Feb. 17, 1948. W. STEINBACH 2,436,025

SAFETY RAZOR AND BLADE MAGAZINE THEREFOR

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Fig. 1,

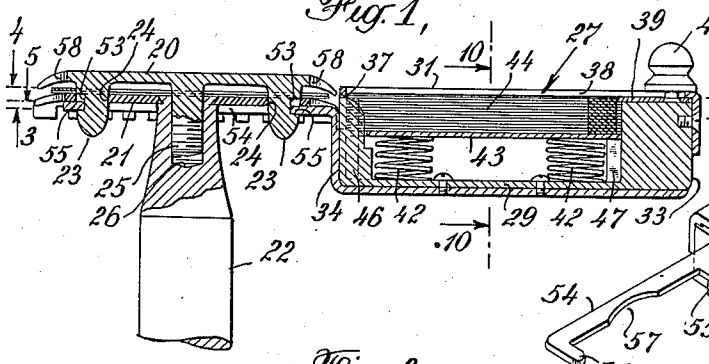


Fig. 2,

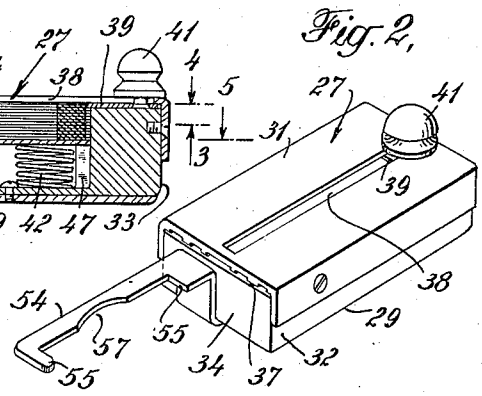


Fig. 3,

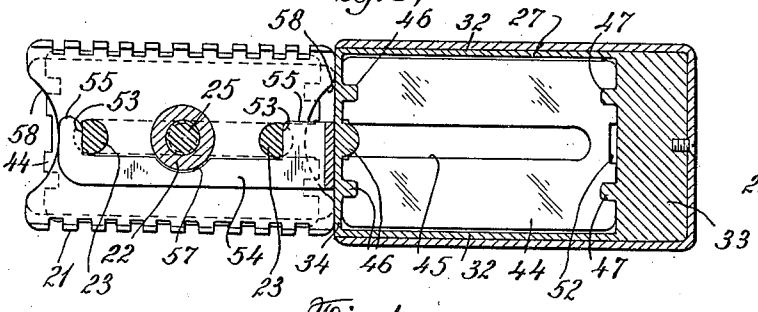


Fig. 6,

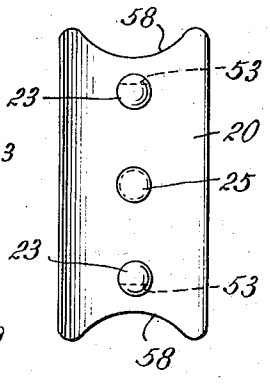


Fig. 4,

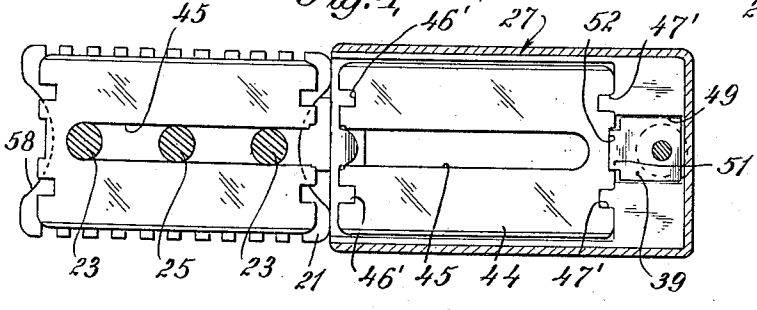


Fig. 5,

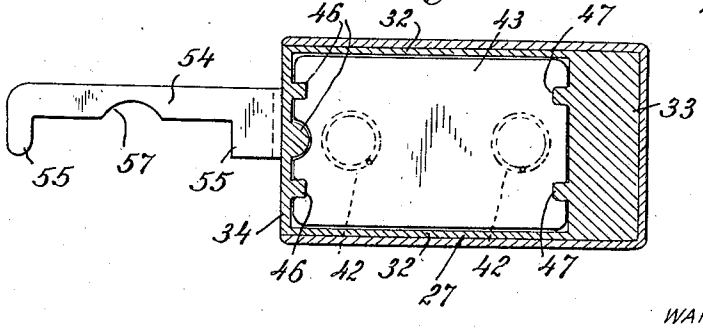
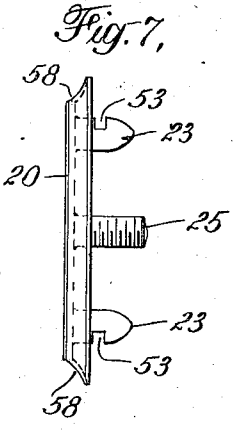


Fig. 7,



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Fig. 8,

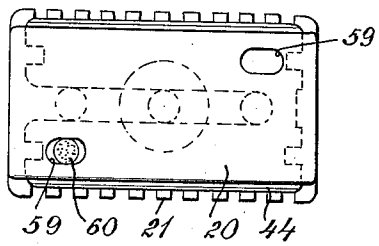


Fig. 9,

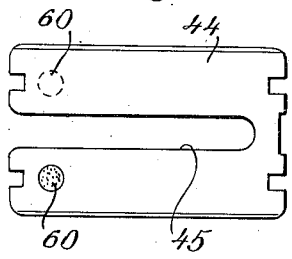


Fig. 10,

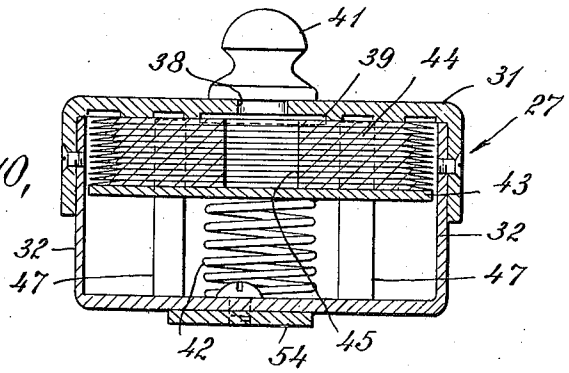


Fig. 11,

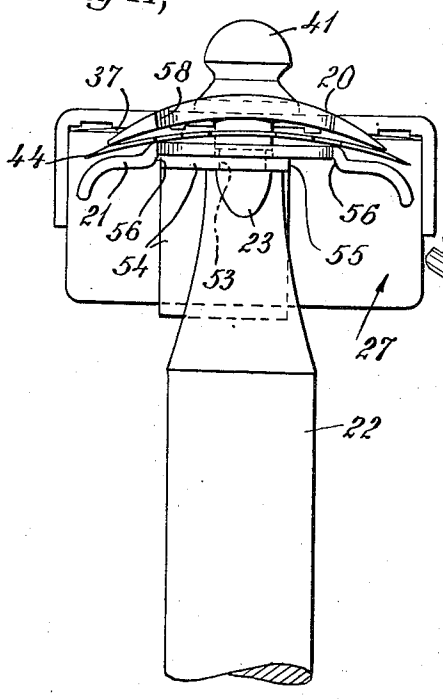
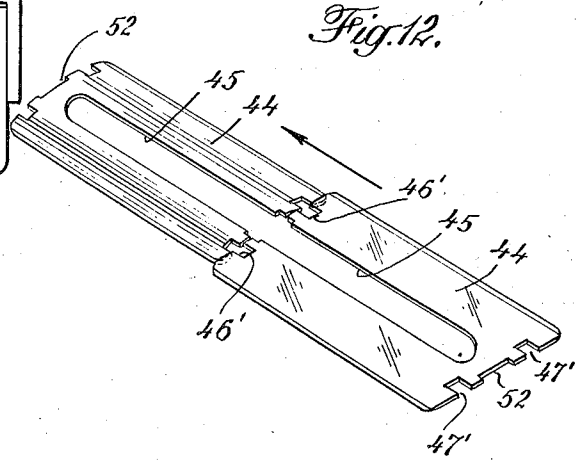


Fig. 12.



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SAFETY RAZOR AND BLADE MAGAZINE THEREFOR

Warner Steinbach, Maplewood, N. J.

Application March 2, 1945, Serial No. 580,594

7 Claims. (Cl. 30—40)

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This invention relates to a magazine for double edge safety razor blades and means whereby such a magazine can be mounted on the razor to inject a new blade while simultaneously ejecting a dull one. Magazines for double-edge blades have been proposed, but always, so far as I am aware, for use in connection with razors of special construction which are unnecessarily complicated and expensive or which cannot be used with the general run of three-hole or slotted blades obtainable on the market. My primary object is to simplify and improve such magazines and to provide a razor for use in connection therewith which, although modified to receive the magazine in blade injecting-ejecting position is, nevertheless, capable of use with any standard blade in the time-honored manner. A further object of my invention is to provide improved means for preventing contact between the magazine and the cutting edges of the blades, both before and during the blade-discharging operation. Another object of my invention is to provide simple and effective means for locking the magazine in blade-feeding position on the razor so that a new blade can be accurately and quickly fed into shaving position while its dull predecessor is being ejected.

As the standard double-edge safety razor is provided with a central threaded stud or rod depending from its cap or outer clamping plate, and also with blade-locating pins or medial bar, likewise depending from the cap, it is impossible to feed a conventional blade into position between the cap and guard plate without a complete separation of the two. As this is not feasible, the blade must be provided with a medial slot, slightly wider than the thickest stud, rod, pin or bar, and left open at one end so that it can be fed into shaving position open end foremost, straddling all obstructions—and likewise be ejected closed end foremost. I stack my open-slotted blades in a magazine with the open slots all facing the discharge end, and urge them upward against the top of the magazine by means of a spring-pressed plate. A slide movable in a longitudinal slot in the top of the magazine and provided with an external knob engages the rear end of the topmost blade and, on being moved forward, discharges it through a passage defined by the upper edge of the front wall of the magazine and the top.

It is highly important—for obvious reasons—that the cutting edges of the blades never engage any part of the magazine or razor. To this end I provide the inner faces of the front and rear

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walls of the magazine with vertical guide ribs which cooperate with notches in the ends of the blades to center the stack of blades and so prevent contact between the cutting edges and the side walls of the magazine. Although the forward guide ribs must stop short of the discharge passage and so cannot act on the topmost blade, the rear ones suffice to center that blade while in the stack. To center it during the initial stages of discharge, before its slot has embraced the near pin of the razor cap, I provide an additional notch in the rear edge of the blade which snugly receives the forward end of the discharge slide and prevents any canting of the blade while being discharged.

To mount my magazine on the razor I provide a tongue on the former designed to enter slots in those portions of the cap pins extending below the guard; whereupon separation of cap and guard plate clamps the tongue firmly against the lower face of the latter. The tongue is so positioned with respect to the discharge passage of the magazine and the slots in the pins are so proportioned that when the magazine tongue is clamped against the guard plate, as just described, the magazine is aligned to discharge, and the razor to receive, a blade; the slightly flexed dull blade in the razor is in substantial alignment with the discharge passage of the magazine so that movement of the slide toward the razor feeds a new blade into shaving position while simultaneously ejecting its dull predecessor.

As noted above, the new blade must be fed open end foremost and the dull one ejected closed end foremost. As the new blades are stacked in the magazine with their open ends facing the discharge end, they are always in proper discharge position when the tongue is clamped to the guard, and the user cannot make a mistake. This is not true, however, with respect to the dull blade in the razor. It would be quite possible to mount the magazine on the wrong end of the guard and attempt to eject the dull blade open end foremost. Needless to say the attempt would fail; but to prevent such an unfortunate contretemps I cut away parts of the cap so that the user can tell at a glance on which end of the guard plate he must mount his magazine to ensure proper ejection of the dull blade.

I have illustrated and described certain preferred embodiments of my invention in the accompanying drawings. No doubt others also could be devised within its purview and these, too, are embraced within my claims.

In these drawings:

Figure 1 is a vertical longitudinal section through the razor and magazine of my invention shown in blade-feeding relationship,

Figure 2 is a perspective view of the magazine,

Figure 3 is a horizontal section, looking up, taken along line 3—3 of Figure 1,

Figure 4 is a horizontal section, looking down, taken along line 4—4 of Figure 1,

Figure 5 is a horizontal section, through the magazine alone, taken along line 5—5 of Figure 1 and looking down,

Figure 6 is a bottom view of the cap, showing the ends cut away to expose the ends of the blade,

Figure 7 is a vertical elevation of the cap showing the slots in the pins,

Figure 8 is a top view of a razor, the cap of which is provided with openings through which portions of the blade can be seen,

Figure 9 is a plan view of a blade designed for use in the razor of Figure 8,

Figure 10 is a transverse section of the magazine, on an enlarged scale, taken along line 10—10 of Figure 1,

Figure 11 is an end elevation on the scale of Figure 10 of the razor and magazine of Figure 1 looking from the left, and

Figure 12 is a detail showing in perspective the relative positions of the new incoming blade and the dull outgoing one.

In these drawings I have illustrated a conventional two-part safety razor of the Gillette type, modified as I shall describe presently and comprising a cap 20, a guard plate 21 and a handle 22, the guard plate being inseparably but rotatably mounted on the handle in the usual way. The cap is provided with the conventional blade-locating pins 23, extending through holes 24 in the guard plate, and with a central threaded stud 25 which enters a threaded socket 26 in the handle. The cap and guard plate are drawn together to clamp and flex a blade between them by turning the handle clockwise with respect to the guard plate, and the two clamping members are separated by turning the handle counterclockwise.

In Figure 1 I have illustrated a magazine 27 mounted in blade-feeding position on the razor by means which I shall describe presently, but first I shall describe the magazine itself and its blade-feeding mechanism.

The magazine proper comprises a casing having a bottom 29, a top 31, side walls 32, rear wall 33 and front wall 34; bottom, side walls, back wall and front wall, as shown, constituting a unitary shell of plastic. I have shown the top 31 provided with depending flanges fitting over the side and rear walls, but this is not important and other means for closing the casing may be employed. The inner face of the rear wall is provided with vertical guide ribs 47 and the inner face of the front wall with similar ribs 46 whose function it is to center the blades. A horizontal blade-discharge passage 37, slightly deeper than the thickness of a blade and wider than its width, is provided between the top edge of the front wall 34 and the top 31. Slidably mounted within a longitudinal slot 38 in the top 31 is a slide 39 provided with an external knob 41. Forward movement of this slide along the slot 38 serves to expel a blade in a manner to be described presently.

Supported upon the bottom of the magazine are two coil springs 42 which support a pressure plate 43 which in turn supports a stack of blades 44. These blades, as illustrated, are double-edge blades, each provided with a longitudinal medial slot 45 open at one end and closed at the other. The blades are stacked with their open ends facing the discharge end of the casing. The inner faces of the front and rear walls are provided with vertical guide ribs 46 and 47 respectively. The ribs 46 terminate at the lower edge of the discharge passage 37, but the ribs 47 extend to the top of the casing. Each blade is provided with notches 46' at its open end designed to engage the ribs 46, and at its closed end with notches 47' similarly designed to engage the ribs 47. A central rib 46 lies within the open end of the slot 45 and serves not only to help center the blades, but reenforces the front wall of the casing. The pressure plate 43 is likewise provided with notches corresponding to the notches 46' and 47' as well as an additional central notch which engages the central rib 46.

The slide 39 when in its retracted position overlies the thick rear wall 33 of the casing and lies within a wide slot 49 provided for this purpose. In this position the slide is at the rear of the topmost blade of the stack and so is in a position to discharge it. The forward edge of the slide 39 is provided with a tongue 51 which fits snugly within a notch 52 in the rear edge of the blade, and thus centers the blade during the discharge movement after the notches 47' have been moved out of engagement with the rib 47. When the slide is moved to the left through manipulation of the knob 41, the topmost blade is disengaged from the stack and moved forward through the discharge passage 37, the lower blades being held back by the forward wall. During the discharge movement of the topmost blade its rear end is centered with reference to the side walls of the magazine by the action of the slide 39 fitting within the notch 52, as just described. Until the open end of the slot 45 embraces the near pin 23 the forward end of the moving blade is without lateral support. However, as the distance traversed and the time consumed are small, the centering action of the slide is sufficient to prevent canting of the blade and engagement of its cutting edges with the side walls of the casing. The slide 39 is so proportioned that it can follow the blade through the discharge passage 37 until the bottom of the slot 45 engages the near pin 23. When one blade has been discharged, the slide is returned to its initial position at the rear of the magazine where it is held in readiness to discharge another blade. Meanwhile, the pressure plate has raised the whole stack by the thickness of one blade and another blade is now in position to be discharged.

I shall now describe the means for mounting and locking the magazine upon the razor. Each of the pins 23 is provided with a transverse slot 53 which, when the cap and guard are in blade-clamping position, lie below the lower face of the guard plate, as shown in Figure 1. The magazine is provided with a tongue 54 extending forwardly from its front wall. This tongue is provided with transverse projections 55 which are designed to be slid transversely into the slots 53, as shown in Figures 1 and 3, by a rolling movement of the magazine, the rear edge of the tongue clearing one of the longitudinal shoulders 56 on the lower face of the guard plate, as shown in Figure 10. The tongue also has an arcuate cut-out 57 designed to receive the upper end of the handle 22,

as shown in Figure 3. With projections 55 lying within the slots 53 the magazine is loosely mounted on the razor. In order to clamp it there, it is only necessary to turn the handle counterclockwise to separate the cap from the guard plate, the latter being rotatable on the handle but inseparable from it. This results in raising the pins 23, which carry in their slots 53 the tongue 54, until the tongue is firmly clamped against the lower face of the guard plate and the cap and guard plate are held in spaced parallelism. This action also releases the clamping pressure on the dull blade held between the cap and guard plate and permits it partly to unbend. The tongue 54 is so positioned with reference to the discharge passage 37 and the thickness of the guard plate that when it has been clamped firmly to the lower face of the latter, as described, the discharge passage 37 is in substantial alignment with the slightly flexed dull blade in the razor. Movement of the slide 39 to the left therefore results in feeding a new blade into position between the cap and guard plate, while simultaneously ejecting the dull one. The relative positions of the incoming and outgoing blades are best shown in perspective in Figure 12.

As will be obvious, the operation just described cannot be carried out if the magazine is mounted on the wrong end of the guard plate, that is to say on that end of the guard plate adjacent the closed end of the blade. It is, therefore, important that the user shall know how the dull blade lies within the razor. To supply him with this knowledge, I have cut away the end portions of the cap at 58 so that the user can tell, at a glance, which is the open end of his dull blade and, thus informed, can mount his magazine at that end. In Figures 8 and 9, I have illustrated an alternative method for giving this information. As shown in Figure 8 I provide the cap with two windows 59 diagonally disposed with reference to the cap and through these windows small areas of the blade may be described. I provide each blade with spots of color 60, or other distinguishing indicia at areas adjacent its open end, these spots 60 being so situated on opposite faces of the blade that one of them is always visible through one of the windows 59 no matter how the blade is inserted. In this way the user is informed of the position of the dull blade. Or without necessarily thinking it through, he simply mounts his magazine on that end of the razor where the spot of color appears. If he does this he can't go wrong.

I claim:

1. The combination of a double-edge safety razor and a removable blade-feeding magazine therefor; the razor comprising a cap, a guard plate and means for moving them relative to each other to clamp and unclamp a blade, the cap having depending, blade-locating pins and the guard plate having holes to receive the pins, the pins having slots located below the guard plate when cap and guard plate are in blade-clamping position; the magazine comprising a casing for a stack of double-edge blades, each blade having a longitudinal slot open at one end, a blade discharge passage at one end of the magazine, a tongue extending from the discharge end of the magazine and designed to enter the transverse slots in the pins, whereby turning the handle to separate the cap and guard plate clamps the tongue against the underside of the guard plate with the blade discharge passage aligned with the dull blade in the space between cap and guard plate, and means for discharging a single blade from the magazine and feeding it between cap and guard plate while ejecting the dull blade.

2. The combination of a double-edge safety razor and a removable blade-feeding magazine therefor; the razor comprising a cap, a guard plate and means for moving them relative to each other to clamp and unclamp a blade, the cap having depending, blade-locating pins and the guard plate having holes to receive the pins and stud, the pins having slots located below the guard plate when cap and guard plate are in blade-clamping position; the magazine comprising a casing for a stack of double-edge blades, each having a longitudinal slot open at one end, a blade discharge passage at one end of the magazine, the blades being stacked with their open ends facing the discharge passage, a tongue extending from the discharge end of the magazine and designed to enter the transverse slots in the pins, whereby turning the handle to separate the cap and guard plate and release the pressure on the dull blade clamps the tongue against the underside of the guard plate with the blade discharge passage aligned with the dull blade in the space between cap and guard plate, and means for discharging a single blade from the magazine and feeding it between cap and guard plate open end foremost while ejecting the dull blade closed end foremost.

3. The combination of a double-edge safety razor and a removable blade-feeding magazine therefor; the razor comprising a cap, a guard plate and means for moving them relative to each other to clamp and unclamp a blade, the cap having depending, blade-locating pins and the guard plate having holes to receive the pins and stud, the pins having slots located below the guard plate when cap and guard plate are in blade-clamping position; the magazine comprising a casing for a stack of double-edge blades, each blade having a longitudinal slot open at one end, a blade discharge passage at one end of the magazine, the blades being stacked with their open ends facing the discharge passage, a tongue extending from the discharge end of the magazine and designed to enter the transverse slots in the pins, whereby turning the handle to separate the cap and guard plate and release the pressure on the dull blade clamps the tongue against the underside of the guard plate with the blade discharge passage aligned with the dull blade in the space between cap and guard plate, and means for discharging a single blade from the magazine and feeding it between cap and guard plate open end foremost while ejecting the dull blade closed end foremost; the cap having cut away portions through which the dull blade may be seen to determine on which end of the guard plate the magazine should be mounted.

4. The combination of a double-edge safety razor and a removable blade-feeding magazine therefor; the razor comprising a blade-clamping cap and guard plate, and a handle on which the guard plate is inseparably but rotatably mounted, the cap having depending, blade-locating pins and a threaded stud, the guard plate having holes to receive the pins and stud, and the handle having a threaded socket for the stud, the pins having transverse slots located below the guard plate when cap and guard plate are in blade-clamping position; the magazine comprising a casing for a stack of double-edge blades, each blade having a longitudinal medial slot open at one end, a blade-discharge passage at one end

of the magazine, the blades being stacked with their open ends facing the discharge passage, a tongue extending from the discharge end of the magazine and designed to enter the transverse slots in the pins, whereby turning the handle to separate the cap and guard plate and release the pressure on the dull blade clamps the tongue against the underside of the guard plate with the blade discharge passage aligned with the dull blade in the space between cap and guard plate, and means for discharging a single blade from the magazine and feeding it between cap and guard plate open end foremost while ejecting the dull blade closed end foremost; the cap having cut away portions through which the dull blade may be seen to determine on which end of the guard plate the magazine should be mounted.

5. The combination of a double-edge safety razor and a removable blade-feeding magazine therefor; the razor comprising a blade-clamping cap and guard plate, and a handle on which the guard plate is inseparably but rotatably mounted, the cap having depending, blade-locating pins and a threaded stud, the guard plate having holes to receive the pins and stud, and the handle having a threaded socket for the stud, the pins having transverse slots located below the guard plate when cap and guard plate are in blade-clamping position; the magazine comprising a casing for a stack of double-edge blades, each blade having a longitudinal medial slot open at one end, a blade discharge passage at one end of the magazine, the blades being stacked with their open ends facing the discharge passage, a tongue extending from the discharge end of the magazine and designed to enter the transverse slots in the pins, whereby turning the handle to separate the cap and guard plate and release the pressure on the dull blade clamps the tongue against the underside of the guard plate with the blade discharge passage aligned with the dull blade in the space between cap and guard plate, means for discharging a single blade from the magazine and feeding it between cap and guard plate open end foremost while ejecting the dull blade closed end foremost; and means for holding the cutting edges of the blades out of contact with the magazine before and during discharge.

6. A blade magazine for a double-edge safety razor having a blade-clamping cap and guard plate comprising a casing for a stack of double-edge blades, each having a longitudinal slot open at one end, a blade discharge passage at one end of the magazine, the blades being stacked with their open ends facing the discharge passage, a tongue designed to be clamped to the razor extending from the discharge end of the magazine and spaced below the discharge passage a distance substantially equal to the thickness of the guard plate of the razor, and means for discharging blades from the magazine one by one open end foremost.

7. A blade magazine for a double-edge safety razor having a blade-clamping cap and guard plate comprising a casing for a stack of double-edge blades, each having a longitudinal slot open at one end, a blade discharge passage at one end of the magazine, the blades being stacked with their open ends facing the discharge passage, a tongue designed to be clamped to the razor extending from the discharge end of the magazine and spaced below the discharge passage a distance substantially equal to the thickness of the guard plate of the razor, means for discharging blades from the magazine one by one open end foremost, and means for holding the cutting edges of the blades out of contact with the magazine before and during discharge.

WARNER STEINBACH.

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