March 11, 1969 D. E. KRAUS 3,431,571

ROTARY DRIVEN HAIRBRUSH

Filed Oct. 26, 1966

Sheet 1 of 4

Fig. 1.

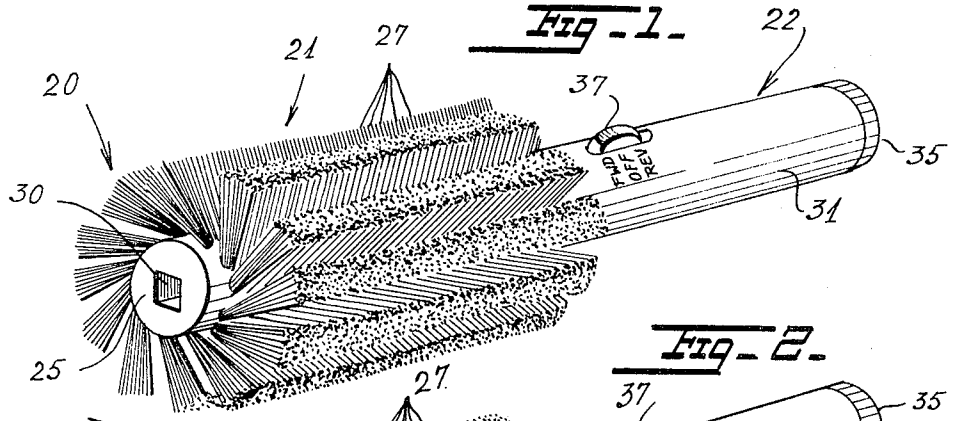


Fig. 2.

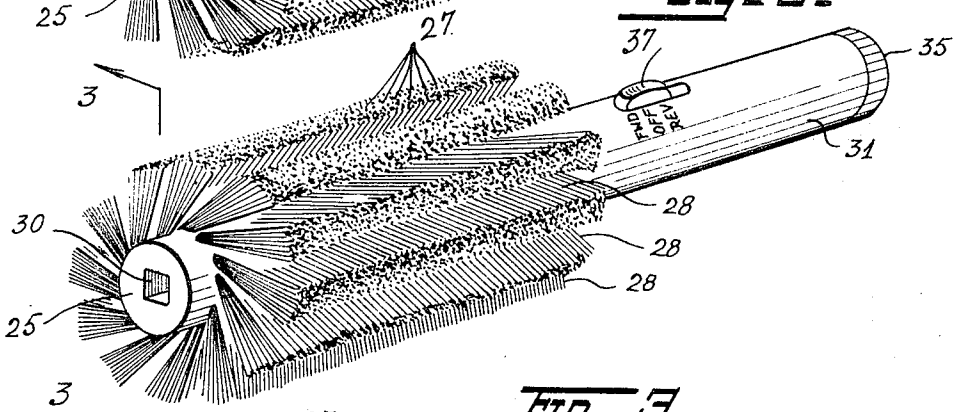


Fig. 3.

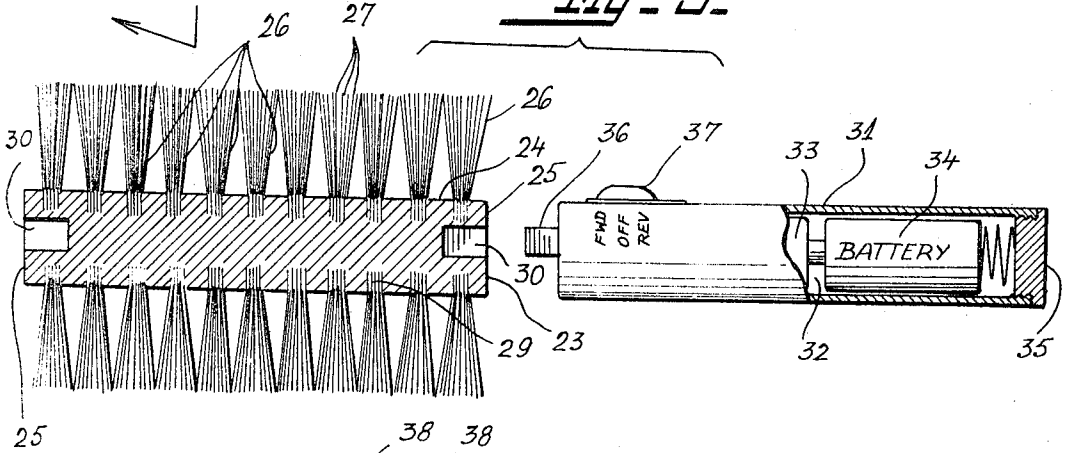
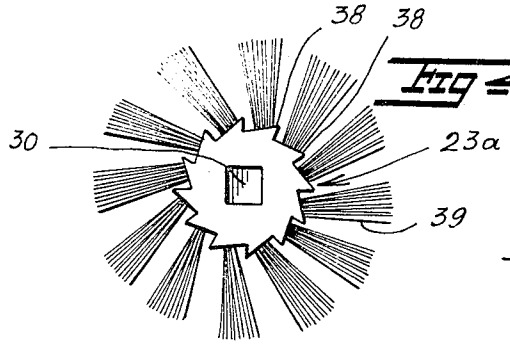


Fig. 4.



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Fig 4A

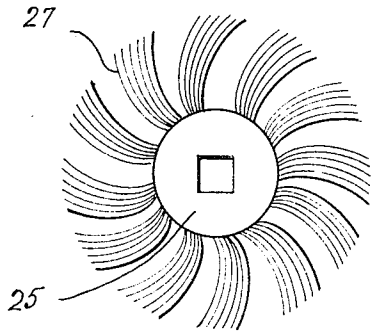


Fig 13

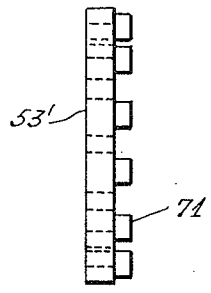
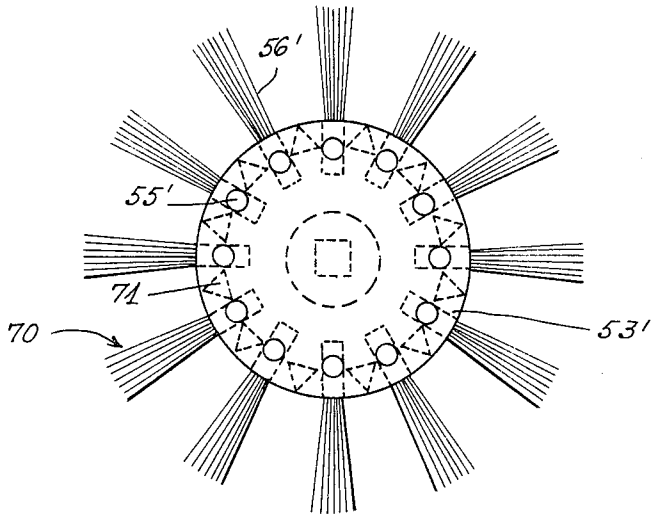


Fig 12



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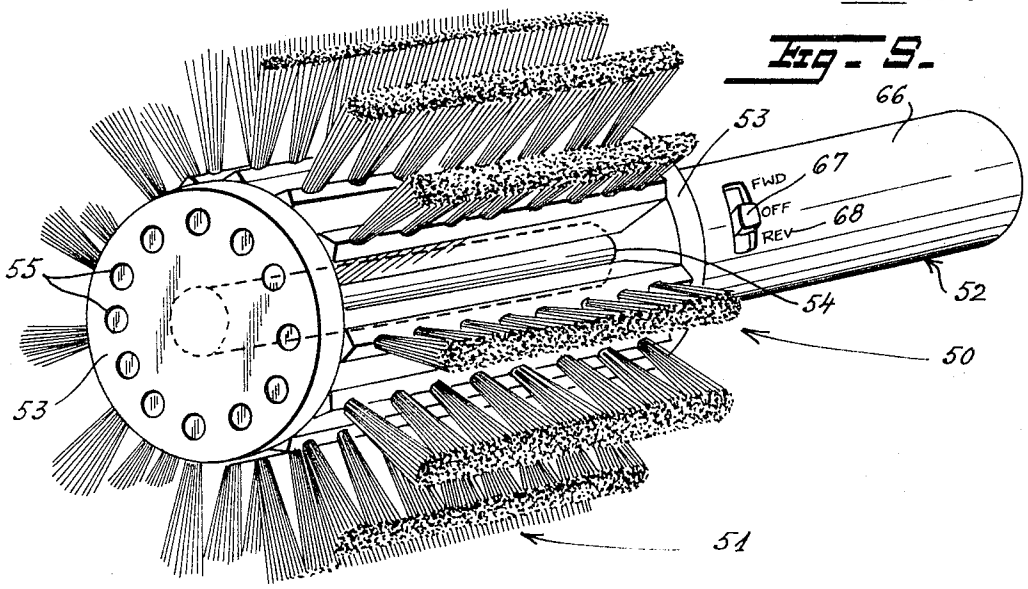
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Fig - 5.



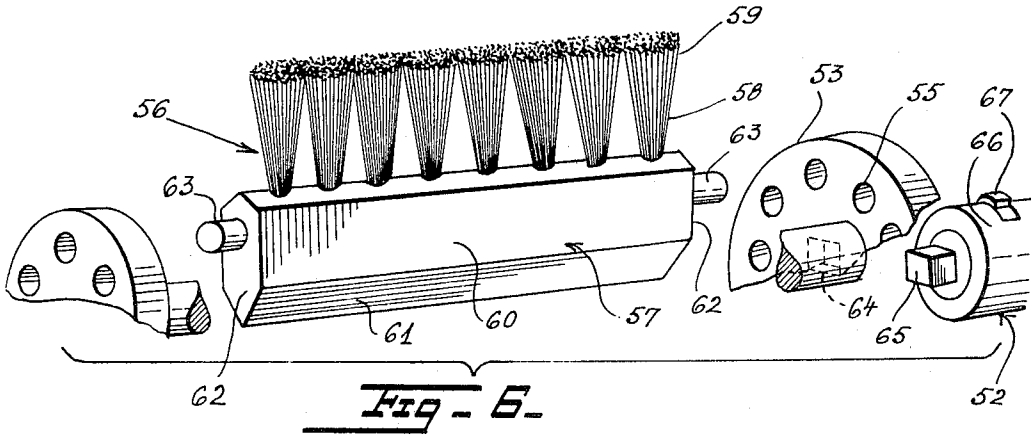


Fig - 6.

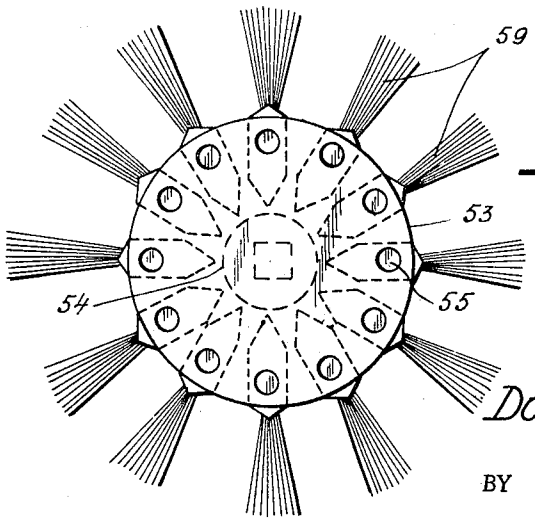


Fig - 7.

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Fig. 8.

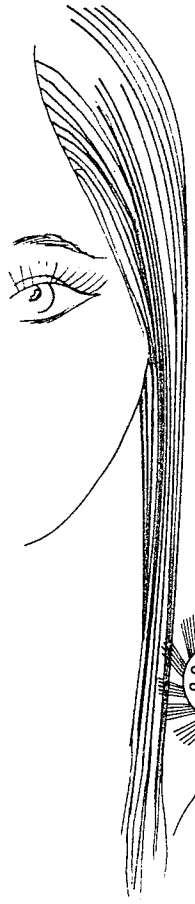


Fig. 10.

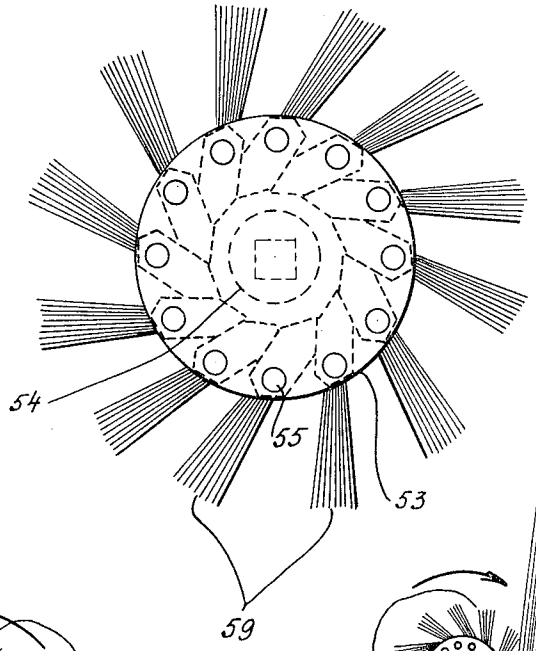
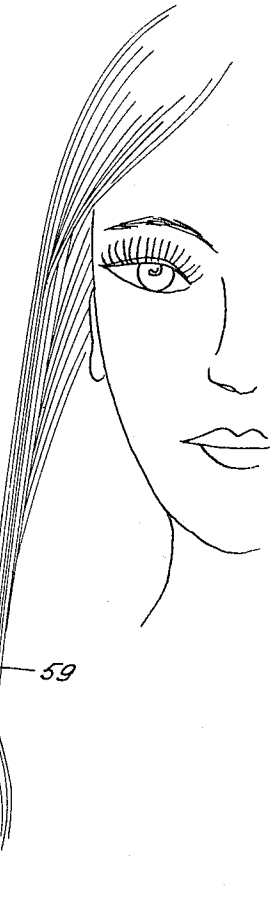
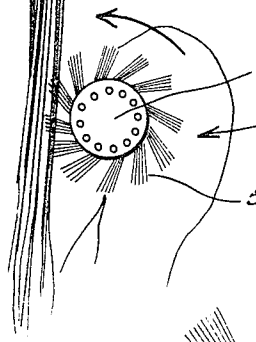
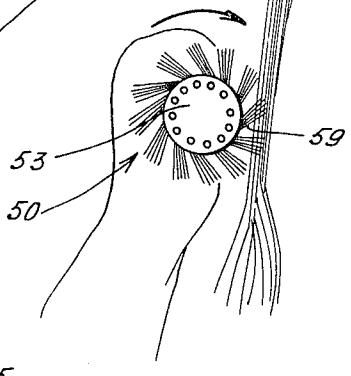


Fig. 9.







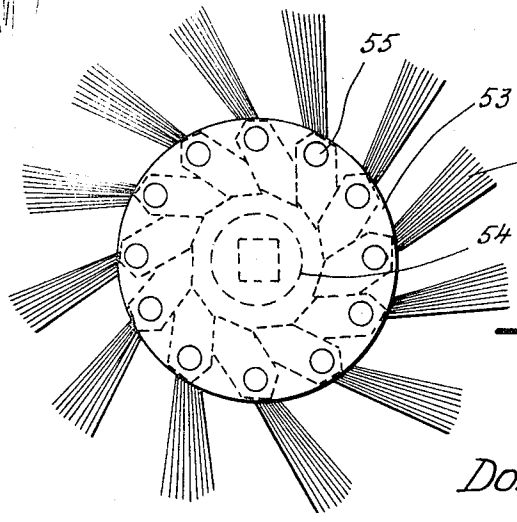


Fig. 11.

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United States Patent Office 3,431,571
Patented Mar. 11, 1969

3,431,571

ROTARY DRIVEN HAIRBRUSH

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Filed Oct. 26, 1966, Ser. No. 589,675
U.S. Cl. 15—23 5 Claims
Int. Cl. A47b *13/04, 7/10, 9/10*

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 bruhes. 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, rotory 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 counter clockwise 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,

FIG. 12 is an end view of another modified form of hair brush,

FIG. 13 is an edge view of the disc of FIG. 12.

Referring now to the drawings in detailed 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 in FIGS. 1 to 3 is shown to be of generally 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 FIG. 4 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 to11, a rotary hair brush **50** is shown which incorporates automatic self-adjusting means for disposing 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 equidistant apart upon a common circle. The openings **55** provide a means 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 upon the 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 on 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 brush element 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 thereof 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 device 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.

I claim:

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 handle 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 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 equidistant 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 outward extending stub shaft, 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.

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EDWARD L. ROBERTS, *Primary Examiner.*

U.S. Cl. X.R.

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