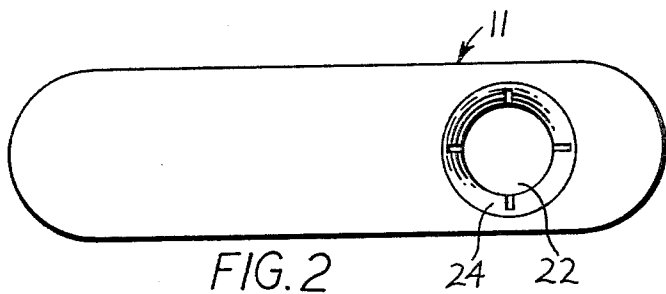
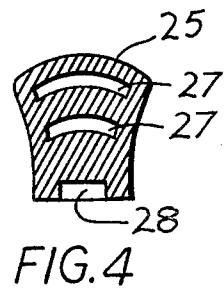
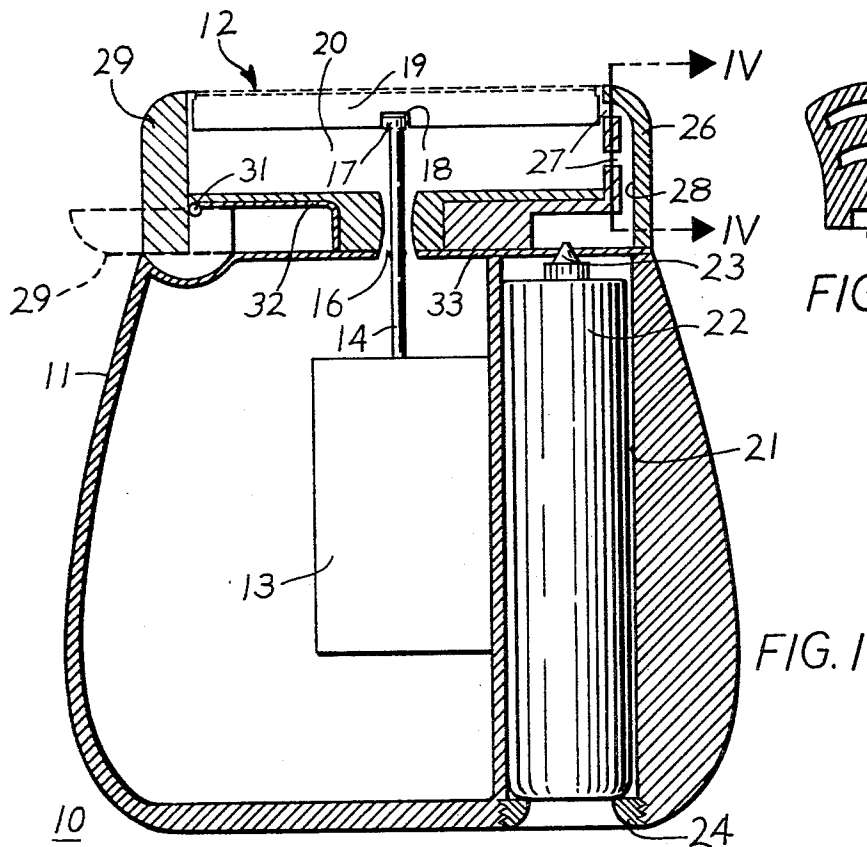
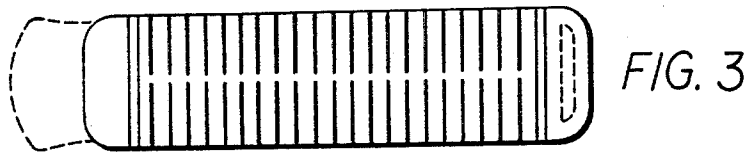


Aug. 13, 1968

E. A. DUFRESNE
ELECTRIC RAZOR CLEANING SYSTEM

3,396,462

Filed June 9, 1967



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3,396,462

ELECTRIC RAZOR CLEANING SYSTEM

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Filed June 9, 1967, Ser. No. 644,935

3 Claims. (Cl. 30—41.5)

ABSTRACT OF THE DISCLOSURE

The body of an electric razor contains a capsule of fluid under pressure released by a manually operated valve. Conduits are constructed through the head of the razor to direct an intense blast of gas so that cut hairs and whiskers are blown out of the razor, thereby cleaning it.

Description

My invention relates to electric razors and has particular reference to an improved air blast mechanism for cleaning the razor mechanism of cut hairs.

Electric razors generally present a cutting head having a smooth outline, and this head is pressed against the whiskers or other hair of the user. Many of the cut off whisker ends accumulate inside the cutting head and must be periodically removed, or they will interfere with the efficiency of the cutting and eventually will damage the mechanism. For this reason all electric razors have provision for cleaning, and most commercial models are provided with a brush for clearing out cut hairs or whiskers. Some attempts have been made to incorporate blowers and suction devices powered by the electric motor of the razor. Such built-in mechanisms, however, do not generate sufficient power to make the air stream strong enough to be effective.

The present invention provides a source of gas under high compression, so that a high power jet will be formed that effectively blows away cut hairs. A bottle of compressed gas is fitted inside the electric razor housing, and a conduit leads to the region of the cutting head. A suitable valve, such as a push button poppet valve, releases the compressed gas to the area underneath the cutters of the head where the cut hairs accumulate. This blast then blows the cut hair out through a suitable port or opening. If desired, a soluble or atomizable or dry powder lubricant can be mixed with the compressed gas to lubricate the cutting mechanisms.

It is therefore a general object of my invention to provide an improved air blast mechanism for cleaning electric razors of cut hairs.

Another object is to provide an electric razor with a high velocity and high power air or other gas blast for cleaning.

Another object is to provide a readily replaceable compressed gas source for cleaning electric razors.

Other objects, advantages and features of the invention will be apparent in the following specification, including the accompanying drawing in which:

FIG. 1 is an elevation view in full section of an electric razor embodying the invention,

FIG. 2 is a bottom view of the razor of FIG. 1,

FIG. 3 is a top view of the cutting head only of the razor of FIG. 1, and

FIG. 4 is a sectional view along the line IV—IV of FIG. 1.

Referring to the drawings, an electric razor 10 has a case, body or housing 11 and a shaving head 12. Any conventional type electric motor 13 may drive a rocker arm 14 pivoted to the case 11 at 16. The upper end of the rocker arm 14 may terminate in a rounded head 17 fitting within a slot 18 in a reciprocating razor cutter 19.

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Disposed below the cutter bar 19 is a hair receiving chamber 20 where cut whiskers and hairs collect.

Formed in the razor body 11, particularly in accordance with the invention, is a cylindrical well or recess 21 in which is inserted a pressure capsule 22 preferably of the pressure nozzle type. This type of capsule releases gas under pressure when a nozzle 23 is pressed toward the body of the capsule. The capsule is held in the well by a ring nut 24 threaded into the lower end of the cylindrical recess 21. The ring nut 24 permits a user of the razor to insert a finger tip through the ring 24 to contact the lower end of the capsule 22 and force it upwardly against the nozzle 23. This causes release of the compressed gases in the capsule 22, giving rise to a stream or jet of cleaning air or other gas.

The right hand end of the razor head 12 (FIG. 1) has an end cap 26 with apertures 27 and 28 that communicate with the nozzle 23 of the pressure capsule 22. As shown best in FIGS. 4 and 1, this end cap 22 has a pair of elongated outlet apertures 27 connected to an interior passage 28 which directly receives the gas blast from the nozzle 23. The passage 28 and outlets 27 thus define a conduit for the gases. The blasts emerging from the outlets 27 travel horizontally to the left as viewed in FIG. 1. A left end cap 29 is hinged at 31 to a spring metal insert 32. When a gas blast is to be made, this left end cap 29 is manually pivoted out of the path of the blast as shown in broken outline.

The valve for releasing gas from a capsule may be operated in a number of different ways, and only the presently preferred system is shown in FIG. 1. There it will be noted that a thin sheet 33 of metal, plastic or other material is disposed between the case 11 and the head 12 and has an aperture through which the nozzle partly projects. When the capsule 22 is manually pushed upwardly, the nozzle is stopped by the sheet 33, and the nozzle and capsule are moved toward each other releasing gas under compression.

Operation

The electric razor 10 is used in a conventional manner, the cutter bar 19 reciprocating in response to a rocking of the arm 14 by the motor 13. Cut hairs fall into the hair receiving chamber 20 below the cutter bar. When it is desired to remove the cut hairs or whiskers, the left end cap 29 is pivoted to a horizontal position shown in broken outline, and the user inserts a finger tip inside the ring nut 24 on the bottom of the razor. This pushes the capsule 22 upwardly, causing it to move relative to its nozzle 23, which is constrained against upward movement by the apertured sheet 33. This causes a blast of compressed gas to shoot through the conduit system of passage 28 and outlets 27 to direct the gas horizontally through the cutter bar 19 and the hair receiving chamber 20. This blows out all cut hairs and whiskers to the left. After this cleaning, the end cap 29 is rotated to the position shown in solid outline.

The compressed gas in capsule 22 is useful for many cleanings, but when it becomes exhausted, the ring nut 24 is unscrewed, the exhausted capsule removed, and a new capsule inserted having a new nozzle 23. The ring nut 24 is then replaced, and the cleaning mechanism is again ready for use.

The cleaning gas also forms an ideal carrier for lubricating the cutter bar 19. If an aerosol type liquid is placed in the pressure container, it may act as a carrier for a liquid lubricating oil, or may carry particles of lubricant, such as graphite or talc. If a dry gas is used, dry lubricants such as graphite or talc may be carried by the gas stream. In this fashion, the razor is not only cleaned but lubricated as well.

The use of a bottle or capsule of compressed gas results

in a much more vigorous cleaning action than that obtainable from built-in fans and blowers. These fans and blowers generate pressures on the order of several ounces per square inch, where the capsules contain gases at several hundred pounds per square inch. The blast at the nozzles 27 is thus a different order of magnitude than that of blowers and results in positive and complete cleaning. The life of the pressure capsules can be extended by the use of gases that liquify under pressure, giving a very high volume of gas compared to the size of the capsule.

I have illustrated only a presently preferred embodiment of my invention. It will be apparent to those skilled in the art that various locations and configurations of capsules could be used. Also many varieties and locations of valves and valve actuating mechanisms could be used. Various conduit and porting systems can be used to deliver gas under pressure to the areas to be blown clean. Accordingly, I do not limit myself to the embodiment shown but include in the following claims all variations and modifications that fall within the true spirit and scope of my invention.

I claim:

1. An electric razor having gas blast cleaning comprising:

- (a) a housing;
- (b) a shaving cutter on one end of the housing;
- (c) motor and drive means within the housing for energizing the cutter;
- (d) a partition within the housing to define a hair receiving chamber beneath the cutter that is co-extensive with the cutter and having two ends;
- (e) an elongated well within the housing for receiving a pressure cartridge and having one end communicating to the exterior of the housing and having the other

end communicating to one end of the hair receiving chamber;

(f) an elongated cartridge producing gas under pressure disposed in the well and having a self contained normally closed valve on the end adjacent to the chamber communication and opened by pressure lengthwise of the cartridge;

(g) means at the exterior of the well for removably retaining the cartridge in the well and allowing manual contact of the other end to move the cartridge lengthwise to open the cartridge valve;

(h) and movable means at the other end of the hair receiving chamber for communicating that end to atmosphere prior to actuating the cartridge to produce a hair cleaning blast.

2. An electric razor as set forth in claim 1, wherein the means for retaining the cartridge is a ring of sufficient size to permit insertion of a finger tip therein to digitally contact the cartridge.

3. An electric razor as set forth in claim 1, wherein the communication from the interior of the well includes an aperture at that well end, and the cartridge valve discharges longitudinally of the well and has a shape to fit the aperture, to thereby seal off the well from gas discharge when the cartridge valve is open.

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