DISPOSABLE PREASSEMBLED PLASTIC RAZOR

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ABSTRACT

A disposable razor of the double edge blade type of molded plastic material permanently preassembled, designed particularly for use as a surgical preparation razor comprising a handle and bridge member and a cap member with the blade clamped between the two members, the cap having a plurality of pins extending through openings in the blade and bridge member having special complemental shapes adapted to insure correct alignment of the parts including a pair of pins riveted over the ends for securing the assembled relation, said cap member having integral therewith an outer frame arranged to protect the blade edges but readily broken off for use of the razor, and said bridge member having guard portions at the respective blade cutting edges of different character including different degrees of cutting edge exposure or shaving clearance for correspondingly different shaving conditions.

6 Claims, 7 Drawing Figures
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DISPOSABLE PREASSEMBLED PLASTIC RAZOR

BACKGROUND OF THE INVENTION

Permanently assembled disposable razors of the double edge blade type are known in the prior art, including razors in which some or all of the parts are of molded plastic. Some include plastic cap members provided with pins or lugs having enlarged heads which are snapped through holes in the mating parts such as the bridge member. Razor constructions of this character require careful dimensioning and relation of the parts and are subject to possible looseness in the final assembly and misalignment of the parts and consequent unequal or other inappropriate blade exposure.

The prior art has recognized the need for protecting the blade cutting edges so that they reach the user in undamaged condition, but reliance has been chiefly on the method or types of packaging and of course such protection is lost immediately that the razor is removed from the container.

SUMMARY OF THE INVENTION

The present invention concerns a double edged blade type razor of molded plastic material adapted to remedy the difficulties of prior razors noted above and to provide many additional advantages. It embodies a minimum of parts comprising a combined handle and bridge member in a single piece and a cap member, the two members having interlocking parts comprising a plurality of pins disposed along the longitudinal axis of the cap member and the bridge parallel to the blade cutting edges. The pins and the openings for receiving them are of a particular character such as to be capable of economical production without restriction to close tolerances but which result in the final assembly with the parts in precise positioning and alignment and relation to each other.

An an important feature, the cap member includes an outer protective guard for the blade edges molded integral with the cap member proper, the protective guard frame having slender connections with the cap member proper whereby preliminary to use of the razor the protective guard is easily broken free and discarded.

As stated, the razor is particularly adapted for use as a surgical preparation razor, and to this end it provides two types of cutting areas embodied in the single razor comprising one cutting area or side having a comb-type guard or shaving bar with an appropriate blade exposure adapted for preliminary removal of long hairs, and the other shaving area or edge comprising a solid smooth bar with a shaving clearance adapted particularly for close clean-up shaving or removal of short hair.

The objects of the invention and its advantages will be more fully apparent from a consideration of a preferred embodiment depicted in the drawings.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded view in perspective of the major elements of the razor.
FIG. 2 is a top plan view of the bridge member.
FIG. 3 is a vertical section through the axis of the handle and bridge member taken on the plane III — III of FIG. 2.
FIG. 4 is a top plan view of the cap member with the integrally attached blade protective guard.
FIG. 5 is a vertical cross-section through the longitudinal axis of the cap member taken on the plane V — V of FIG. 4.
FIG. 6 is a vertical cross-section taken on the vertical axis thereof with the removable blade protective guard shown in broken lines.
FIG. 7 is a vertical transverse cross-sectional view through the axis of the handle taken on the plane VII — VII of FIG. 6.

Referring to FIG. 1, the razor of the invention embodies a bridge member 10 having a handle 11 extending therefrom, a blade 12, and a cap member 13. The blade 12 is of standard double edge type with cutting edges 12a and 12b. Bridge member 10 and handle 11 are preferably formed as a single integral unit by conventional plastic molding techniques. Alternatively, the pieces may be formed separately and joined by recessed fitting of handle 11 in bridge chamber 10. Cap member 13 incorporates a plurality of pins 15, 16 and 17 which extend outwardly from the curved inner surface 18 of the cap and which are arranged in alignment along the longitudinal axis of the cap member. Each of the pins is tapered, increasing in diameter toward the inner surface 18 of the cap member. The combined bridge member and handle as shown in cross-section in FIG. 3 has a series of holes 19, 20 and 21 adapted to receive the pins 15, 16 and 17 respectively of the cap member, the opening 20 extending down coaxially of the handle 11. As shown particularly in FIG. 2, the openings 19 and 21 each has a flatted portions 25 in its inner surface arranged in opposed relation on a transverse diameter for a purpose to be described shortly.

As noted above, the blade 12 is of standard type and accordingly has a long central slot 30 extending longitudinally thereof with a central opening 31 and enlarged openings 32 and 33, the three openings corresponding in position to the three pins 15, 16 and 17 of the cap member. Located on the inner surface of the cap member 13 are the lugs 34 and 35 extending outwardly from the pins 15 and 17 respectively. The lugs 34 and 35 in assembly of the razor are adapted to extend into the narrowed slot portions 36 and 37 respectively of the blade 12.

In assembling the razor, the cap member may conveniently be placed with the pins 15, 16 and 17 extending vertically upwardly, and the blade is dropped over the pins which extend into their respective openings as described above. The cap lugs 34 and 35 extending into the narrowed central blade opening portions 36 and 37 respectively prevent lateral play of the blade, maintaining the blade cutting edges parallel to the edges 40 and 41 (FIG. 4) of the cap member and also determining the position of the blade longitudinally parallel to the cap member edges 40 and 41.

The assembled blade and cap member are then applied to the bridge member and handle, the cap center pin 16 serving as a lead into the bridge and handle extending into the opening 20 thereof as shown particularly in FIGS. 6 and 7. The pin 16 thereby determines the position of the cap member and blade longitudinally of the bridge member, meaning in a direction parallel to the cutting edges of the blade. The pins 15 and 17 have a close interference fit in the respective holes 19 and 21 of the bridge member between the opposed flattened surfaces 25 and determine the lateral position of the cap member 13, blade 12 and blade member 10 with respect to each other, and function to eliminate lateral play between the cap member and the bridge member. The diameters of the holes 19 and 21 in a direction longitudinally of the bridge member 10, at right angles to the diameter on which are located the flattened portions 25, may therefore be larger than the distance between the flattened portions 25, since they are not required to perform any close locating function. Accordingly, the construction is relieved of many tolerance requirements in the manufacture of the parts, the flattened portions in the openings 19 and 21 determining the lateral relation of the elements, and the central pin 16 extending down into the handle determining the relation of the elements longitudinally of the head, this latter relation in fact not being critical, since it is a matter of relative positions of the parts parallel to the cutting edges of the blade.

The inner surface of the cap 13 is provided with a pair of ribs or lands 50 and 51, and correspondingly the upper surface of the bridge member 10 has complementary lands or ribs 52 and 53 respectively, and in the assembly of the razor the blade is flexed as indicated in FIG. 7 between the pairs of opposed supporting surfaces 50 — 52 and 51 — 53. Various means may be employed for securing the assembly together, but as indicated in FIG. 6 a particularly effective and convenient means comprises a riveting over of the respective pins 15 and 17 as indicated at 15a and 17a respectively, thus serving to draw firmly the parts into the assembled relation indicated particularly in FIG. 7 and insuring against looseness or play in
any direction. Such riveting over may be accomplished in any suitable way as by heat and pressure application or sonic heading, or combinations of these methods. As heretofore noted, an important feature of the razor is the provision of a temporary protective guard for the blade edge cast integral with the bridge member or cap member 13. In the present form the protective guard member is connected to the cap member and comprises a generally rectangular frame 60 extending completely around the cap member 13 having a skirt portion 61 extending downwardly over the cutting edge, but spaced a suitable distance from each cutting edge as indicated at 62 in FIG. 4. The protective guard 60 is suitably connected to the cap member by portions which are readily separable. In the present embodiment these are shown as fingers 63 extending from the end portions of the guard frame 60 into the body portion of the cap member 13 at the opposite ends of the latter. The plastic material is of frangible character. Various plastic materials may be employed for the composition of the cap member and its attached blade protective guard. A high impact styrene is particularly practical for the purpose. One quite suitable material is acrylonitrile butadiene styrene. However, other types of plastic material may be employed.

Likewise, the particular plastic selected for the handle and bridge member may vary, and if desired may be different from that of the plasticics employed for the protective elements being in accordance with their function to be performed and taking into consideration the convenience and economy of the molding operations. Preferably each finger 63 has a portion of reduced cross-sectional area immediately adjacent the cap member, such as that indicated at 64 in FIG. 5, the cross-sectional area being selected compatibly with the type of plastic employed. In general, the area and the type of plastic are such that the connection at 64 may be readily broken by manual pressure exerted upwardly on the end portions of the protective guard frame. In this connection, it is advantageous to apply suitable legends to the protective guard such as the legend "LIFT UP" shown in FIG. 4.

The razor handle may vary in construction and appearance. Preferably it is made hollow in the interest of economy of material, and in such case it will be desirable to provide it with an end plug such as that shown at 70 in FIG. 3. The plug having a cylindrical portion 71 slidable into the end of the hollow handle and provided with a split ring 72 adapted to snap into a complementary groove in the interior surface of the hollow handle. Also, the exterior of the handle is preferably provided with design formations such as the ribs or corrugations indicated at 73 which serve the functional purpose of better gripping or better appearance. Furthermore, it is desired that the cap member comprise a handle portion extending laterally therefrom, said handle portion being of a thickness transverse to the cap member less than the diameter of the respective securing pin and extending from the cap member for a distance less than the securing pin and short of the bridge member, said lug in each case being closely fitted in a narrowed slot portion of the blade to define the position of and maintain the blade edges parallel to the cap edges and at a predetermined distance therefrom with the securing pin extending beyond the lug through a larger opening in the blade and secured in said bridge member to maintain the final assembly of said bridge member, blade and cap member, and said central pin being tapered of increasing diameter inwardly toward the cap with the said axial opening in the bridge member similarly tapered increasing in diameter continuously to the receiving end for said central pin to facilitate assembly and serving to determine the longitudinal position of the cap member and blade in the direction parallel to the edges of the bridge member.

1. In a safety razor having a handle and a bridge member supporting a blade with a cutting edge and a cap member assembled in clamping relation over the blade, one of said members being of frangible plastic material and having integral therewith an outer protective guard arranged adjacent the blade cutting edge, said guard being connected to said one member by portions of small cross-sectional area capable of being readily broken manually thereby to remove the protective guard.

2. A safety razor in accordance with claim 1 in which the guard is connected to said cap member.

3. A safety razor in accordance with claim 1 in which the guard has a bar portion arranged parallel to the cutting edge and spaced a small distance therefrom.

4. A safety razor in accordance with claim 1 in which the razor is of the type employing a double edge blade and said protective guard comprises an outer frame with a bar portion arranged parallel to each blade cutting edge and spaced a small distance therefrom.

5. A safety razor in accordance with claim 2 in which the portions connecting the guard to the cap member comprise one at each end of the cap member.

6. A permanently assembled safety razor of the double edge blade type having a handle, a bridge member, a blade, and a cap member; said cap member being of plastic and having a central pin projection extending through an opening in said blade member and as decorative pin opening in the handle, and said cap member having a pair of securing pins spaced one at each side of said central pin and each extending from the inner surface of the cap through an opening in said bridge member, each of said securing pins having a lug with parallel sides extending laterally therefrom, said lug being of a thickness transverse to the cap member less than the diameter of the respective securing pin and extending from the cap member for a distance less than the securing pin and short of the bridge member, said lug in each case being closely fitted in a narrowed slot portion of the blade to define the position of and maintain the blade edges parallel to the cap edges and at a predetermined distance therefrom with the securing pin extending beyond the lug through a larger opening in the blade and secured in said bridge member to maintain the final assembly of said bridge member, blade and cap member, and said central pin being tapered of increasing diameter inwardly toward the cap with the said axial opening in the bridge member similarly tapered increasing in diameter continuously to the receiving end for said central pin to facilitate assembly and serving to determine the longitudinal position of the cap member and blade in the direction parallel to the edges of the bridge member.