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SHAVING MACHINE

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Fig. 1

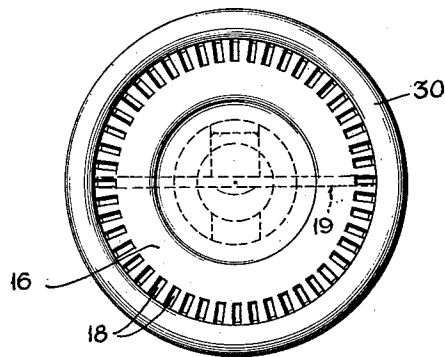


Fig. 2

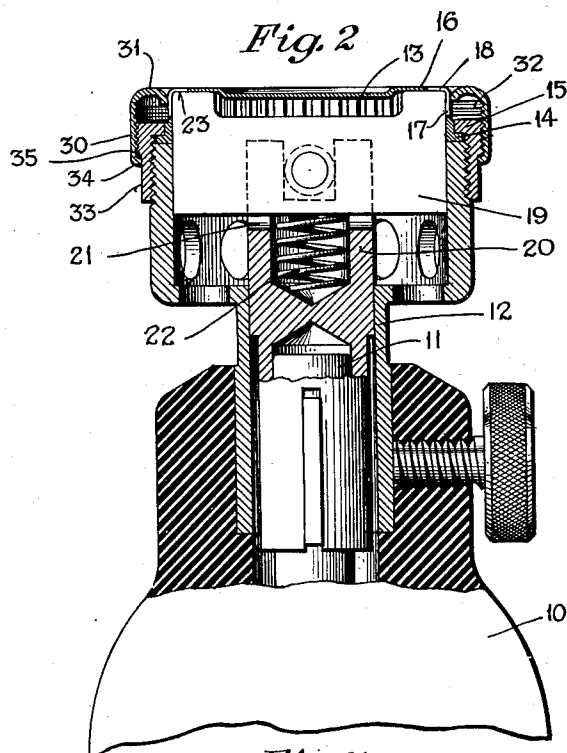
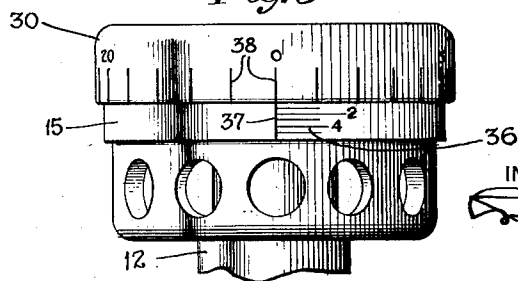


Fig. 3



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SHAVING MACHINE

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10 Claims. (Cl. 30—43)

This invention relates to electric shavers of the type wherein an outer slotted member and an inner member cooperate to shear off hairs projecting through the slots, and, more particularly, to an auxiliary guard adapted to cover certain of said slots as desired during the shaving operation.

In electric shavers, having slots extending through a corner of the head to provide slots partly in the face and partly in the side walls of the device, there is an opportunity for the loose skin, especially on the neck and under the chin of the user, to enter the slots and be cut by the cutting member. The slots of the side wall, however, are particularly useful when cutting hairs from the flatter skin portions, as the cheek and lip portions of a person, where a closer cut can be obtained. The slots in the side walls also permit long hairs to be cut with greater ease.

Such an auxiliary guard is shown in copending application Serial No. 203,029. In said application, the guard is in the form of a small ring which is slipped over and frictionally held on the head of the razor so as to substantially cover the slots in the side walls. When it is desired to use the razor to shave the cheeks or other flat surfaces or for cutting relatively long hair, the auxiliary guard is removed from the razor so that the slots in the side walls are exposed and the hair can readily enter them and be sheared off by the cooperating blade. The guard, which is relatively small, presents a problem when it is removed from the razor as there is a constant danger of its being lost.

Further, the guard ring in this prior construction abuts against a projection on the head and will normally have only one position with respect to the head, namely, that in which the face-engaging portion thereof lies in the plane of the face of the cutting head.

A feature of the present invention is the provision of a guard member which is secured to the head against removal therefrom and which is movable to and from operative position thereon. Further, according to the present invention, the guard member is adjustable relatively to the head to cover as much or as little of the slots in the side wall as desired to prevent the loose skin from passing therein.

Requirements of persons using the razor differ with respect to the tenderness of the skin of the neck, and under the chin. Some persons require that the guard ring be positioned in the plane of the face so that the skin will not contact the slots in the side wall. Other persons can leave the slots in the side wall partially exposed, which, of course will give them a closer shave, without danger of the skin entering the slots. With the device of the present invention, the individual user of the razor can easily and accurately adjust the ring to accommodate his

needs inasmuch as it is mounted on the head in threaded engagement with the locking ring or other portion thereof so that minute adjustments can be made. The guard ring and locking ring preferably are provided with graduations whereby micrometer adjustments of the guard relative to the head can be made and the position of the guard ring with respect to the head indicated. This greatly aids in adjusting the ring in the desired position and permits the ring to be adjusted to the same position in subsequent uses of the device.

The guard ring may be provided with a flange at its inner end which limits its movements outwardly along the head so that it cannot be moved beyond a predetermined plane, usually the plane of the cutting face of the razor head.

When it is desired to use the razor on the flat part of the face, it is merely necessary to rotate the guard ring on the head which will lower it so that the slots in the side walls of the head are exposed. Since the guard is not removed from the head at any time during the shaving operation, the danger of losing it is entirely eliminated.

Other features and advantages of the invention will be apparent from the specification, when taken in connection with the drawing, in which: Figure 1 is a plan view of the head showing the guard in position.

Fig. 2 is a longitudinal sectional view of the head.

Fig. 3 is a side elevation of the head.

The present invention is illustrated as being applied to the type of shaving machine disclosed in copending application Serial No. 203,029. This shaving machine has a body in which is mounted the driving means, usually in the form of an electric motor, having a drive shaft, and at its upper end a hollow circular casing on which is mounted a head having a flange by means of which it is secured to the casing through the use of a flanged ring overlying the flange and clamping it to the casing.

The head is circular and has a face portion and side wall portions. The head is provided with radial slots in the annular margin of the face portion, and these slots also extend through the adjacent side wall portion.

Within the head in the casing there is rotatably mounted a cutter blade carried by a sleeve rotatably supported in the casing and driven by the shaft. The cutter blade, in the illustrated form, comprises a flat strip supported edgewise in slots in the sleeve and extends diametrically across the head in the casing. It is urged upwardly by a spring so that its cutting surfaces will engage the interior surfaces of the slotted portions of the head and cooperate with the walls of the slots to shear off hairs extending through the slots.

As explained in the prior application, hairs may enter the slots both from the face portion 16 and from the side wall portion 17, as the head is traversed over the surface of skin to be shaved. The slots in the side wall will permit long hairs to enter with great facility and also permit hairs on the face and other parts, where the skin is rather tight, to be clipped very short. It may be used equally well in shaving the under part of the chin and neck where the skin is tender if the skin is held taut to prevent loose skin from entering the slots at the corner of the head. If reasonable care is exercised in shaving the neck with this device, the danger of the skin entering the slots is reduced to a minimum.

To avoid the necessity of using care in tightening of the skin on the neck or other parts where the skin is tender and loose, the prior invention provided an auxiliary guard member which was removably mounted on the head and frictionally held thereon and so disposed as to prevent loose skin from entering the slots in the side walls. When it was desired to shave tight, flat surfaces, the ring was removed from the head so as to expose the slots in the side wall.

When the ring was removed and separated from the head, there was always the danger of the ring, which is comparatively small, being lost. According to the present invention, a guard ring 30 is provided which is secured to the head against removal, but which is movable on the head to a position in which it overlies the desired amount of the slots in the side wall or to a position in which it no longer covers the slot of the side wall.

As shown in the drawing, the ring 30 may be formed from sheet metal or the like, and is provided at one end with an inwardly extending flange forming a face-engaging part 31 which extends to a position adjacent the side walls of the head. The inner walls of the ring are provided with threads as shown at 32, and the ring is threaded onto the flanged locking ring 15.

In order to lock the guard ring against removal, the flanged ring 15 has its lower end 33 reduced, as shown in Fig. 2, and the bottom edge of the guard ring is turned over to form a flange 34 which will abut the part 35 of the locking ring formed by the reduced portion when moved into upper position to prevent the guard ring from being removed from the head and becoming lost.

Another feature of the invention resides in the construction wherein the guard ring can be adjusted to various positions along the head. It has been discovered that different people have their own requirements as to the use of the guard when shaving the skin of the neck and under the chin. Some people, with very tender skin, require that the guard be disposed in the plane of the face of the head so that the loose skin cannot pass into the slots. Other shavers can leave the slots in the side wall partially exposed to different extents, which, of course, will give them a closer shave, without the danger of the skin entering the slots. Accordingly, the device of the present invention can be adjusted to satisfy the requirements of any users by merely rotating the guard ring with respect to the head and the threaded connection between the two will move the face-engaging surface of the guard ring along the head to the desired position and will hold it there during use.

As shown in Fig. 3, the guard ring and its mounting are provided with graduations or marks

whereby the position of the guard ring, with respect to the head, can be readily ascertained. This will enable the user to quickly adjust the guard ring to the desired position.

In the preferred form of the invention, the ring 30 is provided with a forty-pitch thread and the flanged ring is provided with graduations 36 cooperating with the lower edge of the guard ring and each indicating one turn of the guard ring from a reference line 37. The guard ring is provided with a plurality of vertical graduations 38 along its lower edge which are adapted to be brought into alignment with the reference line, for indicating parts of the turn. The ring may be provided with any number of subdivisions. In the preferred form of the invention, the ring is provided with twenty-five subdivisions so that each subdivision will indicate a movement of the guard one one-thousandth of an inch along the head. Dry shavers being precision instruments, it is essential that the ring be capable of very fine adjustments. The pitch of the thread used in the preferred form of the invention will enable the user to obtain these very fine adjustments so that the guard can be accurately positioned to suit the needs of the particular user.

The guard is prevented from being moved into a position in which it projects above the upper surface of the head and prevents the hairs from entering the slots in the face of the head thus rendering the shaver inefficient, by the flange 34 on the guard ring engaging the abutment 35 on the locking ring. These elements are so disposed that when in engagement the face-engaging flange of the guard ring will be positioned in the plane of the face of the cutter head.

The user of the device can adjust the guard very quickly to the desired position as indicated by the indicator by merely manually turning the ring with respect to the head without the use of tools, and, after shaving the neck and other similar portions of the face, can quickly move the guard so that it no longer covers any portion of the side slot to thereby obtain a very close shave due to the passage of the hair through the slots in the side wall as the head is traversed over the face.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

I claim:

1. A shaving machine for personal use, comprising a hollow head having narrow, closely spaced hair-receiving slots extending there-through and opening at the face and side walls of the head; a blade member movable within the head and cooperating with the slots to shear off hair extending through the slotted face and side walls of the head; a skin-engaging guard member; and means for movably mounting the guard member on the head so that the same may be adjusted relative to the slots formed in the side walls of the head, the guard member being provided with a pair of flanges to limit the movement of the guard on said means in either direction longitudinally of the head.

2. A shaving machine for personal use, comprising a hollow head having narrow, closely spaced hair-receiving slots extending there-through and opening at the face and side walls of the head; a blade member movable within the head and cooperating with the slots to shear off hair extending through the slotted faces and side walls of the head; a guard member; and means for mounting the guard member on the

head for micrometer adjustment, including means for indicating the position of the guard with respect to the head.

3. A shaving machine for personal use, comprising a hollow circular head having narrow, closely spaced hair-receiving slots extending through the annular marginal portion of the head and adjacent peripheral wall of the head; a rotatable blade within the head and having shearing edges cooperating with the interior edges of the walls of the slots in the face of the peripheral wall of the head to shear off hairs extending therethrough; and a ring threaded on and surrounding the side walls of the head and movable to a position to prevent loose skin from extending into the portions of the slots in the peripheral wall of the head.

4. A shaving machine for personal use, comprising a hollow circular head having narrow, closely spaced hair-receiving slots extending through the annular marginal portion of the head and adjacent peripheral wall of the head; a rotatable blade within the head and having shearing edges cooperating with the interior edges of the walls of the slots in the face of the peripheral wall of the head to shear off hairs extending therethrough; a ring threaded on and surrounding the side walls of the head and movable in a position to prevent loose skin from extending into the portions of the slots in the peripheral wall of the head; and means for indicating the position of the ring with respect to the head.

5. A shaving machine for personal use, comprising a hollow circular head having narrow, closely spaced hair-receiving slots extending through the annular marginal portion of the face of the head and adjacent peripheral wall of the head; a rotatable blade within the head and having shearing edges cooperating with the interior edges of the walls of the slots in the face and the peripheral wall of the head to shear off hairs extending therethrough; a guard ring surrounding the head; and threaded means for securing the ring on the head portion for movement toward or away from the plane of the face of the head whereby desired fine adjustments of the guard ring can be made with respect to the head to cover the slots in the side wall to the desired extent to prevent loose skin from extending into said slots.

6. A shaving machine for personal use, comprising a casing; a hollow circular head having narrow, closely spaced hair-receiving slots extending through the annular marginal portion of the head and adjacent peripheral wall of the head; a locking ring engaging the head and locking it in fixed relation with the casing; a rotatable blade within the head and having shearing edges cooperating with the interior edges of the walls of the slots in the face and peripheral wall of the head to shear off hairs extending therethrough; and a guard ring surrounding the head to prevent loose skin from extending into the portions of the slots in the peripheral wall of the head, said guard ring being threaded to the locking ring for longitudinal adjusting movement.

7. A shaving machine for personal use, comprising a casing; a hollow circular head having narrow, closely spaced hair-receiving slots extending through the annular marginal portion of the head and adjacent peripheral wall of the head; a locking ring engaging the head and locking it in fixed relation with the casing; a rotatable blade within the head and having shearing

edges cooperating with the interior edges of the walls of the slots in the face and peripheral wall of the head to shear off hairs extending therethrough; a guard ring surrounding the head to prevent loose skin from extending into the portions of the slots in the peripheral wall of the head, said guard ring being threaded to the locking ring for longitudinal adjusting movements; and a flange on the guard ring engaging an abutment on the locking ring to limit upward movement of the guard ring.

8. A shaving machine for personal use, comprising a casing; a hollow circular head having narrow, closely spaced hair-receiving slots extending through the annular marginal portion of the head and adjacent peripheral wall of the head; a locking ring engaging the head and locking it in fixed relation with the casing; a rotatable blade within the head and having shearing edges cooperating with the interior edges of the walls of the slots in the face and peripheral wall of the head to shear off hairs extending therethrough; a guard ring surrounding the head to prevent loose skin from extending into the portions of the slots in the peripheral wall of the head, said guard ring being threaded to the locking ring for longitudinal adjusting movement; and means for indicating the position of the guard ring with respect to the head.

9. A shaving machine for personal use, comprising a casing; a hollow circular head having narrow, closely spaced hair-receiving slots extending through the annular marginal portion of the head and adjacent peripheral wall of the head; a locking ring engaging the head and locking it in fixed relation with the casing; a rotatable blade within the head and having shearing edges cooperating with the interior edges of the walls of the slots in the face and peripheral wall of the head to shear off hairs extending therethrough; and a guard ring surrounding the head to prevent loose skin from extending into the portions of the slots in the peripheral wall of the head, said guard ring being threaded to the locking ring for longitudinal adjusting movement, the locking ring being provided with graduations cooperating with the edge of the guard ring for determining the position of the guard ring with the head.

10. A shaving machine for personal use, comprising a casing; a hollow circular head having narrow, closely spaced hair-receiving slots extending through the annular marginal portion of the head and adjacent peripheral wall of the head; a locking ring engaging the head and locking it in fixed relation with the casing; a rotatable blade within the head and having shearing edges cooperating with the interior edges of the walls of the slots in the face and peripheral wall of the head to shear off hairs extending therethrough; and a guard ring surrounding the head to prevent loose skin from extending into the portions of the slots in the peripheral wall of the head, said guard ring being threaded to the locking ring for longitudinal adjusting movement, the locking ring being provided with graduations cooperating with the edge of the guard ring for determining the position of the guard ring with the head, and the guard ring being provided with graduations cooperating with the graduations on the locking ring to indicate the longitudinal position of the guard ring with respect to the head.

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