March 10, 1936. L. J. STRAUSS 2,033,262

SAFETY RAZOR

Filed April 4, 1934

Fig. 1.

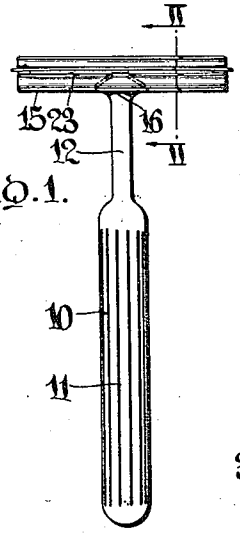


Fig. 4.

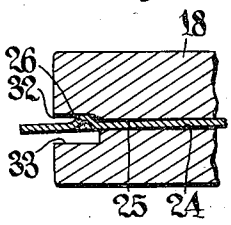


Fig. 2.

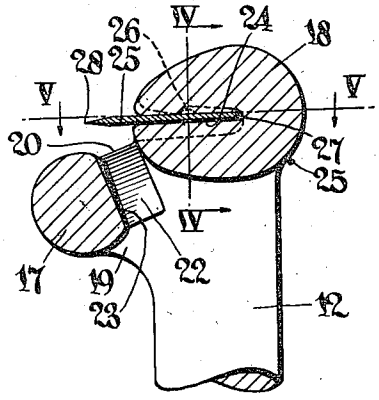


Fig. 5.

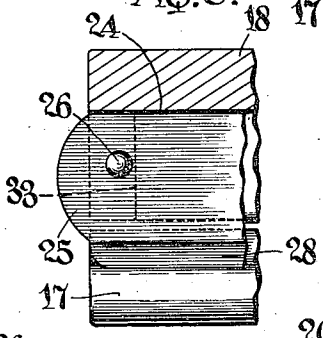


Fig. 3.

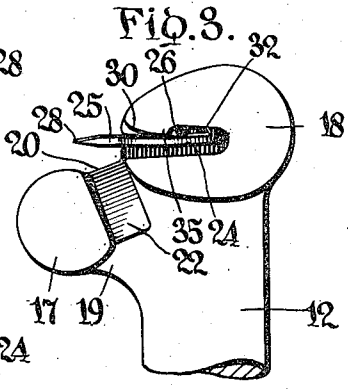


Fig. 7.

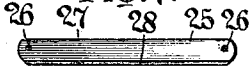


Fig. 8.

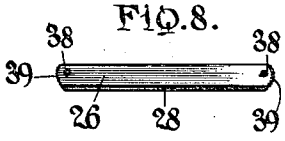


Fig. 6.

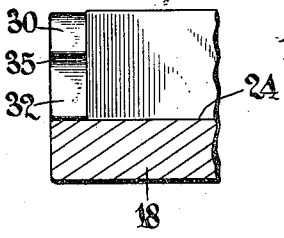


Fig. 9.

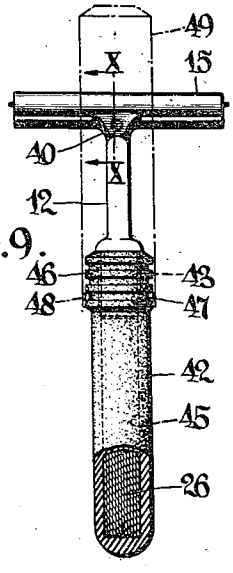


Fig. 11.

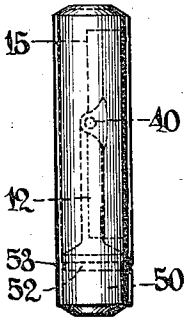
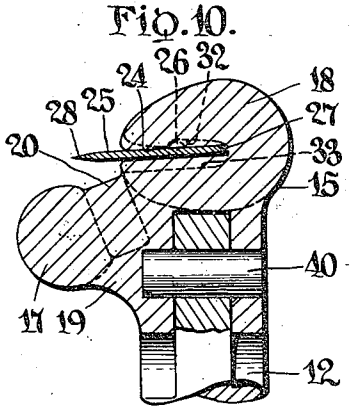


Fig. 10.



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SAFETY RAZOR

Luke J. Strauss, Buffalo, N. Y.

Application April 4, 1934, Serial No. 718,991

7 Claims. (Cl. 30—64)

This invention relates to safety razors and it has for one of its objects the provision of an improved structure of safety razor requiring no clamping, detachable or removable securing parts for assembling the blade therein.

Another object of the invention is to provide an improved safety razor blade and unitary blade holder having cooperating portions movable into and out of engagement with each other to automatically anchor the blade in the holder or removing therefrom merely by manipulation of the blade itself.

Another object of the invention is to adapt a unitary blade holding head, with or without a blade installed therein, for application in a collapsible and housed structure.

In the drawing:

Fig. 1 is a front elevation of a safety razor embodying the invention;

Fig. 2 is a fragmentary cross section, on a larger scale, taken substantially along the line II—II of Fig. 1;

Fig. 3 is a fragmentary side elevation of an upper portion of the razor holding structure;

Fig. 4 is a fragmentary cross section, on a larger scale, taken substantially along the line IV—IV of Fig. 2;

Fig. 5 is a fragmentary plan of one portion of the structure with other portions shown in cross section taken substantially along the line V—V of Fig. 2;

Fig. 6 is a fragmentary view similar to Fig. 5 but viewing the structure in the opposite direction substantially along the line V—V of Fig. 2;

Fig. 7 is a plan of a blade;

Fig. 8 is a plan of another similar form of blade;

Fig. 9 is a rear elevation of a collapsible type of safety razor;

Fig. 10 is a fragmentary cross-section taken substantially along the line X—X of Fig. 9; and

Fig. 11 is an elevation of a collapsible razor in which a handle may also be used as a casing for containing the head and neck of the razor structure.

Referring to Figs. 1 to 6, a razor blade holder 10 is shown as comprising a suitable fluted or roughened handle 11, neck portion 12 and blade holding head 15 formed of a single piece of material or integrally connected, as indicated at 16. A blade guard bar 17 and a blade holder 18 which comprise the head 15 are disposed parallel to each other and are integrally connected together at their intermediate portions by means of a bridge 19 that diverges from its front edge 20 rearwardly to present beveled walls 22. Thus oppositely disposed slots 23 (Fig. 1) extend from the bridge walls 22 in opposite directions to the ends of the guard 17 and blade holder 18.

In the front portion of the blade holder 18, a slot 24 extends from one end to the other and is open at its front and sides for the purpose of receiving a razor blade 25 that has detents or lugs 26 formed adjacent its opposite ends. One edge, that is, the rear edge 27 of the blade in assembled relation with respect to the holder 18 abuts the bottom of the slot 24 and the front or cutting edge 28 of the blade projects from the slot in overhanging relation with respect to the bridge 19 and the oppositely extending slots 23.

Opposite front ends of the outer upper walls of the blade receiving slot 24 are slightly cut away and are defined by rounded inclined wall portions 30, the inclining thereof beginning approximately midway of the depth of the slot 24. Each end of the blade holder 18 is also provided with opposed recesses or sockets 32 and 33 which are slightly offset from the surfaces of the walls of the slot 25. It will be observed that the upper recess 32 at each end of the holder extends from the bottom of the slot 24 to a location approximately midway of the depth of the slot and that this recess defines a rearwardly facing shoulder 35 separating the recess 32 from the beginning of the adjacent inclined wall portion 30. Each lower recess 33 extends from the bottom of the slot to the front extremity thereof. These recesses are relatively narrow with respect to the length of the blade holder 18 and the ends of the blade provided with the detents 26 extend between the recesses 32 and 33 at each end of the holder in the assembled relation thereof.

In assembling the blade 25 with the holder, the blade is held at its ends between the thumb and finger and its rear edge 27 is inserted in the slot 24. It is to be understood that the length of the blade 25 is slightly greater than the length of the slot 24 and the blade ends are rounded in order that the cutting edge may be entirely included between the ends of the blade holder and yet provide for end projection of the blade beyond the ends of the holder. By springing the ends of the blade downwardly the detents 26 snap behind the shoulders 35, or simply by forcing the rear edge of the blade toward the bottom of the slot the end portions of the blades will flex downwardly and the detents will snap into the position indicated in Figs. 2 and 3. Since the razor blade is composed of resilient steel, the detents

cooperate with the walls of the recesses **32** to maintain the blade firmly in the slot and the detents are of such thickness that the blade remains under tension with its opposite ends slightly flexed or sprung. The lower recess **33** provides ample space to permit this springing and flexing action.

In removing the blade from the holder slot **24** the ends of the blade are flexed downwardly to release the detents from the socket or recesses **32** and the blade is then withdrawn. While the blade remains anchored in the recess **32** with the detents secured behind the shoulders **35** it is held firmly against forward and rearward movement by the shoulders **35** and the bottom wall of the slot **24** and is held against longitudinal movement by the detents engaging the walls of the recess.

It is to be understood that the structure for maintaining the blade locked in the slot **24** can be reversed by providing an opening **38** (Fig. 8) at each end portion of the blade which is adapted to snap into engagement with the projecting shoulder **35** of the slot wall. Also the ends of the blade can be serrated, as indicated at **39**, to facilitate the holding of its ends incidental to assembling the blade with the holder. In this arrangement, the shoulder **35** may extend farther into the space of the slot than the average wall level defining the slot.

The arrangement of blade holding head described is applicable to collapsible head and handle structure shown in Figs. 9 and 10 wherein the head **15** has a hinge connection **40** to the neck **12** which is mounted upon an alternative form of holder handle **42**. The neck **12** is provided with a screw threaded shank **43** which is threaded into the end of the handle **42**. A chamber **45** formed in the handle is provided for containing a supply of blades **25**. An enlarged head portion **46** of the handle **42** surrounding the threaded shank is provided with a groove **47** into which detents **48** of a cap or cover **49** are snapped for housing the blade holder while in its collapsed position.

In assembled relation of the structure surface, portions of the blade adjacent the detents frictionally engage the lower wall surface of the slot and the upper intermediate surface of the blade frictionally engages the upper wall surface of the slot. Thus the slot wall surfaces, detents and recess shoulders all contribute in firmly holding the blade in place.

In the form of the invention shown in Fig. 11 the shank **12** is provided with a relatively large cylindrical head **50** having a groove **52** therein for receiving detents **53** of a cap **55** which also can serve as a handle by reversing its position upon the head **50**. This arrangement provides for assembling the structure in a very small and compact package.

From the foregoing description it will be apparent that the entire blade holding structure shown in Figs. 1 to 6 can be manufactured by die-casting or otherwise from a single or unitary piece of material and the head **15** can be slotted incidentally to its casting or the slots **23** and **24** can be machined therein subsequently. In assembled relation the blade **25** is normally entirely flat until it is forced into the slot **24** to such position that the detents engage in the recesses **32**. The thickness of the blade is only very slightly less than the width of the slot **24** to provide for slight curvature of the blade when it is anchored in the holder. This curvature approximately corresponds to a uniform circular arc from one end of the blade to the other. In view of the simplicity of design in which there are no holder parts to be removed or adjusted to secure the blade in position, no screw threaded shank or rods that pass through the blade, and no external clamping or springing arrangement, the manufacturing costs are reduced to a minimum. Since the head **15** is constructed entirely in one piece of material it can be very small in thickness and width, and the blade material is necessary only to the extent of providing a cutting edge base of suitable proportions. The razor is easily operated about different portions of the face and latter or soap during the shaving operation passes through the slots **23** which can be cleaned by inserting a cleaning member through the open outer slot ends. The inclined faces of the bridge facilitate the passage of lather through these slots.

Although different forms of the invention have been shown and described in detail, it will be apparent to those skilled in the art that the invention is not so limited, but that various changes can be made therein without departing from the spirit of the invention or from the scope of the appended claims.

I claim:

1. In a safety razor structure, a rigid blade holder bar having an integral rigid guard bar mounted thereon in spaced relation, said bars having integral connecting portions formed with diverging walls to facilitate passage of lather between said bars, said blade holder bar having a slot, portions of the blade holder defining the slot having rigid means for engaging a blade, and a blade having means cooperating with the first means and automatically anchoring the blade in the slot when the blade is forced therein.

2. In a safety razor structure, a rigid blade holder bar, a guard bar spaced in parallel relation for the holder bar, an intermediate bridge supporting the guard bar integrally with the holder bar, a handle forming an integral extension of the bridge, said blade holder bar having a slot extending from one end to the other, and a blade normally engaging rigid wall portions of the slot and being held under tension by said wall portions in the slot.

3. In a safety razor structure, a blade holder bar having an integral guard bar mounted thereon, said blade holder having a blade receiving slot extending from one end to the other thereof, end portions of the holder bar being rounded to provide flaring entrance walls at the end portions of the slot, shoulders defined by recesses formed adjacent the ends of the slot, and a blade disposed in the slot and having end portions formed to snap into engagement with the shoulders at the ends of the slot whereby the blade is yieldably locked under tension in the blade holder.

4. In a safety razor structure, a blade holder bar having an integral guard bar spaced therefrom, the central portion of the holder bar and guard bar being formed integrally and having their outer ends disposed in spaced parallel relation, said blade holder bar having a slot extending from one end to the other, opposite end portions of the holder bar having recesses formed in opposed walls of the slot, said recesses defining shoulders at one side of the slot, inclined rounded portions leading to the shoulders, and a blade having detents formed adjacent its opposite ends and mounted in the slot, said detents being normally interlocked behind the shoulders

and the blade being normally held under tension in curved position in the slot.

5. A safety razor structure, a blade holder bar having a slot extending longitudinally therein, portions of the blade holder bar defining said slot having rigid walls adjacent the bar ends spaced at greater distances than the intermediate rigid walls of the slot, a blade mounted in said bar between the slot walls and being of less thickness than the width of the slot, said walls and blade having cooperating means for automatically anchoring the blade in the slot in longitudinally bowed form when the blade is forced therein.

6. In a safety razor structure, a die-cast rigid holder bar having a guard bar die-cast integrally and in spaced relation therewith, an integral connecting portion between the holder bar and guard bar having rearwardly diverging outer surfaces to facilitate the passage of lather between said bars, portions of the die-cast structure of the holder bar having a slot, rigid walls of the holder bar defining the slot having rigid means for engaging a razor blade, and a blade having means cooperating with the first mentioned means for automatically anchoring the blade in the slot when the blade is forced therein.

7. In a safety razor structure, a blade holder bar, a guard bar spaced in parallel relation from the holder bar, an intermediate bridge supporting the guard bar integrally with the holder bar, a handle formed integrally with the bridge, said holder bar, guard bar, bridge and handle being a unitary die-cast and rigid structure; said die-cast holder bar having a slot extending from one end thereof to the other, and a blade normally engaging wall portions of the slot and being held under tension by said wall portions of the slot in its operative position.

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