

Dec. 31, 1940.

I. FLORMAN
ELECTRIC DRY SHAVER

2,227,339

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FIG. 1.

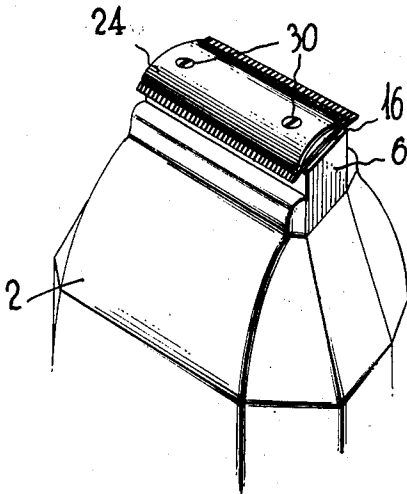


FIG. 3.

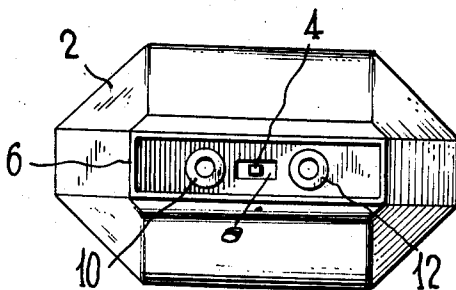
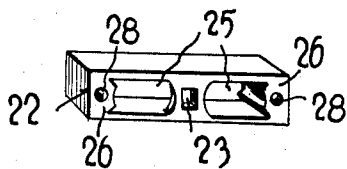


FIG. 4.

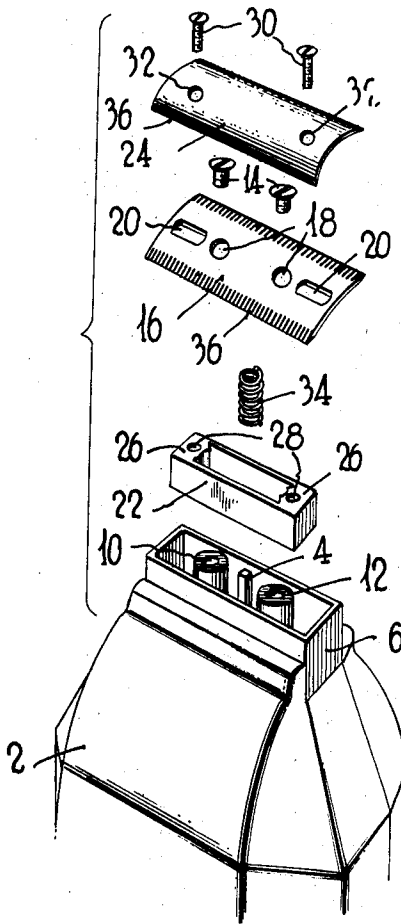


FIG. 2.

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UNITED STATES PATENT OFFICE

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ELECTRIC DRY SHAVER

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6 Claims. (Cl. 30—43)

This invention relates to electric dry shavers, and more particularly to an electric dry shaver having a novel clipper plate supporting means.

Like a number of electric shavers now on the market, a shaver according to the present invention works on the clipper principle having as it does a stationary clipper plate provided with teeth and a movable clipper plate also having teeth and adapted to reciprocate with respect to the stationary plate. When the plates which are disposed like the blades of a safety razor are drawn across the face, the whiskers will be directed between the teeth and will be sheared off.

The principal object of the invention is to provide an electric dry shaver with a moving clipper plate narrower than the stationary clipper plate and disposed thereabove.

Another object of the invention is to provide such an electric dry shaver with spring means for holding the movable clipper plate against the stationary clipper plate.

Still a further object of the invention resides in providing means by which the movable and stationary clipper plates can be easily removed and replaced.

The invention has for a further object the provision of an electric dry shaver of simple construction and which can be manufactured to sell at a comparatively low figure and which at the same time gives an effective shave if not better than the electric dry shavers heretofore known.

Other objects of the invention will be more apparent from the following description and accompanying drawing.

In the drawing:

Fig. 1 is an enlarged perspective view of one embodiment of the invention showing only the upper portion of the shaver to which the invention relates.

Fig. 2 is a similar view with the parts exploded to show the manner in which the movable and stationary plates are secured in place.

Fig. 3 is a top plan view of the shaver with the stationary and movable clipper plates and the tensioning means removed.

Fig. 4 is a perspective view of the reciprocating member to which the movable clipper plate is secured, said figure showing principally the openings in the base of the member.

The electric dry shaver illustrated in the drawing has a handle 2 which may be of hard rubber, "Bakelite" or any suitable insulation material. The handle preferably should be comparatively small and narrow so that it simulates as closely

as possible the size and shape of the handles of the ordinary safety razors. The handle houses a simple electric motor (not shown) which may be of the type used in dry shavers and which is connected by suitable mechanism to impart a limited reciprocatory movement to an actuator 4 which extends upwardly from a rectangular well in the upper end of the handle.

Formed so as to fit in the well is a supporting member 6 of metal or the like. The member 6 more specifically is in the form of a rectangular box having side and end walls and a bottom wall but no top wall. The bottom wall is provided with a central opening 8 through which the actuator passes and the opening 8 is larger than the actuator 4 so as not to interfere with its limited reciprocatory movement. Secured to the base of the member 6 at equal distance from the center are two supporting posts 10 and 12 which extend upwardly from the base to a point slightly above the upper edge of the member 6. These supporting posts are provided with axial bores threaded to receive the screws 14 which are used for securing the stationary clipper plate 16 to the handle. The stationary clipper plate is provided with openings 18 through which the screws 14 pass. It is also provided with elongated openings 20 for a purpose to be later described.

The reference numeral 22 indicates a reciprocal member to which the movable clipper plate 24 is secured. The member 22 as shown in Figs. 3 and 4 is also rectangular box shaped having side walls, end walls, and a bottom wall but no top wall. The member 22 is of less length than the member 6 and also of slightly less width as clearly shown in Fig. 3, and it is adapted to reciprocate in the member 6, and its reciprocal movement is guided by the side walls of the member 6 against which the side walls of the member 22 slide.

The member 22 has a central opening 23 through which the member 4 passes and the opening 23 is only large enough to admit the actuator 4 so that when the actuator is moved by the motor within the handle the member 22 is also reciprocated within the member 6. The base of the member 22 is provided with openings 25 through which the supporting posts 10 and 12 pass. These openings 25 are larger than the diameter of the posts 10 and 12 so that the posts do not interfere with the reciprocal movement of the member 22. The member 22 is provided at each end at the upper surface with inwardly extending portions 26 having screw threaded bores 28 therein for receiving the screws 30 which

are employed for securing the movable clipper plate 24 to the reciprocable member 22. The movable clipper plate 24 is provided with openings 32 through which the screws 30 pass. The screws 30 also pass through the openings 20 in the stationary plate and these openings are large enough so as not to interfere with movement of the movable clipper plate.

The movable clipper plate is spring pressed against the stationary clipper plate by means of a coil spring 34 which normally is of greater length than the actuator 4 and which is disposed so as to surround the actuator 4. The lower end of the spring 34 presses against the base of the reciprocal member 22, and its upper end is pressed against the lower surface of the stationary clipper plate 16. Since the movable clipper plate 24 is secured by the screws 30 to the reciprocating member 22, it will be apparent that the movable clipper plate is spring pressed or tensioned against the stationary clipper plate.

The movable and stationary clipper plates are provided at their ends with teeth 36 and the plates themselves are preferably arcuate in cross section, although they may be flat or of some other shape without departing from the inventive concept.

It will be noted that the construction described is extremely simple and at the same time provides an electric dry shaver in which the movable clipper plate is disposed above the stationary clipper plate in such a manner as to be held against the stationary clipper plate. At the same time both of the clipper plates can easily be removed for replacement.

Naturally the reciprocatory movement of the movable plate through the reciprocatory member 22 may be effected by means other than the actuator 4. For example, the reciprocatory movement may be effected by having a rotatable shaft on the end of which a pin is eccentrically disposed. This pin may engage a slot or recess in the base of the reciprocable member 22.

Obviously modifications of the invention disclosed could be made without departing from the inventive concept, and I do not intend to be limited except as indicated in the following claims.

I claim:

1. In an electric dry shaver operating on the clipper principle and having a handle housing a motor, a stationary clipper plate and a movable clipper plate disposed thereabove, said plates having teeth along corresponding edges, a rectangular box shaped member secured to the upper end of the handle, said member having side and end walls and a base, an actuator reciprocated by said motor and extending upwardly through an enlarged opening in the base of said box member, supporting means extending upwardly from said base, a movable rectangular box member disposed within said first box member for longitudinal reciprocating movement therein, means for securing said stationary plate to said supporting means above said box member, and means for securing said movable plate to the movable rectangular box member, the last mentioned means extending through apertures in said stationary plate.

2. In an electric dry shaver operating on the clipper principle and having a handle housing a motor, a stationary clipper plate having at least one aperture therethrough and a movable clipper plate disposed thereabove, said plates having teeth along corresponding edges, a rectangular box shaped member secured to the upper end of

the handle, said member having side and end walls and a base, an actuator reciprocated by said motor and extending upwardly through an enlarged opening in the base of said box member, supporting means extending upwardly from said base, a movable rectangular box member disposed within said first box member for longitudinal reciprocating movement therein and having at least one aperture therethrough surrounding said support means, means for securing said stationary plate to said supporting means, means for securing said movable plate to the movable rectangular box member, the last mentioned means extending through the aperture through the stationary plate, and spring means disposed between the base of said stationary box member and the under surface of said stationary plate, whereby the movable plate is urged against the stationary plate.

3. In an electric dry shaver operating on the clipper principle and having a handle housing a motor, a stationary clipper plate, and a movable clipper plate disposed thereabove, said plates having teeth along corresponding edges, a guide member secured to the upper end of the handle, a member disposed within said guide member for guided reciprocating movement therein, means for securing said stationary plate fixedly with respect to the guide member and above said member within said guide member, means for securing said movable plate to said reciprocating member, and means connected with the motor for imparting reciprocating movement to said reciprocating member within the guiding member.

4. In an electric dry shaver operating on the clipper principle and having a handle housing a motor, a stationary clipper plate, and a movable clipper plate disposed thereabove, said plates having teeth along corresponding edges, a guide member secured to the upper end of the handle, a member disposed within said guide member for guided reciprocating movement therein, means for securing said stationary plate fixedly with respect to the guide member and above said member within the guide member, means for securing said movable plate to said reciprocating member, means connected with the motor for imparting reciprocating movement to said reciprocating member within the guiding member, and means under tension disposed between the movable member and the stationary plate, whereby the movable plate is urged against the stationary plate.

5. In an electric dry shaver operating on the clipper principle and having a handle housing a motor, a stationary clipper plate and a movable clipper plate disposed thereabove, said plates having teeth along corresponding edges, a rectangular box shaped member secured to the upper end of the handle, said member having side and end walls and a base, an actuator reciprocated by said motor and extending upwardly through an enlarged opening in the base of said box member, supporting means extending upwardly from said base, a movable rectangular box member disposed within said first box member for longitudinal reciprocating movement therein, means for securing said stationary plate to said supporting means, means for securing said movable plate to the movable rectangular box member, said stationary plate having enlarged openings therein through which pass the means for securing the movable plate to said movable rectangular box shaped member.

6. In an electric dry shaver operating on the clipper principle and having a handle housing the motor, a stationary clipper plate supported a distance from the end of the handle, a movable
5 clipper plate disposed on said stationary plate, an element disposed between the end of the handle and said stationary plate, means rigidly connecting said element to said movable plate, and
an expansible member disposed between said element and said stationary plate and movable with said element for urging said movable plate against said stationary plate, and means connected with said motor for imparting reciprocating movement to said element and the movable
plate. 5

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