Aug. 27, 1940. N. TESTI 2,212,624

SHAVING IMPLEMENT

Filed Aug. 11, 1936

Fig. 1

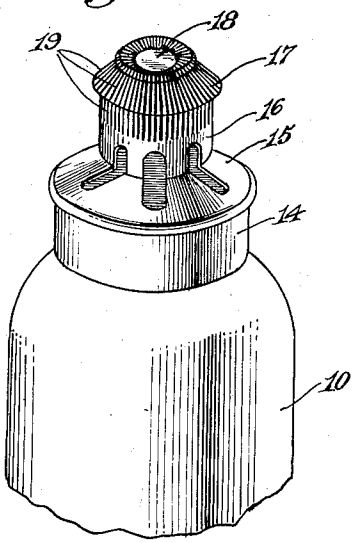


Fig. 2

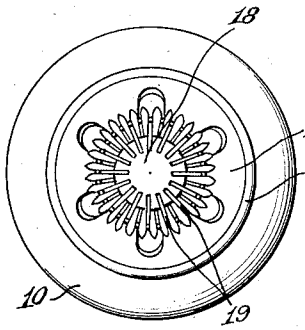


Fig. 3

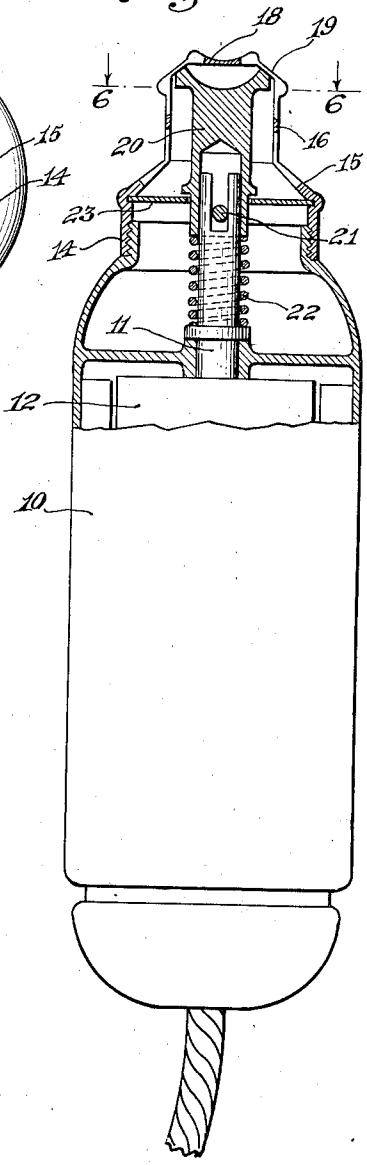


Fig. 4

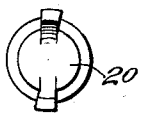


Fig. 5

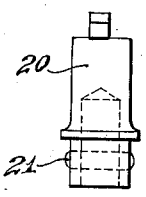
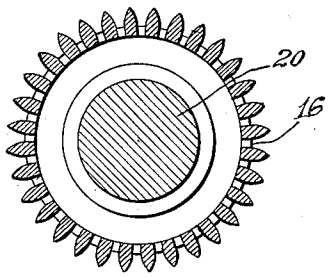


Fig. 6



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2,212,624

SHAVING IMPLEMENT

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Application August 11, 1936, Serial No. 95,390

6 Claims. (Cl. 30—43)

This invention relates to implements employing power operated co-operating shearing members and adapted for shaving without the use of lather.

In one aspect the present invention consists in a shaving implement presenting an oblique or inclined face defining an annular shearing zone, as distinguished from implements heretofore known which have a flat or cylindrical guard shaped for engagement with the face of the user. The inclined or oblique position of the shaving zone contemplated in accordance with the present invention imparts to the implement a flexibility and range of use not hitherto available.

In another aspect the present invention consists in a further development of the implement disclosed in my co-pending application Serial Number 84,938, filed June 12, 1936, whereby the implement of my said prior application may be adapted for use in a wider field of application. From this standpoint the mechanism herein disclosed may be considered as a complete and self-contained attachment which may be replaceably used with the implement as a detachable unit and replaced by a guard and cutter presenting a flat shaving zone, when desired.

An important field of use of the mechanism herein disclosed is in removing hair from the nostrils or ears of the user where a flat shearing zone cannot be conveniently located. In this connection an important feature of the invention consists in a guard presenting a projecting body portion of relatively small cross-sectional area surmounted by a conical or oblique annular surface defining a shearing zone of limited width. Preferably the projecting body portion may be of such dimensions that it may be conveniently inserted in restricted body openings to position the shaving zone safely and without danger of cutting the user in locations which cannot otherwise be conveniently reached.

The invention includes numerous other features of novel mechanical construction which contribute to the successful operation of the implement. For example, in some cases it may be desirable further to define the shearing zone by bounding it at one or both edges by a projecting bead and if used this may be slotted and shaped in the manner tending to gather and direct the individual hairs into the range of the shearing teeth. Moreover, it is proposed to mount the cutter within the guard so that the two may be removed as a self-contained unit, the arrangement being such that when the guard is assembled upon the casing of the implement the driving connection to the cutter is established without requiring any attention upon the part of the user. One convenient manner of achieving this result is to provide a diaphragm within the guard which serves to maintain the two parts in assembled relation while at the same time permitting the cutter to accommodate itself in the proper position when the guard is secured in operative relation to the implement.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawing in which:

Fig. 1 is a view in perspective of the operative part of the implement;

Fig. 2 is an end view;

Fig. 3 is a view in elevation, partly in section;

Fig. 4 is an end view of the cutter;

Fig. 5 is a view in side elevation of the cutter; and

Fig. 6 is a view of the implement in cross-section on the line 6—6 of Fig. 3.

The implement includes in its construction an elongated cylindrical casing 10 which serves as a handle for the implement as well as a housing for the motor operating it. A portion of the motor shaft 11 is shown in Fig. 3 as well as a portion of the armature 12 of the motor. The casing 10 terminates at its open end in an externally threaded cylindrical flange or ring upon which is removably screwed the guard member of the implement.

The guard comprises a downwardly opening cylindrical portion 14 internally threaded to engage the threaded ring of the casing 10 and having a beaded upper edge which merges into an annular inclined and converging wall 15 provided with a series of symmetrically located perforations. The inclined wall 15 in turn merges into an upwardly projecting cylindrical portion 16 of relatively small diameter and having perforations which align or register with the perforations of the wall 15. This in turn is provided at its upper edge with a circumferential bead and merges into an inclined annular converging end wall 17 which is thus located concentrically with respect to the lower inclined wall 15. At its upper edge the wall 17 is provided with a projecting circumferential bead and merges into a circular downwardly concave end 18. A series of radially disposed straight slots 19 extend through the wall 17 and into both the cylindrical portion 16 and the concave end portion 18. These slots may be approximately .010 inch in width, this having been found to be the width best adapted freely to receive the hairs to be removed when the implement is presented to the face of the user. The slots 19 consequently extend through the projecting bead at the upper edge of the cylindrical portion 16 and the projecting bead at the upper edge of the upper converging end wall 17. In passing through the bead of the portion 16 the slots 19 are somewhat flared as indicated in Fig. 6 to facilitate entrance of the

hairs into the slots. The conical wall 17 is made thin to facilitate close shaving and is reenforced to some extent at both edges by the thicker metal of the upper and lower circumferential beads.

The motor shaft 11 is slotted at its upper end and telescopically receives the cutter head 20. The cutter head is provided with a bore of suitable diameter to fit upon the shaft 11 and with a cross-pin 21 which supplies a positive driving connection between the two. The cutter is concaved at its upper end, as best shown in Fig. 3, and provided with two upwardly projecting blades having inclined faces arranged to rotate in contact with the inner face of the converging end wall 17. The edges of these blades supply shearing edges which co-operate with the stationary shearing edges formed by the slots 19 in the inclined or oblique end wall 17. The cutter 20 is provided with a circumferential flange near its lower end and is maintained in the guard member by means of a flat diaphragm 23 which loosely fits the shank of the cutter 20 below the flange and fits at its outer circumference into an annular groove in the inner wall of the cylindrical portion 14 of the guard substantially within the bead of its upper edge. It will be apparent, therefore, that the guard may be removed with the cutter intact in assembled relation as a detachable unit and conveniently replaced with the guard upon the casing 10 in such manner that driving connection is at once established with the motor shaft 11.

A compression spring 22 is arranged upon the shaft 11 in position between a collar on the upper end of the shaft and the lower end of the shank of the cutter 20 and this acts at all times to maintain the blades or teeth of the cutter in yielding engagement with the inclined inner or shearing wall of the guard.

In operation the implement is positioned so that hairs enter the inclined slots 19 of the conical wall 17, passing in through either of the circular beads which limit it and which act to pick up and direct the individual hairs into the shearing zone. The hairs are severed in the rotation of the cutter and fall into the chamber above the diaphragm 23 which not only keeps them out of the motor but collects them so that they may be discharged at convenience through the elongated perforations or discharge openings formed partly in the inclined wall 15 and partly in the cylindrical wall 16.

It will thus be seen that I have provided, as a detachable unit, a guard and cutter which present a projecting body portion of relatively small dimensions surmounted by an inclined surface 17 defining an oblique shearing zone of limited width. This shearing zone is further defined at its upper and lower edges by rounded projecting beads which are slotted in alignment with the slots 19 of the shearing surface and otherwise shaped to gather and direct the individual hairs into the range of the shearing teeth. The circular end surface 18 is, moreover, slotted in alignment with the apertures of the shearing surfaces so that hairs may reach the shearing zone by entering directly through the end of the implement. The concave shape of this end surface tends to obviate bending the hairs downwardly and gives them an opportunity to stand up straight in passing into the aperture 19 of the upper bead.

It is believed that the oblique, inclined or conical cutting zone provided in the implement of the present invention is a novel feature, not heretofore available in dry shaving implements. Accordingly, it is not limited in its use to the particular construction illustrated but may be variously embodied in implements of different shape and appearance.

Similarly, the feature of a detachable guard and cutter unit, which may be assembled with the implement at the same time operative driving connections are established between the cutter and prime mover, is believed to be broadly new. Obviously, the useful application of this feature is not limited to the implement illustrated herein nor to any particular type of dry shaving implement.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. An implement of the class described, including a guard presenting an outwardly projecting body portion of relatively small cross-sectional area surmounted by a conical surface defining an oblique shearing zone and having a slotted projecting bead at its lower edge, and a cutter shaped to run in said shearing zone.

2. An implement of the class described, including a guard having a cylindrical surface closed at its outer end by a wall with a conical surface, the cylindrical and conical surfaces being slotted to present a series of oblique shearing teeth with clearance spaces at their lower ends, and a rotary cutter presenting correspondingly inclined shearing teeth.

3. An implement of the class described, including a guard shouldered to present an end portion having a reduced diameter and a conical annular wall provided at its opposite edges with projecting beads, said conical wall being slotted to form a series of inclined shearing teeth and said beads being also slotted to provide clearance openings, and a rotary cutter with teeth inclined to run upon the inner face of said conical wall while leaving free the openings of the beads.

4. A dry shaving implement including in its structure an outer member having a cylindrical portion terminating in a circumferential bead, an inclined conical wall also terminating in a circumferential bead, and an end wall, both beads and the conical wall being slotted to present an annular series of inclined shearing teeth, and a cutter having shearing teeth arranged to rotate in contact with the inner face of said conical wall.

5. An implement of the class described, comprising a guard disk having a slotted circumferential bead merging outwardly into a conical wall slotted to provide shearing teeth and terminating in a second slotted bead of larger diameter than the first, and a rotary cutter having inclined blades cooperating with the teeth of said conical wall.

6. An implement of the class described, including a guard presenting an outwardly projecting body portion surmounted by a conical surface defining an oblique shearing zone and having a slotted projecting bead at its lower edge, and a cutter shaped to run in said shearing zone.

NICHOLAS TESTI.