Nov. 10, 1931. J. C. SHERMAN 1,831,145

SAFETY RAZOR

Filed Feb. 13, 1929

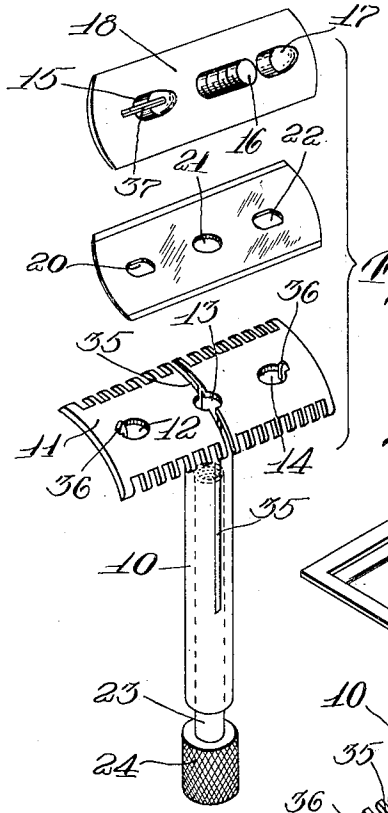


Fig. 1.

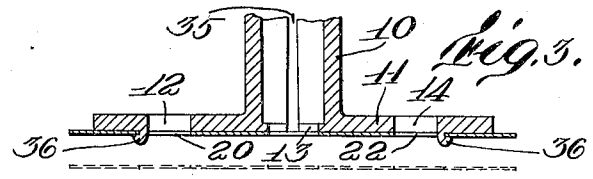


Fig. 3.

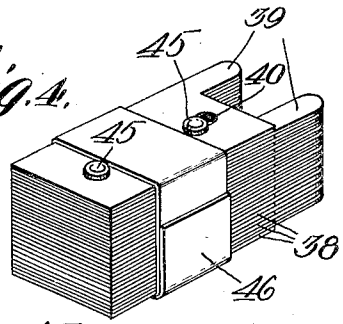


Fig. 4.

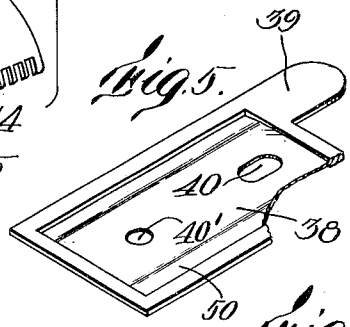


Fig. 5.

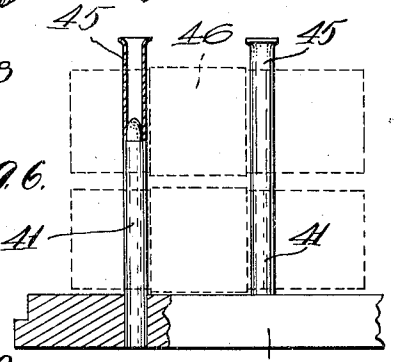


Fig. 6.

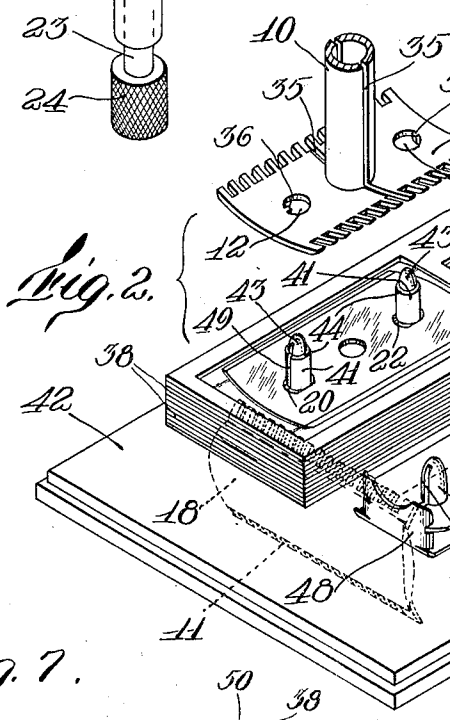


Fig. 2.

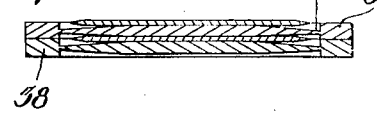


Fig. 7.

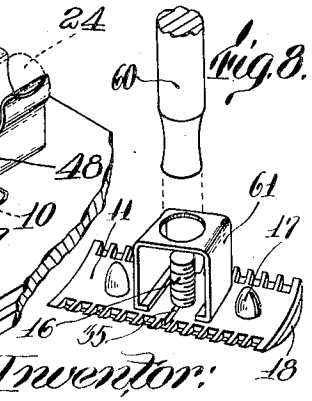


Fig. 8.

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UNITED STATES PATENT OFFICE

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SAFETY RAZOR

Application filed February 13, 1929, Serial No. 339,527, and in Canada September 7, 1928.

This invention relates to an improved safety razor for use with a novel package of blades, the combination being such that old blades may be removed from the razor and replaced by fresh ones without the necessity of touching either the discarded or fresh blades with the fingers. To this end, the razor is provided with manually releasable members or catches by which a blade can be picked up or released without the fingers of the operator coming in contact with the blade. If desired, the cap plate of the razor which clamps the blade in place may be of sufficient length as to project beyond the ends of the blade so that it may be grasped and removed without the fingers touching the blade, since this obviates the danger of cutting the fingers on the blade.

For use with a razor embodying the present invention I have shown, but do not herein claim a holder for fresh blades adapted to hold a plurality of blades and intervening spacers to facilitate the operation of catch elements on the razor in picking up a blade.

For a more complete disclosure of my invention, reference is had to the description thereof which follows, and to the drawings, of which,—

Figure 1 is a perspective view of a safety razor embodying the invention.

Figure 2 is a perspective view of a razor outfit including the razor shown in Figure 1 and a novel package of blades for use therewith.

Figure 3 is a fragmentary sectional view of the razor and a blade engaged thereby.

Figure 4 is a perspective view of a package of blades for use with the outfit shown in Figure 2.

Figure 5 shows a single spacer for the blades.

Figure 6 indicates a method of depositing the blades of a package on receiving pins of the outfit.

Figure 7 is a transverse sectional view of a pair of razor blades and spacers.

Figure 8 shows in perspective a modified form of razor embodying the invention.

Referring to the drawings in detail, the razor shown in Figure 1 as one of the embodiments of my invention, comprises a handle 10 and a guard plate 11 integral therewith. The guard has perforations 12, 13, 14 to receive pins 15, 16, 17 which are mounted on a cap plate 18. The blade is perforated as at 20, 21, 22 to receive these pins. The middle pin 16 may be threaded for engagement with an elongated nut 23 which has an internally threaded portion at one end to engage the threaded pin 16, and a knurled handle 24 at the other end. The nut 23 may be inserted in the hollow handle 10 to engage the threaded pin 16 which is inserted in the opposite end. Thus by turning the knurled handle 24, the cap 18 may be drawn tightly against the guard 11 or against a blade previously placed therebetween.

The handle 10 and the guard 11 may be split by a slot 35 which extends transversely across the guard plate 11 and longitudinally along a portion of the handle 10. Thus the guard plate 11 is divided into two parts which are spaced from each other by the narrow slot 35 and connected by the slotted handle 10 which forms a U-shaped bridge between the parts. Thus the parts are resiliently movable toward or away from each other. On each of the separate parts of the guard plate 11 I mount a member or catch 36, which, if desired, may be hooked, each of these catches being preferably adjacent to the edge of one of the perforations through the guard plate. As shown in Figure 1, the members or catches 36 are mounted adjacent to the outer edges of the perforations 12, 14 and may have portions projecting outwardly in opposite directions therefrom. As a result of this construction the catches are adapted to enter the perforations 20, 22 of a razor blade when the separated parts of the guard plate are pressed together and to engage on edge portions of the blade and, if hooked, to take over the face of the blade when the parts of the guard plate are permitted to spring back to their normal spaced positions, as illustrated in Figure 3. The spaced parts of the guard plate may conveniently be pressed together by manually pinching the split portion of the handle 10 which is adjacent to the guard plate. This moves the two parts of the guard

plate together and thus decreases the distance between the two members or catches 36 so that they may enter or be withdrawn from the perforations 20, 22 of a blade. As shown in Figures 1 and 2, the outer faces of the pins 15, 17 may be grooved as at 37 to receive the catches 36 and to permit the cap 18 to be drawn tightly gainst the blade when the razor is assembled, the grooves 37 extending into the face of the cap 18 to receive the ends of the members or catches 36 when the cap 18 is drawn against the guard 11. It is to be understood that the term "catches" as applied to the members 36 is used by way of illustration and not limitation and that it includes any members movable to engage edge portions of a loose blade so as to grip and hold the same.

An improved package for the razor blades is illustrated in Figure 4. This comprises a number of spacing elements 38 which, as shown in Figure 5, may have a generally rectangular form with a convenient tab 39 by which the top spacer in a package may be conveniently grasped with the fingers without incurring any risk of contact with a blade edge. The rectangular portion of each spacer is preferably recessed on one or both its faces, the depth of these recesses being sufficient to permit the thicker edge portions of the spacers to touch when a blade is between each pair of successive spacers, the area of these recesses being somewhat larger than that of the face of a blade so that the edges of a blade when in place between two of the spacers will be spaced from the edges of the recess and will not be in contact with the spacers at any point. The marginal portions of the recesses may furthermore be pressed more deeply than the central portion, as at 50, so that the cutting edges will be further removed from the material of the spacers 38. The clearances indicated in Figure 7 are somewhat exaggerated for clearness and the extra indentations at 50 are desirable to avoid possible contact between the cutting edges of the blade and upstanding fibers which sometimes stick up from the surface of fibrous material.

The spacers are furthermore preferably perforated as at 40 and 40′, these perforations being spaced to register with the perforations 20, 22 of a blade so that a package of blades and spacers may be placed on a pair of supporting pins 41 mounted on a suitable base or standard 42 as shown in Figure 2, these posts projecting through the perforations 20, 22 on each of the blades and the perforations 40 of the spacers which alternate with the blades. To facilitate removal of a spacer 38 from the pins 41, a handle tab 39 may be formed on an end of each spacer, these being preferably staggered as indicated in Figures 2 and 4. As a spacer is lifted by a tab 39, it tilts. The hole 40 is therefore elongated slightly so that the spacer will not bind on the post nearest to the tab 39. The holes 40 and 40′ are made as small as possible to hinder moisture from working into the package.

As shown, the pins 41 may be provided with grooves 49 adapted to receive the catches 36 when the guard plate is pushed downwardly thereover to pick up a blade. In order to facilitate the placing of a package of blades in position on the pins 41, the latter may be provided with rounded end portions 43 terminating in a shoulder 44. As shown in Figure 6 the blade package may be made up with hollow tubes 45 which keep the blades centered in the recesses of the spacers and are just large enough to fit over the rounded portions 43 and to rest against the shoulders 44. The outer surfaces of the tubes 45 are preferably flush with the surfaces of the pins 41 when thus positioned so that the blade package readily slides from the tubes 45 to the pins 41, whereupon the tubes may be discarded. The spacing elements 38 may be made of any suitable material such as paper stock which may be pressed into the form shown in Figure 5 by any apparatus suitable for that purpose. The package of the blades and spacers may be held together by suitable means such as a strip of paper 46 which is removed when a package has been placed on the pins 41.

The mode of operation of the razor is indicated in Figure 2. When the razor is not in use it may be placed in a horizontal position as shown by the dotted lines, the handle being releasably held as by a spring clamp 47. When it is desired to insert a blade in the razor, the razor is removed from its horizontal position indicated by dotted lines and is pressed vertically downward until the cap 18 is gripped by a spring clamp 48 which is mounted on the base 42. The nut 23 of the razor is then unscrewed to release the guard and the handle from the cap 18. These parts are thereupon lifted clear of the cap 18 and are pushed downwardly over the pins 41 until the catches 36 snap into the perforations 20, 22 of the uppermost blade of the package, the spacer 38 over this blade having previously been removed. The uppermost blade is then securely held by the catches 36 as long as the split portion of the handle 10 is not pinched by the operator's fingers. The blade attached to the guard plate may then be lifted with the handle and deposited on the cap 18. The nut 23 may then be screwed up by manipulating the finger piece 24 so as to draw up the cap and thus to clamp the blade between the cap and the guard plate. The clamping action of the cap against the guard plate is entirely independent of the catches 36 so that when the razor is assembled for shaving, these catches are inoperative. When, however, the cap is removed, the blade is securely retained against the guard plate

until the split portion of the handle is pinched sufficiently to permit the hooks to release the blade. Thus after a shave, the operator may press the razor vertically downward into the clamp 48, then he may unscrew the nut 23 thus releasing the guard and the handle from the cap which is retained in the clamp 48. The handle is then lifted, bringing with it the blade. By pinching the split portion of the handle as it is held over a used blade receptacle, the used blade will drop into the receptacle whereupon a new blade may be picked up or the handle may be reassembled with the cap and the razor placed in its horizontal position where it is held by the clamp 47.

Although I have illustrated and described the blade package and holder which may be used in connection with a razor embodying my invention, I do not herein claim the same, as they form the subject matter of my application Serial No. 438,804, filed March 25, 1930.

Another form of razor embodying the invention is illustrated in Figure 8. In this form of razor, the handle 60 is separate from the guard plate 11, and is provided with a threaded bore in one end for engagement with the threaded pin 16 of the cap. According to the invention the guard plate 11 is divided by a central transverse slot 35. The two halves of the guard plate may be joined as by a U-shaped bridge member 61 of spring metal which is shaped to permit the handle 60 to screw onto the threaded pin 16. The legs of the bridge member 61 may be pressed toward each other to release a blade in the manner hereinbefore described, the manipulation of this form of razor being the same as that of the form shown in Figure 1.

Having thus described certain embodiments of my invention, it should be evident to those skilled in the art that various changes and modifications might be made therein without departing from its spirit or scope as defined by the appended claims.

I claim:

1. In a safety razor, a guard plate with a pair of blade-gripping elements mounted thereon, said plate having a slot dividing said plate into two parts each of which carries one of said elements, resilient means connecting said two parts, said connecting means being actuable to produce blade-releasing relative motion between said elements, a cap, and means for drawing said guard and cap together to clamp between them a blade previously picked up by said catches.

2. A safety razor having a handle with a guard plate secured to one end thereof, said plate and adjacent end portion of the handle being split so that the opposite end portions of the plate are permitted limited motion toward each other, a pair of catches fixed respectively on said plate portions, a blade having apertures arranged to receive said catches when the plate portions are pressed toward each other, whereby said blade may be held loosely against said plate, a cap, and means for drawing said guard and cap together to clamp between them a blade previously picked up by said catches.

3. A safety razor having a handle longitudinally split over a portion of its length, a guard plate divided into two separate parts, each part being on one portion of the split end of the handle, each part of said guard plate having a perforation therethrough, a cap having pins registering with said perforations, a hooked element mounted on each part of said guard plate adjacent to the perforation therethrough, said hooked elements having their hook portions projecting in opposite directions beyond the mutually remote edges of the perforations, the parts of said guard plate being resiliently movable toward each other whereby said hooked elements can pass through a blade having perforations normally registering with the perforations through the guard plate to permit said hook portions to engage the face of the blade remote from the guard plate.

4. In a razor, a split guard plate comprising two separate portions, a hollow handle member having a split end carrying said portions for limited relative movement, a pair of catches mounted respectively on said portions and adapted to engage in perforations of a perforated blade to hold said blade releasably against said guard plate, a stem extending through said hollow handle, and a cap plate having a portion in threaded engagement with said stem whereby a blade may be adjustably clamped between said guard plate and cap plate.

In testimony whereof I have affixed my signature.

JOHN C. SHERMAN.