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2,387,756

ELECTRIC RAZOR

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Fig. 1.

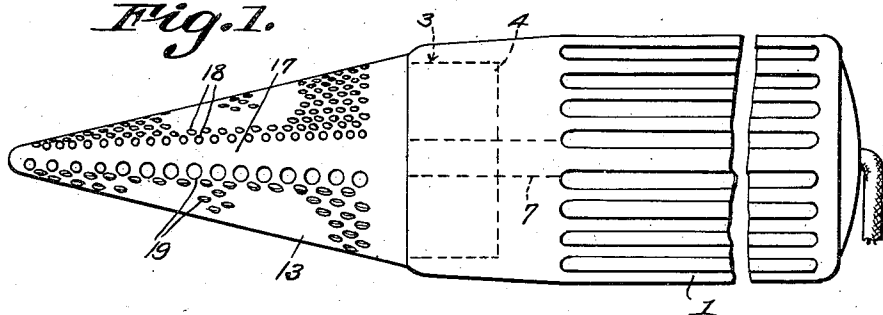


Fig. 2.

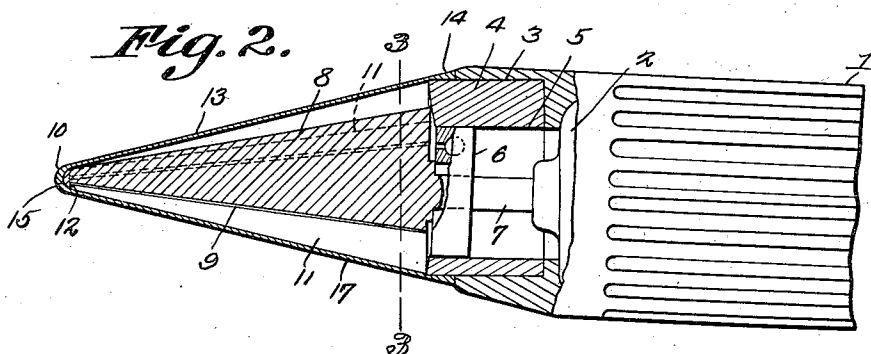
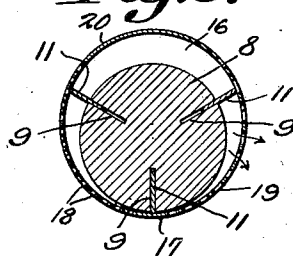


Fig. 3.



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ELECTRIC RAZOR

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4 Claims. (Cl. 30-43)

This invention relates to electric razors and more especially to heads utilizing rotary cutters having blades which are maintained in cutting positions by centrifugal force and also act as fan blades for expelling the cut particles of hair from the head.

A further object is to provide a head which can be made in various shapes so as to adapt it to different purposes.

A still further object is to provide an electric razor head which is simple, compact and efficient and can be handled easily.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel steps in the method and certain details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the method disclosed and in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawing the preferred form of the invention has been shown.

In said drawing:

Figure 1 is an elevation of an electric razor head embodying the present improvements, a portion being broken away.

Figure 2 is a longitudinal section through the cutting portion of the razor head, a portion of the head being shown in elevation.

Figure 3 is a section on line 3-3, Figure 2.

Referring to the figures by characters of reference, 1 designates the handle portion of the razor which constitutes the housing of an electric motor 2. This handle can be of any suitable proportion and material. It is provided at one end with a socket 3 in which is seated a ring 4 having an eccentrically arranged opening 5. Seated in this opening is an anti-friction bearing 6 in which the shaft 7 of the motor is journaled.

Formed with or secured to shaft 7 is a rotor 8 which can be of any suitable configuration, depending upon the use to which the razor is to be put. In the present case this rotor is conical and is coaxial with the shaft 7. Radial slots 9 are provided in the rotor and extend longitudinally thereof from the base of the cone to a point very close to the rounded apex end. These slots preferably increase in depth toward the base of the cone and in each of them a cutting blade is mounted to slide freely in a radial direction. The blades are so proportioned that when they are fully retracted, their outer edges are flush with the surface of the rotor. Longitudinal

displacement of the blades is prevented at one end by the ring 4 and at the other end by the end wall of the slot 9 in which the blade is seated, this end wall being directly back of the apex portion, as shown at 12.

Any desired number of blades 11 can be used. It is essential, however, that they be mounted to slide freely in the slots. It is also preferred to have them regularly spaced.

The rotor is contained within a casing 13 which is formed of very thin but rigid, hard metal. The base of this casing is fitted about the ring 4, as shown at 14 while the other end of the casing provides a bearing 15 for the rounded end of the rotor 8.

As the casing is coaxial with the ring 4 and as the rotor 8 is coaxial with the eccentrically arranged shaft 7, it will be obvious that a crescent-shaped chamber 16 thus is formed between the casing or stator and the rotor. The rotor is closely spaced from the casing or stator at their points of closest approach, as shown at 17, and the casing is so shaped that the outer edges of the blades will bear throughout their length against the inner surface of the casing during the operation of the rotor, contact between the blades and the casing or stator being maintained by centrifugal force.

That portion of the stator or casing leading from one side of the point 17 is provided with a plurality of minute openings 18, this apertured area being extended approximately through one-third the diameter of the casing or stator.

Another group of larger openings 19 is provided in the casing in the area leading in the opposite direction from the point 17 and extending through approximately one-third the circumference of the stator.

The remaining portion of the stator is closed as indicated at 20.

In practice the motor is energized and this will cause the rotor to operate at high speed. This speed will be sufficient to shift the blades 11 outwardly by centrifugal force so that they will all have a wiping action upon the hard, smooth inner surface of the casing or stator 20.

The razor is applied to the surface from which hair is to be removed so that the apertured portion 18 will bear against the surface. As the casing or stator is of very thin but hard metal, the ends of the hair will be pressed through these openings 18 and as the blades wipe across the openings they will shear off the projecting hair particles. From then on the blades act as fans and throw the particles around and cause them

to be blown outwardly through the larger openings 19, as indicated by arrows at Figure 3.

The rotor and the stator can be of any desired shape. In the illustrated structure they are conical and such a structure is particularly useful for removing hairs from the nostrils and ears. For removing hair from the face or other smooth surfaces, both the stator and the rotor could be made cylindrical. The change in design is so obvious that illustration and detailed description thereof is not deemed necessary.

It is to be understood, of course, that as the blades constitute fan blades for blowing the particles of hair from the stator casing, they likewise constitute means for setting up a suction through the small openings 18, so that the hair is thus drawn into these openings where it can be sheared off by the blades.

What is claimed is:

1. An electric razor including a casing constituting a stator, said casing having conically diverging apertured areas and an intermediate imperforate area, the apertures in one area constituting air and hair inlets and the apertures in the other area being larger and constituting air and hair outlets, and a combined cutting and fan blade mounted for rotation in the stator about an axis eccentric to the stator, said blade being maintained by centrifugal force in contact with the inner surface of the stator.

2. An electric razor including a casing constituting a stator, said casing having conically diverging apertured areas and an intermediate imperforate area, the apertures in one area constituting air and hair inlets and the apertures in the other area being larger and constituting air and hair outlets, a rotor eccentrically mounted in

the stator and having radial slots, blades extended longitudinally of the rotor and slidable radially in the slots for engagement with the stator by centrifugal force, each of said blades constituting a combined cutting and fan blade.

3. An electric razor including a casing constituting a stator, said casing having conically diverging apertured areas and an intermediate imperforate area, the apertures in one area constituting air and hair inlets and the apertures in the other area being larger and constituting air and hair outlets, a rotor eccentrically mounted in the stator and having radial slots, blades extended longitudinally of the rotor and slidable radially in the slots for engagement with the stator by centrifugal force, each of said blades constituting a combined cutting and fan blade, the respective apertured areas diverging from the points of nearest approach between the rotor and stator.

4. An electric razor including a handle constituting a motor housing, an electric motor in the handle, a ring seated in one end of the handle and having an eccentric opening, a motor shaft extending through and concentric with said opening, a stator extending from and concentric with the rings, said stator having conically diverging apertured areas, the apertures in one area constituting air and hair inlets and the apertures in the other area constituting air and hair outlets, a rotor carried by and coaxial with the shaft, combined cutting and fan blades mounted for sliding movement within and radially of the rotor, said blades being positioned to engage the inner surface of the stator under the action of centrifugal force.

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