June 20, 1944. J. MUROS 2,351,627

SAFETY RAZOR AND MAGAZINE

Original Filed July 23, 1943

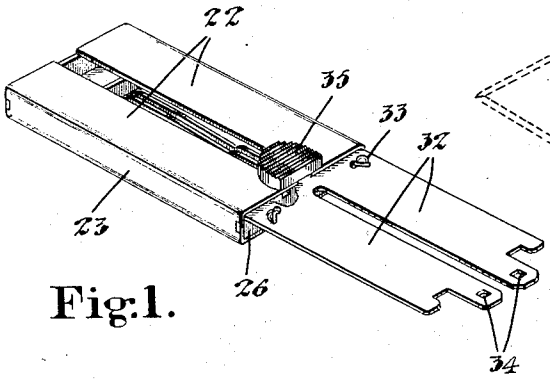


Fig.1.

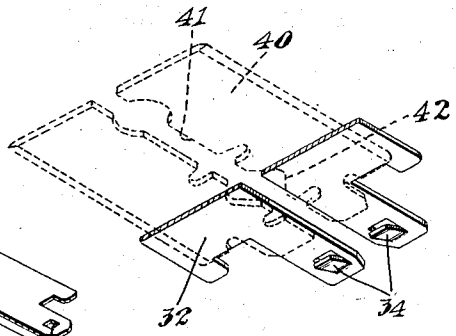


Fig.4.

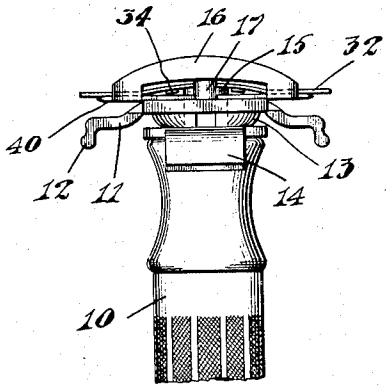


Fig.2.

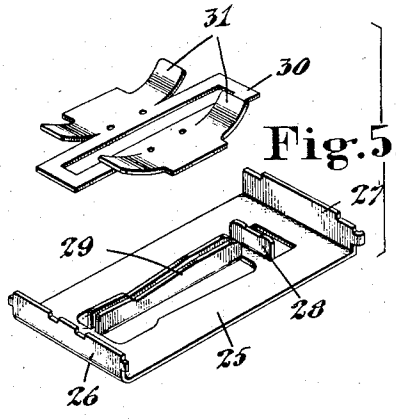


Fig.5.

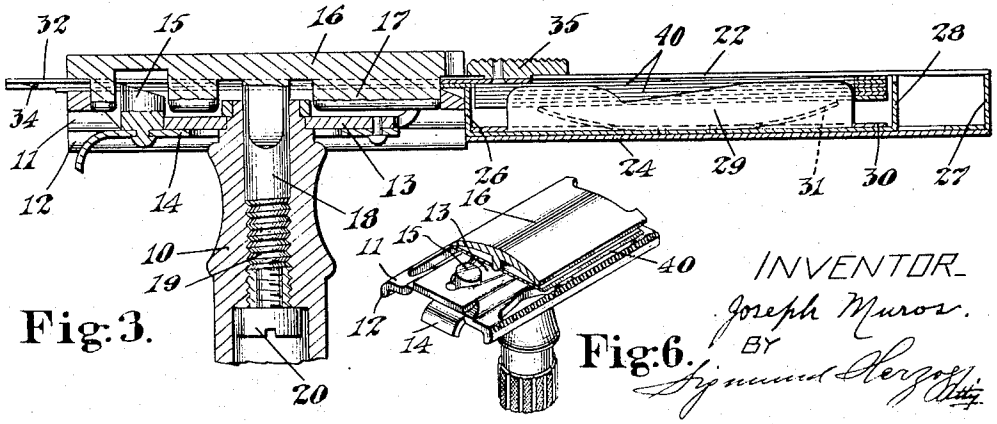


Fig.3.

Fig.6.

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SAFETY RAZOR AND MAGAZINE

Joseph Muros, Cambridge, Mass., assignor to Gillette Safety Razor Company, Boston, Mass., a corporation of Delaware

Original application July 23, 1943, Serial No. 495,866. Divided and this application September 10, 1943, Serial No. 501,834

4 Claims. (Cl. 30—40)

This invention relates to safety razors of the type having a thin flexible blade removably held in shaving position therein by co-operating blade-clamping members. In one aspect the invention consists in an improved magazine mechanism for feeding to such razors a thin sharp-edged blade without damage to its edge and without danger of cutting the user. In another aspect it consists in improvements in safety razor-magazine combinations.

In safety razor blade magazines it has been a problem of many years standing to prevent occasional jamming of two or more thin blades in the exit slot of the magazine. It sometimes happens that the user will impart only a partial stroke to the feed slide, leaving a blade partially ejected, and then go back and attempt to move the feed slide a second time. Under these conditions a second blade is forced into the slot intended for the passage of one blade only. Jamming of the blades thus results and the user frequently cuts his fingers in attempting to clear it.

This danger of jamming is obviated in accordance with an important feature of the present invention by providing the feed slide with blade-retracting projections which, if the previous blade has not been fully ejected from the magazine, are effective to engage and return the blade to its initial position in the magazine.

In using safety razors with blade magazines as heretofore constructed the user sometimes grasps the razor with one hand while presenting the magazine with the other and delivering a blade into shaving position. Under these circumstances the sharp edge or edges of the blade project beyond the outline of the cap and are likely to cut the user's fingers. This danger has been overcome by the invention of Samuel C. Stampleman, as disclosed in his co-pending application Ser. No. 492,519, by equipping the feed slide of the magazine with protecting guarding portions designed to overlie the sharp edge or edges of the blade and act to safeguard it during its advancing movement from the magazine to shaving position in the razor. The present invention may be embodied in a magazine of that type and in one specific form consists in providing the guard members of the feed slide with means for engaging and retracting a blade not fully ejected from the magazine by a previous movement of the feed slide.

Another important feature of my invention consists in the combination of a magazine feed slide having blade retracting devices and a safety razor so organized as to deflect or move to inoperative position the blade-retracting means, so that when the blade has been fully delivered to its shaving position in the razor the feed slide may be returned to its initial position without disturbing the blade.

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:

Fig. 1 is a view in perspective of the magazine;

Fig. 2 is a view of the razor head in end elevation and on an enlarged scale;

Fig. 3 is a view of the razor head and magazine in longitudinal section and on the same enlarged scale;

Fig. 4 is a fragmentary view in perspective of a portion of the feed slide with a portion of a blade shown in dotted lines;

Fig. 5 is a view in perspective of the internal members of the magazine; and

Fig. 6 is a view in perspective of the razor head showing a portion of the cap broken away and substantially in actual size.

The safety razor herein illustrated is in itself not part of the present invention but is the subject matter of a co-pending application of Muros and Testi, Ser. No. 486,290, filed May 10, 1943. It forms, however, one element of a novel razor and magazine combination and will therefore be briefly described herein. It comprises a tubular handle 10 permanently and rotatably secured to a guard member 11 which, as shown in Fig. 6, has outwardly and downwardly turned guard bars 12 and a substantially flat blade supporting face bounded by parallel fulcrum shoulders. In the body of the guard is formed a diamond-shaped depression 13 having a circular aperture near one end. To the bottom of the guard is permanently secured a flat spring 14 carrying near its free end a detent 15 which is cylindrical in cross-section and passes with clearance through the circular aperture in the bottom of the depression 13. The detent 15 is bevelled in its upper surface and normally extends substantially above the flat blade-supporting face of the guard member. It is designed to interlock with an aperture provided for the purpose in the blade and to anchor the blade against longitudinal movement after the blade has once been delivered fully in its shaving position. The spring has a downturned finger piece by which the detent 15 may be retracted when it is desired to disengage the blade for removal.

The cap member 16 of the razor is slightly

narrower than the guard member and has a transversely concave inner face which co-operates with the fulcrum shoulders of the guard member in bowing a blade over the fulcrum shoulders when the cap and guard members are moved into clamping engagement. The cap 16 is provided also with a narrow blade-locating rib 17 which is interrupted to clear the detent 15 already mentioned. It is also provided with a downwardly extending stem 18 having a threaded portion 19 which is engaged by a correspondingly threaded portion in the handle 10. In the lower end of the stem 18—19 is provided a stop screw 20, movable freely in the bore of the handle but arranged to limit separation of the cap and guard members to an amount which merely provides for the convenient insertion of a blade with the feed slide of the magazine. In Fig. 3 the cap and guard members of the razor are shown in their position of maximum separation.

The razor and magazine are shown herein as designed to employ a slotted and perforated double-edged blade of the well-known Gillette type as best shown in Fig. 4. The blade 40 is recessed in each corner to provide elongated unsharpened end portions. It is provided with a longitudinal slot 41. This includes one or more apertures 42 of sufficient width to receive the detent 15. The slot 41 is shown as opening through one end of the blade and thus clearance is provided in the blade for the blade-locating rib 17 of the safety razor.

The magazine comprises a sheet metal enclosure of rectangular outline having a top consisting of two side portions 22, side walls 23 and a bottom 24. Placed upon the bottom of the magazine is an insert 25 best shown in Fig. 5. This is also constructed of sheet metal and provided with flanged end walls 26 and 27. These are provided at each end with tongues which interlock with corresponding notches in the side walls of the magazine enclosure. A transverse tongue 28 is formed by die-cutting and bending the material of the bottom of the insert as is also a longitudinally disposed blade-locating rib 29. Within the magazine is also disposed a spring member having a flat body 30 slotted to receive the rib and two upwardly curved leaf springs 31 which act continuously to press the blade stack upwardly in the magazine against its slotted top wall.

The flanged wall 26 of the insert is of such height as to form with the top of the magazine a blade exit slot through which the feed slide 32 may also move. The feed slide is of thin flexible material and separated into two side portions by a longitudinal slot which opens through the outer end of the slide. A pair of diagonal slits 33 is formed in the solid end of the feed slide and their edges are displaced downwardly so as to engage the rear outer corners of the uppermost blade in the stack when the feed slide is moved forwardly over the stack. A knurled finger piece 35 is secured to the solid end of the feed slide and arranged for movement back and forth in the slot in the top of the magazine. The tongue 28 is of such height as to permit the feed slide to be retracted to the extreme right-hand end of the magazine so as to locate the blade-engaging edges 33 of the feed slide beyond the end of the blade stack. In each side portion 32 of the feed slide and adjacent the outer end thereof is provided a dog 34 which projects below the surface of the feed slide sufficiently to engage and retract a blade when the feed slide and blade are disposed adjacent to each other in flat position.

In operation the magazine is filled with a stack of six or ten blades 40 disposed with their open ends toward the left, as shown in Fig. 3, and positioned as a stack by the rib 29 with their sharp edges out of contact with the walls of the magazine. When it is desired to supply a fresh blade to the razor the handle 10 of the razor is turned in a counter-clockwise direction separating the cap and guard members to the limit determined by the stop screw 20. The magazine is then brought into operative relation with the razor with the ends of the feed slide introduced between the cap and guard members. The finger piece 35 is then advanced from right to left and as the feed slide 32 passes over the blade stack the uppermost blade is engaged by the converging edges 33 and advanced in flat condition beneath the feed slide. This feeding movement continues until the blade is safely delivered fully to its shaving position. In passing over the detent 15 the blade depresses the latter until it reaches its shaving position. At that point the detent 15 registers with and enters the aperture 42 and when this happens the blade is permitted to lie flat upon the blade-supporting face of the guard member. When the detent 15 passes through the aperture 42 the detent engages the flexible feed slide and bows it transversely by pressing it upwardly against the concave face of the cap 16. When this occurs the dogs 34 are displaced upwardly into inoperative position with respect to the blade and accordingly when the feed slide is retracted the dogs 34 travel in a path entirely above the blade 40 and, therefore, perform no function.

On the other hand, if, for any reason the uppermost blade in the stack is not fully ejected from the magazine and fully locked in its shaving position, the dogs 34 will not be rendered inoperative because the detent 15 does not pass through the blade aperture 42. In the retrograde movement of the feed slide the dogs 34 will, therefore, engage the forward end of the blade and return the blade to its initial position in the magazine. The feed slide never passes off the blade stack in its forward stroke but merely depresses the second blade and those beneath it against the compression springs 31. In its reverse stroke, however, the blade-engaging edges 33 drop behind the rear end of the next blade and engage it for forward feeding.

It will be understood that the sheet metal of the feed slide 32 is flexible and that the transverse fluexibility of the slide is substantially increased by its longitudinal slot. It may, therefore, be readily flexed in a transverse direction by pressure of the detent 15 whenever the latter is permitted to pass through the blade aperture and engage the feed slide. In Fig. 2 the side portions 32 of the feed slide are shown as deflected upwardly by the detent 15, carrying the dogs 34 into inoperative positions above the blade 40. It will be apparent that with the dogs located in this position the feed slide may be retracted without disturbing the blade.

The limit screws 20 project beyond the end of the stem 19 by a distance which permits the cap to be lifted above the guard for the free presentation of the blade on the surface of the guard member 11, but such separation is not sufficient to permit movement of the blade or the feed slide beyond the range of the detent 15, even though the latter does not extend to any

considerable distance above the face of the guard member.

The present application is a division of my application Serial Number 495,866, filed July 23, 1943.

Having thus disclosed my invention and described in detail a preferred embodiment thereof I claim as new and desire to secure by Letters Patent:

1. A safety razor having a blade-clamping member, with a transversely curved face and a narrow blade-locating rib, and a detent wider than said rib spring-pressed toward the said curved face, in combination with a blade magazine having a thin feed slide slotted to clear said blade-locating rib and having means for engaging and advancing a slotted and apertured blade and other means for withdrawing a blade, the said slide being bowed by contact of said detent when the latter has passed through an aperture in a blade carried by the slide.

2. A razor and magazine combination comprising a safety razor having blade-holding members connected for limited separation to receive a blade, and a magazine having a flexible carrier slide movable with a blade between said members, blade-retracting projections on the slide, and means in the razor for deflecting the slide to locate said projections in inoperative relation to the blade previously delivered.

3. A razor and magazine combination comprising a safety razor having blade-holding members connected for limited separation to receive a blade, and a magazine having a flexible carrier slide movable with a blade between said members, blade-retracting projections on the slide, and spring means in the razor for bowing the slide away from the blade.

4. A razor and magazine combination comprising a safety razor having blade-clamping members connected for limited separation to receive a perforated blade presented between them, and a magazine having a flexible carrier with two sets of blade-engaging projections, one to advance and the other to retract a blade, and a detent in the razor constructed and arranged to pass through the blade perforation when the blade is in shaving position and to engage and deflect the slide, thereby moving the blade-retracting projections to an inoperative position.

JOSEPH MUROS.