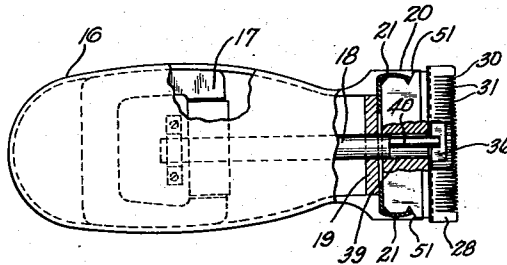
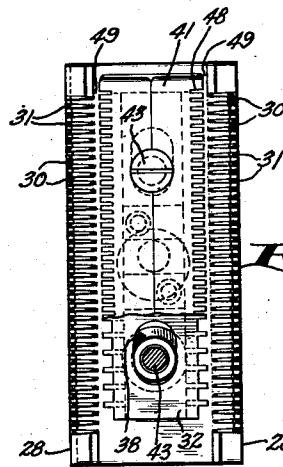
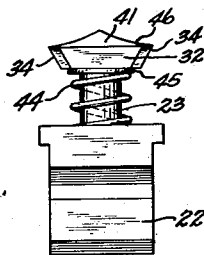
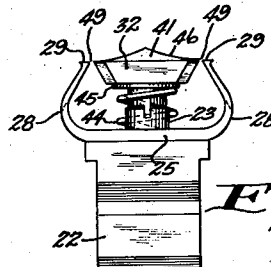
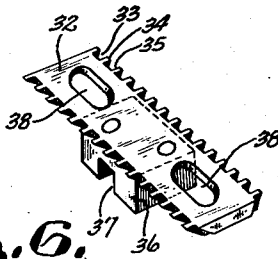
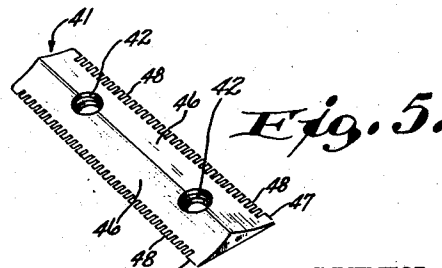


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2 Sheets-Sheet 1



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2,210,110

SHAVING DEVICE

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Fig. 8.

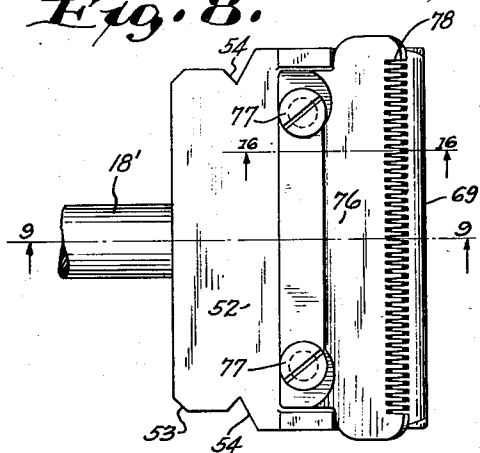


Fig. 11.

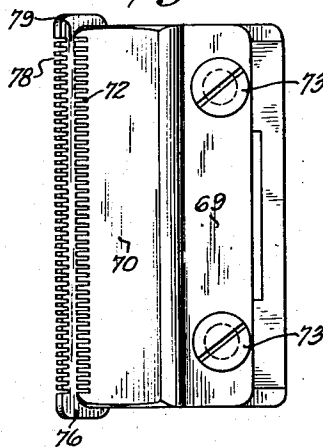


Fig. 9.

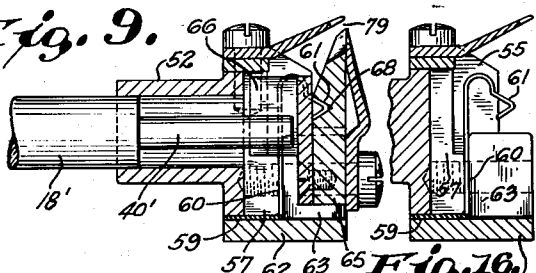


Fig. 12.

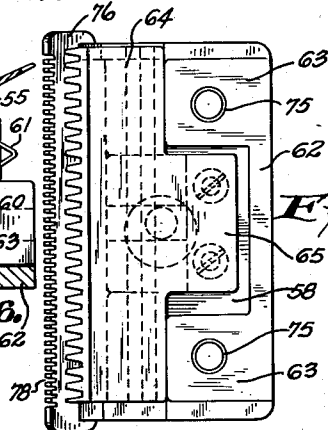


Fig. 10.

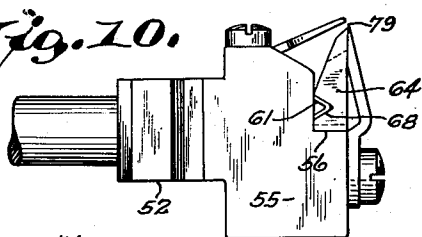
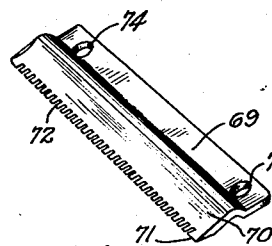


Fig. 14.

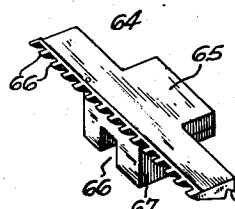


Fig. 15.

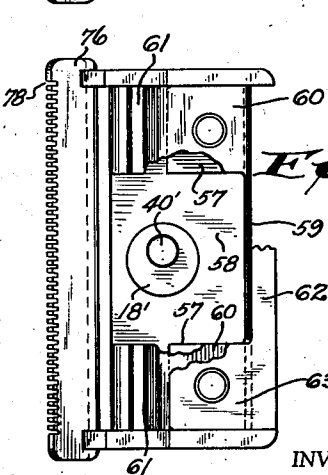


Fig. 13.

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2,210,110

SHAVING DEVICE

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Application July 27, 1936, Serial No. 92,714

4 Claims. (Cl. 30-43)

This invention relates to improvements in shaving devices.

The invention relates more particularly to shaving devices of the type having a reciprocating cutter, driven by an electric motor or other suitable means, and movable beneath a slotted face engaging part, whereby the device may be used without soap or other beard softening agent to greatly facilitate the shaving operation.

In prior devices of this type, the shaving head is provided with a slotted face engaging portion and with continuous side walls depending therefrom. With this arrangement, the slots through which the hair is guided, begin at the edges of the shaving head, and due to the fact that said edges are integral with the sides, there must be sufficient thickness of metal to connect the sides with the top of the head. Extra thickness at the beginning of the guiding slots, however, is undesirable as the closeness of the shaving depends upon the thinness of the metal in which the guiding slots are disposed, particularly at the beginning of said slots.

It is therefore an object of the present invention to provide a shaving device wherein the head is composed of a separate top part which is not integral with the sides, whereby the free slotted edges of said top part may be of extreme thinness so that the cutter operating below said slotted edges will effectively cut the hair close to the skin.

A further object of the invention is to provide a device as above described wherein the sides of the head form guards and are provided with slots open at the top for effectively straightening out and guiding hair into the slots of the face engaging portion, there being a space between the ends of the side slots and the beginning of the top slots, which space is of such width that there will be no danger of nipping the face or of the hair springing back from its straightened out condition before it is cut.

A further object of the invention is to provide a shaving device in which the face engaging portion of the shaving head has beveled and preferably slightly concave surfaces to fit the contour of the face.

A still further object of the invention is to provide a shaving device having novel means for yieldingly urging the reciprocating cutter into close contact with the inner side of the slotted face engaging member.

A more specific object of the invention is to provide in a device as above described, members located between said yielding means and the cutter for minimizing noise and vibration and for

minimizing wear on the cutter as the latter vibrates.

Other objects of the invention are to provide a shaving device wherein the parts are relatively simple to manufacture; wherein the head may be readily connected to or removed from the handle; and wherein the cutter blade may be easily removed for replacement or other purposes.

With the above or other objects in view, the invention consists of the improved shaving device and all its parts and combinations as set forth in the claims, and all equivalents thereof.

In the accompanying drawings illustrating preferred embodiments of the invention, in which the same reference numerals designate the same parts in all of the views:

Fig. 1 is a plan view of the improved shaving device, parts being broken away and shown in section;

Fig. 2 is a longitudinal sectional view through the shaving head, on an exaggerated scale showing the driving connection with the cutter member;

Fig. 3 is a plan view of the shaving head, part of the face engaging member being broken away to show the cutter there-below;

Fig. 4 is an end view of the cutter head and supporting block;

Fig. 5 is a perspective view of the face engaging member alone;

Fig. 6 is a perspective view of the cutter member alone;

Fig. 7 is an end view of a modified form of shaving head wherein no side guards are employed;

Fig. 8 is a view of one side of a modified form of cutter head, also on an exaggerated scale;

Fig. 9 is a sectional view taken on the line 9-9 of Fig. 8;

Fig. 10 is an end view of the modified form of cutter head;

Fig. 11 is a top view thereof;

Fig. 12 is a top view with the top face engaging member removed;

Fig. 13 is a top view of the head with the face engaging member and cutter member removed, and with part broken away;

Fig. 14 is a perspective view of the face engaging member alone;

Fig. 15 is a perspective view of the cutter member alone; and

Fig. 16 is a sectional view taken on the line 16-16 of Fig. 8.

Referring more particularly to the drawings, Figs. 1 to 6 inclusive, the numeral 16 designates

a hollow handle portion formed of suitable material and forming a housing for a driving device such as an electric motor 17. The driving shaft 18 of the motor projects rotatably through a partition 19 and into a recessed outer end portion 20, said recessed outer end portion having spring clips 21 disposed at opposite sides thereof, which clips are of slightly curved formation.

Referring now more particularly to the shaving head proper, the numeral 22 designates a supporting block, preferably of metal which block has posts 23 projecting from the upper surface thereof, there being recesses 24 in the upper surface of the block surrounding said posts. A substantially U-shaped member 25 is secured by screws or the like 26 to the block 22 and the bottom of said U-shaped member is provided with circular openings 27 of substantially the same size as and which register with the recesses 24 of the block 22 surrounding the posts 23.

The sides 28 of the U-shaped portion 25 form guard members for the shaving head and said sides have their free edge portions slightly nook-shaped as at 29 for the purpose of lifting and straightening out hair on the face. The said edge portions of the guards or side members 28 are formed with a plurality of relatively narrow slots 30 (see Figs. 1 and 3), which slots define teeth 31, the latter being preferably somewhat pointed toward the top.

A cutter member or blade 32 (see Fig. 6) has its opposite edge portions slotted as at 33 to define a plurality of teeth 34, the edges 35 of which are sharpened for cutting purposes. A block 36 depends from the bottom of said cutting blade and said block is formed with a slot 37. On each side of the block the cutting member has an elongated aperture 38 through which the posts 23 of the supporting block 22 extend, as shown in Fig. 2. The driving shaft 18 of the motor extends rotatably into a bore 39 of the block 22 and is there provided with an eccentrically positioned extension shaft 40 of smaller diameter. The end of the eccentric 40 fits into the slot or recess 37 of the block 36 on the cutter blade. As a result of this arrangement, when the shaft 18 is rotated by the electric motor, the eccentric 40 causes rapid reciprocation of the cutter member 32.

A fixed blade or face engaging member 41 (see Fig. 5) has counter-sunk openings 42 therein through which screws 43 may extend which screws are threadable into the ends of the posts 23 as shown in Fig. 2, to secure the reciprocating cutter 32 and the face engaging member 41 in position.

Surrounding the posts 23 and having their ends seated in the recesses 24, are coil springs 44 which springs tend to yieldingly urge the cutter member into close contact with the inner side of the fixed face engaging part 41. Washers 45 of linen, fiber, or suitable material, which are of greater diameter than the narrow portion of the recesses 38 of the cutter member 32, are positioned between the outer ends of the coil springs 44 and the cutter member to prevent wear upon the cutter member and to minimize noise and vibration during operation of the device.

The face engaging member or fixed blade 41 preferably has its upper surface tapered toward each edge as at 46, said tapered surfaces being also preferably slightly concave as shown in Fig. 5 to better fit the contour of the face. As a result of the taper, the edge portions are of extreme thinness as at 47 and said edges are pro-

vided with slots 48 which substantially register with the slots 30 of the guards 28. It is to be noted that the width of the slots 33 in the cutter member is preferably several times the width of the slots 48 of the face engaging member 41.

Referring to Figs. 3 and 4, it will be seen that the free edges of the face engaging member 41 terminate short of the free edges of the side guards 38 to leave a narrow space 49. During the shaving operation, hair which has been straightened out by the side guards and by the hooks 29 thereon, passes through the slots 30 of the side guards and into the space 49 and then directly into the slots 48 of the fixed face engaging member. The space 49 cannot be so wide that the straightened out hair has an opportunity to spring back from its straightened out condition before it enters the slots 48. The space also must be of such width that there is no danger of nipping the face. When the hair enters the slots 48 of the fixed cutter member, it is immediately severed by shearing action due to the fact that the cutter member 32 is reciprocating rapidly beneath the fixed cutter member.

The supporting block 22 for the cutter head has opposite end portions formed with beveled corners 50 and also with substantially V-shaped recesses 51. As a result of this arrangement, the head may be snapped into position in the recess 20 of the outer end of the handle, the outer ends of the spring clips 21 ultimately engaging in the slots 51 to removably hold the cutter head in position.

From the above it is apparent that due to applicant's particular construction, the face engaging portion 41 does not have to be integral with the side guards 28. Thus, the free edges of the face engaging member 41 may be made of extreme thinness so that a very close shave is obtained. Where the face engaging portion of the head is integral with the sides, there must be sufficient thickness of stock to connect the face engaging portion to the sides, and as a result, no portion of the face engaging member can be made as thick as applicant's edges 47.

In applicant's construction, wherein the movable cutting member is guided by the supporting posts 23 and wherein the face engaging member is secured to said same supporting posts, the device is very simple to manufacture and assemble. It is also very easy to remove the reciprocating cutter member whenever desired by merely taking out the screws 43.

It is to be noted that the ends of the shaving head are open so that severed hair which drops beneath the cutter member can be readily blown out of the head.

In Fig. 7, the identical construction is illustrated wherein the U-shaped member 25 carrying the side guards 28 is omitted, the guards 28, being not absolutely essential, and the form shown in Fig. 7 being practical for a cheaper construction.

Referring now more particularly to Figs. 8 to 15 inclusive it will be seen that this head is provided with a supporting block 52 which has its ends provided with beveled corners 53 and with notches 54 for cooperation with the spring clips 21 of the holder. The supporting block is formed with upwardly projecting end walls 55, see Fig. 10, having a stepped upper corner portion 56. Adjacent the inner side of each wall 55 within the head is a block 57, see Figs. 9 and 13, which blocks are spaced apart to provide a center depression 58 there-between. A spring member has a rear wall portion 59 extending along the rear

wall of the head for approximately the full length thereof, (see Figs. 9 and 13) and spaced, inwardly projecting spring portions 60 resting on top of the portions 57 and projecting forwardly therefrom, the forward portions of the springs being reversely bent to provide spring ridges 61 which are substantially V-shaped in cross section. A retaining member 62 having spaced end portions 63 fits over the spring portions 59 and 60 to hold the same in position, as shown in Figs. 12 and 13.

A cutter member 64 having a rearward extension 65 and spaced cutting teeth 66 along its forward edge, is adapted to be driven by the eccentric portion 40' of the motor driving shaft 18' which eccentric portion is cooperable with the recess 66 in a block 67 carried by the lower side of the cutter. On each side of the block 67 the lower face of the cutter is provided with an elongated substantially V-shaped recess 68 cooperable with the V-shaped portion 61 of the yielding means, as shown in Fig. 9. The cutter is positioned loosely on the head as shown in Fig. 12 with a rearward extension 65 projecting into the space between the parts 63, there being sufficient space to permit reciprocating movement of the cutter, with the engagement between the spring parts 61 and the slots 68 of the cutter forming a guide for reciprocating movement.

The fixed blade portion or face engaging member 69 (see Fig. 14) has its upper surface tapered as at 70 to provide a free edge portion 71 of extreme thinness as in the principal form of the invention, and said free edge portion is provided with a series of minute slots 72 above the teeth 66 of the cutter member. The face engaging portion is secured in position by bolts 73 extending through apertures 74 of the face engaging member 69, through apertures 75 in the spring retaining member 62, through apertures in the spring parts and into the parts 57 of the supporting block.

The side guard 76 is secured to the side of the supporting block by bolts 77 and the free upper edge of the guard is formed with a series of slots 78 which register with the slots of the face engaging member 69 as shown in Fig. 11, there being a narrow space 79 between the two series of slots.

It is apparent that in this form of the invention, the cutter member is not only guided by the V-shaped ridges 61 on the spring member, but is also yieldingly urged by said ridges into close engagement with the inner side of the face engaging member 69. Shaving is done in the same manner with this device as with the device shown in the principal form of the invention except that there is only one shaving edge, the hair being straightened out by the free edge of the guard 76 and guided by the slots 78 of the guard into the slots 72 of the top face engaging member where the hair is severed by the reciprocating movement of the cutter member there-below.

Although only a few forms of the invention have been shown and described, it is obvious that various changes and modifications may be made without departing from the spirit of the inven-

tion, and all of such changes are contemplated as may come within the scope of the claims.

What I claim is:

1. In a shaving device, a hollow shaving head having a slotted top portion, guiding means projecting upwardly within the hollow portion of said head, a slotted reciprocable cutter member having an elongated aperture therein through which said guiding means extends, yielding means for urging said cutter into close contact with the inner side of the top portion of the head, and a fibre washer between said yielding means and said cutter for minimizing noise, vibration and wear during movement of the cutter.

2. In a shaving device, a shaving head comprising a supporting member, a pair of spaced spring members secured to said supporting member and each having a hook-shaped outer end formed with a ridge which is yielding, a reciprocably movable cutter member having a groove cooperable with said yielding ridges to guide the cutter in its reciprocal movement, a slotted face engaging member positioned over the cutter member, said yielding ridges serving to urge the cutter member into close contact with the face engaging member, and a block depending from said cutter member between said spaced yielding ridges, said block being recessed for the reception of driving means.

3. In a shaving device, a shaving head comprising a supporting member, a pair of spaced spring members each having a yielding ridge positioned near opposite ends of said supporting member, a common spring retaining member secured over portions of said two spring members to hold the same in position, said retaining member having a center recess, a reciprocably movable cutter having a groove cooperable with said yielding ridges to guide the cutter in its reciprocal movement, said cutter having a rearward extension movable in the recess of the spring retaining member, and a face engaging member positioned over the cutter and secured adjacent one edge to said spring retaining member, the other edge of said face engaging member being slotted and of extreme thinness, said yielding ridges serving to urge the cutter into close contact with the inner side of the face engaging member.

4. In a shaving device, a supporting structure, posts anchored at their lower ends in said supporting structure and extending outwardly therefrom, a slotted fixed blade rigidly supported by the outer ends of said posts, a reciprocable cutter slotted to cooperate with the slots of the fixed blade and positioned below the latter, said cutter having apertures therein through which the supporting posts extend, and said apertures being of such size with respect to the thickness of the posts as to permit said cutter to reciprocate, and coil springs surrounding said posts between the supporting structure and the cutter and engageable with said cutter for urging the latter into close contact with the inner side of said fixed blade.

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