

Oct. 27, 1942.

E. J. TE PAS ET AL

2,300,140

SHAVING DEVICE AND CUTTER HEAD THEREFOR

Filed Nov. 9, 1938

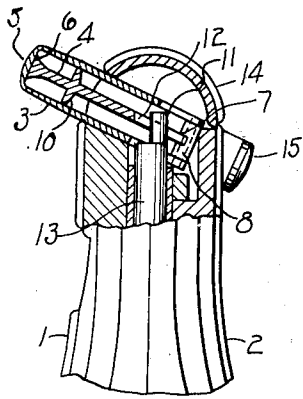


Fig-1

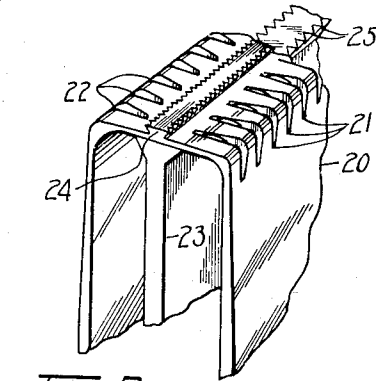


Fig-2

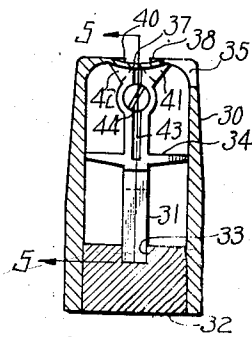


Fig-3

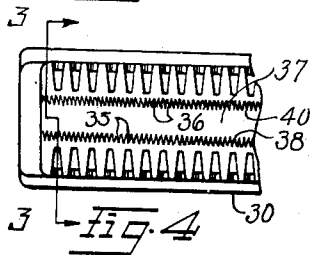


Fig-4

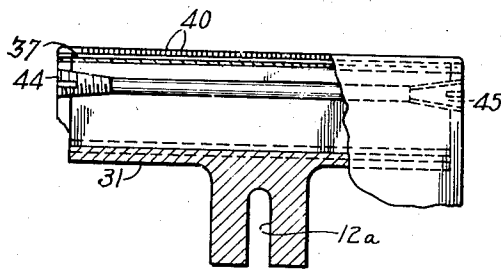


Fig-5

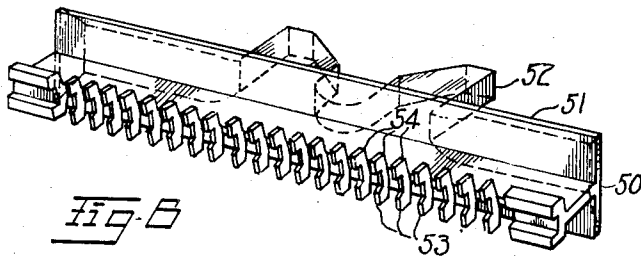


Fig-6

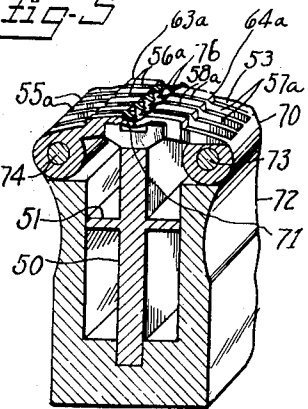


Fig-7

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2,300,140

SHAVING DEVICE AND CUTTER HEAD
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trix of said Edmund J. Te Pas, deceased

Application November 9, 1938, Serial No. 239,630

7 Claims. (Cl. 30-43)

This invention relates to improvements in a shaving device and more particularly to the cutter head of such a device.

This application is a continuation-in-part of our copending application Serial No. 21,418 for Shaving device which was filed on May 14, 1935.

The invention has for one of its objects the provision of a shaving device having an improved form of cutter head which is adapted to rake up and dislodge hairs lying close to the skin while at the same time shearing off the hairs very close to the surface of the skin.

A further object of the invention relates to the provision of adjustable means whereby the closeness of the cutting of the device may be varied within certain limits.

These and other objects of the invention will become more apparent and better understood after consideration has been given to the following detail description of the invention, taken in connection with the drawing which shows, merely by way of illustration, structure adapted for carrying out the objects of the invention.

In the drawing:

Figure 1 is a side elevational view, partly in section, of a shaving device illustrating one embodiment of the invention;

Figure 2 is an enlarged perspective view of a slightly modified form of cutter head from that shown on the shaver in Figure 1;

Figure 3 is an enlarged sectional view of another modified form of cutter head taken on line 3-3 of Figure 4;

Figure 4 is a plan view of the face plate of the cutter head shown in Figure 3;

Figure 5 is a detail sectional view taken on line 5-5 of Figure 3;

Figure 6 is an enlarged perspective view of a modified form of cutter;

Figure 7 is an enlarged perspective view in section of a cutter head employing a cutter of the type shown in Figure 8 and a slightly modified form of the face plate from that shown in Figure 7.

The shaver shown in Figure 1 comprises a handle formed from mating halves 1 and 2, which is adapted to detachably carry at one end a cutter head comprising a guard member 3 and a reciprocable cutter 4. The guard member 3 is provided with a face plate 5 which is slotted like the face plate of the guard member shown in Figure 2 and differs therefrom only in that it does not have a central comb portion as shown in the latter construction. The cutter 4 is provided with cutter teeth 6 similar to the teeth of the cutter shown in Figure 2. The cutter is guided at one edge for movement in a slot 7 formed in the base 8 of the guard member and the cross-piece 10 of the cutter maintains the cutter in proper position in its movement in the guard member.

The cutter is reciprocated in the guard member by means of an eccentric pin 11 which is received within a suitable slot 12 formed in the cutter. The eccentric pin is carried on one end of a power-driven shaft 13 which may be driven by an electric motor (not shown) inside the handle which is formed by the handle parts 1 and 2. The handle structure is provided with a cap part 14 and the cutter head is held in place by means of a pair of screws, one of which is shown at 15.

The modified form of cutter head shown in Figure 2 comprises a guard member 20 having a row of hair-receiving openings or tapered slots 21 at one edge of the guard member and a second row of hair-receiving openings or tapered slots 22 at the opposite edge of the guard member. These slots are of such width, and the metal defining the slots is of such thickness, so that in the use of the device the skin of the user will project just to, but not beyond the underside of the guard member at the place where the cutting of the hairs takes place. It should be noted here that the cutter bars of the guard member which define the margins of the guard member slots, are thinnest along a line coinciding with the end points of the cutter teeth for all of the different modifications shown herein.

Hairs which project through the slots will be sheared off by the teeth 25 of the cutter 23 at the narrow end portions of the slots 21 and 22 and hairs which lie close to the skin will be raked up and dislodged by the toothed comb portion 24 which is located between the inner ends of the slots 21 and 22.

Aside from the comb teeth 24, the modified form of cutter head shown in Figure 2 is constructed similar to the cutter head shown in Figure 1 and it may be driven in the manner illustrated in connection with that view.

Figure 3 shows another modification of the cutter head and it comprises a guard member 30 within which a cutter 31 is reciprocably mounted. The guard member is provided with a base 32 which is slotted at 33 for guiding the cutter in its movement. The cutter is provided with a cross-piece 34 which cooperates in guiding the cutter in its movements in the guard member. The guard member has a plurality of tapered slots 35 along one side of the face of the guard member and a similar series of slots 36 along the opposite side of the face of the guard member. These slots are similar to those previously described in connection with the guard member shown in Figure 2.

The central portion of the working face of the guard member is slightly depressed at 37 and at the opposite margins of this depression a row of comb teeth 38 and a row of comb teeth 40 are located. These comb teeth function in much the same manner as the comb teeth 24 for the

form of the device illustrated in Figure 2, and they serve to dislodge and rake up hairs lying close to the skin. The cutter 31 is provided with two series of oppositely disposed cutter teeth 41 and 42, respectively, somewhat similar to those shown in connection with the cutter 23 of Figure 2.

In the form of the device illustrated in Figure 3, the cutter 31 is longitudinally slit at 43 and tapered screws 44 and 45 are threadably fitted at the opposite ends of such slit for the purpose of expanding the cutter to adjust the teeth lengthwise of the slots 35 and 36 so that the ends of the teeth may be adjusted to sweep across wider or narrower portions of the slots as may be desired. The closeness of the cutting, thus, may be increased by having the ends of the cutter teeth sweep across the wider portions of the slots. The cutter 31 is provided with a slot 12a, similar to the slot 12 of the cutter shown in Fig. 1, for receiving a driving member, and the cutter head shown in Figs. 3 to 5 is adapted for use in connection with a handle and power driving means of the type shown in Fig. 1.

Fig. 6 illustrates a modified form of cutter. The cutter comprises a body member 50 having a cross piece 51 and a bifurcated tongue 52. Two angularly disposed series of cutter teeth 53 and 54 are formed from relatively thin vertically disposed blades notched intermediate their length and arranged at an angle cross-wise of the cutter.

Fig. 7 illustrates a face plate 70 having a longitudinally extending channel or groove 71 which is located midway of the side edges of the face plate and by providing oppositely disposed rows of comb teeth 76 along the edges of this channel, the efficiency of the face plate is increased. It will be understood that this head may operate efficiently without the channel or groove 71. The purpose of the channel 71 and the comb teeth thereat is to facilitate the entry of hairs into the innermost ends of the narrow portions of the slot as the device is moved across the face so that the hair may be fed with ease into both series of the slots upon each stroke of the shaver.

This form of construction also adds somewhat to the strength of the device by providing a substantial area of unslotted material at the center of the face plate. The face plate 70 is held in the channel-shaped body member 72 of the cutter head by means of pins or rods 73 and 74 which extend through the corner portions of the channel member. The cutter illustrated in Fig. 6 is used with the face plate shown in Fig. 7.

The slots of the face plate 70 have wide portions 55a and 57a and communicating narrow portions 56a and 58a, respectively. Combing projections 63a are provided at the outer ends of the narrow slots 56a and at the other side of the face plate a corresponding series of combing projections 64a are provided. In some of the species of the invention the slots at one side of the face plate of the cutter head are shown in alignment with the slots at the other side of the face plate and in the other species the slots of one series are staggered with respect to the slots of the opposite series. Either one of these two arrangements may be used with any one of the different face plates disclosed herein.

The foregoing description and the accompanying drawings to which it relates, describe what might be termed the preferred modes of practicing the invention. It is to be clearly under-

stood, however, that the invention includes each and every novel feature or combination of novel features herein disclosed, subject only to the restrictions of the prior art and the scope of the appended claims, and that the invention may assume other forms and it is not to be limited to the particular and specific structure shown and described herein.

Having thus described our invention, what we claim is:

1. In a dry shaving implement, an outer stationary member with a face plate slotted to present oppositely arranged series of shearing teeth, and an unslotted portion depressed below the plane of said teeth connecting the opposite series of shearing teeth, the slots of said face plate extending to the edge of said depressed portion.

2. In a dry shaving implement, an outer stationary member with a face plate slotted to present oppositely arranged series of shearing teeth, and an unslotted portion depressed below the plane of said teeth connecting the opposite series of shearing teeth, the slots of said face plate extending from the longitudinal margin of said face plate to the edge of said depressed portion.

3. In a dry shaving implement, an outer stationary member with a face plate slotted to present oppositely arranged series of shearing teeth, and an unslotted portion depressed below the plane of said teeth connecting the opposite series of shearing teeth, the slots of said face plate extending to the edge of said depressed portion and being provided thereat with comb teeth for guiding hairs into the slots.

4. In a device of the type described, a relatively stationary cutter element comprising two series of widthwise-extending cutter bars with the ends of the bars of one series terminating closely adjacent to the corresponding ends of the bars of the other series and hair-dislodging means intermediate the two series of cutter bars.

5. In a device of the type described, a relatively-stationary cutter element comprising two series of widthwise-extending cutter bars with the ends of the bars of one series terminating closely adjacent to the corresponding ends of the bars of the other series, and comb means between the two series of slots, said comb means being arranged so as not to extend above the level defined by the topmost portions of said cutter bars.

6. A shaving device comprising, a guard member having formed in one face a series of tapered slots of relatively narrow width at one end, a cutter member movably mounted in said guard member, said cutter member having teeth movable across the narrow end portion only of said slots, means for effecting relative adjustment between the guard member and cutter member lengthwise of the slots of the guard member, and means for translating said cutter member.

7. A shaving device comprising, a guard member having two series of slots, one located oppositely to the other, a cutter member movably mounted in said guard member and having toothed portions movable across one of the end portions only of the slots of each of said series, means for effecting relative adjustment between said guard member and said cutter member lengthwise of the slots of the guard member, and means for translating said cutter member.

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