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BLADE FOR SAFETY RAZORS

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My invention relates to safety razors of the type in which a blade having two opposite cutting edges is combined with a holder having two guards adapted to cooperate respectively with the two cutting edges of the blade. In razors of this type heretofore constructed it has been the practise to provide the blade with apertures located midway between the cutting edges and adapted to receive positioning devices carried by the holder and located midway between the two guards, so as to render it immaterial whether one blade edge or the other is used in connection with either guard. Further, in the manufacture of these blades it has been customary to make use of the same apertures for positioning the blades in the machines by which the cutting edges are formed, with the result that the reversal of a blade edge for edge in these machines has no effect upon the character of the cutting edge produced, or upon its position relative to the line on which the apertures are centered. In accordance with the present invention the blade apertures above referred to are displaced laterally to a very slight extent, so that they are no longer symmetrically located with respect to the cutting edges of the blade, and by thus displacing these apertures I produce a blade of which the edges, when the blade is used in a holder of the type above referred to, will have different exposures with respect to the corresponding guards and, if sharpened by means of machines such as are now in use for the purpose, will differ slightly in respect to the angles between the bevels which form the edges, with the result that the blade is adapted to give a better shave than heretofore for the reason hereinafter explained.

In the accompanying drawing, in which my invention is illustrated as applied to a double-edged blade of the flexible type—

Figure 1 is a plan view of the blade, the dimensions being enlarged for the sake of clearness;

Figure 2 is a similarly-enlarged transverse section through the blade combined with the adjacent parts of a holder; and

Figure 3 illustrates diagrammatically the formation of the blade edges.

The blade 2 shown in the drawing is provided with two parallel cutting edges 3, 3', located on opposite sides of the blade, and with positioning apertures 4 located between the cutting edges and centered on a line 5 which is parallel with the latter and is slightly nearer one edge than the other. The lateral displacement of the line 5 with respect to the longitudinal center of the blade, indicated by the line 6, is exaggerated in the drawing, the actual displacement being preferably about ten thousandths of an inch. The center hole 7 is not used for positioning purposes, so that if made of sufficient size it does not need to be displaced.

The holder illustrated comprises a blade-clamping cap 8 provided with pins 9 adapted to pass respectively through the apertures 4 in the blade and position the latter without permitting appreciable play of the blade laterally, a blade-supporting plate 10 provided on each of its longitudinal edges with a guard 11 and with holes 12 for the reception of the pins 9, and a handle 13 shown in part only, the holder being of a familiar type in which the blade when in use is clamped between the parts 8 and 10 and is curved transversely when clamped. The pins 9 and holes 12, of which only one of each is shown, are centered on lines which are equidistant from the guards 11, and consequently the cutting edges of the blade when combined with the holder are displaced laterally with respect to the corresponding guards to an extent substantially equal to the displacement of the line 5 with respect to the line 6, Figure 1.

The result of the displacement just referred to is that the blade edges 3 and 3' have different exposures with respect to the corresponding guards 11, the exposure of the edge 3' being greater than that of the edge 3. This is illustrated in Figure 2, in which the lines a—a and b—b indicate approximately the planes of contact of the two sides of the razor with the face in shaving; and the distance c—c indicates the extent to which the exposure of the edge 3' exceeds that of the edge 3, the distance c—c being exaggerated to correspond with the distance between the lines 5 and 6 in Figure 1. The practical ef-
fect of the difference between the exposures of the edges 3 and 3' in the use of the razor is that the edge 3, because of its minimum exposure, is adapted to remove the beard without giving a close shave, while the edge 3' because of its greater exposure is adapted to give a close shave without meeting as much resistance as is presented by the beard to the edge 3, so that by going over the face twice, first with the edge 3 and then with the edge 3', the user is enabled to obtain a better shave than is otherwise obtainable without changing the clamping adjustment of the blade.

In Figure 3, 14 indicates a rotary abrading cylinder and 15 and 16 indicate the blade-clamping parts of a blade holder provided with upright pins 17 adapted to pass through the apertures 4 in the blade 3 and thereby position it during the application of its edges. 11. Only one of the pins 17 is shown, the other being directly behind it, and it is to be understood that the parts 15 and 16 are suitably mounted so as to be capable of an up and down movement in the direction of the axes of the pins 17, so that the blade edge which is being operated upon by the cylinder 14 will be supported by the periphery of the latter. Assuming that the blade 3 is held between the parts 15 and 16 in the position shown in full lines, in which the edge being operated upon its farther from the center line of the positioning apertures in the blade than is the other edge, the result of the edge-forming operation will be that the edge being operated upon, which will become the edge 3' of the finished blade, will be beveled on a sharper angle than will be produced when the blade is reversed edge for edge between the parts 15 and 16, as indicated in dotted lines, to produce the edge 3. The reason for this is that the angle of the bevel depends upon the direction of movement of the surface of the cylinder 14 at the point where the edge portion of the blade rests upon it, and this direction of movement makes a greater angle with the plane of the blade when the latter is in the dotted-line position than when it is in the full-line position. Consequently the edge 3, having the blunter angle as well as the less exposure when the blade is used for shaving, will be less delicate and more durable than the edge 3', and therefore better adapted for the removal of the beard without giving a close shave, while the edge 3', being formed on a sharper angle, will be more delicate and better adapted for the finishing or close shave produced when the face is gone over the second time. The effect of the displacement of the positioning apertures in the blade in respect to its cutting edges is therefore twofold, assuming that these apertures are utilized in positioning the blade during the sharpening process, inasmuch as the formation of the edges is thereby varied in such a way as to promote the results obtained in shaving first with one edge and then with the other.

I claim:

1. A detachable safety razor blade having two parallel cutting edges, and positioning apertures located in a line parallel to said edges, but unequally spaced between them, the edge furthest from the positioning apertures having a relatively long bevel and the other edge having a relatively short bevel.

2. As a new article of manufacture, a detachable safety razor blade having two parallel cutting edges, one edge having a relatively long bevel and a sharp angle, the other having a relatively short bevel and a blunt angle, and means on the blade for positioning said blade in a symmetrically formed razor adapted to receive double edged blades in such manner that said sharp angled edge has a greater exposure than the blunter edge.

3. The combination of a symmetrical blade holder comprising cap, guard and handle portions adapted normally to receive, position and retain a blade having two parallel edges and two positioning apertures, one adjacent to either end and a third aperture midway between the first two, of a blade having two cutting edges and three apertures located in a line parallel to said edges, said line being unequally distant from the cutting edges and the edge further from said line having a longer bevel than the other edge.

4. In a safety razor, the combination with a symmetrical guard and a cap having studs for positioning a flexible double edged blade, of a blade having positioning apertures and a central aperture for the studs all disposed in a line closer to one edge of the blade than the other, the respective edges being also of different character and comprising an edge produced by the intersection of two long bevels and an edge produced by the intersection of two short bevels, the former being located further from the line of the positioning apertures than the latter.

Signed at Boston, Massachusetts, this second day of June, 1924.

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