

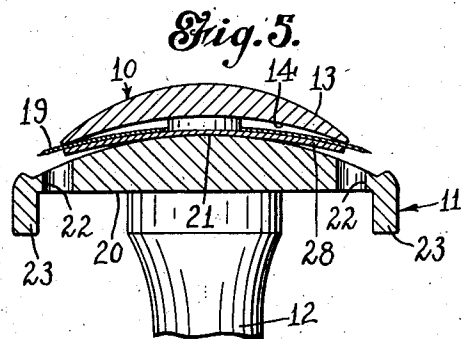
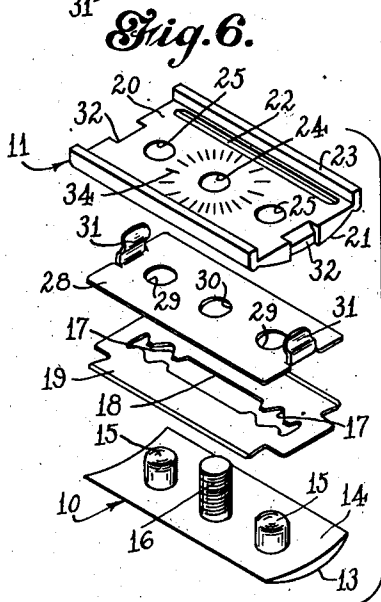
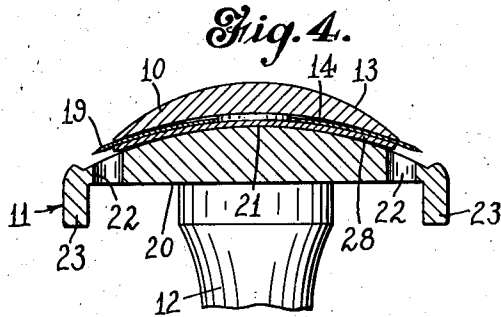
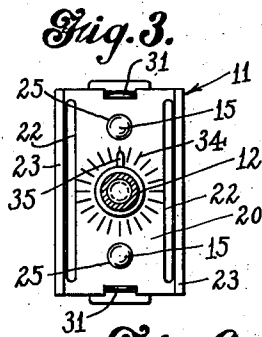
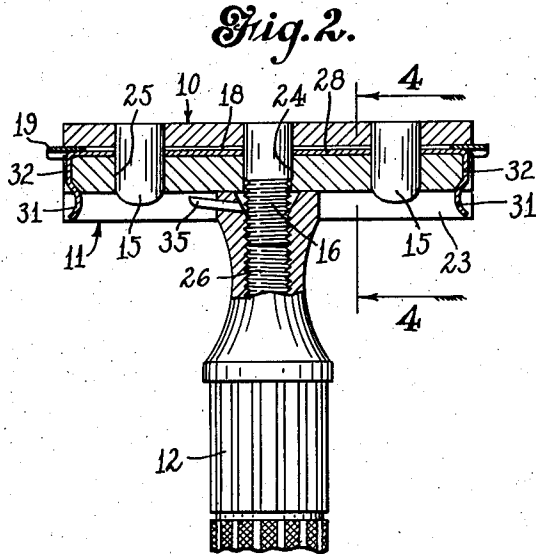
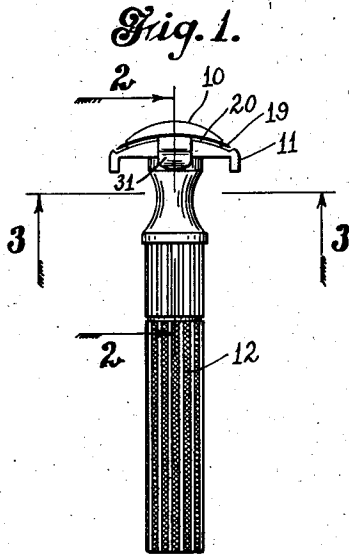
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RAZOR

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RAZOR

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5 Claims. (Cl. 30-73)

This invention relates to safety razors, and more particularly to the type of such razors employing a double-edged, thin, flexible blade which is clamped between two members, usually designated as guard and cap members, so that the blade is curved when the razor is adjusted for use.

Such razors normally consist of a cap member, a guard member, and a handle member, which also serves to secure the cap and guard members together with the blade clamped therebetween. Usually the cap member is provided with a concave inner or upper surface adjacent the blade, so that, when the clamping action takes place, the center of the blade will be depressed into this concavity, thus resulting in a deformation of the blade into a transversely curved shape, with the cutting edges of the blade projecting beyond the cap.

In the use of such razors the cutting angle at which the blade edge is disposed is determined by the pressure with which the cap and guard are clamped together, and, while this pressure may be varied, as a practical matter the blade will only be satisfactorily secured tightly in place in one position, and hence in practice no adjustment is possible to vary the closeness of the shave obtained. This results from the fact that if the pressure between the cap and guard members is relieved to vary the cutting angle of the blade, the latter will not be securely held in place, and will not operate in a satisfactory manner. Therefore, as a matter of fact, there is no way in the ordinary razor of adjusting the blade for a close shave or otherwise.

One object of the present invention is to provide a safety razor of the type described, whereby the angle of the blade may be adjusted with respect to the guard member of the razor to obtain a light or a close shave, as desired, while at the same time the blade will be firmly held against the cap member at all times.

Still another object of the invention is to provide a razor of the character described in which the parts may be readily disassembled for cleaning.

A still further object of the invention is to provide a safety razor of the type employing a double-edged, flexible blade such that, while the blade is flexed against a concave surface of the cap of the razor so that it will be firmly maintained in the proper position, at the same time the angle between the cutting edge of the blade and the guard may be adjusted to effect a light or close shave, as desired.

A still further object of the invention is to pro-

vide a razor of the class described, in which indicating means are provided to indicate to the user the setting of the razor, so that he may be able to ascertain the closeness of the shave to be had from the instrument at any time.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing:

Fig. 1 is a side elevational view of a razor embodying my improvements;

Fig. 2 is a sectional view on line 2-2 of Fig. 1;

Fig. 3 is a sectional view on line 3-3 of Fig. 1;

Fig. 4 is a transverse sectional view on line 4-4 of Fig. 2;

Fig. 5 is a view similar to Fig. 4, showing the parts in a different position of adjustment; and Fig. 6 is an exploded perspective view of parts of the razor head.

To illustrate a preferred embodiment of my invention I have shown a razor comprising a cap member 10, a guard member 11, and a handle member 12.

As shown, the cap member is provided with a curved or convex outer or lower face 13, and a curved or concave inner or upper face 14. Upon the upper face of this member are positioned a pair of studs 15 and a shank 16. The studs 15 are designed to enter the end portions 17 of an opening 18 in the double-edged flexible blade 19, and the shank 16 is also designed to pass through the central portion of this opening. It will, of course, be understood that the studs serve as a convenient means for positioning the blade 19 in relation to the cap 10, but that other means may be employed for this purpose if desired. The guard 11 of the razor is provided with a flat upper face 20 and a convexly curved lower or inner face 21, this last face being opposed to and having a shape complementary to the convex face 14 of the cap 10. Adjacent its edges the guard is provided with longitudinal slots or openings 22, and guard rails 23 at each longitudinal side edge beyond these openings. This member is also provided with a central opening 24 to receive the shank 16 and an opening 25 on each side of the opening 24 to receive the studs 15.

The handle 12 of the razor is provided with a screw-threaded opening 26 at its lower end to cooperate with the shank 16, which is threaded to be received in the opening 26.

It will be apparent that when the cap 10 and guard 11 are assembled as shown in Fig. 2, for example, with the blade 19 between them and the handle screwed firmly upon the shank 16,

the blade 19 will be clamped between the cap and guard, with the studs 15 projecting through the openings 25 of the guard to permit the cap and guard to be assembled closely together.

It will be seen, however, that if the razor consisted only of the parts heretofore described, it would be necessary, in order to hold the blade firmly in place, for the convex surface 21 of the guard to be set up closely against the concave surface 14 of the cap, thus crowning or curving the blade transversely to conform to the shape of the surface 14 of the cap. Such an arrangement will hold the blade firmly in place, and provide for a satisfactory shave at one shaving or cutting angle, but will permit of no adjustment of this angle for a light or close shave. This will be true, because, if the handle 12 is backed off or unscrewed with relation to the shank 16, while the angle of the cutting edge of the blade will be changed, the blade will no longer be satisfactorily held, and its cutting edges supported firmly between the guard and cap member. Such a razor is, therefore, as a practical matter only designed to give satisfactory performance when the handle is screwed down tightly against the guard.

In order that the cutting angle of the blade may be changed to give a close or a light shave, and at the same time to provide that the blade be clamped tightly against the cap member, and that its edge be firmly supported upon both sides, I provide a flexible or resilient plate 23 adapted to be disposed between the guard member and the blade. This plate, as shown, is provided with openings 29 through which may pass the studs 15, and with an opening 30 for the reception of the shank 16. It is also provided at each end with a resilient or spring clip 31 designed to be received in recesses 32 in the ends of the guard member 11, and to clamp over the upper surface of this guard member, as shown in Figs. 1 and 2. These spring clips may preferably be formed integrally with the plate 28 and of the same stock, and provide a convenient means for securely and firmly but detachably securing the plate 28 to the guard member 11. The plate will, therefore, when the parts of the razor are disassembled, be ordinarily carried by and remain secured to the guard member, but it may be readily removed therefrom and replaced thereupon, if desired, for cleaning purposes. The plate 28 may be formed of light sheet metal so as to be flexible, particularly transversely of its length. It will, however, be relatively firm and rigid as compared to the blade, and will ordinarily be of thicker or heavier stock than the blade, so that, while this member will be flexed or crowned to some extent when clamped tightly between the cap and guard, it will, nevertheless, be sufficiently firm and rigid to hold the blade at points adjacent the cutting edges firmly against the edge of the cap.

As shown, the member 28 is of substantially the same dimensions with respect to the length and width as the upper surface 14 of the cap member 10, so that the cutting edges of the blade, as shown in Figs. 4 and 5, will project slightly beyond the side edges of the plate 28, the amount of this projection being substantially the same as the amount of the projection of the blade edges beyond the edges of the cap. Therefore, the blade will be held firmly between the cap and the plate 28 adjacent and along its cutting edges, regardless of the adjustment of the relative positions of the cap and guard.

It will, of course, be understood that the rela-

tive positions of the cap and guard are adjusted by the screwing of the handle 12 upon the shank 16, and that the handle will screw very easily upon the shank until the flexible plate 28 is crowned or curved by the pressure therebetween, and that after this occurs the screwing of the handle upon the shank will meet with increasing resistance. In order that the adjustment between the parts may be readily indicated so that the user may be advised of the adjustment without having to secure the proper adjustment by trial and error, the upper surface 20 of the guard member 11 is provided with a plurality of indicating marks 34, and the handle is provided with a pointer 35 to cooperate with these marks. After the user of the razor has determined the setting of the parts which will best suit his purposes, the pointer 35 may always be turned back to the same indicating mark when the parts of the razor are being assembled.

In Fig. 4 of the drawing I have shown the parts of the razor in the positions which they will occupy when the handle 12 is screwed down tightly upon the shank 16. It will be noted that in this position of the parts the plate 28 is curved to conform substantially to the lower surface 21 of the guard and the upper surface 14 of the cap. This position of the parts will result in a very light shave, as it will be seen that the blade is so curved that its cutting edge will lie close to the lower surface of the guard. However, when the handle 12 is backed off, as shown in Fig. 5, the blade angle is changed, and particularly that of the cutting edges thereof, so that the latter lie at a greater distance from the guard to give a closer shave. As the blade angle is not only changed to some extent but also the cutting edge thereof lies at a greater distance from the guard, the shaving action of the blade will be greatly altered. It will, of course, be understood that any position of the parts between those shown in Fig. 4 and Fig. 5 may be obtained as desired, according to the results which are acceptable to the user. It will also be obvious that in either position of the parts the blade edges are firmly supported and securely held between the cap and the plate 28 regardless of the adjustment of the parts, the plate 28, while flexible under pressure, being sufficiently stiff and rigid to effect this result.

While I have shown and described a preferred embodiment of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. A razor comprising a cap member and a guard member; a handle member for adjustably securing the cap and guard members together to clamp a razor blade therebetween, said guard member having a smooth convex outer surface and said cap member having a complementary concave inner surface to effect flexing of the blade, said guard member having openings adjacent its edges; an initially flat flexible plate resting upon the outer surface of the guard member to overlie the latter and lie between it and the blade, the side edges of said plate extending to said openings to support the blade adjacent its cutting edges, and means independent of said handle for securing the plate to the guard.

2. A razor comprising a cap member and a guard member, a handle member for adjustably securing the cap and guard members together to

clamp a razor blade therebetween, said guard member having a smooth convex outer surface and said cap member having a complementary concave inner surface to effect flexing of the blade, said guard member having openings adjacent its edges, an initially flat flexible plate resting upon the outer surface of the guard member to overlie the latter and lie between it and the blade, the side edges of said plate extending to said openings to support the blade adjacent its cutting edges, and said plate having spring members at its ends to engage the end portions of the guard to detachably secure the plate to the guard.

3. A razor comprising a cap member and a guard member, a handle member for adjustably securing the cap and guard members together to clamp a razor blade therebetween, said guard member having a smooth convex outer surface and said cap member having a complementary concave inner surface to effect flexing of the blade, said guard member having openings adjacent its edges, an initially flat flexible plate resting upon the outer surface of the guard member to overlie the latter and lie between it and the blade, the side edges of said plate extending to said openings to support the blade adjacent its cutting edges, said guard being provided with recesses formed in the ends thereof, and said plate having spring fingers resting in said recesses and engaging the guard member to secure the plate detachably to the guard.

4. A razor comprising a cap and a guard, a handle member for adjustably securing said members together to clamp a razor blade against the cap, said cap having a concave inner surface, an intermediate flexible blade-supporting member resting upon the outer surface of the guard between the latter and the blade to hold the blade against the cap, and means independent of said handle member for securing said blade-supporting member to the guard to hold said supporting member and guard in assembled relation when detached from the handle.

5. A razor comprising inner and outer blade-clamping members, a handle member for adjustably securing said clamping members together to clamp a razor blade against the outer member, said outer member having a concave inner surface, an intermediate flexible blade-supporting member resting upon the outer surface of the inner member between the latter and the blade to hold the blade against the outer member, and means independent of said handle member for securing said blade-supporting member to the inner clamping member to hold said last-named members in assembled relation when detached from the handle, said means comprising clips carried by said supporting member and extending outwardly therefrom to engage the side edges of the inner clamping member.

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