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(19)



(54) HAIRPIECE PARTING SECTION

(71) We, CAFRAN TECHNICAL PROCESS LIMITED, a company incorporated under the Companies Ordinance of Hong Kong, of 22nd Floor, Prince's Building, Victoria, do hereby declare the invention, for which we pray that a Patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to hairpieces and more particularly to a parting section for a hairpiece.

Many hairpieces in use today are of a kind which includes a woven or knitted base fabric onto which tufts of real or false hair are knotted. Some of the base fabrics used are of fine mesh and others are of coarser mesh and particular attention has recently been given to ensuring that root portions of the hair will stand out from the base fabric to give the hairpiece a natural appearance. Hairpieces of the aforementioned kind can be attached to the scalp of a wearer by passing what remains of his hair through the mesh of the base fabric and combing this hair into the hair of the hairpiece.

Difficulty has frequently been experienced, however, when attempting to form in the hair of a hairpiece a parting which has a natural appearance. This is because the hair on either side of parting tends to divide precisely to expose a narrow strip of the base fabric. This narrow strip itself is often sufficient to betray the presence of an otherwise natural-looking hairpiece, and steps must therefore be taken to conceal the base fabric. One way of concealing the base fabric is to draw a few of the hairs adjacent to the parting across to the "wrong" side of the parting but this can impart an untidy and therefore undesirable appearance to the parting.

In order to provide a hairpiece with a more natural looking parting, a suitable parting section can be sewn to the base fabric where a parting is to be provided. This parting section suitably comprises an elongate flesh-coloured base strip of a fibre-reinforced plastics film and hair is arranged to project from one side of the base strip in random array to have the appearance of natural hair growing from a scalp. The remainder of the base fabric which is not overlaid by the base strip has hair knotted to it in the usual way but particular care is taken to conceal the edges of the base strip.

The hair of the parting section is suitably secured to the base strip by having root ends passed through the strip and glued to a reverse side of the strip. Hitherto a needle having an eye has been used manually to insert the hairs through the base strip but this has been a time-consuming and hence a costly process. It will be understood that the composition of the parting section is generally unsuitable for use over the entire hair piece both because the base strip is relatively impermeable to air and because it cannot readily be attached to what remains of a wearer's hair as can a base fabric mesh.

A parting can be made in the parting section similarly to a parting in naturally growing hair but can, if desired, be set by pressing.

It is an object of this invention to enable parting sections for hairpieces to be made more quickly and cheaply than by the hitherto known purely manual process employing needles through which hair must be threaded.

The present invention provides a method of making a parting section for a hairpiece which comprises spreading a sheaf of hair laterally over a support, laying a parting section base strip reverse side uppermost across the laterally spread sheaf to leave anchoring ends of the hair projecting from one edge of the strip and free ends of the hair projecting from the other edge of the strip, needling by repeatedly inserting at least one barbed needle through the base strip into the hair over the entire area of the strip intended to carry hair and withdrawing the needle or needles each time to draw a loop of the hair onto the reverse side of the strip,

combing the loops thus formed to draw the anchoring ends of the looped hairs onto the reverse side of the strip, and bonding the anchoring ends to said reverse side.

Prior to inserting the needle or needles the parting section base strip will preferably be clamped onto the hair spread out on the support by an elongate clamping bar at each edge of the strip. In order to ensure that the anchoring ends of the hairs will be drawn through the base strip rather than the remainder of the hairs, the clamping bar at the edge of the strip from which the anchoring ends project will be clamped less tightly than the other clamping bar.

Before bonding the anchoring ends of the looped hairs to the reverse side of the base strip, those hairs of the sheaf which were not drawn through the base strip will preferably be withdrawn by first loosening both clamping bars and then gripping and pulling the anchoring ends still projecting from the edge of the base strip.

Preferably the barbed needle or needles will be mounted in place of an 'eyed' needle of a sewing machine having a working table, a pedestal, an arm and a pressure foot having a conventional open-ended slot. In order to control movement of the support relative to the table, the support may be arranged to bear against a buffer located across of the working table and movable towards and away from the pedestal by rack and pinion means. The support will suitably be movable past the needle along the length of this buffer in a direction across the work table in order that the loops of hair may be formed on the reverse side of the base strip substantially in row. Each subsequent row can then be formed by first adjusting the position of the buffer end then moving the base past the needle.

Preferably a pair of barbed needles with their barbs directed in the same direction are used. This direction is preferably parallel to the length of the buffer and outwardly of the slot in the pressure foot of the sewing machine. To prevent the barbs from snagging the material of the base strip or the foot from snagging the loops of hair, the sewing machine will preferably be operated to reciprocate the needles only when the support is stationary or being moved along the buffer in the said outward direction.

When the anchoring ends of the hairs have been bonded to the base strip, the outline of the base strip can be trimmed as desired so that the completed parting section can be sewn to the base fabric of a hairpiece.

A preferred method of making a parting section of a hairpiece in accordance with the invention will now be more particularly described with reference to the accompanying drawings in which:—

Figure 1 shows the location on a hairpiece base fabric for a parting section;

Figure 2 shows the parting section from the reverse side of its base strip;

Figure 3 shows apparatus for hooking hair through a clamped base strip to form loops of hair on the reverse side of the strip;

Figure 4 is an exploded view showing means for clamping a base strip of a parting section onto a spread-out sheaf of hair;

Figure 5 is a detail view partly in cross section showing a pair of barbed needles employed in the apparatus of Figure 4 for hooking loops of hair through a base strip and showing also two loops of hair; and

Figure 6 is a view similar to that of Figure 5 but with the loops of hair combed out so that anchoring portions of the hair project from the reverse side of the base strip.

Figure 1 shows the area 1 of a woven or knitted base fabric 2 of a hairpiece over which a parting section is to be sewn. Real or false hair will be knotted to the base fabric to cover its remaining area and the hairpiece may suitably be secured to a wearer's scalp by first passing some of his remaining hair through the base fabric and then combing that hair into the hair of the hairpiece.

Figure 2 shows a parting section suitable for attachment to the base fabric 2 to cover the area 1. The parting section is seen in Figure 2 from its reverse side, i.e. that side arranged to lie against the base fabric 2, and includes a flesh coloured base strip 3 of plastics/cloth laminate. The cloth of the laminate may suitably be of woven or knitted nylon. Hair 4 projects from an outer side of the strip 3, each hair having an anchoring end passed through the strip 3 and bonded to the reverse side by any suitable adhesive. It will be understood that when the parting section is sewn to the base fabric 2, the reverse side of the strip 3 will be hidden from view.

Apparatus for making the parting section shown in Figure 2 is illustrated in Figure 3, and includes a modified sewing machine 5 shown only in outline. The sewing machine has a working table 6, an upstanding pedestal 7, an arm 8, a foot 9 having an open-ended slot and a vertically reciprocable needle carrier 10, all of which are common features of sewing machines. A buffer 11 is positioned directly across the table 6 and is movable towards and away from the pedestal 7 by two parallel rack bars 12 and 12'. The rack bars are engaged by pinions 13 and 13' mounted on a spindle 14 having an operating crank at one end. The clearance between the pinions and the table 6 is such that the rack bars are trapped between the pinions and the table and guide means (not shown) may be provided to

prevent lateral movement of the bars.

A flanged plate 15 is located on the table 6 beneath the foot 9 and is guided for movement transversely of the table in the direction of the arrow A—A' by engagement with the buffer 11. Hair 4 and a base strip 3 which are to be secured together to form a parting section are clamped upon the plate 15 in a manner shown more clearly in Figure 4.

In Figure 4 a plate 15 having at one edge an upstanding flange 15' is provided with one pair of upstanding threaded studs 16 and another pair of threaded studs 17, only one of the studs 17 being shown. A first clamping bar 18 can be clamped to the plate 15 by two wing nuts 19 engaging studs 16 and a second clamping bar 20 can be clamped to the plate 15 by two wing nuts 21 engaging studs 17. When thus clamped, the clamping bars are parallel to one another and are inclined with respect to the flange 15'. A rectangular cushioning underlay 22 is placed on the plate 15 intermediate the studs 16 and 17. When a parting section is to be made by the apparatus shown in Figure 3, one end 23 of a sheaf of hair is spread laterally and laid across the support comprised by the plate 15 and the underlay 22 to project a small distance beyond the underlay towards the flange 15, and a parting base strip 3 is laid reverse side uppermost upon the hair to sandwich the hair between itself and the underlay 22. To complete clamping, the clamping bars 18 and 20 are located on their respective studs and tightened down by the wing nuts. Care is taken at this point to ensure that the bar 18 is more firmly clamped to the plate 15 than the bar 20 for reasons which will become apparent.

The apparatus shown in Figure 3 is operated to make a parting section as follows. Firstly the position of the buffer 11 is adjusted by rotating the crank 14 and the plate 15 is slid along the buffer 11 until needles held by the needle carrier 10 lie substantially over an end 24' of an outlined area 24 of the base strip. The needles are then reciprocated to project through and be withdrawn from the base strip 3. What happens during this reciprocation of the needle will best be understood by referring to Figure 5. As will be seen in Figure 5, the needles held by the needle carrier 10 comprise a pair of barbed needles 25 whose barbs 25' both extend in the same direction. The needles 25 are each of such a length that when in their lowermost positions, they project into the underlay 22 but do not strike the plate 15. When the needles 25 are then withdrawn from the underlay through the hair 23, one or more strands of the hair will be caught in the barbs 25' and dragged through the base strip 3 to form loops 26. Since the clamping bar 18 is more firmly clamped to the plate 15 than the bar 20, the formation of the loops will be accompanied by movement of hair only under the clamping bar 20.

A row of loops on the reverse side of the base strip is formed by sliding the plate 15 along the buffer 11 in the direction of the arrow A' i.e. outwardly of the slot in foot 9 whilst the needles are reciprocated and a subsequent row of loops is formed by first advancing the buffer 11 by rotating the crank 14 and then again feeding the base plate 15 past the needles in the direction of the arrow A'.

When loops have been formed over the formed in the outlined section of the base strip 3, or alternatively when any desired number of loops has been formed, the plate 15 can be removed from the table 6 and the loops can be combed out as shown in Figure 6 so that the entire ends of the hairs once looped are drawn onto the reverse side of the parting strip as anchoring ends. The plate can then be returned to the table 6 in order to form further loops. Alternatively loops can be formed over the entire outlined area of the base strip prior to the combing out.

When loop shave been formed over the entire outlined area of the base strip and have subsequently been combed out, the clamping bar 18 is loosened to allow hair still clamped under the bar 20 to be withdrawn completely from the plate and put aside for further use. The anchoring ends of the hairs drawn through the base strip are then bonded to the reverse (inner) side of the base strip and the base strip is given its final shape by removing it from the base plate and trimming it around the outlined area 24 with scissors.

The hair projecting from the base strip is parted and pressed in the parted state, and the completed parting section is then ready to be sewn onto the base fabric of a hairpiece.

WHAT WE CLAIM IS:—

1. A method of making a parting section for a hairpiece which comprises spreading a sheaf of hair laterally over a support, laying a parting section base strip reverse side uppermost across the laterally spread sheaf to leave anchoring ends of the hair projecting from one edge of the strip and free ends of the hair projecting from the other edge of the strip, needling by repeatedly inserting at least one barbed needle through the base strip into the hair over the entire area of the strip intended to carry hair, and withdrawing the needle or needles each time to draw a loop of hair onto the reverse side of the strip, combing the loops thus formed to draw the anchoring

prevent lateral movement of the bars.

A flanged plate 15 is located on the table 6 beneath the foot 9 and is guided for movement transversely of the table in the direction of the arrow A—A' by engagement with the buffer 11. Hair 4 and a base strip 3 which are to be secured together to form a parting section are clamped upon the plate 15 in a manner shown more clearly in Figure 4.

In Figure 4 a plate 15 having at one edge an upstanding flange 15' is provided with one pair of upstanding threaded studs 16 and another pair of threaded studs 17, only one of the studs 17 being shown. A first clamping bar 18 can be clamped to the plate 15 by two wing nuts 19 engaging studs 16 and a second clamping bar 20 can be clamped to the plate 15 by two wing nuts 21 engaging studs 17. When thus clamped, the clamping bars are parallel to one another and are inclined with respect to the flange 15'. A rectangular cushioning underlay 22 is placed on the plate 15 intermediate the studs 16 and 17. When a parting section is to be made by the apparatus shown in Figure 3, one end 23 of a sheaf of hair is spread laterally and laid across the support comprised by the plate 15 and the underlay 22 to project a small distance beyond the underlay towards the flange 15, and a parting base strip 3 is laid reverse side uppermost upon the hair to sandwich the hair between itself and the underlay 22. To complete clamping, the clamping bars 18 and 20 are located on their respective studs and tightened down by the wing nuts. Care is taken at this point to ensure that the bar 18 is more firmly clamped to the plate 15 than the bar 20 for reasons which will become apparent.

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A row of loops on the reverse side of the base strip is formed by sliding the plate 15 along the buffer 11 in the direction of the arrow A' i.e. outwardly of the slot in foot 9 whilst the needles are reciprocated and a subsequent row of loops is formed by first advancing the buffer 11 by rotating the crank 14 and then again feeding the base plate 15 past the needles in the direction of the arrow A'.

When loops have been formed over the formed in the outlined section of the base strip 3, or alternatively when any desired number of loops has been formed, the plate 15 can be removed from the table 6 and the loops can be combed out as shown in Figure 6 so that the entire ends of the hairs once looped are drawn onto the reverse side of the parting strip as anchoring ends. The plate can then be returned to the table 6 in order to form further loops. Alternatively loops can be formed over the entire outlined area of the base strip prior to the combing out.

When loop shave been formed over the entire outlined area of the base strip and have subsequently been combed out, the clamping bar 18 is loosened to allow hair still clamped under the bar 20 to be withdrawn completely from the plate and put aside for further use. The anchoring ends of the hairs drawn through the base strip are then bonded to the reverse (inner) side of the base strip and the base strip is given its final shape by removing it from the base plate and trimming it around the outlined area 24 with scissors.

The hair projecting from the base strip is parted and pressed in the parted state, and the completed parting section is then ready to be sewn onto the base fabric of a hairpiece.

WHAT WE CLAIM IS:—

1. A method of making a parting section for a hairpiece which comprises spreading a sheaf of hair laterally over a support, laying a parting section base strip reverse side uppermost across the laterally spread sheaf to leave anchoring ends of the hair projecting from one edge of the strip and free ends of the hair projecting from the other edge of the strip, needling by repeatedly inserting at least one barbed needle through the base strip into the hair over the entire area of the strip intended to carry hair, and withdrawing the needle or needles each time to draw a loop of hair onto the reverse side of the strip, combing the loops thus formed to draw the anchoring

ends of the looped hairs onto the reverse side of the strip, and bonding the anchoring ends to said reverse side.

2. A method as claimed in claim 1 including the step of clamping the base strip to the laterally spread sheaf of hair by means of an elongate clamping bar laid upon each edge of the strip and clamped to the support.

3. A method as claimed in claim 2 in which the clamping bar at that edge of the strip from which said anchoring ends project is clamped less tightly to the support than the other clamping bar.

4. A method as claimed in claim 2 or claim 3 in which the clamping bars are loosened after said needling and prior to combing said loops, and those hairs of the sheaf which have not been drawn through the base strip are withdrawn from beneath the base strip.

5. A method as claimed in any one of claims 2 to 4 in which said at least one barbed needle is mounted in place of a reciprocable "eyed" needle of a sewing machine comprising a working table, a pedestal, an arm and a pressure foot, and the support is moved progressively over the working table whilst the barbed needle or needles are repeatedly reciprocated into and out of the base strip.

6. A method as claimed in claim 5 in which the sewing machine includes a buffer extending across the working table and movable towards and away from the pedestal by rack and pinion means, the method further comprising sliding the support along the buffer whilst the barbed needle or needles are repeatedly reciprocated through the base strip in order that the loops of hair are formed on the reverse side of the base strip substantially in a row, and needling each subsequent row of loops by first adjusting the position of the buffer, and then sliding the support along the buffer whilst the needle or needles are being reciprocated.

7. A method as claimed in claim 6 in which the barb of the or each needle faces in the direction of the length of the buffer and outwardly of an open-ended slot formed in the pressure foot of the sewing machine, and needling of the loops is carried out only whilst the support is stationary or being slid along the buffer in said direction outwardly of the slot.

8. A method as claimed in any one of the preceding claims in which the outline of the base strip is trimmed after bonding the anchoring ends of the hairs to the reverse side of the base strip.

9. A method of making a parting section of a hairpiece substantially as herein described with reference to the accompanying drawings.

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