Sept. 3, 1940. S. TRACHTENBERG 2,213,872

SHAVING DEVICE

Filed Aug. 16, 1938

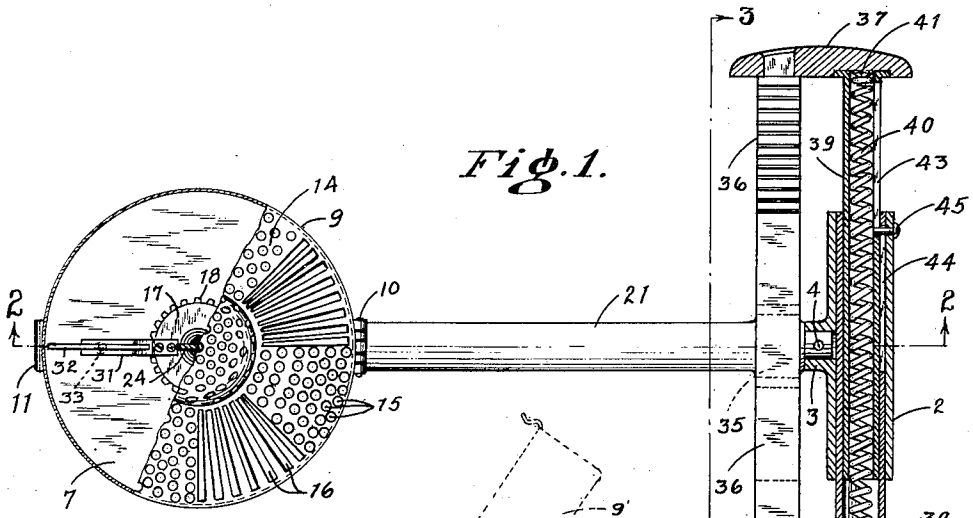


Fig. 1.

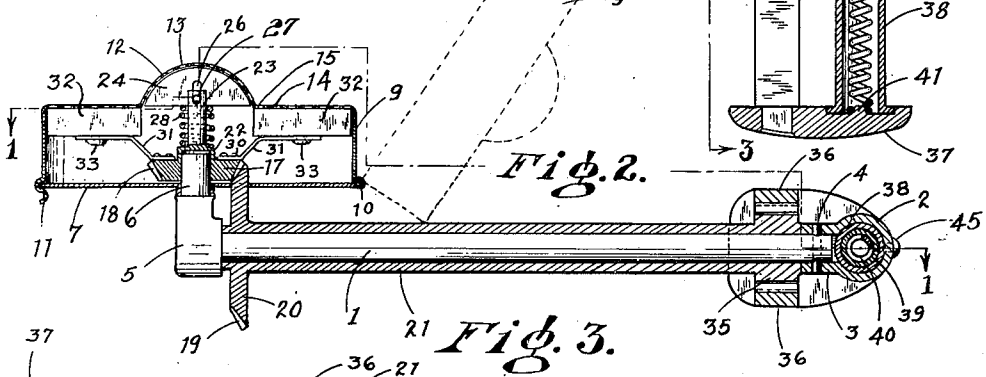


Fig. 2.

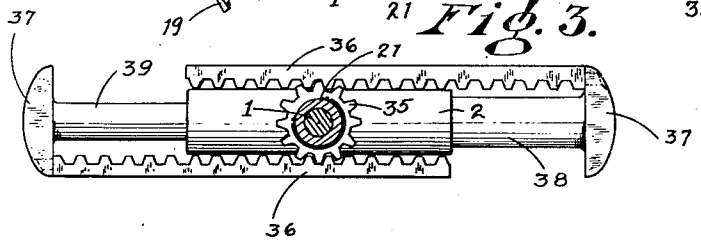


Fig. 3.

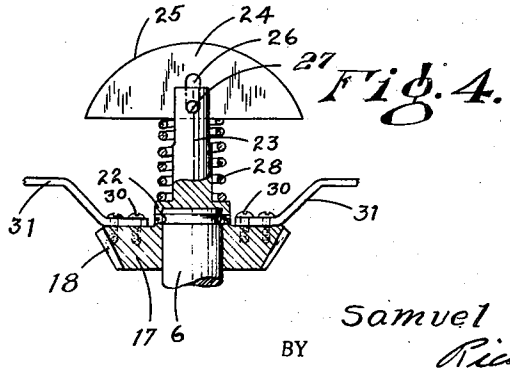


Fig. 4.

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SHAVING DEVICE

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2 Claims. (Cl. 30—43)

This invention relates to improvements in shaving devices, and more particularly to that type of shaving device wherein the hair is removed by a shearing action.

The object of the invention is to provide a shaving device wherein the motive power may be furnished by manipulation of the parts with the hands. Another object of the invention is to provide a device which cannot injure the user. Another object of the invention is to provide a shaving device which furnishes a more intimate contact of the hair severing parts with the face or skin of the user. Another object of the invention is to provide a shaving device which may be readily cleaned without special tools or brushes and wherein the hair removed is retained until such time as the user desires to discharge the same. Another object of the invention is to provide a shaving device wherein the wearing parts may be readily and quickly replaced. Another object of the invention is to provide a shaving device where the separate parts which make up the device cannot readily become lost or misplaced.

Still other objects of the invention and the invention itself will become more apparent from the following description of the embodiment thereof which description is illustrated by the accompanying drawing and forms a part of this specification.

In the drawing:

Fig. 1 is an enlarged plan view of the device of my invention with certain parts broken away and shown in section;

Fig. 2 is a section taken on the line 2—2 of Fig. 1, certain alternate positions of the parts being shown by dotted lines;

Fig. 3 is a section taken on the line 3—3 of Fig. 1; and

Fig. 4 is an enlarged fragment of one of the cutter bars and its support.

Generally speaking, the device comprises a cutter head including a face plate adapted for engagement with the face and having apertures therethrough through which the hair may extend. Cutter bars map be rotated or reciprocated on the opposite side of the face plate to sever the hair extending through the apertures which hair falls down and is accumulated in the chamber formed by the head. A drive mechanism is provided, being adapted to be operated by hand.

More specifically, a frame is provided and comprises a shaft 1, having a T-shaped end 2 formed by securing a tube to one end of the shaft, which tube extends at right angles to the shaft and is secured to the shaft by a socket 3 telescoped over the end of the shaft and through which a pin 4 extends. The other end of the shaft is provided with a coupling 5 which extends upwards at right angles to the shaft and terminates in a spindle 6.

A circular base plate 7 is carried by the coupling 5 on the spindle 6. A cap 9 is hingedly secured at 10 to the base 7 being provided with a catch or clasp 11 to hold the cap securely in position on the base plate. The upper or shaving face of the cap, as viewed in the figures, comprises a central zone 12 of semi-spherical form provided with a plurality of equally spaced apertures 13. Surrounding the center zone is an outer, preferably flat, annular zone 14 which, as best shown in Fig. 1 is provided with groups of alternately spaced circular apertures 15 and radial slots 16. Although the zone 14 is shown as being flat, it is within the purview of my invention to make the same convex or semi-toroidial. The metal of the cap is preferably of a thin hard wear-resisting material suitably tempered and the apertures are formed with sharp corners especially on the inside of the cap. Rotatably journalled on the spindle 6 is a driven gear 17 having teeth 18 enmeshed with teeth 19 of a drive gear 20, which gear 20 is integral with a sleeve 21 rotatably journalled on the shaft 1.

The gear 17 is provided with a central cap 22 which extends above the spindle 6 and is provided with an integral upstanding post 23. The end of the post is bifurcated and supports therein a blade 24 which may be in the form of a segment of a circle, the arcuate edge 25 being of the same conformation as the inner surface of the zone 12. The blade is provided with a slot 26. A pin 27 extends through the bifurcated end and through the slot 26 of the blade, permitting movement of the blade longitudinally of the post but preventing accidental loss of the blade. A helical spring 28 is disposed about the post with one end on the cap 22 and the other end engaging the bottom edge of the blade forcing the same upwardly. It should be understood that, although the figures of the drawing show a slight gap between the end of the blade and the cover, this gap is merely shown for the purpose of clarity of exposition and that in actual practice the edge of the blade will be in sliding contact with the under-surface of the zone 12 of the cap.

Secured to the flat surface of the gear 17 by rivets or screws 30 are laterally extending arms 31 of resilient spring material, which arms carry blades 32 on their ends, the blades being held by

heads 33 extending through slots in the springs 31. The blades are of substantially rectangular formation and their upper edges conform to the under-face of the zone 14. If this zone were semi-toroidial as previously suggested, the cutting face of the blade would conform to the under-surface of the zone.

The end of the sleeve 21 is provided with a gear 35 which is integral therewith. The gear is enmeshed with a pair of gear racks 36, which racks are disposed on opposite sides of the gear and parallel to each, adapted to be reciprocated in opposite direction by handles 37, secured to the ends of the racks, to rotate the gear. Means for guiding the racks and holding the same in engagement with the gear, as well as means for returning the racks to the outward position, is provided and comprises a pair of tubes 38 and 39 having their ends secured in recesses in the handle 37; the tube 38 being slidably disposed in the frame tube 2 and the tube 39 being slidably disposed in the tube 38. The helical spring 40 is disposed inside of the tubes being positioned over lugs 41 on the handles. The tube 39 is provided with a longitudinal slot 43 and the tube 38 with a similar slot 44, a key 45 is carried by the frame 2 and extends into the slots 43 and 44 allowing the tubes to be reciprocated outward but preventing the same from being accidentally disengaged from the frame.

In operation the handles 37 are gripped between the palm and fingers of the operator. The face of the cap is placed in engagement with the face of the operator, the central zone 12 displacing an area of the face and causing it to be forced into more intimate contact with the zone 14. The handles 37 are then squeezed toward each other. The tubes 38 and 39 are thus telescoped relative to each other, sliding through the frame portion 2 compressing the spring 40. The racks 36 travel over the gear 35 rotating the same, which motion is transmitted through the sleeve 21 to the drive gear 20.

The rotation of the drive gear 20 causes the gear 18 to be rotated sliding the cutting blades 32 and 24 around the undersurface of the cap 9. The hair of the operator which protrudes through the holes or apertures and slots in the cap, is severed by the shearing action of the blades 24 and 32 with the sharp edges of the holes. This hair falls and is accumulated in the chamber formed by the cap 9 and the base 7. The blades all being spring-pressed into connection with the cap and the springs being resilient, the action is a floating action which allows for intimate contact at all times regardless of wear. Release of pressure on the handles by the fingers and palm of the operator causes the spring 40 to force the handles apart rotating the gear 35 in the opposite direction, which motion is transmitted to the aforementioned parts in the opposite direction.

The device may thus be passed over the face of the operator without danger of injury. The severed hair does not fall inside of the neck of the shirt of the wearer or on the body to cause later discomfort or fall upon the bathroom fixtures necessitating cleaning the same immediately after shaving. When the shaving is finished the latch 11 may be lifted and the cap rotated into position as shown in dotted lines in Fig. 2. In this position the gear and cutter blade assembly may be lifted off of the spindle 6, the hair discharged from the chamber, and all of the parts thoroughly washed without danger of the same becoming lost.

It is also within the purview of my invention to provide an electrical motor drive for the sleeve 21 in place of the hand manipulated mechanism shown.

Having thus described my invention in an embodiment thereof, I am aware that numerous and extensive departures may be made therefrom but without departing from the spirit of the invention or the scope of the appended claims, and that the claims are to be construed with a range of equivalents to which they may be entitled in view of the status of the prior art.

I claim:

1. A cutter head for a shaving device comprising a circular plate having a raised semi-spherical central zone and an outer flat zone circumambient the central zone, said plate being formed with a plurality of spaced apertures and adapted to be held in contact with the body and the hair on the body adapted to extend through the apertures, means cooperating with the side of the plate opposite to the body for shearing the hair extending through the apertures comprising a plurality of members shaped to conform to the surface of the plate and spring supporting means for holding said members against the surface of said plate; and means for moving said members across the surface of the plate.

2. A shaving device including a supporting frame, a housing fixedly carried by said frame and including a base and a face contacting portion hingedly connected thereto, a spindle on said frame and extending into the housing, a pinion gear rotatably carried by said spindle, spring means connected to said gear, and a plurality of cutter blades carried by said springs and held in spring-pressed engagement with the inside of the face-contacting portion of the housing, said face contacting portion being provided with a plurality of hair receiving apertures, means for moving said blades over said surfaces, said blades cooperating with the edges of said apertures to sever hair extending therethrough.

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