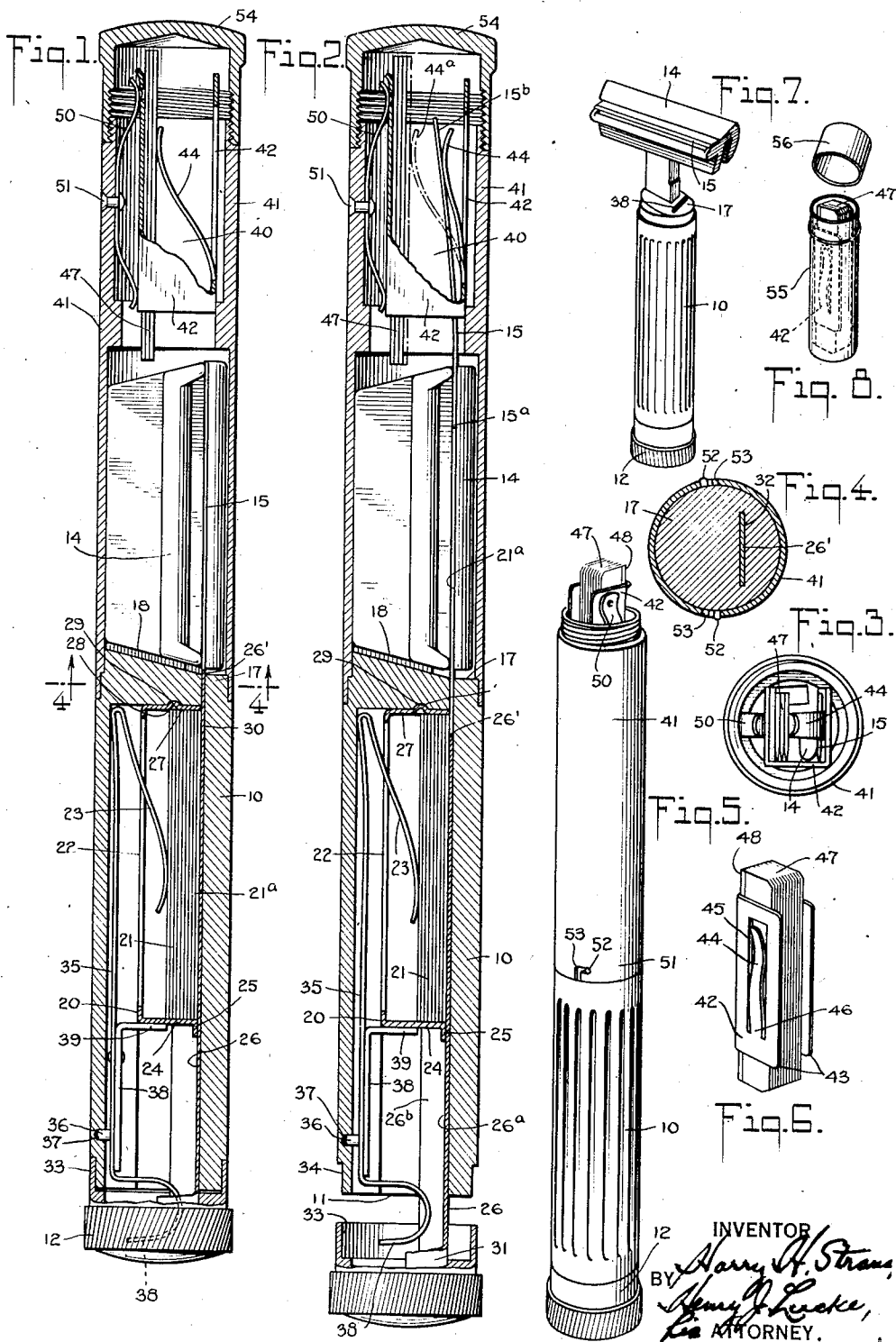


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MAGAZINE SAFETY RAZOR
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MAGAZINE SAFETY RAZOR

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This invention relates to improvements in safety razors.

Prior safety razors have been of the construction to permit the replacement of a used or unfit blade to be removed from the blade holding portion of the razor. In carrying out such operation, it has been necessary in the majority of prior safety razors to perform the same by manual handling of the replaced and replacing blades, whereas in certain other forms of prior razors, while the construction affords a mechanical means for substituting the replacing blade for the replaced blade, the replaced blade is delivered in such manner that it can be caught only by permitting the blade to fall under gravity into a waste basket, or the like, and requires either manual handling to remove the same from danger to others, or if deposited in a special cabinet or the like for waste razor blades, as is the custom on Pullman "sleepers" the razor blades are accumulated in haphazard manner and require special handling.

Pursuant to my invention, my razor embodies structural features whereby the blade to be replaced is substituted by the replacing blade wholly automatically and without requiring manual handling of either blade, and the replaced blade is automatically assembled in a clip or the like for positioning in an orderly manner, and preferably to locate the sharp edges of the blades out of contact with any portion of the hand when the clip or the like containing the accumulated replaced blades is removed from operative relation with the remaining portion of the razor.

My invention is particularly adapted to a form of razor comprising a mechanism for replacing the blades by a so-called "repeating" operation, similar to the "repeating" mechanism of rifles, machine guns and the like, which form of razor is usually of the collapsible type, and the "repeating" operation carried out while the razor parts are in their collapsed position.

In the most preferred forms of my invention, the operation of substituting the replacing blade for the replaced blade, auto-

matically locates the replaced blade in a clip, to position the sharp edge of the blade away from the exposed faces of the clip, so that when the clip with the accumulated replaced blades, is handled manually or otherwise the sharp edges of the blades are removed so that all danger of cutting is entirely obviated.

Further features and objects of this invention will be more fully understood from the following detail description and the accompanying drawings, in which

Fig. 1 is a central vertical sectional view of a collapsible form of razor provided with my invention; this view illustrates the razor in its collapsed form, a charging clip being supplied with a certain number of razor blades and a discharging clip partially filled with replaced razor blades;

Fig. 2 is a view similar to Fig. 1, but illustrating the replacement of a blade previously in use by a replacing blade from the charging clip and positioning the replaced blade in the discharging clip;

Fig. 3 is a top plan view of Fig. 1, with the cap of the cover removed;

Fig. 4 is a sectional elevation on line 4-4 of Fig. 1;

Fig. 5 is a perspective view of Fig. 1, the parts being illustrated on a reduced scale and showing the cap of the cover removed;

Fig. 6 is a perspective view of the release clip containing an accumulated number of discarded razor blades;

Fig. 7 is a perspective view showing the razor parts in position for shaving; and

Fig. 8 is a perspective view of a container for the discarded blades and clip.

Referring to the drawings, the casing 10 of the body portion of the razor may be cylindrical in contour and have its lower end "open", to freely receive the cap 12 to provide movement axially of the casing 10 for the purpose of substituting a new razor blade for the razor blade in use by "repeating" or equivalent operation, as is described more fully hereinafter. The cap 12 may be milled at its lower, enlarged rim portion to facilitate manual gripping of the same.

As appears in Fig. 5, the outer or cylin-

dricul face of the casing 10 may be corrugated to impart stiffness to the material and to facilitate holding the same manually.

It will be observed that the holder portion 14 for holding the blade 15 in use for shaving, is in "collapsed" position, when this form of razor is in its charging position. For effecting such "collapsed" position, the holder 14 is usually mounted on a pivot 16 on the extension 17 of the casing 10 of the body of the razor, and the bevel 18 is provided for limiting the movement of the holder 14 to collapsed position.

The "repeater" mechanism for replacing a "new" blade for a "used" blade, may be of any desired arrangement. In the drawings, I have indicated one form of such "repeater" mechanism, associated with a clip 20 for stacking therein a number of "new" blades 21. Such form of clip 20 is usually formed of a strip of metal or like material which is bent to U-form to have three sides and one open side, the side opposite such open side being provided with an opening 22, of a width to freely receive therethrough the resilient tongue 23 of a holder for retaining the clip 20 within the barrel of the casing 10. One end 24 of the clip 20 is flat on its face and has an outwardly turned edge 25 extending in alignment with the edges of the open side, to serve as a guide face for guiding the slide 26 functioning in the "repeater" operation to move the lowermost "new" blade denoted 21a in Fig. 1 from the clip 20 into the holder 14 of the razor. The opposite end 27 of the clip 20 is preferably provided with a suitable positioning means, as in the form of a circular lug 28 adapted to be received and retained within a corresponding depression 29 in the extension 17 of the casing 10. Such guide face 25 and positioning lug 28 automatically locate the open side of the clip 20 a predetermined distance above the inner face 30 of the casing 10, by reason of the engagement of the slide 26 with guide flange 25 and the lower edge of the end 27 as the slide 26 is moved to its inward position as illustrated in Fig. 1.

Such slide 26 is secured at its outer end 31 to the inner face of the cap 12, to enable the slide 26 to be reciprocated in its "repeater" operation from inward position to outward position by manual reciprocation of the cap 12. Preferably, the slide 26 is of a U-cross sectional shape comprising a bottom portion 26a, see Fig. 2, and two opposite side or flange portions 26b, one of which appears in Fig. 2. When the slide 26 is at its extreme inward position as is illustrated in Fig. 1, its forward or inner end 26' projects through the slot 32 in the extension 17 of the casing 10, and its opposite sides or flange portions 26b are disposed on opposite sides of the clip 20, and the for-

ward or inner edges of such sides 26b may about the inner face of the extension 17, to serve as stops for the inward movement of the plunger 26.

The edge 33 of the cap 12, see Fig. 2, may also be reduced in thickness, i. e., have an enlarged diameter, to be received within the rabbeted end 34 at the charging opening 11 of the casing 10, to also serve as a stop for limiting the inward movement of the slide 26, as well as to act when closed as a seal against the entry of dust or other foreign substances within the casing 10.

The aforesaid holder, comprising the resilient tongue 23, further includes a body portion 35, which may be in the form of a strip, and is provided with a lug 36 adapted to be received within the recess 37 on the inner face of the casing 10; to the body portion 35 is secured an inwardly turned strip portion 38, welded or otherwise suitably secured to the body portion 35, to locate its downwardly turned end 39, see Figs. 1 and 2, in engagement with the flat face of the end 24 of the clip 20, to thereby hold the clip 20 against displacement during the stage of reciprocating the plunger 26.

Such holder 35 further comprises the loop or thumb portion 38' to facilitate manual grasping of the same for the insertion and removal of the holder 35 within the casing 10. It will be observed that the loop or thumb portion 38' extends exteriorly of the charging opening 11 of the casing 10 when the positioning and retaining lug 36 of the holder 35 is located in its recess 37. As is shown in Fig. 1, the interior of the cap 12 is of sufficient length to freely receive such loop or thumb portion 38' of the holder 35.

It will be further observed that when the holder 35 is being withdrawn from within the casing 10, the edge of its resilient tongue 23 is brought in contact with the inner face of the side 24 of the clip 20 and pushes the clip with any "new" blades contained therein, exteriorly of the casing 10.

The inner face 30 of the casing 10 is preferably "squared" to serve as a guide for the reciprocated slide 26 and its side or flanges 26a in its "repeater" movement.

The operation of the aforesaid parts of the razor will be largely understood from the hereinabove described construction. It will be noted that when the razor is in its shaving position, as indicated in Fig. 7, and it is desired to replace the "used" blade 15, the holder 14 is rotated about its pivot to locate the blade retaining opening of the holder 14 substantially in alignment with the direction of length of the slot 32 in the extension 17, whereby upon imparting the outward "repeater" movement of the cap 12 and slide 26, the inward end 26' of the slide 26 is withdrawn from the slot 32 in the extension 17 and past the full length of the

open side of the clip 20 to a position on the guide face 25, whereupon the resilient tongue 23 of the holder 35 by pressure upon the stack of "new" blades 21 forces the lowermost "new" blade 21a, see Fig. 2, to a position slightly below the open side of the clip 20 to rest on the inner face or bottom 30 of the casing 10 in advance of the inward end 26' of the slide 26 and in alignment with the slot 32, whereby upon manually pushing the cap 12 and therewith the slide 26 inwardly of the casing 10, the forward end 26' of the slide 26 encounters the posterior edge of such lowermost "new" blade 21a, forces such "new" blade 21a from its position below the open end of the clip 20 through the slot 32 in the extension 17, thence into contact with the posterior edge 15a of the theretofore "used" blade 15, and upon further inward movement of the slide 26, such "used" blade 15 is moved fully through the blade retaining opening in the holder 14 and thence into the space 40 of the hollow upper casing 41.

Preferably, such upper casing 41 is provided with suitable means for receiving the replaced or theretofore "used" blades 15, as the same are successively replaced. As one such receiving means, and also to afford stacking of the "used" or replaced blades, I illustrate a holder 42, see Figs. 2 and 6, which may be in the form of a clip having a three side and one open side 43 construction similar to the aforesaid clip 20, see Fig. 6, but further provided with a self-contained spring finger 44, the free end of which extends through the slot 45 in one side of the clip 42, to engage and hold the replaced razor blades as the same are accumulated in the clip 42. The opposite end 46 of such spring finger 44 is preferably integral with the body portion of the clip 42. Such clip 42, or other holding means, is preferably disposed within the upper casing 41 in coordinated relation with the path of ejection of each "used" blade, to successively receive such "used" blades 15 and stack the same one upon another, as is indicated at 47 in Fig. 6, and also preferably to position the sharp edges 48 of such blades 47 against an imperforate side of the clip 42, which may be disposed opposite to the open side 43 of the clip 42, also as is illustrated in Fig. 6.

It will be observed, as appears in Fig. 2 in full line outline, that each replaced or "used" blade 15 as it is pushed by the replacing blade 21a from the holder 14, the anterior portion 15b of such blade encounters the spring tongue 44 of the clip 42 and displaces the same against its tension, and upon the full release of the displaced or "used" blade 15 from the holder 14, the tension of the spring 44 moves the same from its full line outlined position to its dot

and dash outlined position indicated at 44a, to locate each such blade 15 into proper stacked relation in the clip 42, and in alignment with any previously stacked blades 47.

Such clip 42 may be held resiliently in position by means of the spring 50, which may be secured by the rivet 51 in predetermined position within the upper casing 41. The interior of the upper casing 41 is preferably machined "square" to snugly receive the clip 42, and the edge 51' of the upper casing 41 is provided with suitable locking means to properly align and lock the upper casing 41 relative to the body casing 10, as by means of the pin 52 and bayonet slot 53, two of which may be employed at non-diametrical positions.

A fresh charge of "new" razor blades in a clip 20 or equivalent is had by removing the holding means 35 to withdraw the wholly or partially depleted clip 20, and substitute therefor a clip having the fresh charge of razor blades.

The upper casing 41 is provided at its upper end with a cap 54, which may be screw threaded therewith, for gaining access into the upper end of the upper casing 41, as when removing the clip 42 and replaced or discarded razor blades 47. Preferably, the screw threaded or other connection of the cap 52 with the upper end of the upper casing 41 is disposed below the upper end of the clip 42, to facilitate manual grasping of the clip 42 and contained discarded razor blades for the purpose of removing the same from the casing 41 and without danger to the hands. The clip 42 containing the used or discarded blades may be placed in a tube container 55, see Fig. 8, having a cap cover 56, such as is now usually employed for the carriage of a charging clip containing "new" blades, or in any other suitable container for storage in a valise or otherwise, or for shipment to a razor blade manufacturer or to a re-sharpener for re-sharpening, or other disposition of the same, under all of which circumstances the used blades are handled without danger of cutting.

It will also be noted that the user of my razor or my improved attachment to existing razors may readily ascertain the number of blades 21, contained in the charging clip 20, which is normally concealed in the handle casing 10, by removing the cap 52 of the upper casing 41, counting the number of discarded blades 47 in the discharge clip 42 and subtracting such number from the usual total of twenty, or other number of blades originally placed in the charging clip 20.

I prefer to supply the blades in a charging clip of the construction of the aforesaid clip 20, or equivalent, the razor edges of the contained "new" blades being toward the open side of such clip, and to position a

clip of the construction of the aforesaid clip 42, or equivalent about the open side of the clip 20 as a "guard" clip, whereby upon charging such clip 20 and the contained "new" blades in the handle casing 10, such "guard" clip 42 is removed therefrom by slipping the same off, and the "safety" clip is then available to be positioned within the upper casing 41 to receive the discarded blades, as aforesaid.

It will be apparent that square, hexagonal or other polygonal configuration may be employed for the casings 10, 41, and assembled to attain the objects of my invention as hereinabove set forth.

It will also be clear that the upper casing 41 may be associated with the lower casing 10, to position the opening 51 of the upper casing 41 about the cap 12 or lower portion of the casing 10, to be employed as an extension of the handle of the razor when in shaving position.

My clip or equivalent collecting means for accumulating the discarded razor blades may be employed with other forms of razor constructions, and assembled to be associated with the blade holding portion of the razor to receive the discarded or replaced blades from the blade holding portion without requiring manual handling of the replacing and replaced blades.

Whereas I have described my invention by reference to specific forms thereof, it will be understood that many changes and modifications may be made without departing from the spirit of the invention.

I claim:

1. In a razor, a blade holding member, a handle therefor, means for supplying a "new" razor blade and substituting such "new" blade for the blade disposed in the blade holding member, a casing for enclosing said blade holding member, and a clip disposed in said casing for receiving the displaced blade.

2. In a razor, a blade holding member, a handle therefor, means for supplying a "new" razor blade and removably substituting such "new" blade for the blade disposed in the blade holding member, a casing for enclosing said blade holding member, and a clip having an imperforate side disposed in said casing for receiving the displaced blade to position its razor edge adjacent said imperforate side.

3. In a razor, a blade holding member, a handle therefor, means for supplying a "new" razor blade and substituting such "new" blade for the blade disposed in the blade holding member, a casing for enclosing said blade holding member, and a clip disposed in said casing for receiving the ejected blade, said clip further comprising a resilient element for frictionally holding

the successively discarded blades within said clip.

4. In a razor, a collapsible blade holding member, a handle therefor, means for supplying a "new" razor blade and substituting such "new" blade for the blade disposed in the blade holding member, a casing for enclosing said blade holding member when in collapsed position, and a clip having an imperforate side disposed in said casing for receiving the displaced blade to position its razor edge adjacent said imperforate side.

5. In a razor, a collapsible blade holding member, a handle therefor, means for supplying a "new" razor blade and removably substituting such "new" blade for the blade disposed in the blade holding member, a casing for enclosing said blade holding member when in collapsed position, and a clip having an imperforate side disposed in said casing for receiving the displaced blade to position its razor edge adjacent said imperforate side.

6. In a razor, a collapsible blade holding member, a handle therefor, means for supplying a "new" razor blade and substituting such "new" blade for the blade disposed in the blade holding member, a casing for enclosing said blade holding member when in collapsed position, and a clip having an imperforate side disposed in said casing for receiving the displaced blade to position its razor edge adjacent said imperforate side, said clip further comprising a resilient element for frictionally holding the successively discarded blades within said clip.

7. In a razor, a blade holding member, a hollow handle therefor and pivotally connected to said blade holding member to permit the same to be moved to collapsed position, a clip for "new" blades disposed in said hollow handle, means for substituting a blade in said blade holding member when in collapsed position by a "new" blade from said clip, a hollow casing for enclosing said blade holding member when in collapsed position, a clip disposed in said hollow casing, said clip having an imperforate side, said clip being disposed in said hollow casing to receive the displaced blade to position its razor edge adjacent said imperforate side and resilient means for removably holding said clip within said hollow casing.

8. A razor of the class described, a handle, a head connected to said handle, a receiving casing, a clip for receiving used blades disposed within said receiving casing, said clip comprising broad walls connected along two parallel edges and open at the ends and the side opposite the connected edges, one of the walls having therein a spring clip designed to grip the top one of a variable number of superposed blades and to admit entry of the blades by endwise movement between the walls to form within the clip a pack of used

blades removable at once through an open side or end of the clip.

9. A razor of the type described, comprising a hollow handle portion adapted to contain a stack of sharp blades, a shaving head adapted to receive and retain in shaving position blades successively fed from said stack, means for mechanically feeding successive blades to the head, a receiving casing and means for assembling said receiving casing in substantial alignment with the shaving head and into which a used blade is ejected in the act of feeding each fresh blade to the shaving head, and a clip removably positioned in the receiving casing and having means for receiving and automatically arranging successive used blades in a stack in said clip, said blades being held for ready removal from the clip.

10. A razor of the class described comprising a hollow handle, a shaving head pivotally connected to the handle and when in idle position substantially aligned with the handle, means on the head for retaining a blade in shaving position and arranged to admit lengthwise movement of a blade to such position, means within the handle for maintaining a stack of fresh blades ready for feeding to the head, mechanical blade feeding means, and a receiving casing supported on the razor and aligned with the head when the latter is in blade-receiving position.

11. A razor of the class described comprising a hollow handle, a shaving head pivotally connected to the handle, and when in idle position substantially aligned with the handle, means on the head for retaining a blade in shaving position and arranged to admit lengthwise movement of a blade to such position, means within the handle for maintaining a stack of fresh blades ready for feeding to the head, mechanical blade feeding means, and a receiving casing supported and aligned with the head when the latter is in blade-receiving position, the receiving casing including means to receive and retain successive used blades ejected from the head in the act of feeding fresh blades thereto.

12. A razor of the class described comprising a hollow handle, a shaving head pivotally connected to the handle and when in idle position substantially aligned with the handle, means on the head for retaining a blade in shaving position and arranged to admit lengthwise movement of a blade to such position, means within the handle for maintaining a stack of fresh blades ready for feeding to the head, mechanical blade feeding means, and a receiving casing supported on the razor and aligned with the head when the latter is in blade-receiving position, and a receiving clip removably positioned in the receiving casing.

13. A razor of the class described comprising a hollow handle, a shaving head pivotally connected to the handle, and when in idle position substantially aligned with the handle, means on the head for retaining a blade in shaving position and arranged to admit lengthwise movement of a blade to such position, means within the handle for maintaining a stack of fresh blades ready for feeding to the head, mechanical blade feeding means, and a receiving casing supported on the razor and aligned with the head when the latter is in blade-receiving position, and a clip removably positioned in the receiving casing, adapted to receive the used blades, and having spring means to removably retain them in a stack.

14. A razor of the class described comprising a hollow handle, a shaving head pivotally connected to the handle and when in idle position substantially aligned with the handle, means on the head for retaining a blade in shaving position and arranged to admit lengthwise movement of a blade to such position, means within the handle for maintaining a stack of fresh blades ready for feeding to the head, mechanical blade feeding means, and a receiving casing supported on the razor and aligned with the head when the latter is in blade-receiving position, the receiving casing having tubular means to enclose the shaving head and retain the receiving casing in detachable connection with the handle.

15. A razor of the class described comprising a hollow handle, a shaving head pivotally connected to the handle and when in idle position substantially aligned with the handle, means on the head for retaining a blade in shaving position and arranged to admit lengthwise movement of a blade to such position, means within the handle for maintaining a stack of fresh blades ready for feeding to the head, mechanical blade feeding means, and a receiving casing supported and aligned with the head when the latter is in blade-receiving position, the receiving casing including means to receive and retain successive used blades ejected from the head in the act of feeding fresh blades thereto, the receiving casing also having tubular means to enclose the shaving head and retain the receiving casing in detachable connection with the handle.

In testimony whereof I have signed this specification this 1st day of April, 1927.

HARRY H. STRAUS.