ROTARY DRIVEN HAIRBRUSH

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ABSTRACT OF THE DISCLOSURE

A rotary motor driven hairbrush having bristles which are disposed at an angle relative to a radial direction so that they may produce a more gentle stroking action of the hair being brushed thereby giving a better sheen to the hair, or so that they may prevent engaging or catching of the hair when being brushed. Means is provided for changing the angle of the bristles from a clockwise position to a counterclockwise position and vice versa. The brush is powered by a motor activated by batteries contained within the brush handle.

This invention relates generally to hair brushes. More specifically it relates to hair brushes of rotary type which are motor driven.

A principal object of the present invention is to provide a motor driven, rotary hair brush having bristles which are disposed at an angle relative to a radial direction so that they may produce a more gentle stroking action of the hair being brushed, thereby giving a better sheen to the hair, or so that they may prevent snagging or catching of the hair.

Another object of the present invention is to provide a rotary hair brush having means whereby the bristle angle may be readily changed between a clockwise position and a counterclockwise position so that the brush may be used in either the right or left hand or to brush hair in either direction.

Yet another object of the present invention is to provide a rotary hair brush wherein the angularly disposed bristles are automatically changed in position between a clockwise direction and a counter clockwise direction.

Yet a further object of the present invention is to provide a rotary hair brush with angularly disposed bristles which is powered by a motor activated by batteries contained within the brush handle, or by an outside source of electromotive force.

Still another object is to provide a rotary hair brush with angularly disposed bristles which may be selectively rotated in either a forward or reverse direction.

Other objects of the present invention are to provide a rotary hair brush with angularly disposed bristles which is simple in design, inexpensive to manufacture, rugged in construction, easy to use and efficient in operation.

These and other objects will be readily evident upon a study of the following specification and the accompanying drawings wherein:

FIGURE 1 is a perspective view of one form of the present invention, showing the bristles positioned in one direction.

FIG. 2 is a similar view thereof with the bristles thereof positioned in an alternate direction.

FIG. 3 is a vertical sectional view taken on the line 3—3 of FIG. 2 and showing the brush member separated from the handle.

FIG. 4 is an end view of a modified form thereof, parts being shown broken away.

FIG. 4A is a similar view of another modified form thereof.

FIG. 5 is a perspective view of another modified form of the present invention, the device being rotatable in either a forward or a reverse direction.

FIG. 6 is an exploded fragmentary view thereof parts being shown broken away.

FIG. 7 is an end view of the brush illustrated in FIG. 5.

FIG. 8 is an end view of the brush shown in FIG. 7, and shown in operative use.

FIG. 9 is a view similar to FIG. 8 and showing the brush operated in an alternate direction.

FIG. 10 is an enlarged end view of the brush shown in FIG. 8, and FIG. 11 is an enlarged end view of the brush showing the bristles bent as in FIG. 9.

Referring now to the drawings in detail and more particularly to FIGS. 1 to 3, the reference numeral 20 represents a rotary hair brush with angularly disposed bristles according to the present invention wherein there is a brush member 21 and a handle member 22.

The brush member 21 includes an elongated shaft 23 which is shown in FIGS. 1 to 3 is shown to be of general cylindrical configuration, and having a cylindrical side wall 24 bounded by opposite end walls 25. A plurality of tufts 26 of bristles 27 are arranged in rows 28 and the tufts are connected at their one ends to the shaft by any conventional manner such as being inserted into openings 29 formed in the shaft. It is to be noted that when viewed from the end, the bristles are disposed at an inclined angle relative to a radial direction from the central axis of the shaft 23 and an opening 30 of relatively short length is provided in each end wall 25, the openings being in axial alignment with the shaft, and each opening being of a square configuration or the equivalent whereby same may provide a means for being engaged by the handle member and rotated thereby. The bristles 27 may however be curved instead of straight as shown in FIG. 4A and may be individually tapered from end to end.

The handle member 22 includes an elongated tubular housing 31 which may be of any configuration so that the same may be conveniently held within a person's hand and which encloses a central compartment 32. Within the compartment 32, there is an electric motor 33 which is powered by a battery or batteries, the battery or batteries 34 being removable from the compartment 32 by means of a threaded end cap 35. The electric motor may also be driven by rechargeable battery or by 110 v. house current with cord. Thus replacement of the batteries may be possible when the same are worn out. The motor 33 drives a rotatable motor shaft 36 which is of square configuration at its terminal end and the terminal end extends outward of the housing 31 to permit engagement thereof within the opening 30 of the brush member 21. A switch 37 is conveniently located upon the outer side of the handle member to permit starting and stopping the motor by disconnecting an electrical circuit between the motor and batteries.

In operative use, when a person desires to brush her hair, the brush member 21 is secured to the handle member 22 by means of introducing the shaft end 36 into the opening 30 thereby connecting the two members together, then grasping the handle within one hand and with one finger or thumb turn on the switch 37, thereby causing the brush member to rotate. The brush is then stroked through the hair in a conventional manner. When it is desired that the brush be used in the other hand so as to reach more conveniently the hair upon the opposite side of the head, the motor is stopped, the brush member is removed from the handle and turned around so that the
opposite end of the shaft is placed against the end of the handle member and then engaged therewith. Thus the bristles become positioned in an opposite angular direction, as is readily indicated between FIGS. 1 and 2. The switch 37 is then moved to turn the brush and bristles in the opposite direction.

In FIGS. 4 and 5 a modified design of shaft 23A is shown wherein the shaft is not of cylindrical configuration but wherein the elongated surface thereof is divided into a plurality of facets 38, each facet 38 supporting a row of brush bristles 39.

In a modified form of the invention illustrated in FIGS. 5 to 11 in which their brush 50 is shown which dispenses the bristles angularly in either a clockwise or counterclockwise direction. The rotary hair brush 50 includes a brush member 51 and a handle member 52.

The brush member 51 is comprised of a pair of circular discs 53 in spaced apart, axial alignment. An elongated shaft 54 is disposed therebetween and connected at each end thereto. Each of the discs is provided with a plurality of openings 55 extending therethrough, the openings being arranged equidistantly spaced along a common diameter. The openings 55 provide for supporting pivotally free a plurality of brush units 56.

Each of the brush units 56 comprises a base 57 of elongated configuration and supporting a singular row 58 of bristle tufts 59. Each brush unit is of relatively narrow cross sectional configuration and having a generally tapered end which is opposite the end that supports the bristles 59 so as to permit interfitting of the units in the positions shown in FIGS. 10 and 11. The brush unit thus includes parallel opposite side walls 60 and converging side walls 61 upon the base 57. The base further includes parallel opposite end walls 62 from each of which there extends a stub shaft 63 of cylindrical configuration and which is engageable within openings 55 on each of the discs 53. Thus the brush unit is supported at each end and is located between the discs 53 in a normal operative use, the brush unit being supported pivotally free therebetween so as to assume the angled positions illustrated in FIGS. 10 and 11.

One of the discs 53 is provided with a square opening 64 concentrically located therein which is engageable with a corresponding square ended motor shaft 65 located in handle member 52. The handle member 52 is likewise comprised of a housing 66 which encloses a motor and power source, not shown, and wherein the motor is of a forward and reverse movement type. A switch 67 protrudes conveniently outward of the housing 66 where it may be conveniently manipulated by a person's thumb or finger, the switch 67 being movable between positions indicated by indicia 68 upon the outer side of the housing.

In operative use, the rotary hair brush 50 is grasped by its handle within a person's hand and the switch 67 is moved from an off position to either a forward or reverse position depending upon which side of the head of hair is intended to be brushed. When the person wishes to place the brush within the other hand and brush the other side of the hair on the other side of the head, then the switch is moved to an off position and then set into the reverse direction, thereby causing the bristles to be angularly disposed in an opposite direction. When the brush 50 is not in use the bristles may assume a position as shown in FIG. 7 wherein they are neither inclined forwardly or reversely. However when the brush is used the engagement of the bristles with the hair will cause the bristles to drag thereby causing the bristles to pivot about stub shafts 63 and thus assume the position as shown in FIGS. 8 and 9. Thus also when the direction of rotation is reversed the bristles are caused to drag in an opposite direction thus causing the brush elements to become reversed between the positions shown in FIGS. 10 and 11. The same figures clearly indicate how the lower ends of the brush elements are tapered and how they nestle together in an operative use and provide a limitation to the amount of angular disposal.

In FIGS. 12 and 13, another modified form of hair brush 70 is shown which differs from the brush shown in FIGS. 5 to 11 merely in that brush unit stops 71 are fitted in the end discs 53 and project outwardly therefrom between the brush elements 56. In all other respects brush 70 is similar to the brush of FIGS. 5 to 11, inclusive, and similar reference numerals with a prime added are used to indicate similar parts.

Thus there has been provided a rotary hair brush wherein the bristles are angularly disposed and which may be either manually or automatically controlled so as to dispose the bristles in an opposite direction so that the brush may be used conveniently in either hand to brush either sides of the head.

It will be understood that the angle at which the bristles are disposed may vary from 1° to 90°. Furthermore, the brush elements 56 can be varied in shape and size, which shape and size determine the angle of the radial bristles.

The invention also contemplates that a slip clutch or other safety means may be used in order to assure that the torque on the brush will not be strong enough to cause injury to the user.

While various changes may be made in the details of construction, it is understood that such changes would be within the principle and scope of the present invention as is defined by the appended claims.

1. In a rotary hair brush the combination of a brush member, a handle member, power means within said brush handle member to rotate said brush member, said power means comprising electrical power means controlled from said handle member to rotate said brush member connected at its one end to one end of said brush member, and said brush member including a plurality of rows of bristles arranged in tufts, said bristles in an operative position being angularly inclined respective to a radial direction from an axis of rotation of such brush member, said handle member comprising an elongated tubular housing enclosing a central chamber, said chamber containing an electric motor and batteries in electrical circuit with a switch having switch control means extending outwardly of said central chamber, said switch control means being conveniently located for manipulation by an operator's fingers or thumb, said motor having a motor shaft extending outwardly of the end of said handle housing and the terminal end of said motor shaft having a square configuration for engagement with said brush member, said brush member being comprised of a pair of spaced apart circular discs, said discs being in parallel relationship, a shaft between said discs, said shaft being in axial alignment with said discs and affixed between said discs, each of said discs having a plurality of openings arranged around a common circle concentric with said discs, said openings being equidistantly apart and extending through said discs to provide bearing means for a plurality of brush units supported pivotally free therebetween.

2. The combination as set forth in claim 1 wherein each of said brush units is comprised of an elongated base, said base having flat parallel opposite sides, said flat sides being adjacent a pair of angular sides converging together to form a lower end, the upper end of said base having a plurality of openings therein for receiving one end of a plurality of bristle tufts, said base having opposite end walls, said end walls being parallel to each other and each of said end walls having an opening, said stub shafts being in axial alignment with each other, and such stub shafts being engaged within said openings of said discs.

3. The combination as set forth in claim 2 wherein said stub shafts are pivotally free within said openings of
said discs, and said lower end of said base having said converging sides forms a stop to limit the angular disposal.

4. A combination as set forth in claim 3 wherein one of said discs has a square opening centrally located for engagement with said square end of said motor shaft, and said motor is of forward and reverse direction type to provide forward and reverse direction to said brush member.

5. The combination as set forth in claim 4 wherein the end walls have brush element stops fitted in the end walls between the brush elements.