heating, without any follow-up treatment or the like being required.

The tube for the lock of hair weakens only partially as the tube is formed of an outer layer of polyurethane and an inner layer of a polyurethane mixed with 5 to 20% of resin. The inner layer will melt and stick to the hair when it is heated, which results in a semi-permanent attachment to the hair.

Such a two-layered tube is advantageous in that in this way, the good adhesive qualities of resin are combined with the flexibility and comfort of polyurethane.

An additional advantage is that the outer layer of the tube weakens, such that the tube can be plastically deformed into a shape that feels comfortable and is nice to look at.

The present invention also concerns a method for fixing a lock of hair to other hair, whereby the lock of hair is formed of one or several hair filaments, characterised in that the hair filaments are provided with a strip at one far end, whose inner layer and outer layer are preferably made of two different sorts of material, and in that the above-mentioned method consists in applying the lock of hair round the other hair by snapping or pushing the other hair in/through the tube, or by unrolling the tube between two or more fingers until the strip is obtained and by placing the hair on the strip, by subsequently releasing the strip as a result of which the strip with the hair and

hair filaments rolls up into a tube again with overlapping longitudinal far ends, and by then heating the above-mentioned far end by means of a "straightening iron" or hair tongs until the inside of the tube fuses with the hair filaments and the other hair, and a semi-permanent attachment is obtained.

An equivalent method of the invention for fixing a lock of hair to other hair consists in providing the hair filaments at one far end with a synthetic strip which becomes sticky on the inner layer and not on the outer layer when it is heated, as a result of which the fixing can be done in a relatively fast and clean way without any synthetic material sticking to the curling tongs or fingers, and which forms a semi-permanent attachment to the hair after it has cooled.

In order to better explain the characteristics of the present invention, the following preferred embodiment of a lock of hair according to the invention is described as an example only without being limitative in any way, as well as a method for fixing such a lock of hair to other hair, with reference to the accompanying figures, in which:

figure 1 represents a lock of hair according to the invention;

figure 2 represents the part indicated by F2 in figure 1 to a larger scale;

figures 3 to 7 represent the same part as figure 1, but in different operational steps for fixing a lock of hair according to the invention to other hair.

Figures 1 and 2 represent a lock of hair 1 which mainly consists of a number of hair filaments 2 which are mutually joined at one far end 3.

It should be noted that the hair filaments may be formed of natural hair as well as of synthetic hair.

In this case, the different hair filaments 2 are mutually joined by means of a synthetic strip 4.

As is known, means are provided at the above-mentioned far end 3 of the lock of hair 1 for fixing this lock of hair 1 to other hair 5.

According to the invention, these means are formed of the above-mentioned strip 4 whose inner layer 6 and outer layer 7 are made of two different types of material.

The outer layer 7 is preferably made of a soft/flexible polyurethane which softens but does not melt at temperatures up to 250°C included. The inside 6 is preferably a mixture of polyurethane with 5 to 20% of resin which becomes sticky at temperatures of a "straightening iron" or a pair of hair pliers which do not exceed a temperature of 250°C.

The above-mentioned strip 4 is preferably made as a tube 8 which is cut lengthwise.

As a result, the tube 8 has inherent bending forces but it

can also be unrolled into a rectangular strip 4, whereby the strip 4, due to the inherent bending forces between the inner layer 6 and the outer layer 7, tends to roll up again, as a "Swiss roll", whereby the cake is in this case the strip 4, and the cream and jam are the hair 5 and hair filaments 2 respectively.

The strip 4 can be fixed to the lock of hair 1 in all sorts of ways, but this is preferably done by means of the above-mentioned mixture of resin and polyurethane, since such a mixture can be easily and quickly removed from hair, so that when the lock of hair 1 is removed, possible residues of resin and/or polyurethane in the hair of the head can be quickly removed. The above-mentioned mixture preferably contains 5 to 20% of resin.

It should be noted that the strip 4 preferably has a thickness situated between 19 and 1500 micrometer. The tube 8 which is formed of the strip 4 preferably has a diameter situated between 2 and 5 millimetre and a length situated between 5 and 15 millimetre.

The method according to the invention for fixing the lock of hair to other hair is simple and as follows.

The above-mentioned strip 4 is made as a tube 8 which is cut lengthwise, as the cross section in figure 3 shows.

As is represented in figures 4 and 5, a first operational step either consists in snapping or pushing the other hair 5 in the tube 8, or in unrolling the tube 8 between the

fingers until the strip 4 is obtained and by placing the hair 5 on the strip 4.

By providing the hair through the tube 8, the tube 8 will thus be partly or entirely unrolled into a strip 4, but due to the inherent bending forces between the inner layer 6 and the outer layer 7, the tube 8, once the hair 5 has been put through it, will roll back into its original shape, as is shown in figure 4. Figure 4 hereby differs from figure 2 in that hair 5 has now been provided through the tube.

An advantage is that no other auxiliary means are required to that end, such as for example needles or little tongs, than the fingers themselves.

A major advantage is that the lock of hair 1 should no longer be retained, since the tube 8 and the lock of hair 1 will not slide out of the hair 5. Thus, the user can easily pick up curling tongs himself/herself to proceed to the next step.

Figure 6 shows that, subsequently, one only has to subject the tube 8 to a heat treatment by means of for example curling tongs, what is called a "straightening iron" or the like, whereby the synthetic material softens and the inside 6 of the tube 8 becomes sticky, resulting in a semi-permanent attachment between the hair 5 and the lock of hair 1.

A following operational step consists in plastically deforming the soft tube 8 between the fingers into for

example a flat triangle 9, as represented in figure 7.

This provides for a better distribution of the lock of hair 1, making the hairdo more comfortable and better looking.

A major advantage of the tube 8 becoming weak is that the tube 8 can be provided with all sorts of different shapes after the heating, such as a flat shape 9, for example triangular by turning and compressing the tube 8 between the fingers.

Thus, also more eccentric hairstyles become possible, such as for example a wispy one.

Plastic deformation is possible as the tube weakens but does not melt on the outside and thus does not stick to the pliers and/or fingers.

Moreover, the material remains flexible at all times, resulting in a comfortable hairdo.

Further, it should be noted that the hair filaments 2 of the lock of hair 1 can be fixed on the inside 6 as well as on the outside 7 of the tube 8.

It is also clear that the above-mentioned strip 4 of synthetic material can be made in all sorts of different colours, such that, if required, it can be made in a colour which corresponds to the colour of the lock of hair, as a result of which the strip or tube will be practically invisible when the lock of hair is attached to hair of the

head.

Moreover, the above-mentioned strip 4 can also be coloured as desired by the user.

It is clear that the above-mentioned method can be realised in a very simple and efficient way, by the hairdresser, by the user himself/herself or by a third party.

The lock of hair 1 can be removed again by heating the tube 8 again and by subsequently making the lock of hair 1 slide out of the hair of the head or by pulling it out. Possible residues of polyurethane and resin that are left behind in the hair of the head can be easily removed with means for removing nail polish or the like.

Preferably, the inner layer 6 of the tube 8 made of polyurethane and resin contains just enough resin to obtain a good attachment of the lock of hair 1 to the hair 5, i.e. typically 5 to 20%. Resin has much better adherence qualities after heating than polyurethane, and hence it is not excluded for the inner layer 6 to contain a larger percentage of resin in order to obtain firmer semi-permanent attachments.

Finally, it should be noted that the above-mentioned lock of hair according to the invention is suitable for the extension of all kinds of hair, such as hair of the head, doll's hair, pets' hair, manes or tails of horses or ponies and the like.

Naturally, a lock of hair according to the invention can also be used to apply coloured tresses in order to obtain colour effects in hair.

The present invention is by no means restricted to the embodiment described above and represented in the drawings; on the contrary, such a lock of hair according to the invention and the above-described method for fixing the lock of hair to other hair can be realised according to many variants while still remaining within the scope of the invention.

Claims.

1.- Lock of hair formed of one or several hair filaments (2) onto which means are provided at one far end to fix said lock of hair (1) to other hair (5), characterised in that the above-mentioned means are formed of a strip (4) made of synthetic material which partly weakens when being heated and whereby the above-mentioned strip (4), in an unstressed condition, forms a tube (8) that is cut through lengthwise, whereby the longitudinal far ends (9) overlap.

2.- Lock of hair according to claim 1, characterised in that the tube (8) is made of an inner layer (6) and an outer layer (7) in two different types of material, whereby the outer layer (7) weakens but does not melt nor stick at temperatures up to 250°C included, and whereby the inner layer (6) melts and has adhesive qualities at temperatures of a "straightening iron" or a pair of hair tongs up to a temperature of 250°C included.

3.- Lock of hair according to claim 2, characterised in that the tube (8) is plastically deformable after having been heated up to the temperature of a "straightening iron" or a pair of hair tongs, but not after having been cooled, although the tube (8) remains elastic after the cooling.

4.- Lock of hair according to any one of the preceding claims, characterised in that the outer layer (7) is made of polyurethane and in that the inner layer (6) is made of polyurethane mixed with 5 to 20% of resin.

5.- Lock of hair according to any one of the preceding claims, characterised in that the tube (8) as well as the hair filaments (5) have different colours.

6.- Lock of hair according to any one of the preceding claims, characterised in that the above-mentioned strip (4) is made of a chemical polyurethane and/or a viscose polyurethane.

7.- Method for fixing a lock of hair to other hair, whereby the lock of hair (1) is formed of one or several hair filaments (2), characterised in that the hair filaments (2) are provided with a strip (4) at one far end (3) whose inner layer (6) and outer layer (7) are preferably made of two different types of material respectively and in that the above-mentioned method consists in:
- snapping or pushing the other hair (5) in the tube (8) or through the tube (8), or by unrolling the tube (8) between two or more fingers until the strip (4) is obtained and by placing the hair (5) on the strip, by subsequently releasing the strip (4) as a result of which the strip (4) with the hair (5) and hair filaments (2) rolls up into a tube (8) again with overlapping longitudinal far ends (9),
- by then heating the above-mentioned far end (3) by means of a "straightening iron" or hair tongs until the inner layer (6) of the tube (8) fuses with the hair filaments (2) and the other hair (5), and a semi-permanent attachment is obtained.

8. Method for fixing a lock of hair to other hair according to claim 7, characterised in that the tube (8) is

plastically deformed or compressed after a semi-permanent attachment has been obtained between the hair (5) and the lock of hair (1).

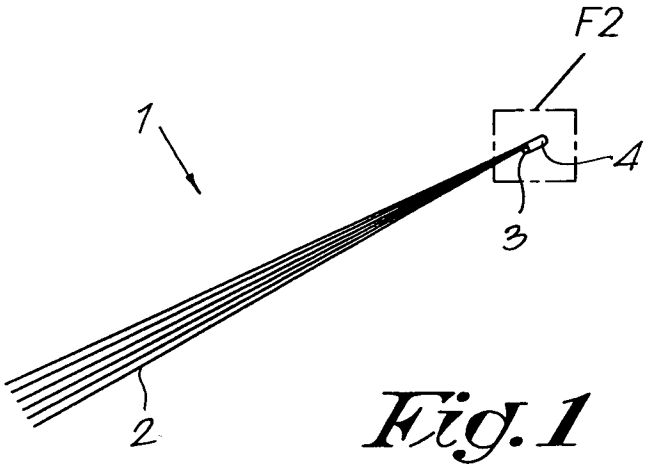

Fig.1

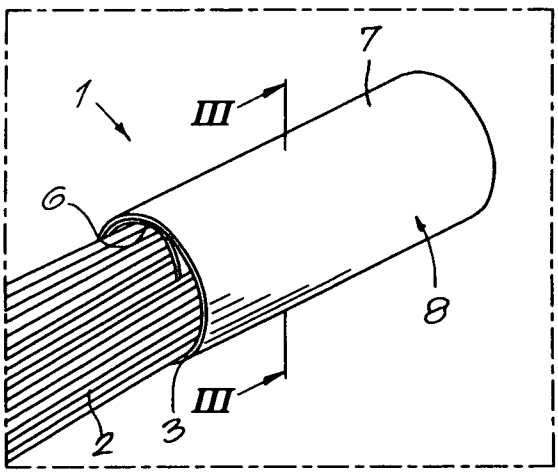

Fig.2

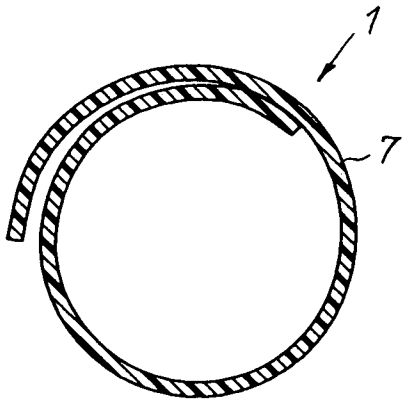

Fig.3

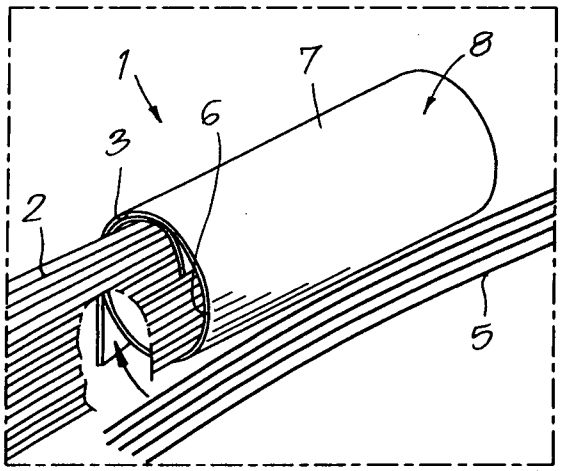

Fig.4

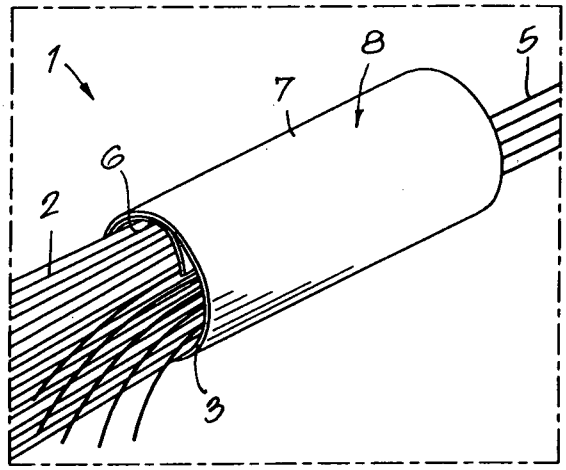

Fig.5

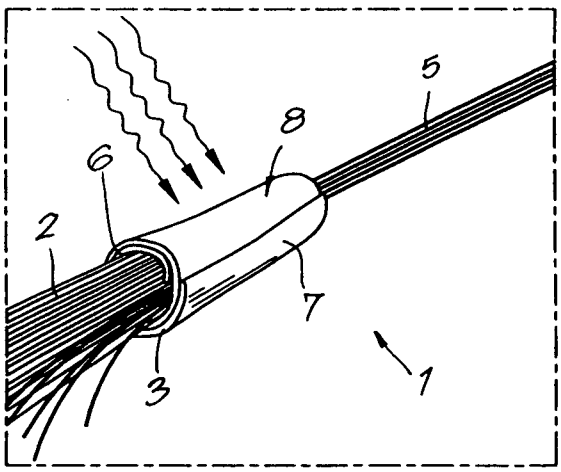

Fig.6

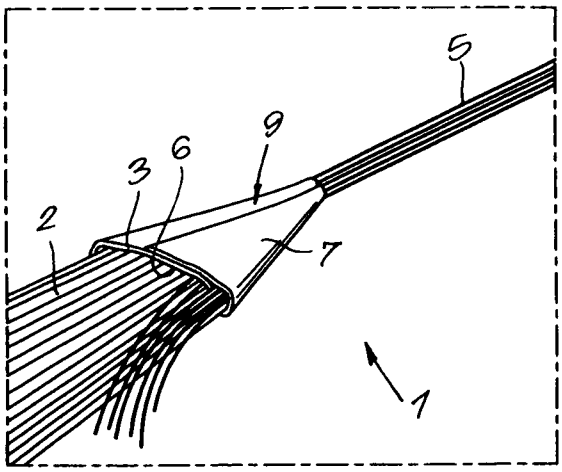

Fig.7