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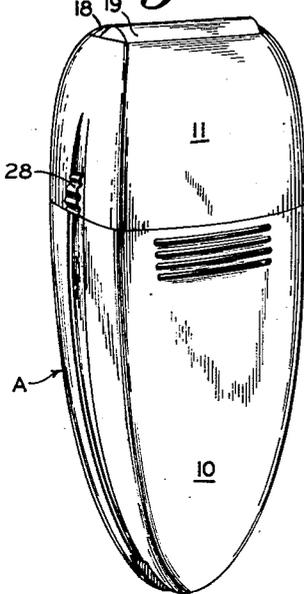
A. M. ROSS

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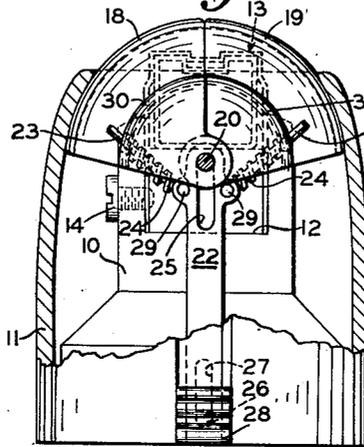
SHAVER HEAD GUARD

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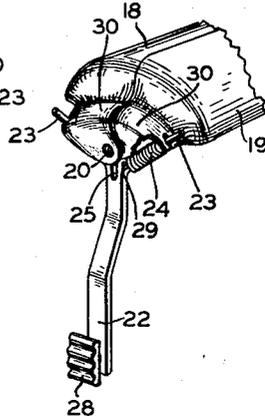
*Fig. 1.*



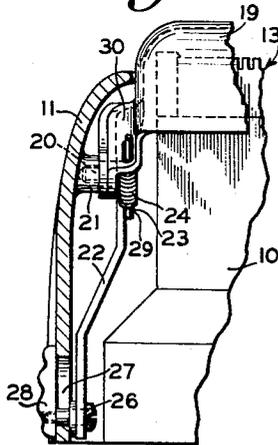
*Fig. 2.*



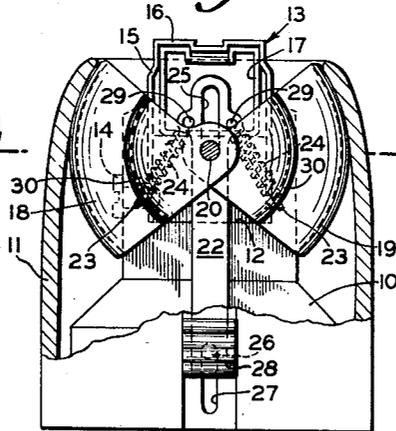
*Fig. 3.*



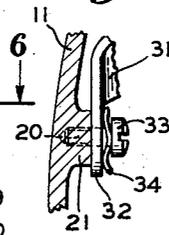
*Fig. 4.*



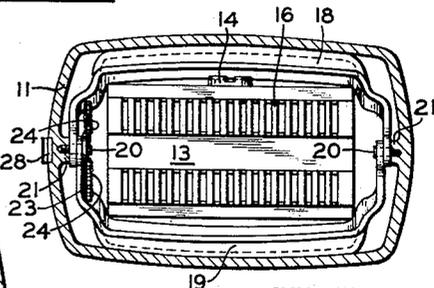
*Fig. 5.*



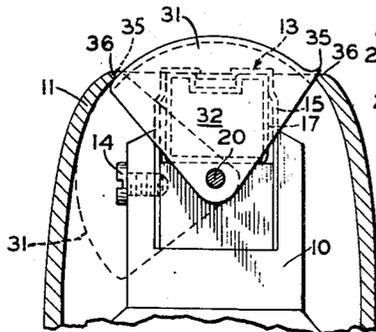
*Fig. 8.*



*Fig. 6.*



*Fig. 7.*



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# UNITED STATES PATENT OFFICE

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## SHAVER HEAD GUARD

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6 Claims. (Cl. 30-43)

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This invention relates generally to electric "dry" shavers and more particularly to guard means for protecting the shaver head or heads against damage when the shaver is not in use.

Electric dry shavers as manufactured today are accepted as a modern development in the art of shaving, and it is well understood that the success and efficiency of dry shavers depends, to a large degree, upon protection afforded the delicate cutter heads against damage.

Numerous cutter head structures have heretofore been proposed, and all are more or less vulnerable to damage in the event they are accidentally dropped or otherwise forcefully engaged with another object. The standard cutter head of modern dry shavers utilizes an extremely thin and delicate shearing plate or outer cutter which is usually provided with a multiplicity of openings, the lips of which serve to provide a cutting edge effect in co-operation with an inner cutter which is mounted beneath the shearing plate and moved by conventional electrically driven mechanism.

This need for protecting the cutter head or heads of electric dry shavers has long been recognized, and for this reason most dry shavers manufactured and sold today are provided with some form of detachable guard, such for example as the guards disclosed in U. S. Patents #2,192,726 and #2,320,807. The chief objection to detachable guards used for protecting the cutter head or heads of electric dry shavers is that they may be misplaced, broken or lost. Another disadvantage is that guards formed as an attachment to the shaver rather than an integral part thereof do not permit the streamline appearance so desirable in modern shavers.

The present invention contemplates the provision of guard means for protecting the cutter head or heads of electric dry shavers, which is designed as a part of the shaver rather than an attachment thereto.

The invention further contemplates the provision of guard means for protecting the delicate cutter head or heads of electric dry shavers which, when in position for shaving, is substantially concealed within a part of the shaver casing; which may be quickly and conveniently shifted or moved to completely cover or uncover the cutter heads; which cannot become lost or separated from the shaver; and guard means that is simple and economical to manufacture, highly effective and reliable in use, and one which permits desirable streamline design of the shaver when in cutter head protecting position.

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More specifically, the present invention contemplates the provision of a guard for the protection of dry shaver cutter heads wherein a pair of shutter-like sections are pivoted to the shaver casing for movement between a closed "head protecting position" and an open or "shaving position."

Other objects of the invention will be pointed out in the following description and claims, and illustrated in the accompanying drawings, which disclose, by way of example only, the principle of the invention and the best modes, which have been contemplated, of applying that principle.

In the drawing:

Fig. 1 is a perspective view of a dry shaver with the cutter head guard shown in closed or head protecting position.

Fig. 2 is an enlarged fragmentary side elevation partly in vertical section of the head end of the shaver shown in Fig. 1.

Fig. 3 is a fragmentary perspective detail view of the guard in closed position together with its operating mechanism.

Fig. 4 is an enlarged fragmentary side elevation of the shaver partly in section to further illustrate the guard operating mechanism.

Fig. 5 is a view similar to Fig. 2 showing the guard in open or shaving position.

Fig. 6 is a plan view partly in elevation and partly in section along line 6-6 of Fig. 5.

Fig. 7 is a fragmentary sectional view similar to Fig. 2 but illustrating a modified form of the invention, and,

Fig. 8 is a sectional detail of one of the pivots for the modified guard shown in Fig. 7.

Referring to the drawing in detail, it will be observed that a dry shaver having but one cutter head has been chosen to illustrate the invention, but it is to be clearly understood that the invention may be embodied in shavers having a plurality of cutting heads without departing from the scope or spirit of the invention.

As shown in Fig. 1, the shaver illustrated preferably comprises a shaver casing A which is made in two sections 10 and 11. Lower casing section 10 conveniently forms the usual handle and housing for the cutter head driving means, which may be in the form of the conventional make-and-break contact type of electro-magnetic motor (not shown). Upper casing section 11 may be in the form of a "sleeve-like" hair pocket, similar to that shown in U. S. Patent #2,561,241, and detachably connected in continuous casing forming relation, relative to the lower casing section 10.

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The cutter or head end of lower casing section 10 is provided with a channel 12 to provide a seat for receiving the removable cutter head assembly 13. In accordance with common practice the cutter head assembly may be detachably held within channel 12 by a screw 14. The cutter head assembly may comprise the conventional outer open-ended stationary cutter 15 including a skin-contacting wall 16 provided with slots (Fig. 6) or other suitable perforations adapted to receive the hair or beard as the shaver is moved over the surface being shaved. Mounted for reciprocation within outer cutter 15 is an inner open-ended cutter 17 having cutter bars which co-operate with the edges of the slots in wall 16 to sever hairs projecting through the slots in the usual and well-known manner.

As previously mentioned, the invention contemplates the provision of retractable guard means for protecting the cutters 15 and 17 against damage, which means is built into the shaver casing and not formed as an attachment separable therefrom. To this end, a pair of arcuate shaped "shutter-like" members 18 and 19 are provided and arranged for pivotal movement within upper casing section 11 between an open or "shaving position," as illustrated in Fig. 5, and a closed or "cutter head protecting position," as best illustrated in Figs. 1 and 2.

The ends of members 18 and 19 are pivotally mounted upon shoulder studs 20 (Fig. 6) which are threaded into bosses 21 projecting inwardly from upper casing section 11. The means illustrated for manually opening and closing the shutter-like members 18 and 19 comprises a link 22, rods 23 and springs 24. The upper end of link 22 has a slot 25 to receive one of the shoulder studs 20, and the lower end is provided with a stud 26 which projects outwardly through a slot 27, in upper casing section 11, and carries a manually operable button 28. One end of each rod 23 is pivoted to the link 22 at 29, and the free end slides within a hole in an offset portion 30 of members 18 and 19 as best shown in Figs. 2 and 3. The springs 24 encircle the rods 23 and are confined between the link and underside of offset portions 30 as will be seen in Fig. 2.

The construction is such that when link 22 is moved to its lowered position, or the position illustrated in Fig. 2, the pivoted ends of rods 23 will be carried below the studs 20 and pressure exerted against the underside of offset portions 30, by springs 24, will hold the pivoted guard members 18 and 19 in closed or cutter head protecting position.

Conversely, when link 22 is moved to its upper position by means of the button 28, which is the position illustrated in Fig. 5, the pivoted ends of rods 23 will be carried above the studs 20 whereupon the pressure exerted against the underside of offset portions 30, by springs 24 will cause the members 18 and 19 to rotate upon their pivots 20, in opposite directions, to an open or shaving position. Stating it another way, springs 24 and rods 23 act as a toggle to open and close the shutter-like guards 18 and 19 upon movement of link 22 through manipulation of button 28.

It will now be clear that the shaver cutter head or heads 13 may be covered, and thus protected against damage, by merely closing the guard members through sliding movement of button 28 in a direction away from the head end of the shaver A. To uncover the cutter head or heads 13, to expose them for shaving, the procedure is

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reversed by sliding the button 28 in a direction toward the cutter head end of the shaver.

A modified construction of the present invention is illustrated in Figs. 7 and 8, wherein a one piece retractable shutter-like guard member 31 replaces the pair of oppositely moving retractable guard members 18 and 19. In this form of the invention the ends 32 of guard 31 are pivoted upon the studs 20 received by bosses 21, and the heads 33 of said studs are tightened against spring washers 34 (Fig. 8) which frictionally bear against the ends 32 of guard 31 to firmly hold it in open or closed position. It will now be obvious, from an inspection of Fig. 7, that to open the one-piece cutter head guard 31 it is only necessary to rotate it upon the pivots 20 to the position indicated by dotted lines. To facilitate manual rotation of guard 31, a finger piece 35 may be formed as an integral part of the guard. This finger piece also serves as a limit stop for the guard in both open and closed positions by engagement with the edge portions 36 of casing section 11, as clearly illustrated in Fig. 7.

While there have been described and illustrated specific embodiments of the invention, it will be obvious that various changes and modifications may be made therein without departing from the field of the invention which should be limited only by the scope of the appended claims.

The invention claimed is:

1. In a dry shaver having a casing and at least one cutter head mounted with its shaving surface projecting outwardly beyond said casing, the combination of guard means for protecting said cutter head shaving surface against damage comprising a pair of arcuate shaped shutter-like guard members mounted for simultaneous movement between a substantially concealed position within said casing longitudinally of said cutter head and an exposed position to completely cover said cutter head.

2. In a dry shaver having a casing and at least one cutter head mounted with its shaving surface projecting outwardly beyond said casing, the combination of guard means for protecting said cutter head shaving surface against damage comprising a pair of arcuate shaped shutter-like guards pivotally mounted for simultaneous movement between a substantially concealed position within said casing longitudinally of said cutter head and a protecting position to cover said cutter head shaving surface.

3. In a dry shaver having a casing and at least one cutter head assembly detachably mounted on one end of the casing with its shaving surface projecting outwardly beyond the casing, the combination of means for protecting said cutter head shaving surface against damage when not in use comprising a pair of shutter-like guards pivotally mounted for simultaneous movement within said casing; and manually operable means to move said guards from a substantially concealed position within said casing longitudinally of said cutter head to a protecting position completely covering said cutter head.

4. In a dry shaver having a casing and a cutter head mounted with its shaving surface projecting outwardly through an opening in said casing, the combination of retractable guard means for protecting said cutter head shaving surface comprising, a pair of arcuate shaped guards; means pivotally mounting said guards within said casing; and manual means for rotating said guards in unison upon their pivots between a substantially concealed position within the casing and

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a protecting position above said cutter head shaving surface.

5. In combination with a dry shaver having a casing and a cutter head mounted on the casing with its shaving surface projecting outwardly through an opening therein; retractable guard means for said shaving surface of said cutter head comprising a pair of shutter-like guards each formed with an arcuate section and parallel end walls; means pivotally mounting said guards within the head end of said shaver casing; and manual means for simultaneously rocking said guards upon their pivots in opposite directions between a substantially concealed position within said casing and an exposed position above said cutter head shaving surface.

6. In combination with a dry shaver having a separable casing and at least one cutter head assembly mounted upon the casing with its shaving surface projecting outwardly beyond said cas-

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ing, retractable guard means for protecting the shaving surface of said cutter head against damage comprising, a pair of guards pivoted within said shaver casing adjacent said cutter head; and manually operable means for rocking said guards in opposite directions upon their pivots including a link mounted for sliding movement on said casing; rods pivotally attached to said link with their free ends slidable through apertures in said guards; and springs encircling said rods to exert pressure against the said guards to move them between closed and open position in response to movement of said link.

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