

May 7, 1968

E. BROWN
 DEVICE FOR CUTTING BODY HAIRS GROWING IN
 OR ADJACENT BODY CAVITIES
 Filed Sept. 2, 1965

3,381,373

FIG. 1

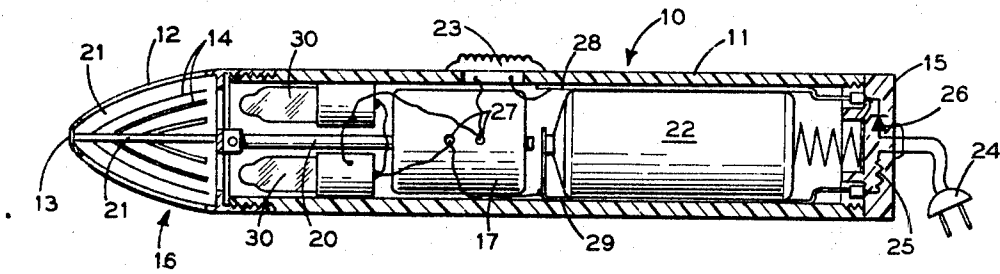


FIG. 2

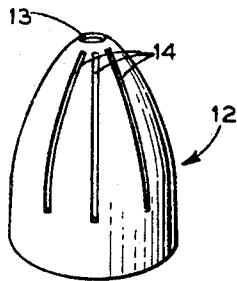


FIG. 3

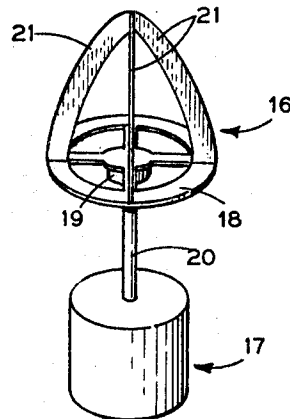


FIG. 4

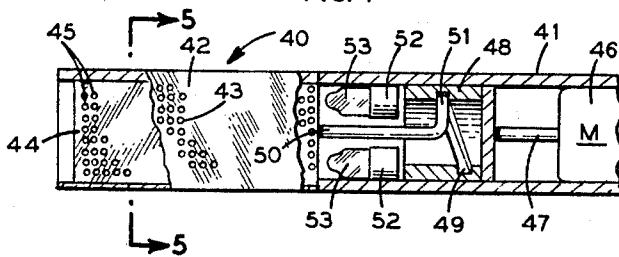
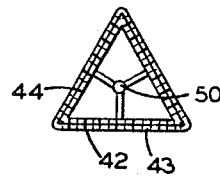


FIG. 5



INVENTOR
 Ernest Brown
 BY *Archer P. Fattibene*
 ATTORNEY

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DEVICE FOR CUTTING BODY HAIRS GROWING IN OR ADJACENT BODY CAVITIES

Ernest Brown, 587 Colorado Ave.,

Bridgeport, Conn. 06605

Filed Sept. 2, 1965, Ser. No. 484,708

1 Claim. (Cl. 30—29.5)

ABSTRACT OF THE DISCLOSURE

This invention is directed to an electrically operated cutter or shaver which includes an elongated tubular housing having a stator tip connected to one end of the housing. The stator tip is provided with an opening formed in the tip end thereof and a plurality of hair inlet openings formed about the surface of the tip. A cutter is rotatably mounted within the stator tip and a drive means including a motor is disposed in the housing and operatively connected to the cutting means to effect relative rotation of the cutter means with respect to the stator to effect a shearing action on any of the hairs which project through the hair inlet openings of the stator tip. Means are disposed within the housing between the cutter and the motor for illuminating the area in which the shaver is operating. Means are also included for rendering the cutter or shaver operable on either AC or DC current.

This invention relates in general to a cutting or shaving device for cutting or trimming body hairs growing in or about the cavities of the body; and more specifically to an electric shaver or cutting device for trimming or cutting body hairs growing in or around body cavities, as for example the nose, ears, and other portions of the body.

Heretofore, extreme difficulties have been encountered in cutting, trimming, or removing unwanted hairs growing in or around body cavities, as for example one's nose and ears. Heretofore, such cavity hairs have been trimmed or cut with a scissor or other similar tool. Because the membranes within a body cavity are extremely delicate, extreme care had to be exercised in order to prevent injury to these membranes. Because of the inherent operation of a scissor or other similar tool for cutting such cavity hairs, it has been difficult, if not impossible, to cut the hair close to the root end thereof. Consequently, frequent trimming operations were required. The difficulty in cutting such hairs close to the root end is further aggravated when one attempts to cut the hairs in his own nose or ears.

Another disadvantage which has been noted in trimming nasal hairs and other unwanted hair growing in and around body cavities is that of sufficient lighting or illumination directed into or around the body cavity when trimming with scissors. Because of the general inaccessibility to such unwanted cavity hairs, and the lack of illumination within such cavities, it has been heretofore most difficult for a person to trim or cut such unwanted hair himself. Consequently, more often than not such unwanted hair remained uncut or unremoved thereby adversely affecting one's grooming and/or good looks.

It is therefore an object of this invention to provide an improved electric cutter or shaver which is particularly adapted for trimming or cutting unwanted body hairs growing in or around the various body cavities, as for example the nose and ears.

Another object of this invention is to provide an improved electric shaver for trimming unwanted body hairs in and around body cavities which is absolutely safe, and which when operating illuminates the area or cavity in which the shaver or cutter is operating.

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Another object of this invention is to provide an electric shaver or cutter that is specifically constructed and arranged so as to be received in the various body cavities to effect the cutting and/or removing of hairs growing therein with complete safety and without causing injury to the adjacent tender membranes.

Another object of this invention is to provide an improved shaver or cutter for removing unwanted body hairs growing in and around body cavities which can be efficiently and effectively operated by the person himself.

Another object of this invention is to provide a shaver or cutter which may be also utilized for trimming or cutting hair growing on various parts of the body.

Another object of this invention is to provide an electric hair cutter or shaver which is relatively simple in construction, inexpensive to manufacture, and positive in operation.

Another object of this invention is to provide an electric shaver or hair cutter which can operate with either AC or DC current.

The foregoing objects and other features and advantages are attained by an electrically operated cutter or shaver that comprises an elongated tubular housing that includes a stator tip connected to one end of the housing.

The stator tip is provided with an opening formed in the tip end thereof, and a plurality of hair inlet openings formed about the surface of the tip. A cutter means is moveably mounted within the stator tip. A drive means comprising a motor is disposed with the housing and it is operatively connected to the cutting means to effect relative movement of the cutter means with respect to the stator to effect a shearing action on any of the hairs which project through the hair inlet openings of the stator tip.

In accordance with this invention, means are disposed in the housing for illuminating the area in which the shaver is operating. Means are also provided for rendering the shaver or cutter operable for either AC or DC current operation. This is attained by connecting the motor of the shaver in circuit with a battery which is carried within the housing of the device. Operatively connected in circuit with the battery is a resistor and rectifier which when connected to a source of household current will render the shaver operable on AC current and at the same time effect a charge on the battery if such charge is required.

In one form of the invention, the cutter means is rotatably journaled within the stator tip end of the housing. In another form of the invention, the cutter means is reciprocated relative to the stator to effect the cutting action.

A feature of this invention resides in a shaver adapted for use in removing or trimming body cavity hairs in which provision is made for illuminating the body cavity.

Another feature resides in an electric shaver having a circuitry in which the same may be powered by a battery carried within the housing of the shaver, or alternately by an external source of AC power.

Other features and advantages of this invention will become more readily apparent when considered in view of the drawings and specification in which:

FIGURE 1 is a cross-sectional view of the shaver or cutter device in accordance with this invention.

FIGURE 2 is a detail perspective view of the stator tip of the shaver of FIG. 1.

FIGURE 3 is a perspective detail view illustrating the cutter assembly and drive means utilized in the construction of the shaver of FIG. 1.

FIGURE 4 illustrates a fragmentary showing of a modified form of the invention having parts shown therein in cross-section.

FIGURE 5 is a sectional view taken along line 5—5 on FIG. 4.

Referring to the drawings, there is shown therein an electric shaver or cutting device 10 for removing the unwanted hair growing in or about the various body cavities, as for example one's nose and ears. While the instant shaver or cutter 10 is particularly described with application for the removal of the unwanted hair on the human anatomy, the shaver or cutter 10 can also be satisfactorily used for trimming the hairs of an animal.

In the form of the invention disclosed in FIGS. 1 through 3, the shaver or hair cutting device 10 comprises a housing which includes an elongated tubular member or body 11 having a stator tip end 12. The stator tip 12 is shaped so as to be received within a body cavity to remove the unwanted hair growing therein, as will be hereinafter described. As shown in FIGS. 1 and 2, the stator tip 12 is defined in the form of a cone or bullet. With such a shape, the tip 12 may be readily received within a body cavity, as for example the nostrils of one's nose or the outer canal of one's ear and the like.

The tip end of the stator is provided with an opening 13 therein. Also, the surface of the stator tip 12 is provided with a plurality of hair inlet openings 14. In the illustrated form of the invention, the hair inlet openings are defined as a plurality of longitudinally extending slots that extend through the wall thickness of the stator tip. However, it will be understood that the hair inlet openings may assume any desired shape or configuration. For example, in an alternate construction (not shown), the hair inlet openings may consist of a series of perforations or round holes closely spaced on the surface of the stator tip.

The stator tip 12 may be either integrally formed or detachably connected to the body portion 11 of the housing. In the illustrated form, the stator tip 12 is detachably connected to the housing 11 by means of a threaded connection.

The other end of the housing is closed by a suitable cap, end closure 15, which may be also threadedly connected to the housing 11. Also, it will be understood that the body portion 11 of the housing can be made either as a single unit and/or a plurality of connected sections.

In the illustrated form of the invention, the body portion 11 of the housing comprises a single tubular member to which the stator tip 12 is detachably connected by means of screw threads. Also, the end closure 15 is detachably connected to the body portion 11 of the housing by a suitable thread connection.

Disposed within the stator tip 12 is a cutting means 16 and an associated motor means 17 for effecting the drive thereof. As best seen in FIG. 3, the cutter means 16 comprises an annular base or mounting ring 18 having a connected hub 19 by which the cutting means 16 is connected to the rotating shaft or spindle 20 of the motor 17. Connected to the ring 18 of the cutter 16 in circumferentially spaced relationship thereabout are a plurality of cutting blades 21, each being shaped to conform closely to the inner surface of the stator tip 12. The arrangement is such that the cutting blades 21 are rotatably journaled within the stator tip end 12.

In operation, the hairs projecting through the hair inlet openings 14 of the stator tip 12 will be sheared by the cutter blades 21 as the cutting head 16 is rotated when the shaver is placed in operation.

The means for energizing the motor 17 comprises a battery 22 serially connected in a circuit with the motor 17 to render the shaver operable on DC current when the switch 23 is closed. To provide the shaver operable on AC current, e.g. the 110 volt system normally found in a household, a plug 24, to connect the shaver to a household outlet, is operatively connected to the end closure 15 of the shaver. Connected in circuit with the battery 22 and motor 17 to render the shaver operative on AC current is a resistor 25 and a rectifier 26. As shown, the resistor 25 and rectifier 26 are connected in series with the battery 22. Accordingly, the switch 23 is disposed between a motor ter-

terminal 27 and the battery terminal 28. The other terminal 29 of the battery is connected in series to the motor 17. Accordingly, it will be noted that whenever the switch 23 is closed, the battery and/or the line current effects the operation of the shaver depending on which source of power the motor is operatively connected to.

Because illumination within body cavities, as for example in the nostrils of one's nose or the outer ear canal is limited, means are provided whereby such cavities may be illuminated when the shaver described is being utilized therein to remove the unwanted hairs. In accordance with this invention, a means for effecting illumination of the area in which the shaver is operating is provided. The means for effecting such illumination comprises one or more light bulbs 30 disposed within the housing 11 of the shaver. In the illustrated form of the invention two such light bulbs 30 are illustrated. Each light source 30 is connected in parallel with respect to one another, and in series with the motor means 17 and switch 23 controlling the same. Accordingly, it will be noted that each time the switch 23 is closed or the shaver placed in operation, the light bulbs 30 are also energized. The light bulbs 30 are disposed so that the light rays project out through the tip end of opening 13 formed in the tip end of the stator 12. In this manner, a ray or beam of light is projected out through the tip end of the stator to effect the necessary illumination in and around the body cavity.

With the shaver described, it becomes readily apparent that the stator 12 may be easily inserted into a cavity of one's body and thereby effect removal of one's hairs in a manner which will prohibit any injury or cutting of the membranes lining such cavity. Consequently, the unwanted hair in and around a body cavity can be safely, simply, and expeditiously removed. Also, the illumination afforded permits sufficient light to be projected onto the area where light is otherwise normally obscured. Accordingly, the shaver 10 described effects the cutting of the unwanted hairs very close to the membrane thereby providing a severing of the hair close to the root end thereof. Consequently, the frequency with which a hair removing operation from such cavities is required can be substantially extended.

FIGURES 4 and 5 illustrate a modified form of the invention. In this form of the invention, the shaver 40 is provided with a tip end construction which renders it particularly adapted for use as a hair trimmer, rendering the same applicable for trimming a mustache, a sideburn, and the like. In this form of the invention, the shaver comprises a housing or body 41 having connected to one end thereof a stator 42 which is polygonal in cross-section. In the illustrated form of the invention, the sides of the stator 42 define a triangle and each side is formed with a plurality of hair inlet perforations 43 formed in the surface thereof. The ends of the stator tip are open. In this form of the invention, the cutting means includes a complementary triangular shaped cutter 44 which is mounted within the stator for relative reciprocal movement with respect thereto. The cutter 44 also is provided with holes 45 which move in and out of alignment with the stator holes. As best seen in FIGS. 4 and 5, the means for effecting reciprocating of the cutter 44 with respect to its stator 42 comprises a motor means 46 which has connected to the spindle 47 thereof a cam drum.

As shown, the cam drum 48 comprises a cup shaped member which is fixed to the end of the motor shaft 47. The internal surface of the cam drum 48 is provided with an endless groove 49 which is inclined at an angle with respect to the axis of the shaft or spindle 47.

The cutter 44 is connected to an actuating rod 50 which has a cam follower 51 formed on the end thereof. Accordingly, the cam follower 51 is arranged to ride in the cam groove 49 of the cam drum 48. It will be thus noted that whenever the motor means 46 is energized, the rotation of the cam drum 48 causes the cam follower 51 riding

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in the groove 49 thereof, to transmit a reciprocating movement to the cutter 44 connected to the end of the actuating rod 50. The resulting reciprocating movement of the cutter 44 relative to the stator 42 effects the shearing or cutting action on any hair projecting through the inlet openings 43 of the stator 42 and the holes 45 of the cutter 44. The motor means of FIGS. 4 and 5 and its operating circuit is similar to that hereinbefore described with respect to FIGS. 1 and 2, and consequently a further description thereof is not essential to affect an understanding of the applicant's invention.

With the triangular stator head 42 embodiment of FIGS. 4 and 5, the arrangement is such that the shaver 40 can be effectively used to effect a trimming operation of a mustache, for example in a manner which was not heretofore possible with known shavers.

In the form of the invention in FIGS. 4 and 5, means for illumination may also be provided. Accordingly, one or more sockets 52 are disposed within the housing to accommodate a light bulb 53. Since the stator 42 and associated cutter 44 are open end members, it will be apparent that the light rays of the bulbs 53 will project out through the tip end of the shaver and the respective holes 43, 45 of the stator and cutter respectively to illuminate the area of operation.

Accordingly, from the foregoing it will be noted that the instant shaver provides a relatively simple and inexpensive structure for the removal of unwanted hair from within or adjacent a body cavity in an efficient, safe, and positive manner. Further, shavers are extremely simply to use, absolutely safe, and can be readily operated by a person to remove his or her own body cavity hairs. Also, means are provided whereby the body cavity in which the respective shavers are operated can be readily illuminated to render the shaving or cutting operation more effective.

While the instant invention has been described with reference to a particular embodiment thereof, it will be readily appreciated and understood that variations and modifications may be made without departing from the spirit or scope of the invention.

What is claimed is:

1. An electric shaver for shaving the hairs in or about a body cavity comprising:

- (a) an elongated tubular housing,
- (b) a conically shaped stator connected to one end of said housing,

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- (c) said stator having a series of perforations formed over the surface thereof to define hair inlets and an illuminating opening formed in the apex end of said stator,
- (d) an electric motor disposed within said casing,
- (e) said motor including a spindle connected to said motor,
- (f) a cutter means connected to the end of said spindle,
- (g) said cutter means including a mounting ring,
- (h) a hub connected centrally of said ring whereby said ring is secured to the end of said spindle,
- (i) a plurality of cutter blades connected to said ring and extending upwardly therefrom,
- (j) said blades being circumferentially spaced about said ring and shaped to rotate in close proximity to the internal surface of said stator,
- (k) and means for illuminating the area in which said shaver is operating,
- (l) said illuminating means including a light source disposed within said housing between said mounting ring and said motor,
- (m) and a power source for said motor and illuminating means,
- (n) said power source including a source of direct current and means connected in circuit therewith for alternate operation with a source of alternating current,
- (o) said power source including a battery connected in series with said motor.

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MYRON C. KRUSE, *Primary Examiner.*