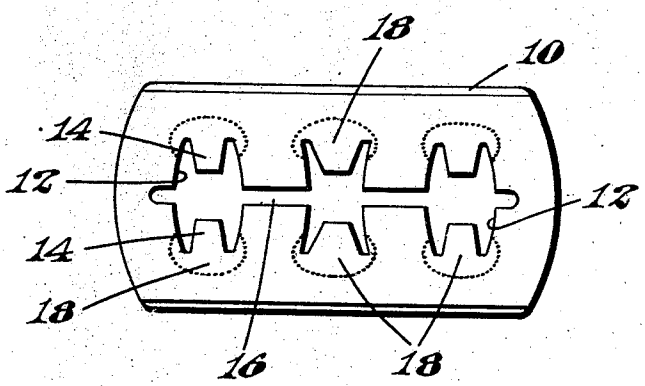
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SAFETY RAZOR BLADE

Filed Feb. 11, 1930



INVENTOR.

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UNITED STATES PATENT OFFICE

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SAFETY RAZOR BLADE

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This invention relates to safety razor blades of the thin flexible type which are bent transversely and maintained in a condition of curvature when clamped in the holders in which they are used.

In bending and clamping the blade stresses are set up of which it is desirable to relieve the cutting edge of the blade and the material adjacent thereto. This I have accomplished in accordance with the invention of my prior application Ser. No. 410,220, filed November 27, 1929, by providing an elongated slot in the axis of bending, thus concentrating the stresses of the blade in its end portions where they can be dealt with without consideration for the degree of hardness required in the cutting edges of the blade. The slot having this function or portions thereof may be advantageously utilized in connection with ribs or studs in the holder for the purpose of accurately locating the blade. In one aspect accordingly the present invention consists in a further development or carrying forward of the construction of my earlier application with a view to providing a blade of great durability and of eliminating danger of breakage of the critical or blade locating edges of the slot. This I accomplish in accordance with the present invention by providing softened zones or areas in the material of the blade which include those edges which are relied upon for locating the blade.

In order that the blade may be used with holders of different models, it is desirable to provide the blade with an aperture of such outline as to define oppositely projecting tongues for engaging projecting portions of different shapes upon the holders. For example, the aperture may be shaped so as to locate the blade with respect to a central longitudinal rib or with respect to a pair of spaced cylindrical studs. Under such circumstances, the aperture may include outwardly extending recesses having oppositely disposed tongues shaped to engage opposite sides of cylindrical studs while the edge portion of the slot remaining outside the recesses may be utilized to engage the walls of a blade locating rib. In accordance with an important feature of my invention, the blade is provided with spaced soft areas which include such tongues and preferably portions of the adjacent recesses. By this construction, the tongues which would be otherwise brittle are rendered tough and flexible and not likely to be broken in handling the blade or in assembling it in the holder.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawing in which the single figure is a plan view of the blade.

The blade shown in the drawing is of thin flexible steel, sharpened at each edge for cutting and having curved lateral or end edges. It is provided with a centrally disposed longitudinal slot 16, located symmetrically in the blade and accordingly at its axis of bending when curved transversely. The slot is substantially as long as the effective cutting edge of the blade and rounded at its extremities. The slot may be of such width as to accommodate an elongated rib projecting from the cap or the guard of the holder and consequently its opposed edges may be termed critical edges since they determine the location of the blade and the amount of its exposure with reference to the guard.

The blade herein shown is provided with spaced apertures 12 which are intersected by the slot 16 and which in outline define a pair of oppositely disposed tongues 14, projecting toward each other but spaced apart by a distance greater than the width of the slot. The opposed inner edges of the tongues 14, therefore, constitute critical edges in that they may be used to locate the blade with respect to studs of cylindrical or other contour. Each of the tongues 14 is set off from the aperture into which it projects by outwardly extending recesses which form a part of the apertures. As herein shown the blade is provided with softened areas 18 of a shape roughly semicircular as suggested by dotted lines. The exact shape of these areas is of secondary importance so long as they include

the stud engaging edges of the aperture. I prefer, however, to include also within the softened areas, some portion of the edge of the aperture adjacent to such critical edges. In a blade apertured, as herein shown, it is desirable to include the vertex of the recesses which bound the tongue 14 and accordingly I have shown the softened area as oval or semi-circular in shape and as including the tongue 14 and the blade material adjacent to the root thereof and including also a substantial portion of the outer edge of each of the bounding recesses. The softened areas in all cases terminate within the cutting edge of the blade so that there is no impairment of the even temper of the edge.

The softened areas 18 may be produced in any convenient manner and may be located wherever desired in respect to the aperture of the blade. I prefer to form these areas by a supplemental operation after the blade has been hardened and tempered. Such a step may be carried out by clamping the body of the blade between water cooled clamping members shaped to expose the desired areas and then momentarily subjecting the areas to be softened to the action of an annealing flame. The effect of the flames is to draw the temper of the exposed areas of the blade, while the clamps conduct heat away from the untreated portions so rapidly that their temper is unaffected. The portions of the blade in the softened areas, which include the critical or blade locating edges of the aperture, are not brittle and the blade rendered more serviceable and less likely to be damaged.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States is:

1. A flexible double-edged blade for safety razors, having spaced stud-receiving apertures which in outline define oppositely disposed tongues having stud-engaging ends, each tongue being bounded at its sides by outwardly extending recesses and the material of the blade including separate softened areas spaced longitudinally from each other and embracing in their area the entire contour of said tongues and recesses.

2. A flexible safety razor blade apertured to receive a positioning stud and having inwardly directed tongues with stud-engaging ends, the aperture being widened adjacent to each side of the tongues, and the material of the blade being softened in substantially semi-circular areas, spaced longitudinally from each other and including said recesses and the adjacent margins of the aperture.

3. A double edged flexible blade for safety razors, having an elongated centrally disposed slot for receiving a blade-locating rib, and stud-receiving apertures intersected by said slot, the outline of each aperture defining an inwardly projecting tongue and the material of the blade being softened in spaced areas, each including one of the tongues and extending to the margin of the slot on either side thereof.

4. A thin flexible blade for safety razors, having a tempered cutting edge and an internal aperture in the shape of a slot intersecting a series of wider recesses each provided with a critical edge in its outline, the blade being softened in a number of separate relatively small areas each including one side only of one of said recesses.

RALPH E. THOMPSON.