Jan. 2, 1968 R. P. GWINN 3,360,855

GLIDE AGENT DISPENSER FOR ELECTRIC DRY SHAVER

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Fig. 1

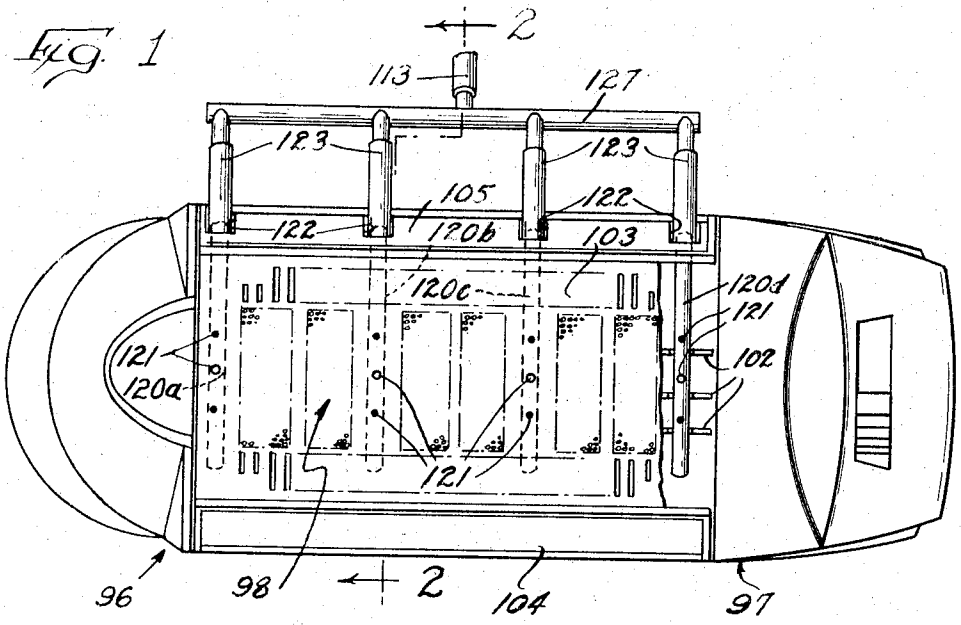
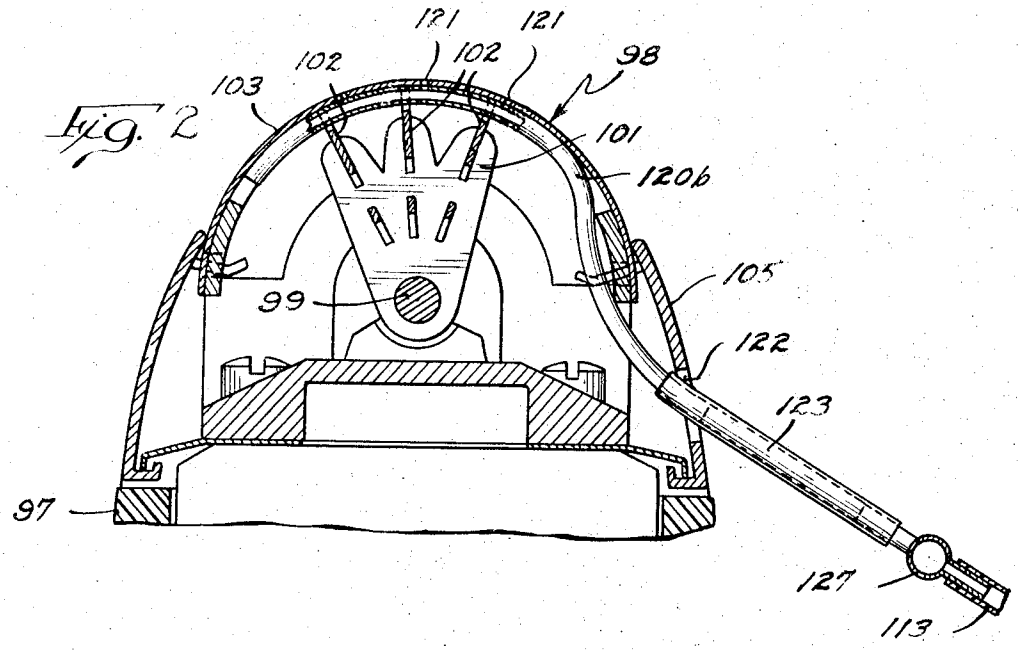


Fig. 2



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GLIDE AGENT DISPENSER FOR ELECTRIC DRY SHAVER

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Application Feb. 15, 1965, Ser. No. 432,687, now Patent No. 3,299,506, dated Jan. 24, 1967, which is a division of application Ser. No. 252,663, Jan. 21, 1963, now Patent No. 3,176,392, dated Apr. 6, 1965. Divided and this application Apr. 19, 1966, Ser. No. 543,674

4 Claims. (Cl. 30—41)

ABSTRACT OF THE DISCLOSURE

An electric dry shaver having relatively movable cutting members, one of which is a skin engaging member having a plurality of hair receiving perforations. This skin engaging member is provided with means conforming to at least a portion of the inside surface thereof for supplying a glide agent through the skin engaging member at the cutting surface of the shaver.

The present application is a division of copending Gwinn application Ser. No. 432,687, filed Feb. 15, 1965, now Patent No. 3,299,506, granted Jan. 24, 1967. The Gwinn application Ser. No. 432,687, now Patent No. 3,299,506, is in turn a division of copending Gwinn application Ser. No. 252,663, filed Jan. 21, 1963, now Patent No. 3,176,392, granted Apr. 6, 1965. Both patents, 3,176,392 and 3,299,506, are assigned to the same assignee as the instant application.

The present invention relates to apparatus for dispensing friction reducing substance adjacent the cutting portion of an electric shaver, and more particularly to dispensing what might be termed a "glide agent" adjacent the cutting surface of an electric shaver during the shaving operation to reduce the friction between such surface and the skin of the user from which hair is being removed.

The so-called electric dry shaver has been extensively used for many years and the popularity thereof is increasing constantly. This is primarily due to the fact that shaving with an electric dry shaver is simple, clean, and can be accomplished when the user is fully dressed. Today it is not even necessary that an electric power source be available, for electric shavers may be battery powered. This is in contrast to the conventional "wet type" razor where it is necessary to use lather, towels, water, etc. Obviously, shaving with a razor of the wet type cannot be conveniently accomplished when the user is fully dressed.

Some users of electric dry shavers have complained because of the friction between the cutting head and the skin of the user. It would be desirable to provide an improved shaving arrangement in an electric dry shaver whereby the friction between the cutting head and, for example, the skin of the user is substantially reduced. It has been suggested that the user of an electric dry shaver wet his face before starting to shave. Unfortunately, water or other liquids used for this purpose sometimes dry or evaporate quickly, and any advantage thus disappears before the shaving operation is hardly started. Consequently, it would be desirable to provide an electric dry shaver with means for dispensing some sort of glide or friction reducing agent to the face of the user continuously or as desired during the shaving operation.

Accordingly, it is an object of the present invention to provide an electric dry shaver with improved means for dispensing a lubricating liquid or glide agent at the cutting head during the shaving operation.

Another object of the invention is the provision of a new and improved electric dry shaver having means for dispensing a lubricating liquid or glide agent at the cutting head during a shaving operation in a manner whereby the liquid is dispensed at a plurality of locations along the cutting head to provide more uniform distribution of the fluid and thereby reduce or eliminate dry areas on the skin of the user being shaved.

Further objects and advantages of the present invention will become apparent as the following description proceeds and the features of novelty are pointed out with particularity in the claims annexed to and forming a part of this specification.

For a better understanding of the present invention reference may be had to the accompanying drawing wherein:

FIG. 1 is a top plan view, with certain portions cut away, of an oscillating type electric dry shaver embodying the present invention; and

FIG. 2 is a sectional view taken on line 2—2 of FIG. 1.

Briefly, the present invention is concerned with providing a new and improved electric dry shaver of the reciprocating, oscillating or rotary type with apparatus for dispensing a suitable liquid glide agent along the cutting surface thereof. Any liquid that provides a slippery condition between the shaving head and the face of the user could be satisfactory. The embodiment illustrated comprises an oscillating type shaver having a shaving head with an arcuate, perforated comb and one or more cutting blades moving against the inside surface of the comb in an oscillating motion. The liquid dispensing apparatus comprises at least one liquid dispensing tube or conduit mounted adjacent the inside surface of the comb and having several spaced openings therein aligned with holes in the comb to dispense the liquid directly against the skin of the user. Liquid is supplied to the one or more liquid dispensing tubes from a pressurized liquid manifold.

Referring now, more specifically, to the drawings, there is illustrated one embodiment of the present invention wherein liquid dispensing means are associated with an oscillating shaver (another embodiment is disclosed and claimed in Gwinn Patent No. 3,176,392 incorporated by reference herein) which may be identical with the shaver disclosed in the Jepson and Schuessler Patent No. 3,196,-539, granted July 27, 1965, and incorporated herein by reference. The shaver is generally designated by the reference numeral **96** and includes a body **97** and a cutting or shaving head **98** including an arcuate, perforated comb structure **103** and a plurality of cutting blades **102** having cutting edges movable along the inside surface of said comb structure. The cutting blades **102** are supported by several spaced supports **101** carried on an oscillating cutter shaft **99**, and the shaft is driven in oscillating motion about its axis by a suitable driven mechanism and prime mover, as shown in said Gwinn or Jepson and Schuessler patents.

Instead of supplying the liquid through a hollow oscillating shaft, as disclosed and claimed in Gwinn Patent No. 3,176,392, a plurality of liquid dispensing tubes, specifically designated as **120***a*, **120***b*, **120***c* and **120***d*, are secured in spaced relationship to the inside surface of the comb structure **103**, each of these tubes being curved to conform to the comb shape, as best shown in FIG. 2. It will be appreciated that the blades **102** must be provided with suitable notches so as not to interfere with the dispensing tubes. As illustrated in FIGS. 1 and 2 of the drawing, the dispensing tubes are disposed at portions of the comb structure where no openings are provided, and then suitable, spaced apart dispensing openings **121** are provided through both the comb **103** and the walls of tubes **120***a*, **120***b*, **120***c*, and **120***d*. In the specific embodiment

illustrated in FIGS. 1 and 2 of the drawing, four dispensing tubes are provided, although fewer than that number may be utilized, as desired. As illustrated, the dispensing tubes extend through openings **122** in a comb lock **105** and are connected by tubes **123** with a manifold **127**, which in turn may be connected by a tube **113** to a source of fluid under pressure, such as the container **114** shown in FIG. 9 of Gwinn Patent No. 3,176,392. It will be appreciated that the dispensing tubes could be connected to a reservoir built into the shaver casing **97**, such as shown in FIGS. 1 and 3 of Gwinn Patent No. 3,176,392 rather than connected to an exterior reservoir, in which case the openings **122** in the comb lock **105** are unnecessary.

In view of the detailed description included above, it is apparent that there has been provided an arrangement in which a suitable glide agent is dispensed at the cutting surface of an electric dry shaver. Although the application of the present invention to a rotary type dry shaver has not been illustrated, it will be understood by those skilled in the art that the present invention could equally well be applied thereto by supplying the fluid through a hollow shaft or the like.

While there has been illustrated and described a single embodiment of the present invention, it will be apparent to those skilled in the art that numerous changes and modifications will occur, and it is contemplated by the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the present invention.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. A dry shaver comprising a casing, a prime mover mounted in said casing, an arcuate perforated comb secured to said casing, an oscillating cutter shaft mounted

in said casing, a cutter blade supported by said shaft for movement in shearing engagement with said comb, means drivingly relating said shaft and said prime mover to cause oscillation of said shaft, and means generally conforming to at least a portion of the inside surface of said arcuate comb for supplying a glide agent through said comb at the cutting surface of said shaver.

2. The dry shaver of claim **1** wherein said means generally conforming to at least a portion of the inside surface of said arcuate comb comprises a conduit, said conduit and comb having aligned openings through which said glide agent is dispensed.

3. The dry shaver of claim **1** wherein said means generally conforming to at least a portion of the inside surface of said arcuate comb includes a plurality of branch conduits at spaced intervals along said comb, said branch conduit and comb having aligned openings through which the glide agent is dispensed.

4. In an electric shaver, the combination of a pair of relatively movable cutting members including a skin engaging member having a plurality of hair receiving perforations, and means conforming to at least a portion of the inside surface of said skin engaging member for supplying a glide agent through said skin engaging member at the cutting surface of said shaver.

References Cited

UNITED STATES PATENTS

2,327,192	8/1943	Keene	30—41
2,336,806	12/1943	Schenk et al.	30—41
2,686,361	8/1954	Resnick et al.	30—41
2,786,270	3/1957	Orlando et al.	30—41
3,176,391	4/1965	Resnick et al.	30—41

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