

Jan. 4, 1955

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2,698,482

REPEATING RAZOR

Filed Jan. 26, 1954

3 Sheets-Sheet 1

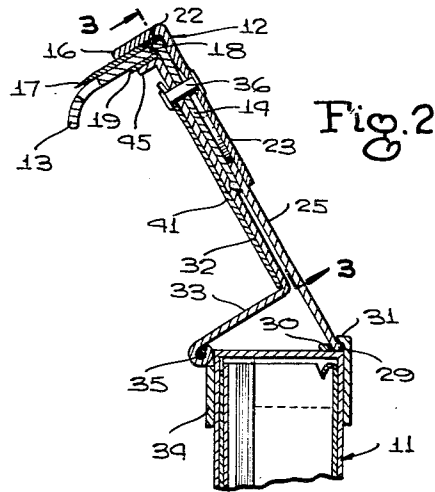
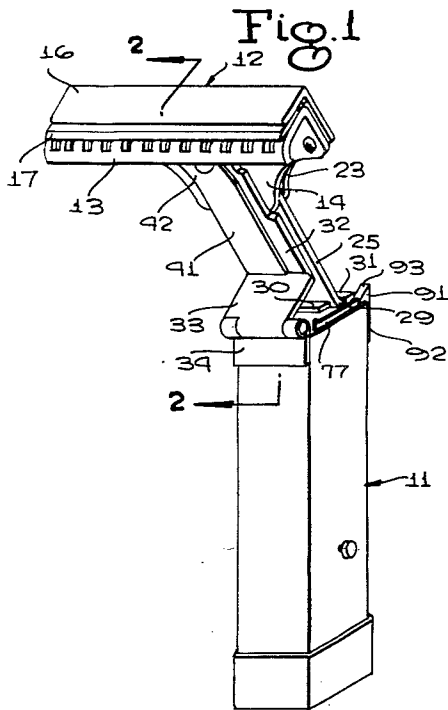


Fig. 3

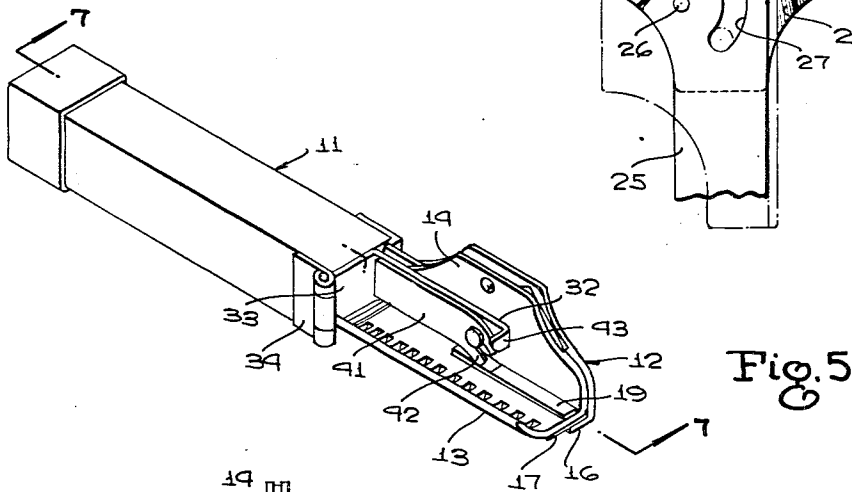
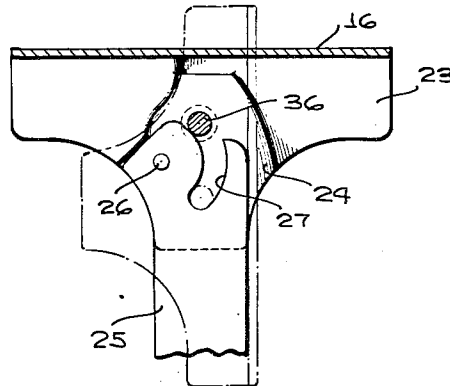


Fig. 5

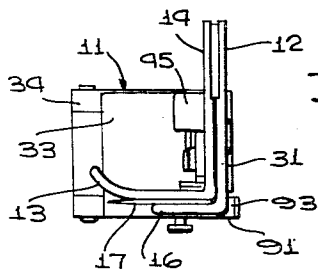


Fig. 6

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3 Sheets-Sheet 2

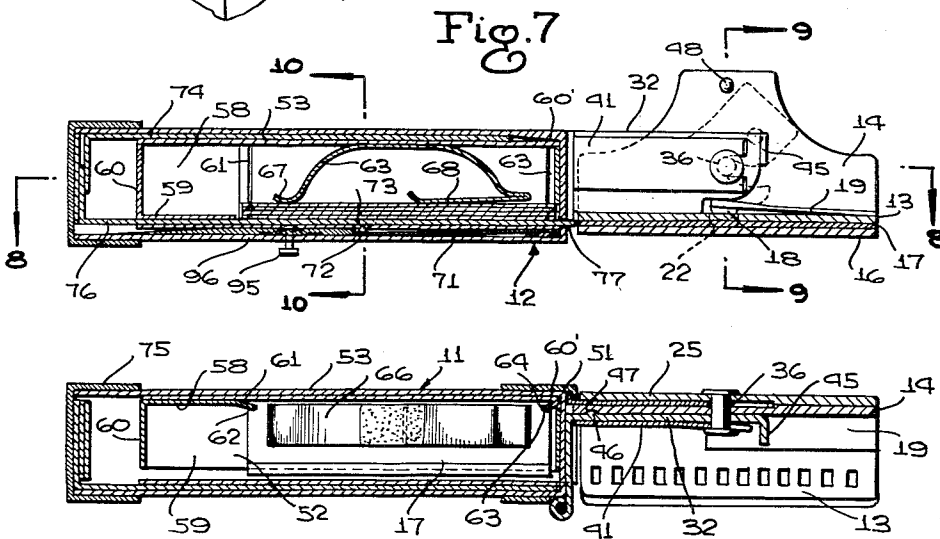
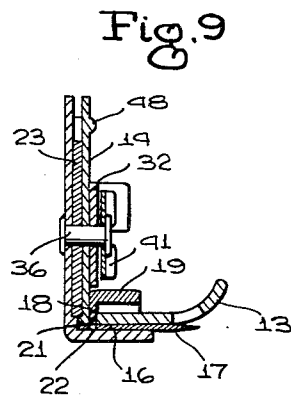
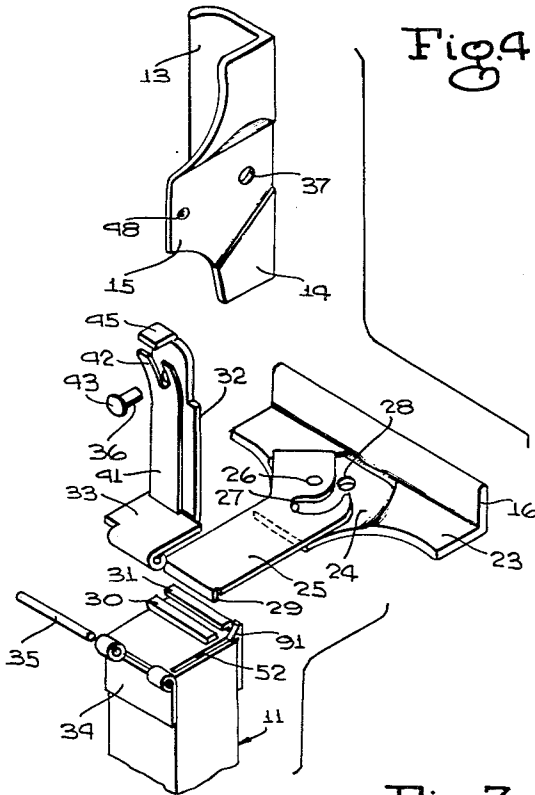


Fig. 8

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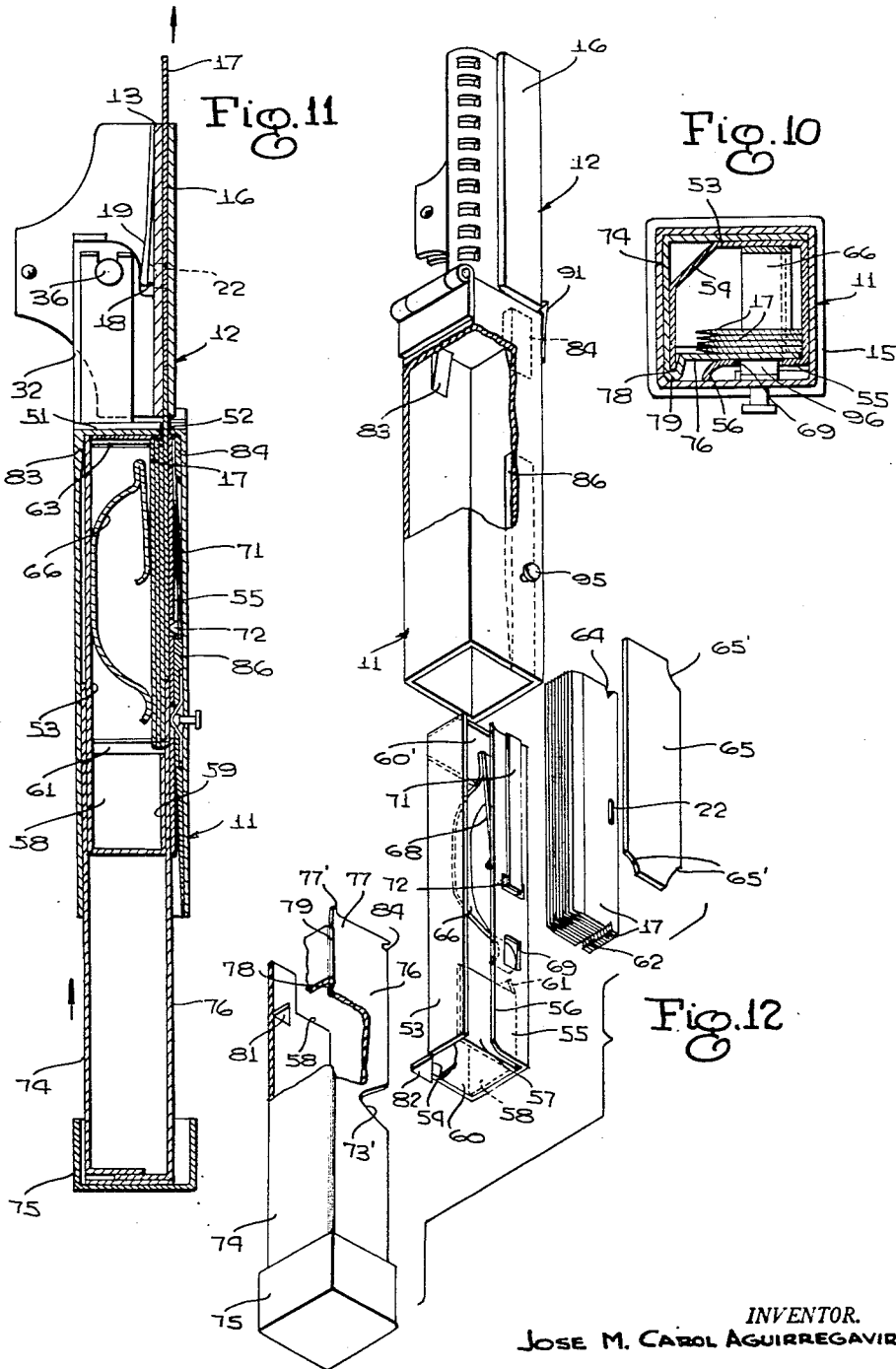
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REPEATING RAZOR

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3 Sheets-Sheet 3



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REPEATING RAZOR

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2 Claims. (Cl. 30—40)

This invention relates to an improved repeating razor of the magazine type, and more particularly to a repeating razor wherein the handle of the razor is hollow and forms a magazine for receiving a cartridge of blades and the head is pivoted for movement from the shaving position to a position in which it is aligned with the magazine to receive a blade therefrom.

It is accordingly, an object of this invention to provide an improved safety razor of the type having a magazine for holding a supply of blades.

It is a further object of my invention to provide an improved razor wherein the head may be pivoted from a position in which it is aligned with a blade magazine to a shaving position in which the head extends at right angles to the handle and is positioned forwardly thereof.

It is a still further object of this invention to provide a magazine razor having means to prevent accidental ejection of a blade from the handle and in which means are provided to prevent ejection of a blade when the head is not aligned with the magazine.

It is another object of the invention to provide means for retaining a blade cartridge within the magazine and to release same automatically for removal therefrom after the last blade has been ejected from the cartridge.

It is a still further object of this invention to provide a razor having means to prevent accidental jamming of the feed mechanism.

It is an additional object of this invention to provide an improved razor which is simple in operation, inexpensive to manufacture, and rugged in construction.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a perspective view showing the improved razor of the present invention with the head in shaving position;

Figure 2 is an enlarged cross sectional view taken on the line 2—2 of Figure 1;

Figure 3 is an enlarged cross sectional view of the head, taken on line 3—3 of Figure 2, showing the pivoted mounting for the head;

Figure 4 is an exploded view of the improved razor of this invention, showing certain of the parts thereof;

Figure 5 is a perspective view showing the head in loading position;

Figure 6 is a plan view of the head end of the razor;

Figure 7 is a section taken on the line 7—7 of Figure 5;

Figure 8 is a cross sectional view taken on the line 8—8 of Figure 7;

Figure 9 is an enlarged cross sectional view through the head, taken on the line 9—9 of Figure 7;

Figure 10 is a cross sectional view taken through the magazine on the line 10—10 of Figure 7;

Figure 11 is a cross sectional view of the razor, showing the parts thereof in the process of changing a blade; and

Figure 12 is an exploded perspective view, partially in cross section, showing the parts of the blade inserting mechanism.

Referring now to the drawings wherein like numerals designate the same parts throughout the several views, 11 designates generally a magazine which forms a handle for the razor head, generally designated at 12, supported at right angles to and forwardly of the handle 11 when in the position shown in Figure 1. Head 12 comprises the guard member 13 having a flange 14 formed with a recess 15, as may be best seen in Figure 4. A clamp

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member 16 overlies the guard 13 and clampingly engages a blade 17 which is retained in shaving position on the head by a detent 18 supported on the spring finger 19 secured at the end remote from the detent from the underside of the guard, as best shown in Figure 5. Detent 18 passes through an opening 21 aligned with an opening 22 in the blade 17 and is urged into said opening 22 in the blade by the action of the spring finger 19 when the head is in the position shown in Figure 1, by means hereinafter to be described, and thus fixedly retains the blade in the head 12.

A flange 23 extends at right angles to the clamp 16 and is suitably recessed at 24 to receive a strut 25 pivoted to the flanges 23 at 26. Strut 25 is provided at the pivoted end thereof with a cam slot 27, concentric with the pivot 26, having a radius equal to the distance from the pivot 26 to the opening 28 in flange 23, and at the other end with a flange 29 received beneath the flange of the member 31, which is suitably secured to one end of the handle 11. Strut 25 is engaged by lug 30 and is thus tiltably secured by flange 31.

A post 32 has a portion 33 thereof extending at right angles thereto and hinged by pin 35 to the member 34 supported on the face of the handle opposite member 31.

As may be best seen in Figure 2, the strut 25 is received between the flanges 14 and 23 within the recessed portions thereof, and the post 32 engages the flange 14 and is pivoted thereto by a pintle 36 passing through the aligned openings 37 and 28 in the flanges 14 and 23, respectively. A leaf spring 41 secured to the post 32 has a bifurcated end 42 which engages beneath the head 43 of the pintle 36 and serves to retain the members comprising the head 12 in frictional engagement.

By virtue of the structure heretofore described, the head may be pivoted about the pintle 36, whereupon the strut 25 and post 32 will simultaneously tilt by virtue of the eccentric pivot 26, from the angular position shown in Figure 1 to the position of Figure 5, wherein the head 12 extends in alignment with the axis of the handle 11 and the blade parallels this axis, in which position a blade may be inserted, as hereinafter described. As may be best seen in Figure 3, when the head is in the dotted line position shown therein, the pintle 36 engages in the bottom of the arcuate slot 27 and the vertical edge of the post 32 contacts the underside of guard member 13, as can best be seen in Figure 7, and serves as a positive stop to align the head and the handle for a purpose which will become apparent hereinafter. It will be noted that when the head is in the position shown in Figure 1, a lip 45 on the post 32 engages the spring 19, thus urging the detent 18 into the slot 22 in the blade 17, thus locking the blade in the head, whereas in the position of Figure 5, the detent is withdrawn from the slot 22 against the bias of the spring 19 by virtue of the engagement of the rear end of the slot 22 of the blade 17 with the beveled rear edge of the detent 18 as the blade 17 is urged from the head, thereby freeing the blade 17 for removal. As may be best seen in Figure 8, a projection 46 formed on post 32 engages in a recess 47 in the flange 14, thus releasably retaining the head in the position shown, while a projection 48 engages in a recess (not shown) in the post 32 to releasably retain the head in shaving position.

Referring now to Figures 7 to 12, the handle 11, which forms the magazine for the reception of a cartridge of blades 53, is preferably formed of square tubing and is closed at the end to which the head 12 is secured by a member 51 having an opening 52 forming a blade slot therein aligned with the head in the loading position. The blade cartridge, designated at 53, comprises a channel shaped member having a truncated corner portion 54 and a flange 55, formed with an outwardly extending lug 56, overlying the open side of the channel. An angle member 57 has a leg 58 thereof suitably secured to a leg of the channel 53 interiorly thereof, and a leg 59 extending in parallel spaced relation to the flange 55. Plates 60 and 60' close the respective ends of the cartridges and serve to rigidify same and insure accurate alignment between the slot 52 and the top blade of the pack.

An inturned guide lip 61 formed on the leg 58 engages

in the recesses 62 in a stack of blades 17 disposed within the cartridge, while an upturned lip 63 formed on the channel 53 engages the recesses 64 in the other end of the stack of blades, thus securely retaining the blades against displacement in the cartridge. It will be understood that the lips 61 and 63 have the ends thereof adjacent the flange 55 spaced therefrom to permit the uppermost blade of the stack to be slid endwise from the cartridge by means hereinafter described. A blank 65 may be disposed between the uppermost blade 17 of the stack and the flange 55 so that all of the blades are engaged with lips 61 and 63, thus securing all of the blades in the cartridge to preserve the edges against damage during handling prior to loading the cartridge in the magazine. The stack of blades is urged into engagement with the flange 55 by an arcuate spring 66 secured to the cartridge and having a turned lip portion 67 at one end and an extending leg 68 engaging beneath the stack at the other end. The flange 55 is formed with a recess 69 overlying the end 67 of the spring 66 and a leaf spring 71 secured at one end to the flange 55 and fixed to the free end thereof a cam member 72 which extends inwardly of the cartridge through an opening 73 in the flange 55 and the notch 73' in the ejector 77 into engagement with the uppermost blade 17 of the stack, thus urging the cam 72 upwardly against the bias of spring 71.

A channel shaped blade ejector 74, having a cap 75 at one end thereof, has a leg 76 having the extending end 77, the edge thereof being adapted to engage the end of a blade, and an extending tip 77' which serves to limit side-wise movement of the blade as it is pushed ahead by the end 77 of the ejector 74. It will be noted that the member 74 is formed with a U-bend at 78, so that the edge 79 protrudes above the leg 76. It will be noted that the aforementioned blank 65 is slightly shorter than the blades 17 so that its ends do not engage the lips 61 and 63, and is wider than the blades so that the blank 65 extends from side to side within the cartridge 53. Furthermore the blank 65 has its corners cut away, as shown at 65' (Figure 12) to provide clearance for the tip 77' of the ejector 77 and not engaging lips 61 and 63, should the blank, for any reason, be displaced endwise.

To assemble the cartridge 53 with the ejector 74, the free edge of the leg 76 is inserted under the upturned edge 56 of the flange 55 and over the upper face of the blank 65, so that notch 73' of the leg 76 will be approximately opposite the free end of spring 71. The cartridge 53 and the ejector 77 are now pressed together and the cartridge will snap into place in the ejector, while leg 76 pushes down the blank 65, to occupy a place over the blank and beneath the flange 55. The truncated corner 54 of the cartridge greatly facilitates this operation.

The assembled cartridge and ejector is then inserted into the magazine handle 11 until the end of the cartridge engages the end wall 51 of the magazine, whereupon the ejector flange 77 will extend through the blade slot 52, as shown in Figure 1, in which position it effectively seals the slot. It will be noted that when the cartridge has been loaded in the magazine, it is engaged at its forward end by the wedge members 83 and 84, and is thus effectively and accurately positioned relative to the blade slot 52, the ejector 74 being suitably recessed at 85 to accommodate the wedge 83. It will be noted further, that the cam 72 will bias the leaf spring 71 into engagement with the forward end of the wedge 86, which is secured interiorly of the magazine and thus effectively will prevent withdrawal of the cartridge until such time as the last blade is ejected from the cartridge, thus permitting the cam to move inwardly under the bias of spring 71, forcing the spring from the wedge and permitting withdrawal of the cartridge. The corner 79 and the lip 56 engage the magazine and position the ejector and cartridge therein.

If it is desired to insert a blade in the head, the head is pivoted to the position shown in Figures 7 to 11, and the ejector is withdrawn until the stops 81 and 82 engage. In this position, blank 65, or the uppermost blade 17 in the magazine, as the case may be, will occupy the position previously occupied by ejector 76. If the ejector is now pushed forward, the end 77 of the ejector will engage behind the blade and move the blade, now free of the lips 61 and 63, through the blade slot 52, into the head 12, now aligned therewith.

When a new pack of blades has been inserted in the magazine, the first operation will be to eject the protective blank 65, and this is done as if it were one of the blades. In this case, the blank, as it is ejected will take the place of a blade in the head and it will be necessary to eject the next blade to dislodge the blank from the head. It should be noted here that when head 12 is turned to the position shown in Figure 7 or 8, the strut 25 will force apart flanges 14 and 23, against the bias of spring 41, thus displacing guard 13 forwardly in relation with clamp 16. When the new blade is fed into the head 12, it will slide with its back edge very close to the inside face of flange 23 until it is centered in the head. At this position, the detent 18 in guard 13 will be slightly forward of slot 22 in the blade. But as the head is turned to shaving position, the strut 25 will slide into the recessed portions of the flanges 14 and 23, respectively, permitting said flanges to come together, urged by the action of spring 41. Guard 13, which now moves back under clamp 16, carries with it detent 18, which engages in slot 22 of blade 17 as soon as they are aligned. If, for any reason, the new blade should get out of line as it is pushed into the head, it is evident that the detent, coming from the front, will engage its slot 22 and carry the blade back to its correct position against the inside face of flange 23. By this time, lip 45 of post 32 will be pressing against spring 19 to hold detent 18 tightly in slot 22, locking the blade in place.

In order to prevent operation of the blade ejector when the head is not in position to receive a blade, there is provided (see Figures 1 and 4) a safety stop member 91 mounted on a spring member 92 secured to the magazine 11. The stop 91 has a face portion thereof which overlies a portion of the blade slot 52 and an arcuate cam shaped face which terminates in a sharp edge which engages in a notch 84 (Figure 12) and thus prevents withdrawal of the ejector. When the head is pivoted to the loading position, the lower edge of clamp bar 16 engages the face 93 of the safety stop 91 and cams it outwardly, thus freeing the ejector for withdrawal and clearing the blade slot. Should the ejector be withdrawn and the head thereafter moved from loading position, the stop 91 will obstruct the slot and prevent ejection of a blade.

On occasion, a blade may partly be ejected and the ejector thereafter withdrawn. Should this occur, an attempt to eject the partially ejected blade will result in engagement of the ejector with the end of the next blade in the stack, and thus effectively jam the razor. My improved razor provides a push button 95 in the magazine 11, overlying the opening 69 in the magazine. The push button is normally held in the retracted position by a spring 96. Should the ejector jam in the manner hereinabove described, depressing the push button will cause it to engage the rear end of the blade and depress the blade to a position below the ejector 77, whereupon the ejector may be moved forwardly into engagement with the partially ejected blade and complete the ejection thereof.

While a specific embodiment of an improved magazine razor has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. In a repeating razor, a magazine, a head pivotally mounted on said magazine for movement from a shaving position to a blade loading position, a cartridge within said magazine adapted to contain a stack of blades therein, abutment means in said magazine, stop means engageable with said abutment means for preventing the withdrawal of said cartridge, and means responsive to the ejection of the last blade in said cartridge for releasing said stop means.

2. In a repeating razor, a magazine, a head pivotally mounted on said magazine for movement from a shaving position to a blade loading position, a cartridge within said magazine adapted to contain a stack of blades therein, abutment means in said magazine, stop means engageable with said abutment means for preventing the withdrawal of said cartridge, and means responsive to the ejection of the last blade in said cartridge for releasing said

stop means, said last-named means comprising a cam member engageable with the stack of blades and urging said stop means into locking position, whereby ejection of the last blade in the stack permits withdrawal of the stop means.

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