March 19, 1963 L. L. CRAMER 3,081,780

METHOD OF ELECTRICALLY FABRICATING A HAIR PIECE

Filed Nov. 17, 1961

FIG. 1.

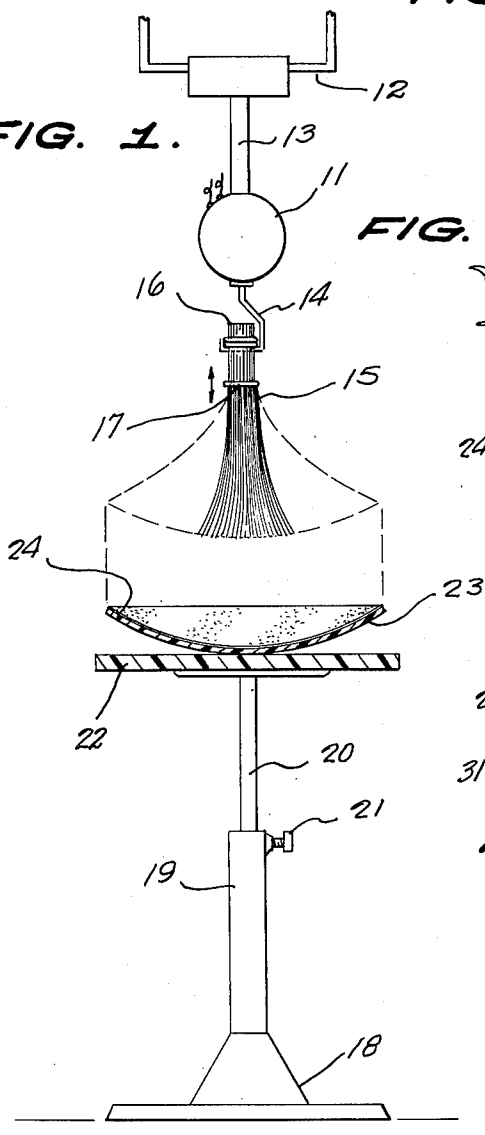


FIG. 2.

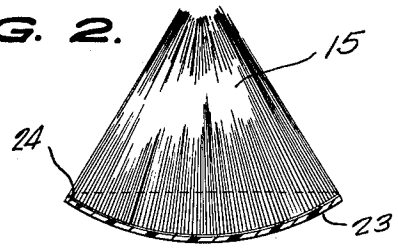
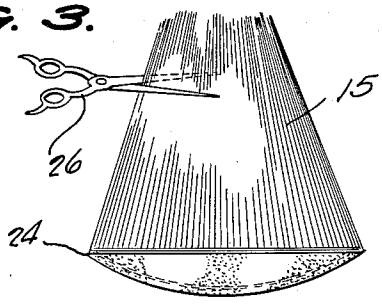


FIG. 3.



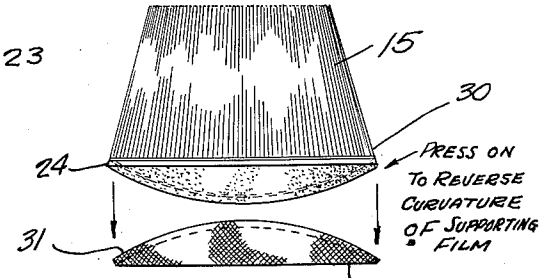
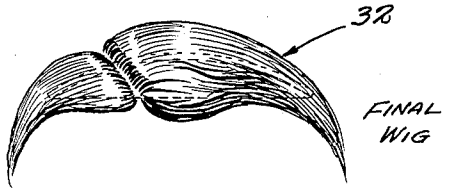


FIG. 4.

FIG. 5.



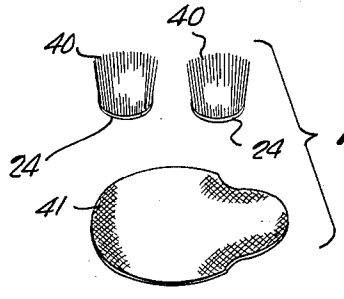


FIG. 6.

INVENTOR.
LEONARD L. CRAMER,
BY

McMorrow, Berman & Davidson
ATTORNEYS.

United States Patent Office 3,081,780 Patented Mar. 19, 1963

3,081,780
METHOD OF ELECTRICALLY FABRICATING A HAIR PIECE

Leonard L. Cramer, 236 Granby St., Norfolk, Va.

Filed Nov. 17, 1961, Ser. No. 153,055
6 Claims. (Cl. 132—5)

This invention relates to the art of wig making, and more particularly to an improved method of fabricating a hair piece utilizing the electrostatic properties of hair.

A main object of the invention is to provide a novel and improved method of fabricating a hair piece, the method involving a relatively simple procedure which requires comparatively simple apparatus, which can be performed in a relatively short time, and which greatly reduces the amount of labor and precision required in fabricating a hair piece.

A further object of the invention is to provide an improved method of fabricating a hair piece which does not involve costly and tedious hand weaving processes, which enables a hair piece of required size and shape to be quickly and efficiently produced, which provides a hair piece of satisfactory durability, and which considerably reduces the cost of fabricating a hair piece.

A still further object of the invention is to provide an improved method of fabricating a hair piece, said method being easy to perform, requiring a relatively low level of skill, enabling a hair piece of required shape and size to be quickly, efficiently and accurately produced, and enabling a hair piece to be produced without requiring knots or protuberances and providing for the inclusion of synthetic fibers as well as natural hair in the hair piece.

A still further object of the invention is to provide an improved method of fabricating a hair piece which utilizes the electrostatic properties of hair and similar fibers for properly positioning the fibers for assembly, eliminating the need for weaving or tying the fibers in place, as has been heretofore required in this art.

A still further object of the invention is to provide an improved method of fabricating a hair piece which utilizes electrostatic properties of hair and similar fibers in assembling a hair piece on a form of the desired outline and shape, the fibers being held in position by electrostatic action, the method avoiding the necessity of employing knots to secure the hairs in place and providing a resultant product in which the hair fibers are securely fastened and cannot loosen from the hair piece and become lost.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

FIGURE 1 is a front elevational view, partly in vertical cross section, showing the manner in which a hank of hair is suspended from an electrostatically charged electrode above and in vertical alignment with a vertically adjustable supporting shield containing an adhesive coated film with which the spread lower ends of the hair strands eventually become engaged, in accordance with the method of the present invention.

FIGURE 2 is a vertical cross sectional view taken through the supporting shield after the spread ends of the hairs have become engaged with the adhesive-coated film and the top portions of the hairs have been unfastened.

FIGURE 3 is an elevational view of the structure of FIGURE 2, showing the manner in which the upper portions of the hairs are trimmed off.

FIGURE 4 is an elevational view of the structure of FIGURE 3, subsequent to the trimming of the upper portions of the hairs, and positioned adjacent to an opposing, convexly curved pre-blocked net or film on which

the sub-assembly obtained from FIGURE 3 is to be secured.

FIGURE 5 is an elevational view of a finished hair piece which may be derived from the product obtained from the procedure illustrated in FIGURE 4 after suitable further trimming and shaping of the hairs.

FIGURE 6 is a view illustrating the manner in which a number of tufts or wefts of small areas of adhered hair or synthetic fibers may be assembled adjacent to each other on a suitable supporting net or form.

Referring to the drawings, 11 designates an electrostatic electrode head which is suspended from a stationary support 12 in any suitable manner, for example, by means of an insulating depending supporting bracket 13. The spherical electrode 11 is electrically connected by suitable insulated conductors to the output of a charging generator, not shown, which may be a conventional Van de Graaff electrostatic generator. Any other suitable electrostatic generator may be employed to provide the desired electrostatic charge on the spherical electrode 11.

Secured to the electrode 11 and depending therefrom is a metal hook 14 adapted to be engaged in the top portion of a hank of hair 15 in the manner illustrated in FIGURE 1, the hank of hair comprising a plurality of strands of hair bound together at their upper ends by a pair of spaced retaining bands 16 and 17, which may comprise rubber bands or flexible plastic rings. The upper ring 16 engages around the top portions of the hairs of the hank and the lower ring 17 may be adjusted in accordance with the amount of spread desired of the lower ends of the hairs when the hairs are electrified. Thus, with the fastening ring 17 disposed relatively close to the upper retaining ring 16, the lower ends of the hairs will be free to spread apart to a relatively large degree of divergence, whereas when the ring 17 is adjusted to a much lower position, namely to provide a large spacing between the rings 17 and 16, the amount of spread of the depending lower ends of the hairs is relatively limited, for a given charging potential of the electrode 11.

As shown, in the step of the process illustrated in FIGURE 1, the hook 14 is engaged through the hairs between the rings 16 and 17, so that the hank of hair is suspended from the hook with the lower ends of the hairs free.

The hank of hair 15 is cut so that originally the lower ends of the hairs are substantially flush with each other. As will be readily understood, when the electrostatic generator is energized to charge the electrode 11, the hairs assume like charges and tend to repel each other, causing their free ends to diverge. The degree of divergence depends upon the position of the adjustable binding ring 17, as above explained.

Designated at 18 is a supporting stand provided with a vertical tubular upstanding post 19 in which is telescopically received a vertical rod 20 which may be adjusted vertically and secured in adjusted position by means of a set screw 21 provided in the top end portion of the tubular post member 19. Rigidly secured to the top end of the rod 20 is a horizontal rigid plastic supporting plate 22 which may be of any suitable plastic material, for example, which may be made of Lucite.

Designated at 23 is a plastic bowl which may be of any suitable material, such as Lucite, having a curvature which is comparable to the curvature of the envelope of the ends of the spread hairs of hank 15 when the hairs are charged up, as above described. Thus, the bowl 23 is upwardly concaved, and has a curvature which is closely similar to the curvature of the envelope of the spread free ends of the hairs.

A concave bowl-shaped film of flexible plastic material, such as polyethylene film, shown at 24, is disposed in the bowl member 23, the concave top surface of the film

24 being coated with a flexible cement. The film 24 may comprise a pre-blocked netting instead of a polyethylene film, the netting being sufficiently flexible to be reversed in curvature, as will be presently described.

The pre-formed netting or film 24 is disposed in the rigid bowl 23 so as to be supported thereby, and said bowl 23 is in turn disposed so that it is substantially in vertical alignment with the suspended hank of hair 15. After the parts have been arranged in the manner indicated in FIGURE 1, the electrostatic generator is energized to charge up the electrode 11, whereby the hank of hair is electrified, causing the free lower ends thereof to spread apart, for example, to a configuration represented by the dotted lines in FIGURE 1. The rod 20 is then elevated, by loosening the set screw 21, and raising said rod, until the ends of the hairs come into contact with and penetrate the adhesive cement provided on the net or film 24. The electrostatic generator is then deenergized and the cement is allowed to dry. Drying may be accelerated by suitably heating the assembly, for example, by blowing warm air through the hairs.

The members 22, 23 and 24 are non-conductive and are so shaped as to present a neutrally charged surface to the ends of the charged hairs. This prevents discharge and collapse of the charged hairs when contact is made with the adhesive-coated net or film 24.

Ring 17 may be suitably contoured to provide a desired outline or contour of the ends of the divergent tips corresponding to the outline or contour of the net or film 24.

When the member 24 is a net, many of the tips of the charged hair-like fibers will penetrate into the meshes of the net and thus simulate weaving.

At the completion of the drying procedure, the binding rings 16 and 17 may be removed, resulting in a product such as that which is illustrated in FIGURE 2, comprising the flexible net or film 24 to which is adhered the upwardly converging strands of hair of the original hank 15, the assembly being supported in the rigid plastic bowl 23, as illustrated in FIGURE 2. The top end portions of the hairs may be trimmed off by the use of shears 26, as shown in FIGURE 3, and the assembly may be removed from the bowl 23, yielding the resultant product designated at 30 in FIGURE 4 wherein the film or net 24 has a downwardly facing convex surface.

The exposed surface of the net or film 24 is then secured on a net or form 31 corresponding in contour to the head of the person for whom the wig is being made, the net or film 24 being reversed in curvature so that it is downwardly concave, and so that the hairs of the original hank 15 now extend radially outwardly and diverge upwardly. FIGURE 4 illustrates the step immediately preceding the reversal of the net or film 24, wherein the net or film 24 is downwardly convex and is placed in opposing relationship to the upwardly convex formed net 31. After the reversal of curvature of the net or film 24 said net or film is downwardly concave and can be easily nested onto the form 31. A suitable adhesive cement is provided on the downwardly facing surface of the net or film 24 to enable same to be fastened to the exposed surface of the formed net 31.

After the form 31 has been secured to the reversed net or film 24 with the hairs extending radially outwardly therefrom, and after the cement employed has thoroughly dried, the hairs may be formed and shaped to provide the finished hair piece shown at 32 in FIGURE 5.

It will be noted that when the ends of the hairs are adhesively secured to the net or film 24 by the procedure above described, said ends are substantially evenly distributed, so that in the resultant product 30 shown in FIGURE 4 the hair ends are spread substantially uniformly on the upwardly facing surface of the net or film 24 and are firmly secured thereto.

FIGURE 6 illustrates a variation of the above described procedure wherein a plurality of relatively small areas of adhered hair assemblies, shown at 40, may be fastened onto a suitably shaped formed net 41, the tufts 40 being fabricated by the procedure above described and illustrated in FIGURES 1 to 4. The tufts or wefts 40 may comprise human hair or synthetic fibers, so that the tufts may be assembled alongside each other to form a blend. This reduces the cost of the finished product and enables the fabricator to control the percentage of human air to be employed in the finished wig. Furthermore, it enables the fabricator to select the locations of the various tufts or wefts on the form 41 so as to provide a desired resultant composite assembly.

As an alternative to the method above described and illustrated in FIGURES 1 to 4, the shaped net or form 41 may be reversed in curvature and may be employed directly in the rigid supporting bowl 23 in place of the film or net 24, the hairs being adhered directly to the form 31. An auxiliary supporting net may be subsequently fastened to the underside of the form 31 after it has been returned to its original curvature, namely, has been reversed in curvature so that the hairs adhering thereto project outwardly therefrom in outwardly divergent relationship to each other.

While certain specific embodiments of a method of fabricating a hair piece have been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. In a method of fabricating a hair piece, the steps of forming a wig comprising binding a plurality of hair-like fibers at one end to form a hank of hair, suspending the hank at its bound end from a charged electrode to cause the depending free ends of the fibers to diverge downwardly, elevating a concave flexible support into contact with the diverging lower fiber ends, adhesively securing said fiber ends to said concave flexible support, unbinding the fibers after they have become fastened to the flexible support, reversing the flexible support so that the fibers extend divergently outwardly from a convex surface of the support, securing a net to the under surface of said flexible support, and shaping the fibers to form a wig.

2. In a method of fabricating a hair piece, the steps of forming a wig comprising binding the upper end portions of the fibers to form a hank of hair, electrifying the fibers so that their lower ends diverge by electrostatic mutual repulsion, securing a flexible reversible concave support to the free ends of the fibers, with said free ends spaced substantially uniformly over the concave surface of the support, and unbinding the upper end portions of the fibers, reversing the curvature of the flexible support so that the fibers diverge from its top surface, and shaping the fibers to form a wig.

3. In a method of fabricating a hair piece, the steps of forming a wig comprising binding the upper end portions of the fibers, trimming the lower ends of the fibers so that they are substantially flush with each other to form a hank of hair, electrifying the fibers so that their lower ends diverge by electrostatic mutual repulsion, securing a flexible reversible concave support to the free ends of the fibers, with said free ends spaced substantially uniformly over the concave surface of the support, unbinding the upper end portions of the fibers, reversing the curvature of the flexible support so that the fibers diverge from its top surface, and shaping the fibers to form a wig.

4. In a method of fabricating a hair piece, the steps of forming a wig comprising binding the upper end portions of the fibers, trimming the lower ends of the fibers so that they are substantially flush with each other to form a hank of hair, electrifying the fibers so that their lower ends diverge by electrostatic mutual repulsion, securing a flex-

ible reversible concave support to the free ends of the fibers, with said free ends spaced substantially uniformly over the concave surface of the support, unbinding the upper end portions of the fibers, trimming the upper ends of the fibers so that they are substantially flush with each other, reversing the curvature of the flexible support so that the fibers diverge from its top surface, securing a net to the under surface of the support, and shaping the fibers to form a wig.

5. In a method of fabricating a hair piece, the steps of binding a plurality of hair-like fibers at one end to form a hank, electrifying the fibers to cause the free ends of the fibers to diverge, adjustably binding the fibers at a location spaced from said one end to adjust the degree of divergence of said free ends, adhesively securing a concave

flexible support to the diverging fiber ends, unbinding the fibers after they have become fastened to the flexible support, and reversing the flexible support so that the fibers extend divergently outwardly from a convex surface of the support.

6. In a method of fabricating a hair piece, the steps of binding a plurality of hair-like fibers at one end to form a hank, electrically charging the fibers to cause their free end portions to repel each other and to diverge, adhesively securing a concave flexible support having a neutral charge to the diverging fiber ends, unbinding the fibers after they have become fastened to the flexible support, and reversing the flexible support so that the fibers extend divergently outwardly from a convex surface of the support.

No references cited.