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DRAWINGS ATTACHED

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(54) AUXILIARY CUTTER MEANS FOR AN ELECTRIC DRY SHAVER

(71) We, SPERRY RAND CORPORATION, a corporation organized and existing under the laws of the State of Delaware, United States of America, of 1290 Avenue of the Americas, New York, New York, 10019, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to improvements in electric dry shavers and more particularly to auxiliary hair trimmers.

Auxiliary trimmer devices for electric dry shavers are well-known and have become increasingly desirable as a built-in feature or as a separate attachment for an electric dry shaver. In those shavers where the trimmer is part of the shaver, the units usually include a stationary cutter and a movable cutter mounted on the shaver usually but not necessarily adjacent the main cutter head and adapted for operation either directly by or from an extension of the drive means for the main cutter head. The trimmer cutter portion is provided with a flat leading cutter edge which is effective for trimming moustaches and sideburns of the user either after or during the shaving of the facial beard.

Certain of these known trimmer units are maintained in a fixed position on the casing which at times interferes with use of the main cutter head. Other trimmer units are positionable and provided with means for sliding or rotating the unit into and out of operative positions adjacent the main cutter head. These latter known type positionable trimmer units comprise a variety of mechanisms and usually includes spring actuated release or similar relatively complex mechanisms for shifting the unit into and out of operative position. These known units also require a relatively complex placement of parts on the shaver casing which results in difficult and cumbersome assembly procedures increasing the overall costs in manufacturing and maintenance of the shaver.

[Price 25p]

It is an object of the present invention to provide a novel hair trimmer unit for an electric dry shaver.

Another object is to provide a novel hair trimmer unit having novel means for mounting the unit in a shaver casing and which means include means for manually displacing the unit into and out of operative position.

Another object is to provide novel means for maintaining the trimmer in both the operative or non-operative position.

A still further object is to provide a compact hair trimmer unit of relatively few parts and which unit may be easily assembled and mounted on or disassembled from a shaver casing without interfering with or disturbing the other mechanisms of the shaver.

Summary of The Invention

The present invention contemplates a novel trimmer unit and means for mounting the unit on a shaver casing. In one embodiment, the trimmer includes a stationary cutter and a movable cutter mounted on a guard member. The guard member is provided with spaced trunnion means disposed in supports provided in the shaver casing. Means are provided for rotating the guard member on the trunnions to displace the cutter unit to operative position projecting outwardly of a recess in the shaver casing and to a non-operative position whereat the outer surface of the guard member lies flush with the walls of the casing surrounding the recess. Detent projections are provided on the trunnion means and adapted for engagement with adjacent portions of the casing for maintaining the trimmer unit in both operative and inoperative positions.

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 drawing wherein one embodiment of the invention is illustrated.

Description of The Drawings

In the drawing:

Fig. 1 is a partly fragmentary front elevational view of an electric dry shaver embodying the present invention and shows the novel hair trimmer unit in non-operative position.

Fig. 2 is an enlarged fragmentary view of the electric shaver of Fig. 1 showing the trimmer unit in operative position;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2;

Figure 4 is a sectional view taken on the line 4—4 of Fig. 2;

Fig. 5 is a view similar to Fig. 4 showing the trimmer in non-operative position and flush with the surrounding casing side-walls; and

Figure 6 is a fragmentary view of the inner face of the shaver casing with the hair trimmer unit removed therefrom.

Detailed Description

Referring now to the drawing for a more detailed description of the present invention, an electric dry shaver which incorporates one embodiment of the present invention is shown, the casing of which is indicated by the reference numeral 10 (Fig. 1). The electric shaver 10 is of a usual type construction and includes a main cutter head unit 11 in one end thereof.

Cutter head unit 11 includes a plurality of individual cutter head units (one partially shown at 14 in Figs. 4 and 5) and such of the general type shown in U.S. Patent No. 2,793,430 to L. C. Carissimi dated May 28, 1957. Cutter head 11 is disposed in a receptacle 15 provided in the casing and is adapted to shave the beard of the user by manipulation thereof across the user's face in a usual well-known manner when the shaver's motor (not shown) is operated.

As mentioned it is feature of the present invention to provide a novel hair trimmer unit and means for mounting the same on shaver casing 10 adjacent cutter head 11. To this end casing 10 is provided with a rectangular shaped opening 16 (Figs. 1 and 2) in wall 17 thereof beneath cutter head 11 and in which opening 16 is arranged the trimmer and generally designated by the reference numeral 18. Trimmer unit 18 (Fig. 3) includes a guard member 21 of premolded plastic material and having a rectangular shaped body portion 24 and a pair of trunnions 29 and 30 extending from the opposite lower rear corners of body 24.

A pair of bearing recesses (Fig. 6) 34 and 35 are provided on the inner face 37 of casing wall 17 and in which recesses 34 and 35 are located trunnions 29 and 30 (Fig. 3) respectively. A flat metal plate 42 is secured to inner face 37 of wall 17 by screws 45 threaded in posts 46 on face 37. Resilient

finger members 48—49 (Fig. 2 and 3) formed on plate 42 bear against trunnions 29 and 30 and maintain the guard in position on casing 10. A handle 52 extends from trunnion 30 and projects outwardly of the shaver through a small opening 53 in front wall 17 adjacent opening 16 (Fig. 1, 2 and 6).

Trimmer unit 18 further includes a flat stationary cutter 58 having guard teeth 59. Cutter 58 is secured to the under surface of body member 24 of guard 21 on a depending post 60. A flat movable cutter 61 formed with cutting teeth 62 is disposed in cutting engagement with stationary cutter 58 and is formed with an elongated slot 62 disposed over post 60. A spring member 66 having opposite ends secured to guard member 21 is provided with a center portion 67 (Fig. 2) in engagement with the bottom of movable cutter 61 to maintain cutter 61 in resilient movable position against stationary cutter 58.

Means for reciprocating cutter 61 on post 60 relative to stationary cutter 58 includes a U-shaped portion 69 (Figs. 3 and 4) extending from the rear of movable cutter 61 and adapted to engage a reciprocable drive extension 70 of the main cutter head drive member partially shown at 71 in Figs. 3 and 4 and which member 71 and drive extension 70 thereof are adapted for reciprocation in the directions designated by the arrows A and B in Fig. 3 upon operation of the shaver motor (not shown).

Means are provided for locating and detenting the trimmer unit 18 in operative and non-operative positions on shaver 10. These means include a first pair of spaced projections or ridges 74 and 75 formed in the same plane on the outer surface of trunnions 29 and 30 (Fig. 3) and a second pair of slightly larger spaced ridge projections 77 and 78 provided at a 90° interval from ridges 74 and 75 on their respective trunnions 29 and 30. In the non-operative position of the trimmer unit (Figs. 1 and 5) body 24 of guard 21 lies flush with the wall 17 and projections 74 and 75 are maintained in recesses 80—81 formed respectively in bearing 34—35 (Fig. 6) and in operative position projections 77—78 are arranged in slightly larger recesses 84—85 formed adjacent to and in the same plane as recesses 80—81.

In accordance with the above description if it is desired to manipulate trimmer unit 18 into and out of operative engagement with cutter drive extension 70, assume first the trimmer is in non-operative position (shown in Fig. 1 and 5), the user grasps handle portion 52 and moves the same upwardly on the outer facing of casing 10. In the non-operative position projections 74—75 lie in detenting engagement in recesses 80—81 by the resilient action of fingers 48—

49 bearing against trunnions 29—30. As handle 52 is swung upwardly trunnions 29—30 rotate in bearings 34—35 a distance of 90° effecting the movement of projections 74—75 out of recesses 80—81 and positioning projections 77—78 into larger recesses 84—85 as drive connection 69 on movable cutter 61 engages the drive extension 70 of the drive member 71. The larger recesses 84—85 provide a positive holding action on projections 77—78 and with the resiliency of fingers 49 insure that trimmer unit is maintained in operative position.

Trimmer unit 18 is restored to non-operative position flush with the casing by pressing handle portion 52 downwardly from the position shown in Fig. 4 to that shown in Fig. 5 thereby rotating trunnions 29—30 downwardly 90° to return projections 74—75 to recesses 80—81.

It will now be apparent from the foregoing description that the novel trimmer unit has many advantages in use. One advantage among others is that a trimmer unit of relatively few parts is provided which requires a minimum area of operation within the casing permitting the same to be manually manipulated into and out of operative position. The novel detent means provided on the trunnion portions of the guard member together with the cooperating recess portions in the shaver casing eliminates the need for additional latching and release mechanisms and allows for positive and complete control of movement of the trimmer unit between operative and non-operative positions.

Although one embodiment of the present invention has been illustrated and described in detail, it is to be expressly understood that the invention is not limited thereto. Various changes can be made in the design and arrangements of parts without departing from the scope of the invention as defined by the appended claims.

WHAT WE CLAIM IS:—

1. An auxiliary trimmer unit for an electric dry shaver having a casing mounting a main cutter head and cutter drive means, said trimmer unit comprising,
 - a. a guard member
 - b. a stationary cutter secured to said guard member,
 - c. a movable cutter mounted for movement on said guard member relative to said stationary cutter,
 - d. trunnion means on said guard member, capable of being supported for rotation in said casing, and
 - e. handle means on said guard member to project outwardly of said casing when said trunnion means are supported in said casing and manually displaceable, when said trunnion means are so supported, for rotating said guard member

on said trunnion means to position said movable cutter into and out of operable relationship with said cutter drive means.

2. The trimmer unit of Claim 1, wherein in association with resilient means provided within said casing for restraining rotation of said trunnion means, detent means are provided on said guard member to co-operate with detent means in said casing, for maintaining said trimmer in either the operative or non-operative positions.

3. The trimmer of Claim 2, wherein said detent means include projections formed on said trunnion means to co-operate with recess portions on the wall of said casing.

4. The trimmer attachment of Claim 3, wherein said guard member is displaceable through an arc of 90° between operative and non-operative positions and wherein said detent projections include a pair of spaced ridges formed at a 90° interval about the surface of at least one of said trunnions and adapted to engage in recesses formed in coplanar relationship in said casing in the operative and non-operative positions of the trimmer unit.

5. An electric dry shaver comprising

- a. a casing
- b. a main cutter head mounted on said casing,
- c. a drive means in said casing for operating said cutter head,
- d. an opening formed in a wall of the casing adjacent said cutter head,
- e. An auxiliary trimmer unit comprising a guard member, a stationary cutter secured to said guard member and a movable cutter mounted on said guard member disposed in said opening,
- f. trunnion means on said guard member and positioned in supporting bearing recesses in the inner surface of said casing, and
- g. a handle member on one of said trunnion means projecting outwardly of said casing through an opening and adapted for manipulating said trimmer unit on said trunnions into and out of operative engagement with said cutter drive means.

6. The dry shaver of Claim 5, wherein detent means are provided on said trunnions and said casing and include projections on said trunnions adapted to move into and out of detenting recesses in said casing in accordance with the position of the trimmer unit.

7. The dry shaver of Claim 6, wherein resilient means are provided in said casing having portions bearing against said trunnions and cooperating with said detent means to restrain movement of said trimmer unit in operative and non-operative positions.

8. The dry shaver of Claim 7, wherein spaced bearing means are provided for said

49 bearing against trunnions 29—30. As handle 52 is swung upwardly trunnions 29—30 rotate in bearings 34—35 a distance of 90° effecting the movement of projections 74—75 out of recesses 80—81 and positioning projections 77—78 into larger recesses 84—85 as drive connection 69 on movable cutter 61 engages the drive extension 70 of the drive member 71. The larger recesses 84—85 provide a positive holding action on projections 77—78 and with the resiliency of fingers 49 insure that trimmer unit is maintained in operative position.

Trimmer unit 18 is restored to non-operative position flush with the casing by pressing handle portion 52 downwardly from the position shown in Fig. 4 to that shown in Fig. 5 thereby rotating trunnions 29—30 downwardly 90° to return projections 74—75 to recesses 80—81.

It will now be apparent from the foregoing description that the novel trimmer unit has many advantages in use. One advantage among others is that a trimmer unit of relatively few parts is provided which requires a minimum area of operation within the casing permitting the same to be manually manipulated into and out of operative position. The novel detent means provided on the trunnion portions of the guard member together with the cooperating recess portions in the shaver casing eliminates the need for additional latching and release mechanisms and allows for positive and complete control of movement of the trimmer unit between operative and non-operative positions.

Although one embodiment of the present invention has been illustrated and described in detail, it is to be expressly understood that the invention is not limited thereto. Various changes can be made in the design and arrangements of parts without departing from the scope of the invention as defined by the appended claims.

WHAT WE CLAIM IS:—

1. An auxiliary trimmer unit for an electric dry shaver having a casing mounting a main cutter head and cutter drive means, said trimmer unit comprising,
 - a. a guard member
 - b. a stationary cutter secured to said guard member,
 - c. a movable cutter mounted for movement on said guard member relative to said stationary cutter,
 - d. trunnion means on said guard member, capable of being supported for rotation in said casing, and
 - e. handle means on said guard member to project outwardly of said casing when said trunnion means are supported in said casing and manually displaceable, when said trunnion means are so supported, for rotating said guard member

on said trunnion means to position said movable cutter into and out of operable relationship with said cutter drive means.

2. The trimmer unit of Claim 1, wherein in association with resilient means provided within said casing for restraining rotation of said trunnion means, detent means are provided on said guard member to co-operate with detent means in said casing, for maintaining said trimmer in either the operative or non-operative positions.

3. The trimmer of Claim 2, wherein said detent means include projections formed on said trunnion means to co-operate with recess portions on the wall of said casing.

4. The trimmer attachment of Claim 3, wherein said guard member is displaceable through an arc of 90° between operative and non-operative positions and wherein said detent projections include a pair of spaced ridges formed at a 90° interval about the surface of at least one of said trunnions and adapted to engage in recesses formed in coplanar relationship in said casing in the operative and non-operative positions of the trimmer unit.

5. An electric dry shaver comprising

- a. a casing
- b. a main cutter head mounted on said casing,
- c. a drive means in said casing for operating said cutter head,
- d. an opening formed in a wall of the casing adjacent said cutter head,
- e. An auxiliary trimmer unit comprising a guard member, a stationary cutter secured to said guard member and a movable cutter mounted on said guard member disposed in said opening,
- f. trunnion means on said guard member and positioned in supporting bearing recesses in the inner surface of said casing, and
- g. a handle member on one of said trunnion means projecting outwardly of said casing through an opening and adapted for manipulating said trimmer unit on said trunnions into and out of operative engagement with said cutter drive means.

6. The dry shaver of Claim 5, wherein detent means are provided on said trunnions and said casing and include projections on said trunnions adapted to move into and out of detenting recesses in said casing in accordance with the position of the trimmer unit.

7. The dry shaver of Claim 6, wherein resilient means are provided in said casing having portions bearing against said trunnions and cooperating with said detent means to restrain movement of said trimmer unit in operative and non-operative positions.

8. The dry shaver of Claim 7, wherein spaced bearing means are provided for said



trunnions and in which bearing means are formed said detenting recesses to receive said detent projections.

- 5 9. The dry shaver of Claim 8, where said projections comprise a pair of ridges on both of said trunnions with each ridge of a said pair of ridges disposed at 90° intervals from each other on the trunnion.

- 10 10. The dry shaver of Claim 9, wherein a pair of detenting recesses are formed in each of said bearing recesses in coplaner relationship to alternately receive said ridges on the adjacent trunnion in said bearing as said guard member is moved in an arc of 90°
15 between operative and non-operative positions.

11. An auxiliary trimmer substantially as hereinbefore described with reference to the accompanying drawing.

12. An electric dry shaver having a trimmer substantially as hereinbefore described with reference to the accompanying drawing. 20

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