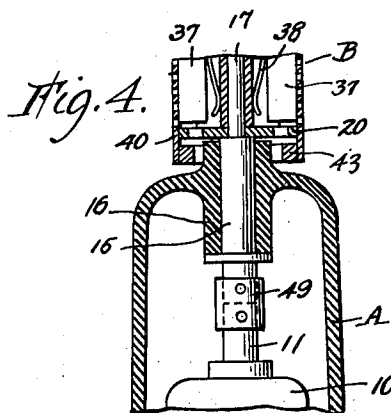
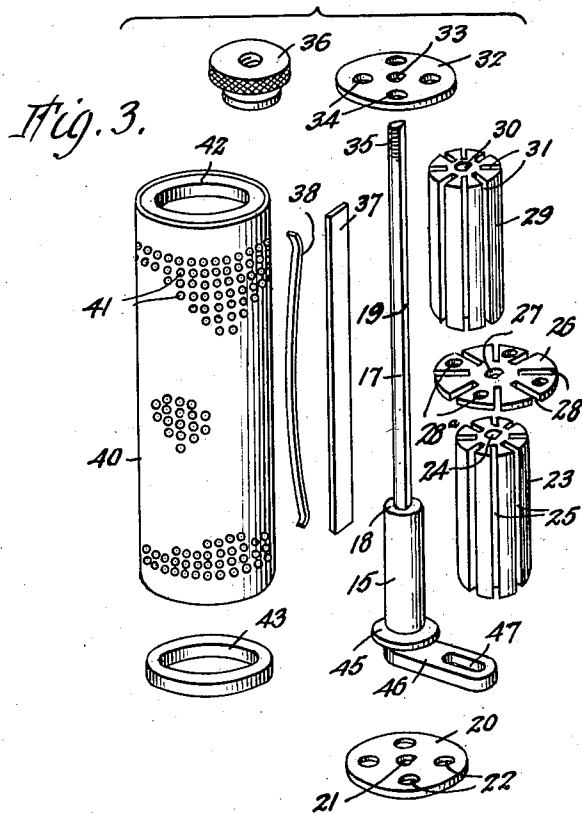
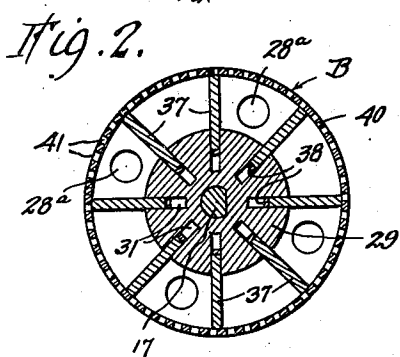
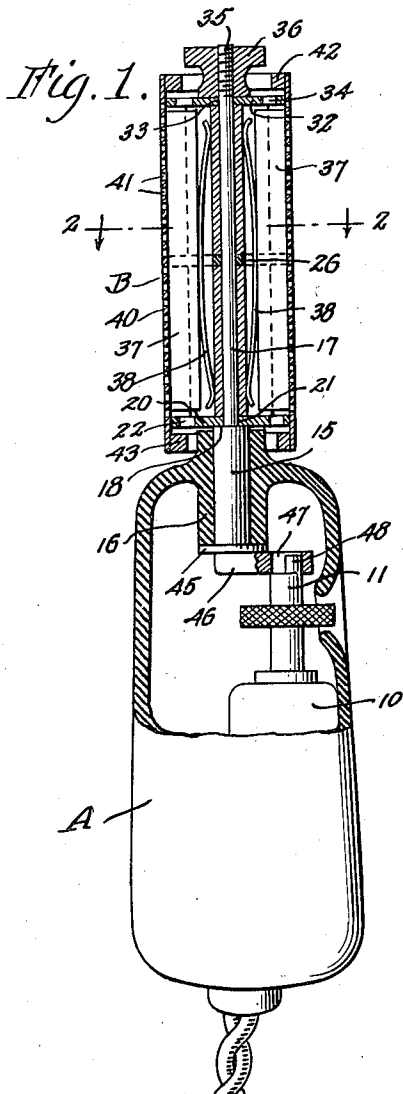


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HAIR CUTTING IMPLEMENT

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HAIR CUTTING IMPLEMENT

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3 Claims. (Cl. 30—43)

This invention relates to hair cutting implements which are generally known as "dry shavers" and comprehends an improvement thereover which broadly consists of an outer hollow cylindrical perforated cutter element surrounding and freely movable with reference to an inner driven rotatory cutter element having radial blades which cooperate with the outer cutter element to shear the hair protruding through the perforations thereof.

The broad object of the present invention is to provide a dry shaver in which an outer perforated cutter element is adapted to be rolled over the skin so that the hair is caused to enter and protrude through the perforations and is held erect for severance by the rotatory blades thereby avoiding the bending over of the hair as occurs in the previous devices due to the fact that the outer cutter element is caused to slide over the face.

The invention further resides in the improved features of construction and mode of assembly of the cooperative cutter elements which are disclosed in the following specification, illustrated in the accompanying drawing, and pointed out in the appended claims.

In the drawing:

Fig. 1 is a side view of a hair cutting implement constructed in accordance with the invention, parts being broken away and shown in section to disclose the underlying structure.

Fig. 2 is an enlarged transverse sectional view therethrough taken approximately on the line 2—2 of Fig. 1.

Fig. 3 is a collective perspective view of the cutter head, with the parts thereof in separated juxtaposition.

Fig. 4 is a fragmentary longitudinal sectional view illustrating a modified form of drive between the motor and cutter head shaft.

Referring to the drawing by characters of reference, A designates the handle of the device which houses a motor 10 provided with a drive shaft 11. The cutter head, which is designated generally by the reference character B, includes a shaft 15 which is journaled in a bearing boss 16 in the handle A and which protrudes outwardly from one end thereof.

The protruding portion 17 of the cutter head shaft is of a reduced diameter defining at its juncture with the lower portion 15 thereof a shoulder 18 and said reduced portion of the shaft is formed with a longitudinally extending flat 19. A disk or washer 20 having a central opening 21 conforming to the cross sectional shape

of the protruding portion 17 of the cutter head shaft is fitted thereover and engaged against the shoulder 18 and said disk or washer is provided with circumferentially spaced apertures 22.

A cylindrical sleeve 23 having a central longitudinal bore 24 conforming to the cross sectional shape of the protruding portion 17 of the cutter head shaft is fitted thereover and against the disk or washer 20. The cylindrical sleeve 23 is provided with circumferentially spaced longitudinally extending radially disposed grooves 25. An intermediate disk or washer 26 having a central opening 27, corresponding to the cross sectional shape of the protruding portion of the shaft 17, is fitted thereover against the upper end of the cylindrical sleeve 25 and the same is formed with radial slits 28 corresponding to and registering with the grooves 25 of the cylindrical sleeve 23. The disk or washer 26 is provided with circumferentially spaced apertures 28a.

A second cylindrical sleeve 29 having a central bore 30 and radially disposed longitudinally extending grooves 31 is fitted over the protruding portion 17 of the cutter head shaft with the grooves 31 registering with the slits 28 and grooves 25 of the sleeve 23. An upper washer 32 having a central opening 33 and circumferentially spaced apertures 34 is fitted over the protruding portion 17 of the shaft and against the upper end of the sleeve 29. The upper terminal of the reduced portion 17 of the shaft is threaded at 35 and is adapted to receive thereover a clamping nut 36 to removably retain the cutter head elements in place. A radial blade 37 is arranged in each aligned groove 25, slit 28 and groove 31 of the assembly and between the lower and uppermost disks 20 and 32. The blades 37 are normally urged radially outward by a bowed leaf spring 38.

The cutter head further includes a hollow cylindrical outer cutter element 40 which is of extremely thin gage material formed with closely spaced minute perforations 41. The inner periphery of the outer cutter element 40 is of slightly greater diameter than the diameter of the outer perforations of the disks or washers 20, 26 and 32. The cutter element 40 is of such a length that its opposite end portions protrude slightly beyond the lowermost and uppermost disks or washers 20 and 32 and said element has fitted within the opposite ends thereof by a driven frictional fit, a pair of annular collars 42 and 43 so that the sleeve is mounted in surrounding relation to the washers, shaft and blades for free rotation and whereby the outer edges of the

blades 37 are normally urged into intimate contact with the inner periphery of the outer cutter element 40.

As disclosed in Figs. 1 to 3 of the drawing, the lower end portion of the cutter head shaft 15 is provided with an enlarged shoulder 45 below which is provided a radially projecting actuating arm 46 having a slot 47, while the motor shaft is provided with an eccentric pin 48 which, upon rotation of the motor shaft, imparts to the cutter head assembly B an oscillating rotatory motion. In lieu of the oscillating, rotatory motion however, the lower portion 15 of the cutter head shaft may be directly coupled by a suitable coupling 49 with the motor shaft 11 so as to impart continuous rotation to the cutter head assembly as illustrated in Fig. 4 of the drawing.

In use and operation, the outer periphery of the cylindrical outer cutter element 40 is rolled over the skin so that the hair is caused to protrude through the perforations 41 thereof, while the blades 37 which are rapidly oscillated or rotated within the element 40 effect the severance of the hair which protrudes through the perforations. Obviously, this avoids the bending over of the hair as occurs in previous dry shavers where the outer perforated cutter element is caused to slide over the skin. In the present device, the perforated cylindrical cutter element 40 by being rolled over the skin causes the hair which protrudes therethrough to be held erect for severance by the relatively moving blades, thus obtaining a closer shave while avoiding irritation of the skin due to the elimination of friction which results from the sliding of an outer cutter element over the face which has been heretofore practiced. The apertures formed in the disks or washers 20, 26 and 32 permit the severed particles of hair to be blown out or otherwise removed from the interior of the cutter head.

What is claimed is:

1. In a dry shaver, a cutter head including a driven rotatory cutter element having radial blades, a hollow perforated cylindrical cutter element mounted in surrounding relation to and adapted for free turning movement with reference to the driven cutter element and for rolling engagement with the skin while the driven cutter element is being driven to turn independently of and with reference to said hollow cylindrical cutter element, and resilient means for urging the outer edges of the blades into intimate engagement with the inner periphery of the cylindrical cutter element.

2. In a dry shaver, a cutter head including a driven rotatory cutter element consisting of a shaft, and a sleeve keyed thereto having radially disposed longitudinal grooves, blades mounted in said grooves for turning movement with said sleeve and shaft, a hollow perforated cylindrical cutter element mounted in surrounding relation to and adapted for free turning movement independently of and with reference to the driven cutter element and for rolling engagement with the skin, and resilient means within said grooves for urging the outer edges of the blades into intimate engagement with the inner periphery of the cylindrical cutter element.

3. In a dry shaver, a cutter head including a driven oscillatory cutter element having a radially disposed blade and a perforated arcuate cutter element mounted for free oscillatory movement with reference to and independent of the driven cutter element and against the outer edge of the blade, said arcuate cutter element being adapted for rolling engagement with the skin to receive through the perforations thereof the hair for severance by the blade.

BARNEY R. NYHAGEN.