Aug. 5, 1969 J. F. CONNELL 3,459,199

TEASING AND UNSNARLING IMPLEMENT

Filed July 13, 1966

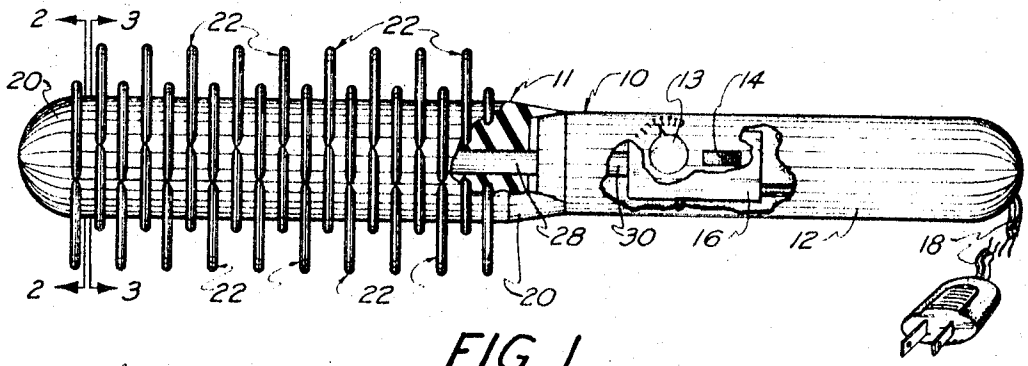


FIG. 1

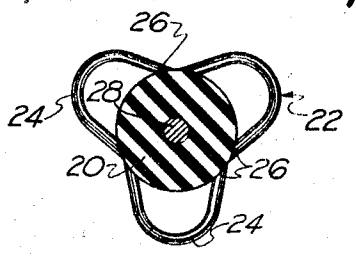


FIG. 2

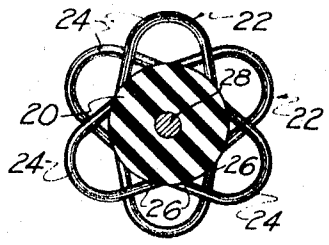


FIG. 3

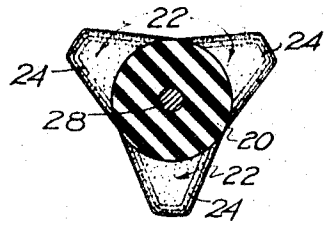


FIG. 4

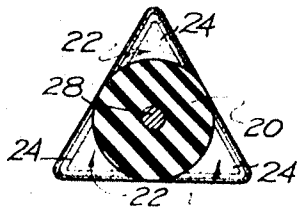


FIG. 5

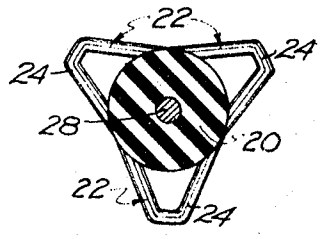


FIG. 6

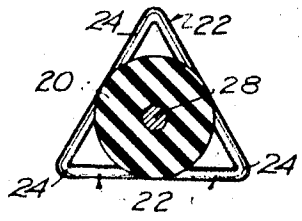


FIG. 7

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TEASING AND UNSNARLING IMPLEMENT

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ABSTRACT OF THE DISCLOSURE

A teasing and unsnarling implement including a support means and a plurality of hair-engaging elements spaced from each other and extending along the support means. Each of the hair-engaging elements comprising a plurality of spaced apart teeth parallel to each other and perpendicular to the central longitudinal axis of the support means. The teeth of one element are spaced from and aligned between the teeth of the adjacent elements. Each tooth has a smooth periphery and a tapered side or edge which slopes away from the support means. The support means is rotatably connected to a handle and a driving means is carried in the handle for rotating the support means.

This invention relates to improvements in combs and brushes and in particular relates to an improved power operated teasing and unsnarling implement provided with tangentially extending hair-engaging elements.

It is well recognized that a comb or brush when moved in a translatory motion from distal to proximal end of the strands of hair will tease those strands and thereby stimulate them to give the appearance of thicker hair having a greater degree of resilience. Further, it is well recognized that a comb or brush when moved in a translatory motion from proximal to distal end of the strands of hair will groom said hair and remove and untangle any snarls which might be present therein. However, both the teasing and unsnarling operation have proven most uncomfortable for the operator heretofore due to the length of time and vigorous motion required for the teasing operation and the jerking and pulling required for the unsnarling operation. Both of these shortcomings ultimately result in damage to the hair and discomfort and fatigue for the operator.

One of the objects of the present invention is to provide a power operated rotating teasing and unsnarling implement which substantially reduces the amount of translatory movement to be supplied by the operator.

Another object of the invention is to provide a plurality of hair-engaging elements tangentially depending from an elongate rotating support means, which when rotating, will transmit a rhythmically intermittent translatory force to the strands of hair.

A further object of this invention is to provide hair-engaging elements designed to impart a gentle translatory motion to the strands of hair causing an encountered snarl to be gently disentangled without an undue amount of jerking or pulling.

Another object of this invention is to provide hair-engaging elements designed to gradually engage a snarl of hair in the penetrating 90° rotation of the elongate support means and gradually disengage the same snarl in the subsequent exiting 90° rotation of the elongate support means, thereby imparting a rhythmically intermittent translatory force to the encountered snarls of hair.

In accordance with one embodiment of the invention, the teasing and unsnarling implement comprises a drive housing handle having a reversible variable speed electrical motor mounted therein, a rotatable elongate support means having a central axis extending longitudinally through the center thereof joined to the drive shaft of said electrical motor, and a plurality of hair-engaging elements tangentially depending from said rotatable support means. Said hair-engaging elements in this embodiment consist of a series of three teeth which depend from said support means in a common plane substantially perpendicular to the central axis of said support means; said teeth being disposed at an angle of substantially 120° from each other. Said teeth have sides tapered toward the outer end of each tooth thereby creating an arcuate outer surface which permits a gradual engaging and disengaging of encountered snarls. Said hair-engaging elements are alternatively affixed to said rotatable support means at a differential of 180°. Said elements when rotating transmit a rhythmically intermittent translatory force to the strands of hair by means of continuously engaging and disengaging said strands of hair. The alternating relationship of the hair-engaging elements causes the translatory force to be more continuous in relation to an encountered snarl.

Other objects, features and advantages of the invention will become apparent from the following description, taken in conjunction with the accompanying drawing, in which:

FIG. 1 is a top planar view of the teasing and unsnarling implement of the present invention;

FIG. 2 is a vertical section on line 2—2 of FIG. 1;

FIG. 3 is a vertical section on line 3—3 of FIG. 1;

FIGS. 4, 5, 6 and 7 are vertical section views of other hair-engaging elements which may be used in place of the looped bristles shown in FIGS. 1–3.

Upon particular reference to FIGS. 1, 2 and 3 of the drawing, it will be noted that the teasing and unsnarling implement **10** includes a brush head **11** which is rotatably mounted upon a drive housing handle **12**. A means for grasping implement **10** is provided by handle **12** and a variable speed adjustor **13** is mounted on handle **12** for selective adjustment of the relative rotational velocity of the head **11**. A reversing switch **14** is also provided on a portion of handle **12** for conveniently reversing the direction of rotation of brush head **11** while it is being used.

A source of rotation **16**, which is, for example, an electric motor, is mounted within handle **12**. The power to operate motor **16** is preferably supplied through an electric cord and plug set **18** for connection to a standard 110–120 volt A.C. outlet. Implement **10** may also be operated by batteries, for example, of the nickel cadmium cell type, which could be inserted within handle **12** in customary flashlight manner.

Brush head **11** consists of an elongate cylindrical support means **20** rotatable about a longitudinal axis extending through the center of said support means **20**. Said longitudinal axis functions as a common axis for a plurality of hair-engaging elements **22** which depend alternatively from said support means **20** at a differential of 180°. One hair-engaging element **22** consists of a plurality of teeth **24** depending from support means **20** in a

common plane substantially perpendicular to the longitudinal common axis of said support means **20**. Each tooth **24** has sides which taper toward the outer end of said tooth **24** thereby creating an arcuate outer surface designed to gradually engage and disengage an encountered snarl as said support means **20** rotates. In this embodiment, I have shown a series of three looped bristles or teeth **24** depending from support means **20** and disposed at an angle of substantially 120° from each other. This configuration is presented solely for explanatory purposes and should not limit the scope of my invention. With the above described arrangement of teeth, the ends **26** of each tooth are conventionally anchored in support means **20** and spaced therearound at a distance equal to approximately one third the circumference of the outer surface of support means **20**, thus creating the maximum amount of stability for each tooth and allowing the maximum amount of slope for each tooth side while containing the element **22** within one plane. In alternative arrangements of teeth, the ends of those teeth should also be spaced at a maximum around the outer surface of support means **20** while maintaining the entire element within one plane.

It should be understood that alternative arrangements of hair-engaging elements, such as a series of 4 or more teeth, a different degree of differentials between hair-engaging elements **22**, or a constantly dissimilar series of differentials between hair-engaging elements **22** are all equally within the inventive concept as herein disclosed. Furthermore, the teeth may be of variable length in accordance with the character or quality of the hair being teased or unsnarled, and may be of any suitable material, including thermoplastic, rubber, nylon or metal. The relative spacings of the hair-engaging elements **22** also are variable and would depend again on the character or quality of hair being teased or unsnarled. In addition, the teeth **24** of the hair-engaging elements **22** may be of hollow or solid construction and may consist of looped bristles shaped into any desirable configuration.

As shown in FIGS. 4, 5, 6 and 7, additional designs of hair-engaging elements are equally within the inventive concept. These include substantially square or pointed shaped solid teeth or looped bristles of various designs. The essential factor is that the elements have side surfaces to contact with the strands of hair and an arcuate or angled outermost surface which will easily engage and disengage the strands of hair or encountered snarls.

A drive shaft **28** extends within support means **20** and is anchored therein in a fashion similar to that as described for the anchoring of teeth **24** into the surface of support means **20**. Drive shaft **28** acts as an extension of the rotor shaft **30** of motor **15**, and provides the rotational force for the brush head **11**.

The proximal end of brush head **11** is designed to rotatably receive handle **12** therein thereby precluding the inadvertent tangling or winding of strands of hair around drive shaft **28**.

In the teasing operation, the operator should grasp the handle of the implement in one hand, extend a portion of hair with the other hand, force the hair engaging elements into engagement with the strands of hair at their base, energize the motor so that the rotation of the hair-engaging elements is toward the roots of the strands of hair, and move the implement with a translatory motion lengthwise of the hair toward the end thereof. The rotation of the hair-engaging elements will impart a substantially translatory force to each strand of hair and will thereby tease and stimulate said strand of hair.

In the unsnarling and grooming operation, the operator should perform similarly as for the teasing operation except that the rotation of the hair-engaging elements should be toward the ends of the strands of hair. As a snarl is encountered, a tooth of the hair-engaging element will engage the snarl on the penetrating 90° rotation of the head, gently push against said snarl, and then gradually disengage the same snarl as that tooth proceeds into its exiting 90° rotation. As this tooth exits, its sister tooth begins its penetrating 90° rotation and subsequent contact with the snarl. The 180° differentiation between hair-engaging elements allows the snarl to be acted upon by more than one set of teeth, thereby creating a substantially continuous but rhythmic disentanglement of the operator's hair. The ultimate result is that tangles and snarls are removed expeditiously and relatively comfortably.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A teasing and unsnarling implement including a plurality of hair-engaging elements and a support means, said support means comprising an elongate structure having a central axis extending longitudinally throuh the center of said structure, said hair-engaging elements extending from said support means in parallel spaced relationship to one another, and each said element comprising a set of teeth spaced from each other along said central axis and extending outwardly from said support means substantially perpendicular to said central axis, said teeth of each said element being aligned with each other along a line parallel to said central axis, said teeth of one of said elements being parallel to said teeth of each of said elements adjacent said one element, said teeth of said one element being aligned with the space between said teeth of said adjacent element, each of said teeth of each of said elements being wider at the point where said teeth join said support means than at the outer end of said teeth, each of said teeth having a tapering side extending from said support means toward the outer end of said teeth, each of said teeth defining a smooth surface between said side and the outer end of said teeth.

2. A teasing and unsnarling implement according to claim **1** wherein said hair-engaging elements and support means are rotatably mounted on a drive housing handle within which is disposed a source of rotation having a rotor shaft; a drive shaft extending from said rotor shaft and anchored to said support means thereby providing powered rotational velocity to said hair-engaging elements.

3. A teasing and unsnarling implement including a plurality of haid-engaging elements, a cylindrical support means having a central axis extending longitudinally through the center thereof, and means for rotating said support means, said hair-engaging elements extending from said support means in parallel spaced relationship to one another, and each element comprising a set of teeth extending radially outwardly from said support means, said teeth of each element being disposed in a common plane substantially perpendicular to said central axis and having sides tapered in a converging fashion toward the outer end thereof thereby providing an arcuate outer surface whereby an encountered snarl may be gradually engaged and disengaged, said hair-engaging elements alternately affixed to said support means at a differential of 180°, said hair-engaging elements comprising looped bristles which are anchored to the support means in sets of three and extend from said support means at an angle of 120° in relation to one another, said looped bristles having ends anchored to said support means at a distance substantially equal to one-third the circumference of said support means thereby creating, when in operation, a rhythmically intremittent translatory force against the strands of the operator's hair.

4. A teasing and unsnarling implement according to claim **3** wherein said means for rotating said support means includes a handle and a source of rotation, said source of rotation being variable and reversible, and an adjusting switch provided upon said handle for conveniently adjusting and changing the direction of rotation of said hair-engaging elements as they are being used.

5. A teasing and unsnarling implement including a plurality of hair-engaging elements and a support means, said hair-engaging elements extending from said support

means in parallel spaced relationship to one another, each said element comprising a set of teeth spaced along said support means parallel to each other and extending outwardly from said support means substantially perpendicular thereto, said teeth of each element defining at least one outer surface angled with respect to said support means and defining a continuous smooth edge whereby any encountered snarl may be gradually engaged and disengaged.

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