

[54] **HAIR TRIMMER ATTACHMENT FOR ELECTRIC SHAVERS**

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[58] Field of Search **30/34.1, 90, 122, 208, 209, 30/210, 221, 43.92, 43.91, 215, 218, 220, 346.51**

[56]

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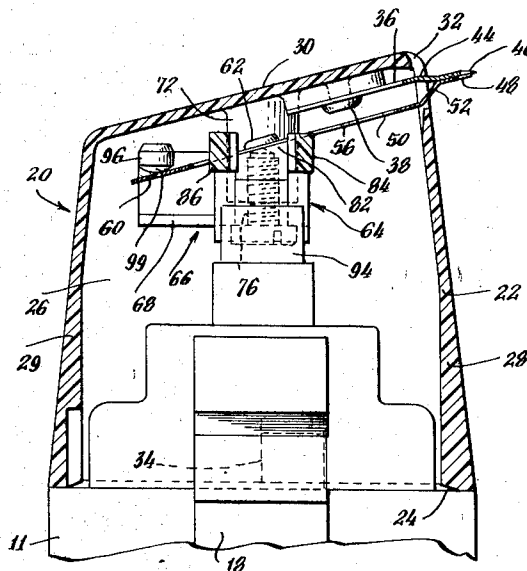
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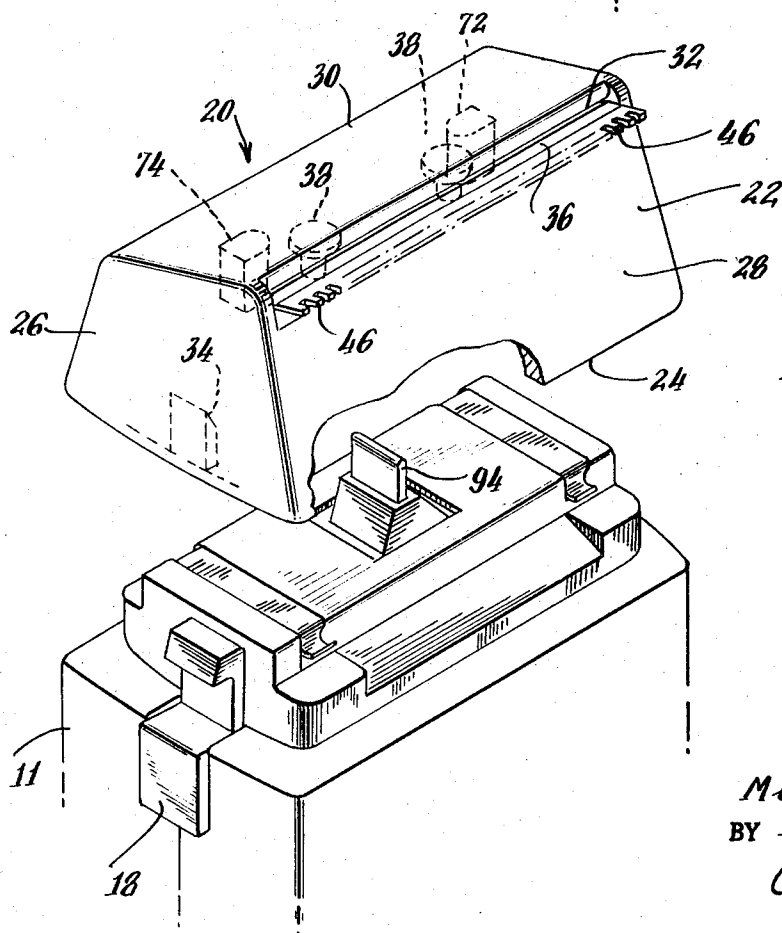
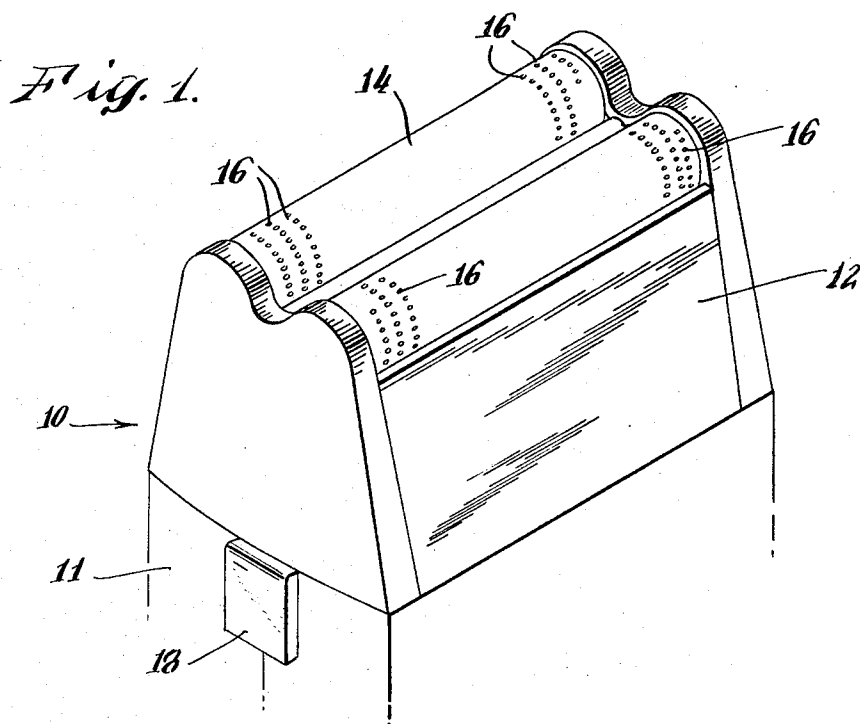
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ABSTRACT

An auxiliary long-hair trimmer cutter head attachment for an electric shaver, the attachment including a fixed cutter, a movable cutter and a cutter drive member for supporting the movable cutter and maintaining the latter in cutting engagement with the fixed cutter.

6 Claims, 6 Drawing Figures





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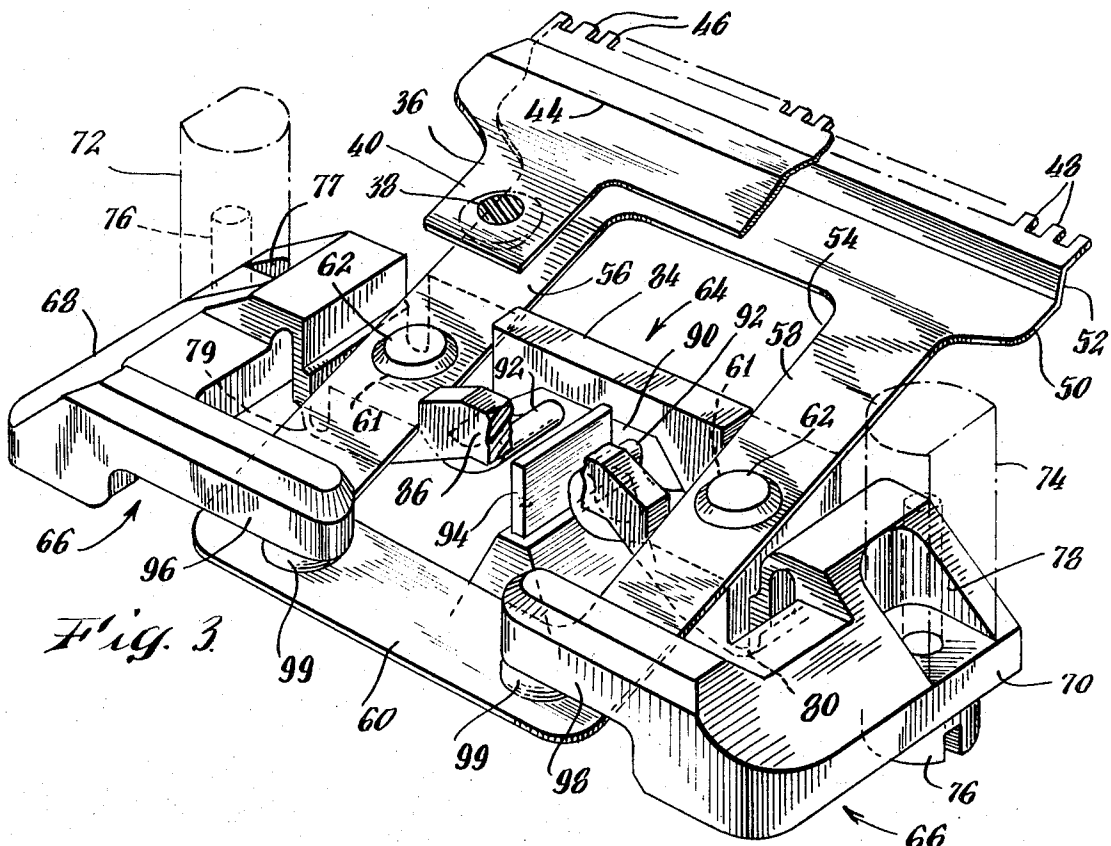


Fig. 3

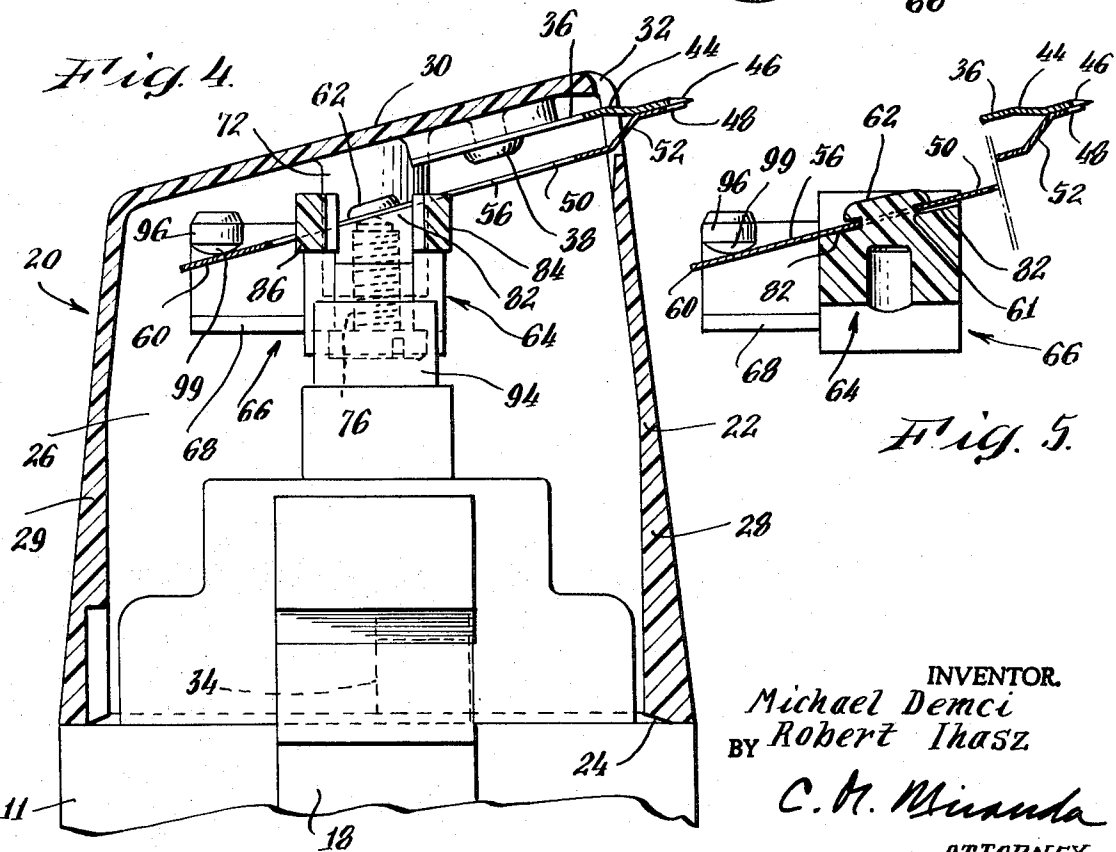
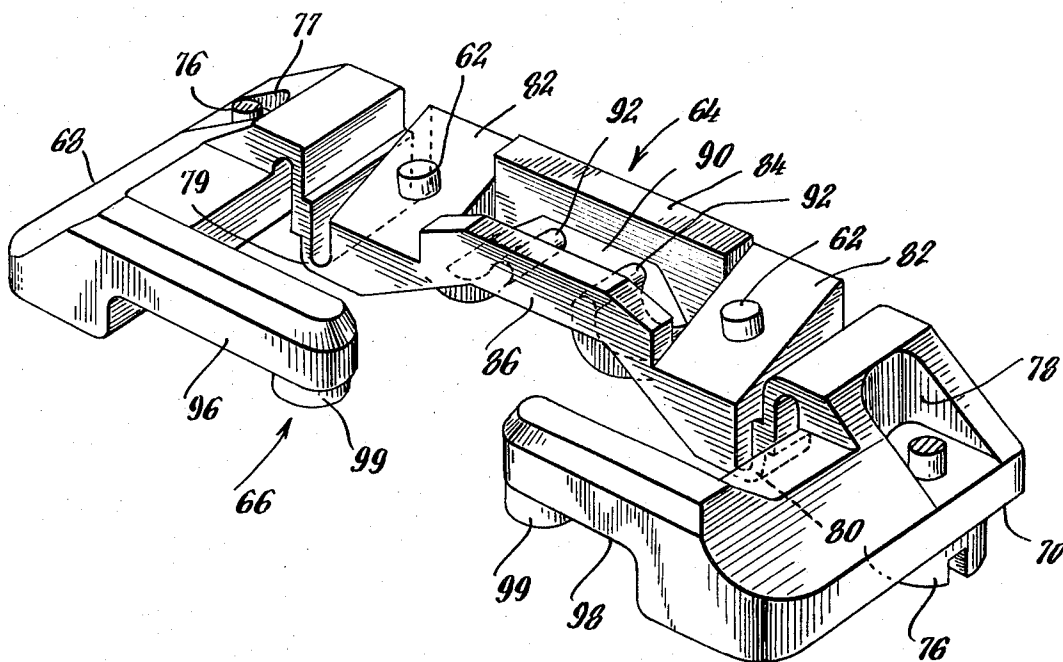


Fig. 4

Fig. 5

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Fig. 6.



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HAIR TRIMMER ATTACHMENT FOR ELECTRIC SHAVERS

BACKGROUND OF INVENTION

This invention is directed to new and useful improvements in electric shavers and more particularly to a hair trimmer cutter head attachment for such a shaver.

Electric shavers are known to include cutter heads that comprise a stationary outer cutter member having a plurality of hair receiving openings and a movable inner cutter member. In shaving, hair is removed as it enters the openings in the outer cutter member and it is shorn off by the movable inner cutter. Problems are presented in using such a shaver to trim sideburns and moustaches as it is difficult to manipulate the cutter head of the shaver around these areas.

One known shaver is equipped with an extra cutter head arrangement intended for use solely as a hair trimmer. The hair trimmer comprises a fixed elongated cutter having comb-like teeth projecting from the shaver casing. The trimmer further includes an elongated movable cutter having similarly arranged teeth in cutting engagement with the fixed cutter teeth. As the trimmer teeth project from the shaver casing it is a fairly simple matter to manipulate the shaver around sideburns and moustaches for trimming purposes. However, this hair trimmer device operates simultaneously with the cutter head that is used for shaving. Consequently, the movable hair trimmer cutter is in constant movement during shaving whether or not trimmer use is desired. In another known shaver, the shaving cutter head is detachable from the shaver casing for interchange with a separate and detachable trimmer cutter head having projecting comb-like cutter teeth. The detachable trimmer device can be substituted in place of the shaving cutter head when a hair trimming operation is desired. However, this trimmer device comprises in addition to the cutters and cutter drive member, a separate mounting plate to support the movable cutter and a plurality of springs and spring guides provided in the mounting plate to bias the movable cutter into cutting engagement with the fixed cutter. Manufacture and assembly of this device is costly and time consuming due to the intricate arrangement of springs and spring guides therein. It is an object of this invention to provide a novel long-hair trimmer for shavers.

Another object is to provide a novel long-hair trimmer attachment for an electric shaver wherein the trimmer attachment includes novel means for biasing the cutter members therein into cutting engagement.

A further object is to provide a novel long-hair trimmer attachment having novel means for securing the fixed and movable cutters within the hair trimmer attachment casing.

A still further object is to provide a novel hair trimmer attachment having novel means for oscillating the movable cutter. Still another object is to provide a novel springless hair trimmer cutter head attachment for an electric shaver, which attachment serves as an extension of the shaver casing.

SUMMARY OF INVENTION

The present invention contemplates a novel hair trimmer cutter head attachment for an electric shaver and which attachment forms an extension of the shaver casing.

In one embodiment, the hair trimmer cutter head attachment comprises a cap open at one end for detachable mounting to the upper portion of an electric shaver casing. A fixed cutter member having projecting comb-like cutter teeth at one edge thereof is secured within the cap opposite the opening, and the cutter teeth protrude through an elongated slot provided in the cap. An elongated cutter drive member is provided within the cap adjacent the fixed cutter member and carries a movable cutter member having teeth which cooperate with the teeth of fixed cutter member to cut long hairs.

The cutter drive member has a floating portion which carries the movable cutter member for movement and a pair of arms which exert a force on the movable cutter member,

pivotaly biasing it into engagement with the fixed cutter member.

The above and other objects and advantages of the present invention will appear more fully hereinafter from a consideration of the detailed description which follows taken together with the accompanying drawings wherein one embodiment of the invention is illustrated.

DESCRIPTION OF DRAWINGS

In the drawings:

FIG. 1 is a perspective partial view of the upper portion of an electric dry shaver having a known detachable shaving cutter head mounted thereon;

FIG. 2 is an exploded perspective partial view of the shaver with a long-hair trimmer attachment in place of the cutter head and adapted to be mounted on the shaver casing to form an extension thereof;

FIG. 3 is an enlarged perspective view of the fixed and movable cutter members and the cutter drive member disassociated from the cap;

FIG. 4 is a section taken transversely of the assembled long-hair trimmer;

FIG. 5 is an enlarged fragmentary sectional view of the trimmer cutters;

FIG. 6 is an enlarged perspective view of the cutter drive member of the present invention.

DETAILED DESCRIPTION

Referring to the drawings for a more detailed description of the present invention and more particularly to FIG. 1, hereof, the reference character 10 generally designates a known electric shaver having a casing 11 detachably mounting a cap 12 which carries an undulated sheet-like member 14 having apertures 16 therein. A reciprocating inner cutter (not shown) is carried within cap 12 to shear off facial hairs which protrude through such apertures when used by an individual in shaving. A latch member 18 is provided in the side of the casing 11 to detachably secure cap 12 to the casing. The foregoing structure is quite satisfactory in shaving off hair from a man's face but when the hairs are too long, such as when the hair is part of a moustache or of sideburns, other structure must be used to trim the hair. In such cases a different type of hair cutting structure is required and which to date generally included a pair of flat plate-like members in sliding engagement and with comb-like teeth formed thereon to cut long hairs.

To this end, the present invention provides a novel long-hair trimmer generally designated by the reference character 20 (FIG. 2) and includes a cap 22 open at one end 24. Cap 22 has a pair of transversely extending side walls 26, a pair of longitudinally extending front and rear walls 28 and 29 respectively, and a top inclined wall 30 (FIG. 4). An elongated slot 32 is formed in front wall 28 (for a purpose to be presently described) and extends substantially the length of the front wall. A projection 34 (FIG. 2) is formed on the inner surface of one side wall 26 to cooperate with latch 18 in detachably securing or mounting cap 22 onto shaver casing 11.

A comb-like cutter member 36 (FIGS. 3 and 4) is secured to the inner surface of top wall 30 by peened-over bosses 38 which extend through openings formed in a pair of legs 40 (one shown in FIG. 3) of member 36. As best seen in FIG. 4, member 36 is substantially flat but is bent at 44 adjacent one edge thereof where it has formed a set of comb-like cutter teeth 46. Disposed in sliding contact with member 36 are cutter teeth 48 formed at one edge of a movable cutter member 50. Member 50 is bent as at 52 to extend then in parallel relationship with legs 40 of member 36 (FIG. 4), the two cutter members 36 and 50 extending through the elongated slot 32 at their bent portions 44 and 52, respectively. Cutter member 50 is substantially flat and is provided with a large sized opening 54 surrounded by a pair of parallel arms 56 and 58 and an end 60 remote from but in parallel relationship with cutter teeth 48. Arms 56 and 58 are provided with

openings 61 which are dimensioned to receive pins 62 formed on a floating intermediate body portion 64 of a cutter drive member 66 (FIGS. 3 and 6). Cutter drive member 66 has ends 68 and 70 which are secured to bosses 72 and 74 by suitable fastening means as, for example, screws 76. As better seen in FIG. 3 bosses 72 and 74 shown in phantom view are seated in recesses 77 and 78 formed in ends 68 and 70, respectively.

Cutter drive member 66 is formed of suitable plastic material as, for example, nylon which makes it possible to have flexible hinge-like members 79 and 80 joining floating portion 64 to ends 68 and 70. Floating portion 64 has inclined surfaces 82 from which pins 62 extend to accommodate the arms 56 and 58 of cutter member 50 in a generally inclined position and parallel to the inner surface of top wall 30. Floating portion 64 has a pair of parallel ribs 84 and 86 joining inclined surfaces 82 and said ribs extend above surfaces 82 to engage and restrain movement of arms 56 and 58 with respect to surfaces 82. Ribs 84 and 86 define an opening 90 and disposed in alignment therewith are a pair of upwardly extending tongues 92 which are dimensioned to receive therebetween a cutter drive arm 94 (FIGS. 2 and 3) operatively connected to a motor (not shown) in casing 11. Ends 68 and 70 of cutter drive member 66 have integrally formed therewith a pair of arms 96 and 98 which extend parallel to, but spaced from, floating portion 64. The free ends of arms 96 and 98 are provided with protruberances 99 which as shown in FIGS. 3, 4 and 5, engage remote end 60 of movable cutter member 50. Arms 96 and 98 are somewhat but not completely rigid and when movable cutter member 50 is assembled to the cutter drive member 66, member 50 is flexed slightly whereby arms 96 and 98 tend to pivot member 50 about pins 62 and inclined surfaces 82 to urge cutter teeth 46 and 48 in firm sliding contact with each other.

In operation, when the electric motor (not shown) in casing 11 is energized, cutter drive arm 94 is reciprocated to engage the oppositely disposed tongues 92 at either end of its travel to move in like fashion, floating portion 64. Flexible hinge members 78 and 80 by nature of their construction permit movement of portion 64 even though ends 68 and 70 are fixed. Portion 64 in turn moves cutter member 50 relative to fixed cutter member 36 whereby cutter teeth 46 and 48 become effective to shear or trim long hair which enters between said teeth.

It will be apparent from the foregoing that the long-hair trimmer attachment described above provides novel structure whereby the movable cutter is biased into sliding engagement with the fixed cutter without the utilization of springs. A further advantage is that the cutter drive member 66 may be secured directly to the trimmer cap 22 thereby eliminating the necessity of providing separate supporting means for the movable cutter. Moreover, the novel trimmer attachment comprises a minimum number of component parts simplifying assembly thereof and reducing manufacturing cost.

Although one embodiment of the present invention has been illustrated and described in detail it is to be specifically understood that the invention is not limited thereto. Various

changes can be made in the design and arrangement of parts without departing from the spirit and scope of the invention as same will now be understood by those skilled in the art.

What is claimed is:

1. An auxiliary long-hair trimmer for electric shavers comprising,

- a. a cap adapted to be mounted in a shaver casing,
- b. a fixed comb-like member having a set of spaced cutter teeth,
- c. a movable cutter member having a second set of spaced teeth formed thereon and mounted to provide cooperation between said sets of teeth to cut long hairs, said movable cutter member having a bridge portion extending away from said second set of teeth, said portion further having an end remote from said second set of teeth,
- d. means mounting said movable cutter member for movement with respect to said fixed comb-like member, said mounting means supporting said movable cutter member at said bridge portion for movement relative to said fixed comb-like member, and said mounting means provided with means for flexing said movable member and pivotally urging said remote end about said bridge portion so as to press said movable cutter into engagement with the fixed comb-like member.

2. The auxiliary long-hair trimmer of claim 1 wherein the fixed comb-like member and said movable cutter member are carried by the cap, and a slot is provided in the cap through which the two sets of teeth protrude.

3. The auxiliary long-hair trimmer of claim 2 wherein said mounting means includes a cutter drive member having a floating intermediate portion and two ends secured to said cap, said intermediate portion of the cutter drive member having means thereon engaging the bridge portion of the movable cutter member to effect flexing of said movable cutter member.

4. The auxiliary long-hair trimmer of claim 3 wherein the floating intermediate portion of the cutter drive member is joined to the two ends of the latter by flexible hinges integrally formed with the floating intermediate portion and the two ends.

5. The auxiliary long-hair trimmer of claim 3 wherein the movable cutter member has opposed substantially flat surfaces, and said means pivotally urging the remote end of said movable cutter member includes arm means extending from the cutter drive member, said arm means being in engagement with one of said surfaces of the movable cutter member and said floating intermediate portion being in engagement with the other of said surfaces.

6. The auxiliary long-hair trimmer of claim 5 wherein said arm means includes first and second arms aligned with each other and arranged parallel to the two sets of teeth, and said floating intermediate portion of said cutter drive member has an aperture for receiving a driving arm to actuate same.

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