This invention relates to safety razors and consists in a novel combination of safety razor and blade magazine wherein these two elements are locked against separation or displacement during the operation of feeding a blade from the magazine to the razor.

The present invention may be advantageously applied to any safety razor provided with a blade seat or blade holder wherein or wherein the blade is held accurately in position for shaving by clamping means which are arranged to be retracted to permit removal of a used blade or delivery thereto of a fresh blade. Blade magazines used with such razors have been equipped with a projecting finger or key adapted to be inserted in the razor head for the purpose of aligning the outlet of the magazine with the blade seat and in some cases also for retracting the blade-clamping means so that a fresh blade in reaching its final shaving position may contact and push the used blade out of the razor.

In razor-magazine combinations heretofore available it has frequently happened that, in advancing a blade from the magazine, the magazine itself is accidentally pulled back or away from the razor or displaced rearwardly in respect to the direction of blade feed, with the result that the fresh blade is not advanced fully into its shaving position but remains with a portion of its length projecting somewhat from the razor when the magazine is removed. This, of course, constitutes a serious hazard for the user. The danger of premature separation of the razor and magazine in the manner described is intensified in the case of a magazine having a feed slide movable toward the razor for delivering its successive blades thereto, because of the tendency of the user to move the fingers holding the magazine in the opposite direction to the fingers moving the feed slide.

The present invention contemplates a razor and magazine combination which is not open to the objections and dangers above discussed. To this end, an important feature of the invention consists in means for automatically locking the key of a magazine and a safety razor against separation while the feed slide is being operated. Preferably the key itself is utilized as an element of the locking mechanism and the blade-clamping device as the other element. This construction operates when the key of the magazine is inserted longitudinally in the safety razor to effect a positive interlocking connection which remains effective while blades are being fed from the magazine to the razor. The interlocking connection thus effected is maintained until the user wishes to release it and this may be done by convenient means under the control of the user provided for the purpose or designed to carry out the releasing function in addition to others.

These and other features and advantages 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 on an enlarged scale of the safety razor head;
Fig. 2 is a similar view in perspective of the blade magazine; and
Fig. 3 is a view of the razor head in longitudinal section showing the key of the magazine in dotted lines.

The invention is herein shown in its application to a safety razor of the stropping type of the general character described in my prior application, Ser. No. 477,239, filed February 26, 1943, although it is by no means limited to that or to any specific type of safety razor.

The illustrated razor includes in its structure a handle 10 from the upper end of which projects a square tubular shank 11. This is provided at its upper end with out-turned transverse ears 12 through the medium of which the razor head is attached to the handle. The front and rear walls of the shank 11 are cut out, as best shown in Fig. 3, and the front wall is inwardly flanged to form part of a forwardly and downwardly inclined guideway. The upper portion of the guideway is formed by an inclined plate 14 having vertical side walls which merge into transverse ears 13 similar in outline to the ears 12 of the shank 11 and arranged in superposed position above them. In the guideway formed by the walls of the shank and the inclined plate 14 slides the body 35 of a blade-clamping device which will presently be described.

Above the ears 13 is located the flat bottom plate 16 of the head frame of the razor and this is provided at opposite sides with upright side members 17. These side members are roughly triangular in shape, tapering downwardly and forwardly. Between them are located transverse shafts 19, 20 and 21 and upon each of these shafts is mounted a hollow shaft or sleeve. The rearmost shaft 19 carries a sleeve which acts as a spacer between the upright members and serves to stiffen them in their position in the head. The intermediate shaft 20 carries a hollow roll which serves as a lower guide for the strop. The upper
shaft 21 carries a hollow sleeve 25 which is extended at one side into a blade-clamping plate 22 constituting the upper element of the blade holder. The other wall of the sleeve is slotted at each end and extended to form a resilient bar or strap 23 arranged to cooperate with the blade-clamping plate 22 in holding a blade in place. Each of the upright members 17 is provided with a curved guard 26 which extends concentrically with the sleeve 25 and overlaps the ends of the blade holder except that it is provided with a narrow gap in alignment with the blade when the holder is in its inclined shaving position. Accordingly, the used blade can be removed and a new blade can be pushed endwise into the holder only while the holder occupies its shaving position. If it is sunk above that position the blade in the holder is positively locked against edgewise displacement in either direction by the guards 26.

Next above the base 16 comes a sheet metal member in which is formed the lower guard and the blade seat. This is rectangular in its general contour and comprises a flat rear section 30. In front of this flat section the material is inclined upwardly and then forwardly and downwardly, as shown in Fig. 5, to form the blade seat 32. Extending forwardly and downwardly from the blade seat is the guard 33 which may be of any desired construction but is herein shown in the form of a continuous bar. An intermediate flange 31 is struck out from the body of the guard member and arranged to form the rear or inner edge of an inclined guideway as will presently appear. The plate 16, the flat section 30 and the superead ears 12 and 13 are all perforated in line and rigidly united by bolts or screws.

The lower forward corner of the right-hand side member 17, as seen in Fig. 1, is cut away to provide a passage 45 being of dimensions to admit the key of the blade magazine. In this same side member is provided a square aperture 18 for receiving a pilot spur on the magazine.

The movable element of the razor comprises a blade-clamping device which has also a locking function in respect to the magazine. The body of this device has already been referred to as the slide 35 arranged to move freely in an inclined guideway formed by cut-outs in the walls of the shank 11 and the guide plate 14. At its rear end the slide 35 merges into a downturned finger piece 36 by which the device may be retracted. At its forward end the slide 35 merges into an uprighting vertical wall 38 fitting into and substantially filling the portion cut out from the front wall of the shank 11. The vertical wall 38 merges into a downwardly and forwardly extending portion 39 and this in turn merges into a hooked portion 40 which extends upwardly and rearwardly in spaced relation to the portion 39 and overhangs the same. The portions 39 and 40 together with the opposed edge of the stationary flange 31 constitute a guideway for the reception of the key 51 of the magazine which is shown in dotted lines in Fig. 3.

The hook portion 40 is centrally disposed as shown in Fig. 1 and at each end thereof is provided one upwardly and forwardly extending arm 41. The arms 41 are curved rearwardly above the blade seat and support a transverse blade-clamping bar 42 at its opposite ends. Each of the upstanding arms 41 is provided with a rearwardly extending guide arm 43 which slides against an end edge of the stationary guard 33. Within the shank 11 is provided a torsion spring extending through an aperture in the slide 35 and tending at all times to move it rearwardly, that is to say, into the position shown in Fig. 1.

The stationary plate 14 forming the upper side of the guideway for the slide 35 is slotted to permit free movement of the upper end of the spring 49. The hook portion of the blade-clamping device is provided centrally with an aperture 44 providing shoulders for interlocking with the magazine key.

The magazine 55, which is best shown in Fig. 2, is similar to that disclosed in detail in the prior application above identified. It is rectangular in outline, designed to contain ten or twelve blades and provided with an outlet slot (not shown) at its left end. Projecting forwardly from the left end of the bottom of the magazine is a finger or key 51 having a tapered end and a lug 53 projecting transversely from one side edge. A pilot spur 52 projects from the rear corner of the magazine bottom. The magazine is equipped with a feed slide 54 which is arranged to engage the uppermost blade from the stack in the magazine in well-known manner.

Normally the spring 59 holds the blade-clamping device in the position in which the clamping bar 42 engages the upper surface of the blade 50 and presses firmly upon the blade seat 32. The sharp edge of the blade then extends slightly beyond a line tangent to the guard 33 and the outer surface of the clamping bar 42. The blade is thus held securely and accurately in shaving position with the proper degree of edge exposure.

When it is desired to replace the used blade, the key 51 is forced into the passage 45 and into the guideway in the dotted line position shown in Fig. 3. In this movement the tapered end of the key, by pressing against the forward edge of the stationary flange 31, displaces the blade-clamping device forwardly. The spring 29 is thus deflected into the position shown in Fig. 5 and the blade-clamping bar 42 is retracted so that the blade 50 on the blade seat is left free to be displaced. At the same time the projecting lug 53 of the key passes into the aperture 44 of the clamping device and the key is thereby positively interlocked with the razor head. Accordingly, neither the key nor the magazine may be withdrawn or separated from the razor. At the same time the pilot spur 52 enters the square aperture 18 in the razor head, thus positively preventing any twisting of the magazine on the key.

As the key 51 is inserted the clamping device yields forwardly sufficiently to receive the lug 53 in its aperture 44. While the magazine and blade are so related and interlocked the feed slide 54 of the magazine may be operated, a fresh blade advanced from the magazine into the blade holder 22–23 and the used blade ejected from the left-hand end of the razor. The magazine is held positively in this position until the fresh sharp blade has been fully seated in the blade holder and upon the blade seat 32. The coupon of the clamping device is further retracted by pushing upon the finger piece 36 and the hooked portion of the blade-clamping device with the aperture 44 is moved beyond the end of the lug 53 thereby releasing the key of the magazine and permitting it to be withdrawn from the razor head. When this has been effected the spring 29 at once moves the blade-clamping device into its operative position wherein the bar 42 clamps the blade securely in position upon the blade seat.

While the blade-clamping device is herein
shown as provided with a finger-piece 36 whereby the interlocking connection of the magazine and razor may be released, it will be understood that separate or other means may be provided for that purpose, all within the scope of the invention.

The present application is a continuation of my application Ser. No. 481,060, filed March 31, 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 seat and spring means for holding a blade thereon, in combination with a blade magazine having a movable feed slide for advancing successive blades from the magazine to said blade seat, a key projecting from the magazine for locating the razor with respect to the magazine and for retracting said blade-holding means, said blade-holding means being movable in the safety razor for positively locking the key and razor against separation.

2. A safety razor having a blade seat and a spring blade-clamping device, in combination with a blade magazine having a blade feeder and a key shaped to locate the magazine with respect to the blade seat of the razor and to interlock with the spring blade-clamping device therein, and manually operated means for moving said blade-clamping device to release said key.

3. A safety razor having a blade seat and a blade-clamping device moveable under spring pressure to hold a blade thereon and having a shoulder, in combination with a blade magazine having a projecting key shaped to enter the razor and provided with a shoulder interlocking with the shoulder of the clamping device and positively preventing separation of the razor and magazine and means in the razor for retracting said clamping device to release the key.

4. A safety razor having a blade holder, a stationary guideway shoulder and a spring-pressed member shaped to provide an apertured channel therein opposite to said guiding shoulder, in combination with a blade magazine having an elongated key shaped to enter longitudinally into said channel and having a projection shaped to interlock with the aperture therein and thus temporarily to prevent separation of the razor and magazine.

5. A razor-magazine combination in which the razor has a blade-seat, a blade-clamping device with an aperture therein, a spring for moving the clamping device into operative position and a finger piece for retracting it, and the magazine being provided with a projecting key with a tapered portion shaped to displace said clamping device and a lug located to interlock with the aperture of the clamping device.

6. A safety razor-magazine combination comprising a safety razor head shaped to provide a passage therein and to present a blade seat, together with a magazine having a projecting key shaped to enter longitudinally the passage in the razor head and thus to locate the magazine for blade delivery, means disposed partly in the razor head and partly on the magazine for automatically locking the razor and magazine against separation when the key is so entered, and means movable in the razor head for unlocking the razor and magazine independently of magazine movement.

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