No. 896,153. PATENTED AUG. 18, 1908.

R. H. REED.

SAFETY RAZOR.

APPLICATION FILED MAY 27, 1907. RENEWED APR. 15, 1908.

Fig. 1.

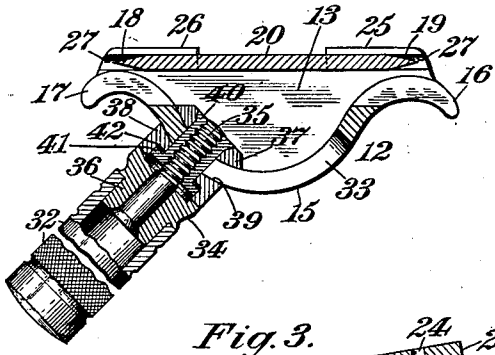


Fig. 2.

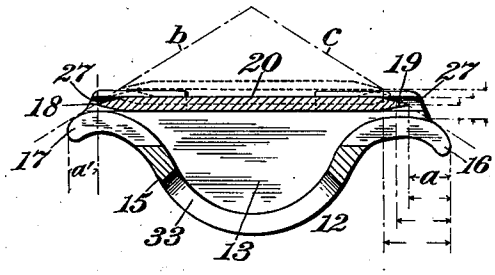


Fig. 3.

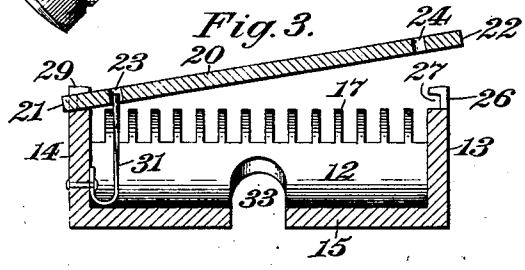


Fig. 5.

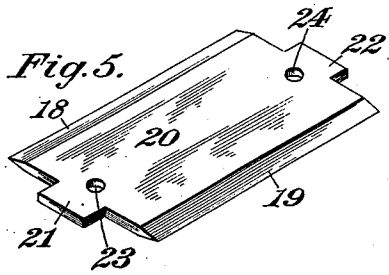


Fig. 4.

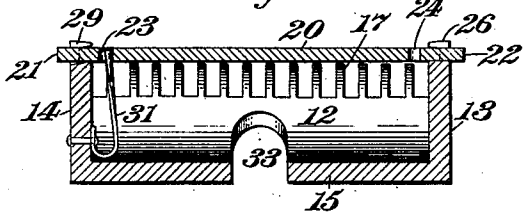


Fig. 8.

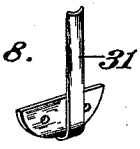


Fig. 6.

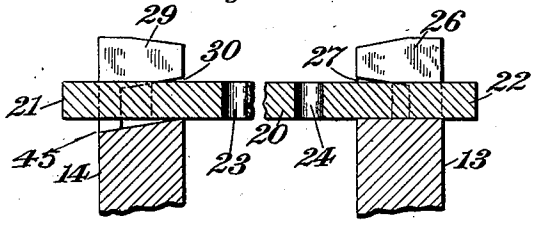


Fig. 9.

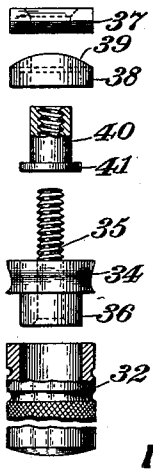
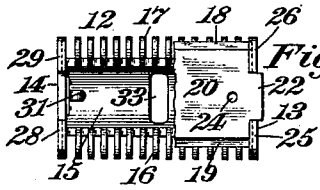


Fig. 7.



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UNITED STATES PATENT OFFICE.

RICHARD H. REED, OF NEW YORK, N. Y., ASSIGNOR TO THE PATENT OWNERSHIP COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SAFETY-RAZOR.

No. 896,153. Specification of Letters Patent. Patented Aug. 18, 1908.

Application filed May 27, 1907, Serial No. 375,810. Renewed April 15, 1908. Serial No. 427,214.

To all whom it may concern:

Be it known that I, RICHARD H. REED, a citizen of the United States, residing in New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Safety-Razors, of which the following is a specification.

This invention relates to the form of safety razors in which the blade is readily removable, so that another blade can be substituted for the blade when dull, or it can be replaced after sharpening.

One of the objects of the present invention is to provide an improved form of such a razor comprising practically three members, viz. a holder, a handle and the blade; wherein no parts need to be removed for the purpose of inserting or removing the blade.

Another object of the invention is to provide an improved form of adjustable handle, that can be easily and quickly locked in different angular positions of adjustment relative to the holder and blade.

A further object of the invention is to provide means whereby when the blade is locked in position, its two cutting edges will be differently positioned or offset from their respective coöperative guard portions; that is, one of the cutting edges will be located close to its guard portion, for a close shave, while the other cutting edge will be further removed from its coöperating guard portion, for the purpose of a moderate or medium shave. The lengths of the guards are also different, the guard that is further offset from the blade edge, is made longer than the other guard, or projects further from the guard edge than does the other guard from its cooperating blade edge.

In the accompanying drawing representing an embodiment of my invention Figure 1 is a vertical middle section, the intermediate portion of the handle being removed. Fig. 2 is a similar view of the guard portion and blade. Fig. 3 is a vertical longitudinal section through the holder, showing the first step in the act of inserting the blade. Fig. 4 is a similar view with the blade in its locked position. Fig. 5 shows in perspective one form of blade to be used in my invention. Fig. 6 is a view similar to Fig. 4, but enlarged, with the intermediate portions of the blade and holder removed. Fig. 7 is a plan view of the blade and holder, the blade being partly broken away. Fig. 8 shows in perspective one form of spring used, and Fig. 9 shows in relative consecutive positions the handle and its attaching means.

The holder member is shown as comprising a substantially trough-shaped member 12 having end portions 13 and 14. The curved portion 15 of the member 12 has guard portions 16 and 17 on its opposite sides, that cooperate with opposite cutting edges 18 and 19 of a blade member 20.

Means are provided for securing the blade 20 to the holder member 12 in which it is locked in one certain predetermined position, and no adjustment from such position is provided. But the holder engaging portions are so positioned, that when the blade is secured to the holder, and the guard portions 16 and 17 are so arranged relative to the respective cutting edges 18 and 19 adjacent thereto, that the guard coöperating with one cutting edge will be positioned or offset from such cutting edge, differently from the relative position of the other guard with its adjacent cutting edge. In other words, one cutting edge is arranged closer to its guard than is the other cutting edge, whereby one side will give a closer shave than the other side. And the blade being symmetrical, it can be turned end for end, or else inverted, so that the blade edges will be interchanged relative to the guards. The respective guards are also arranged to have different lengths relative to the respective cutting edges, that is, the guard for the blade edge lying close thereto, for the close shave, will have a certain length, while the guard for the other cutting edge, that is offset a greater distance from this blade edge than the other guard is offset from its blade edge, will be given a greater length.

In the present construction, the blade 20 is provided with lugs 21 and 22 at its ends respectively; and is also provided with an aperture adjacent one or both ends; being shown as provided with apertures or openings 23 and 24, symmetrically arranged relative to the adjacent ends.

The end members are provided with overhanging lip portions that project towards each other. The end member 13 is shown as provided with spaced lip members formed by projections 25 and 26, that are undercut at 27, and the lip members are separated by a distance equal to the width of the lug 22 so that the latter will snugly fit therebetween

with the end portions of the blade on opposite sides of the lug lying in the slots 27 in the lip members, as shown in Figs. 6 and 7. The other end member 14 is similarly constructed, having lip members 28 and 29 spaced equal to the width of the lug 21, and undercut by a slot 30 for the entrance of the end portions of the blade on opposite sides of the lug 21, as indicated in Figs. 4 and 6. But the distance apart of the lip members 25 and 26, from their respective opposite lip members 28 and 29, is made equal to, or preferably somewhat less than, the length of the blade on each side of the lugs 21 and 22. By reason of such arrangement, the blade can be inserted with its end portions engaged by the walls of the slots 27 and 30 respectively, by the operation of first inserting one end of the blade, placed at a slight angle as in Fig. 3, to cause the end portions to pass into the slots 30, then swinging the blade down until its other end lug 22 engages the end member 13, as in Fig. 4; and then moving the blade endwise towards the end member 13, to cause the end portions on each side of the lug 22, to enter the slot 27. The slot 30 is made of considerable depth, so that the latter endwise movement will still retain the overhanging portion of the lip member in engagement with the end portion of the blade, and preferably the blade is shifted until its end adjacent the lug 22 strikes the rear wall of the slot. In this position, as indicated in Figs. 4, 6 and 7, the blade is secured from lateral movement by engagement of the side faces of the lugs 21 and 22 with the opposing faces of the respective adjacent lip members, as indicated in Fig. 7. The blade is also prevented from movement in a direction transverse to its plane, by its being seated on the bottom wall of the slots 27 and 30 and by its upper face at the ends engaging the top wall of the slots.

Resilient means are provided for yieldably retaining the blade against endwise movement tending to dislodge it in the manner in which it was inserted. In the construction illustrated, a spring 31 is secured to the holder, preferably riveted to the end 14, and curved to extend vertically upward in its normal position a short distance removed from the end wall 14, as shown in Fig. 3; the spring being shown separately in Fig. 8.

In the operation of inserting the blade as just described, the aperture 23 will have the end of the spring 31 project into it as indicated in Fig. 3, and the further endwise movement of the end of the blade into the slot 30, will flex the spring, as indicated in Fig. 4. Then the downward movement of the blade takes place and its other end is inserted into the slot portion 27 by its reverse endwise movement, that will be assisted by the reaction of the spring; and the latter will serve to press the end portion of the blade on each side of the lug 22, into abutment with the rear wall of the slot portion 27. The blade is prevented from further endwise movement by such abutment, while the resiliency of the spring will resist endwise movement of the blade in the opposite direction, thereby serving to retain the blade in this locked position. The two end members of the holder being made substantially similar with exception of the additional spring member, and the blade having its end portions symmetrical, the end having the aperture 24 may be first inserted, and the blade locked to the holder in precisely the same manner. Thereby the blade is reversible endwise, or can be reversed by turning it upside down. The top face 45 of the end wall 14 is beveled outwardly as shown, and the opposite wall of the lip portion 29 is similarly beveled or inclined, to facilitate the insertion of the blade in the inclined position as indicated in Fig. 3.

The top wall of the end members 13 and 14, engaged by the lug portions 21 and 22 respectively, is in alinement with the bottom wall of the slot portions 25, 26, and 28, 29, respectively. These walls form stop portions on which the blade rests, and determine its position relative to the guard portions; the blade being always secured on these walls, its position relative to the holder member is predetermined when the holder is constructed. But the guard members 16 and 17 are not symmetrically constructed or arranged. They are preferably formed comb-like, and the guard 17 is spaced or offset relative to the cutting edge 18, a less distance than the guard 16 is spaced or offset relative to the cutting edge 19; such distances being measured vertically, or in a direction perpendicular to the plane of the blade, as shown in Figs. 1 and 2. From this construction, it will be seen that a close shave may be had on the side of the razor of the guard 16, while a medium shave will result from the side 17 being used. And if the edge of the blade adjacent the side 17 becomes dull from use the blade can be taken out, and inverted or reversed, and inserted with the other cutting edge adjacent the guard 17.

I have further discovered that in the two instances where the cutting edges are respectively positioned at different distances removed from the guard, where the guard is spaced at a greater distance, its length should be increased, and preferably increased proportional. This is indicated by the diagram in Fig. 2, where the guard 16 is shown as projecting a greater distance beyond the edge of the blade 19, than the guard 17 projects from the edge of the blade 18; such distances being measured in the plane of the blade; the line a indicating the length of the guard 17, and the line a' indicating the length of the guard 16. The two broken lines b and c are drawn to indicate planes passing through

the cutting edge of the blade and contacting with the guard without intersecting the latter. These planes meet in a perpendicular to the blade approximately at its middle portion, and therefore the two planes will be seen to make the same angle with the plane of the blade. In practice, this will mean that these planes represent the position of the face of the user and it will be seen that the cutting angle remains constant and is the same in both cases, notwithstanding the cutting edge being nearer the guard at one side than at the other.

The handle 32 can be secured to the holder, in any suitable manner, and preferably is adjustably attached so that the angle of the cutting edge relative to the handle can be varied as desired. In the form illustrated, the handle is shown as adjustable in any position between certain angular limits, in a plane perpendicular to the cutting edges of the blade. The portion 15 of the holder is provided with a slot 33 at its middle portion that extends transversely to the guard portions. The handle 32 is provided with a threaded member that screws into an end member carried in the trough and is slidable in the opening. The nut member is permanently attached to the trough member and the handle member can be screwed into and removed from the nut member. When screwed up tight the handle member is locked in position, but to adjust the handle member it is only necessary to loosen the end nut, then swing the handle and connected end member to the desired angle, and then screw the handle up tight again. In the construction illustrated, the tubular handle member 32 has a screw portion 34 permanently connected therewith, that comprises a screw 35 and a sleeve 36. The nut member as shown comprises an apertured curved block 37 having the convex side curved to fit the bottom of the trough portion 15; a collar 38 having a face 39 curved to engage the outer side of the trough member 15; and an internally threaded sleeve 40 having a flange 41. The sleeve 40 is passed through the opening 33 and locked in the block 37 with the collar 38 loosely carried on the outer flange portion of the nut member, whereby it is freely movable in the opening 33, yet cannot be removed from the holder. The handle is attached by its screw 35 being screwed into the threaded bore of the sleeve 40, and when screwed up tight the end of the sleeve portion 36 will engage the sleeve 38 loosely carried by the nut member, and cause this sleeve to be pressed between the sleeve 36 and the trough member 15, whereby the handle is securely locked in position.

From this construction it will be seen that the lather and hair not only can readily pass through the guard portion, but between the guard portion and the blade, directly into the trough portion of the holder. And such matter can be readily removed therefrom by holding it under a spigot or passing it through water, that will pass in one side through the guard and force the lather and hair out the opposite side. Hence there is no possibility of the lather and hair clogging the blade. It will also be seen that there are no cavities to collect the lather and which would be difficult to clean. By removal of the blade every part is readily accessible, and can be at once cleaned by the application of water. The only movable part for securing the blade is the spring clip, and this is normally held adjacent the end member of the trough. Furthermore, the device is very simple and economical of construction, consisting practically of the trough member comprising a curved plate with two end plates rigidly secured thereto, these having overhanging lip portions at opposite sides and a spring that is a single member permanently secured on the inside of one of the end members for engaging the blade. The blade for use in this razor is a rectangular member with a projection, or lug at the middle portion of each end, and one or two openings therein.

The form of blade herein set forth is not claimed in this application but forms subject matter of a co-pending application filed by me March 30th, 1908, Serial No. 423,998.

Having thus described my invention, I claim:

1. A safety razor, comprising a holder member having a guard portion and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, and a spring member carried by the holder and projecting upwardly into the opening in the blade to yieldably retain the blade with its end portions engaged by said lips.

2. A safety razor, comprising a holder member having a guard portion and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, and a spring member carried by the holder and projecting upwardly into the opening in the blade to yieldably retain the blade with its end portions engaged by said lips and with one end wall of the blade pressed into engagement with the holder member.

3. A safety razor, comprising a holder member having a guard portion and having a rigid supporting member at each end provided with spaced lips projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, and a spring member carried by the holder and

projecting upwardly into the opening in the blade to yieldably retain the blade with its end portions engaged by said lips and with one end face of the blade pressed into engagement with the holder member, the blade having lugs projecting between the spaced lip parts.

4. A safety razor, comprising a holder member having a guard portion and having a rigid supporting member at each end provided with spaced lips projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, and a spring member carried by the holder and projecting upwardly into the opening in the blade to yieldably retain the blade with its end portions engaged by said lips, the blade having lugs projecting between the spaced lip parts.

5. A safety razor, comprising a substantially trough shaped holder member having a guard portion and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, and a spring member carried by the holder and projecting upwardly into the opening in the blade to yieldably retain the blade with its end portions engaged by said lips.

6. A safety razor, comprising a substantially trough shaped holder member having a guard portion and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, and a spring member carried by the holder and projecting upwardly into the opening in the blade to yieldably retain the blade with its end portions engaged by said lips and with one end wall of the blade pressed into engagement with the holder member.

7. A safety razor comprising a blade having an opening adjacent one end and having projecting portions at the middle of each end, a holder having a guard portion, the holder having end members each provided with upwardly projecting portions at each end thereof that are undercut to receive the end portions of the blade, and a spring member on the holder engaging the blade at its said opening to yieldably press the blade at one end against the undercut portions of the holder.

8. A safety razor comprising a blade having an opening adjacent to each end, a holder having a guard portion, the holder having end members provided with spaced upwardly projecting portions at each end thereof that are undercut to receive the respective end portions of the blade on each side of the blade projections, and a spring member on the holder engaging the blade at its said opening to yieldably press the blade at one end against the undercut portions of the holder, the blade having projecting portions at the intermediate part of each end fitting between the said projecting portions of the holder.

9. A safety razor comprising a blade having an opening adjacent one end and having projecting portions at the middle of each end, a substantially trough-shaped holder having a guard portion, the holder having transverse end members provided with spaced upwardly projecting portions at each end thereof that are undercut to receive the respective end portions of the blade on each side of the blade projections, and a spring member on the holder engaging the blade at its said opening to yieldably press the blade at one end wall against the undercut portion of the holder, the blade having projecting portions at the intermediate part of each end fitting between the said projecting portions of the holder.

10. A safety razor, comprising a holder member having guard portions on opposite sides, and a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein at each end and being engaged by said lip portions at its end portions respectively, and a spring member carried by the holder and projecting upwardly into one of the openings in the blade to yieldably retain the blade with its end portions engaged by said lips, said blade openings being symmetrically arranged to permit reversal endwise of the blade.

11. A safety razor comprising a blade having cutting edges on two opposite sides, the blade having an opening at each end and having projecting portions at the middle of each end part, and a substantially trough shaped holder having guard portions on opposite sides, the holder having a transverse end member provided with spaced upwardly projecting portions at each end thereof that are undercut to receive the respective end portions of the blade on each side of the blade projections and a spring member on the holder engaging the blade at one of said openings therein to yieldably press the blade at one end wall against the undercut portion of the holder, the blade having the projecting portions fitting between the said projecting portions of the holder, the openings in the blade being symmetrically arranged to permit reversal endwise of the blade in the holder.

12. A safety razor comprising cutting means, and a holder having guard portions and engaging means permanently fixed with relation to the cutting means to position said cutting means, said holder having its guard

portions located differently with relation to said engaging means thereby to position said cutting means always in the same prearranged position.

13. A safety razor comprising cutting means, and a holder provided with guard portions and engaging means permanently fixed with relation to the cutting means thereby to position said cutting means, said holder having its engaging means arranged differently relative to its guard portions to locate the cutting means on the holder with one cutting edge spaced or offset a greater distance from the guard portion than another cutting edge is spaced or offset from its coöperating guard portion.

14. A safety razor comprising cutting means, and a holder provided with guard portions and engaging means permanently fixed with relation to the cutting means thereby to position said cutting means, said holder having its engaging means arranged differently relative to its guard portions to locate the cutting means on the holder with one guard portion projecting beyond its cooperating cutting edge a greater distance than the other guard portion projects beyond its coöperating cutting edge.

15. A safety razor comprising cutting means and a holder having a plurality of guard portions and engaging means to position said cutting means, said holder having one of its guard portions of greater length than another with relation to said positioning means and one located below another with relation to a plane passing through the edges of such cutting means.

16. A safety razor comprising cutting means and a holder provided with guard portions and with engaging means to position such cutting means, said holder having its positioning means arranged differently relative to its guard portions to locate the cutting means on the holder with one guard portion projecting beyond its coöperating cutting edge a greater distance than the other guard portion projects beyond its coöperating cutting edge, the guard portion that projects the greater distance from its cutting edge being spaced or offset from the cutting edge a greater distance than the other guard portion is spaced or offset from its cutting edge.

17. A safety razor comprising a holder having a pair of guard portions and blade positioning means, and a two-edged blade, said holder having its guard portions located differently with relation to each other and said blade positioning means, the cutting angles of the blade with relation to such guard portions being the same at both sides thereof and remaining constant notwithstanding the different locations of said guard portions.

18. A safety razor comprising a holder having a pair of guard portions and blade positioning means, and a two-edged blade, said holder having one of its guard portions of greater length than the other with relation to said blade positioning means, the longer guard portion being located below the other with relation to a plane passing through the blade edges, thereby to provide a greater space between the blade and its guard portion at one side of the razor than is provided at the other, the greater the space between the guard portion and the blade the greater the length of said guard portion.

19. A safety razor comprising a holder and reversible cutting means, reversible to permit either side face to be contiguous to the holder, said holder having its guard portions located differently with relation to the cutting edges of said cutting means, but each maintaining the same relation to the cutting means on the reversal thereof, whereby the same side of the razor will always give a closer shave.

20. A safety razor comprising a holder, and a two-edged reversible blade, reversible to permit either side face to be contiguous to the holder, said holder having a pair of guard portions one located a greater distance below one edge of the blade than the other guard portion is located below the other edge of said blade, but each maintaining the same relation to the blade on the reversal thereof, whereby the same side of the razor will always give a closer shave.

21. A safety razor comprising a holder having blade engaging and positioning means, and a two-edged, reversible blade, reversible to permit either side face to be contiguous to the holder, said holder having a pair of guard portions one extending outwardly a greater distance from the blade positioning means than does the other guard portion, but each maintaining the same relation to the blade on the reversal thereof, whereby the same side of the razor will always give a closer shave.

22. A safety razor comprising a holder having a pair of guard portions, and a reversible, two-edged, symmetrical blade removably secured thereto and reversible to permit either side face to be contiguous to the holder, said guard portions being located differently with relation to each other and with relation to the blade, thereby to form an unsymmetrical holder, the organization being such that this different relation of the guard portions is permanently maintained regardless of whatever way the blade is inserted in the holder, so that the same side of the razor will always give a closer shave than the other side thereof.

23. A safety razor comprising a holder having a pair of guard portions and blade positioning means for securing the blade in position, and a reversible, two-edged, symmetrical blade, reversible to permit either

side face to be contiguous to the holder, said holder having one guard portion extending outwardly from the blade positioning means a greater distance than does the other guard portion and said longer guard portion being located below the other guard portion relative to a plane passing through the blade edges, thereby to form an unsymmetrical holder, whereby the space between the blade and its guard at one side is greater than the space at the other side, but each of which spaces is permanently maintained regardless of whatever way the blade is inserted in the holder, so that the same side of the razor will always give a closer shave than the other.

24. In a safety razor, a blade having a pair of oppositely arranged cutting edges, and a holder provided with means located transversely of the ends for securing the blade thereto, the blade being so positioned with relation to such holder that one cutting edge is offset or spaced from the adjacent portion of the holder a permanent, predetermined, greater distance than the other edge is offset or spaced from its adjacent portion of the holder.

25. In a safety razor, a blade, a substantially trough-shaped holder having guard portions, means on the holder for securing a blade thereto with its cutting edges adjacent the guard portions, the holder having a transverse opening in its trough portion, and a handle member having adjustable securing means passing through said opening, whereby the handle can be adjusted in a plane perpendicular to the cutting edges of the blade.

26. In a safety razor, a blade, a substantially trough-shaped holder having means for securing the blade thereto with its cutting edges adjacent the guard portions, the holder having a transverse opening in the trough portion, a nut member secured to the holder and slidable in said opening, and a handle member having a threaded portion adapted to screw into the nut member and thereby be secured to the holder in adjusted positions.

27. A safety razor comprising cutting means having several cutting edges, and a holder having means for securing the cutting means thereto and having guard portions, the cutting means and guard portions having a prearranged, permanent, fixed relation relatively to each other with one cutting edge offset or spaced from the top of its adjacent guard portion of the holder a greater distance than another edge of the cutting means is offset from the top of its adjacent guard portion of said holder.

28. A safety razor comprising cutting means having several cutting edges, and a holder provided with means for securing such cutting means thereto and having guard portions, the cutting means being so set with relation to such guard portions that any of its cutting edges may be, without adjustment or flexure of such edge, spaced or offset a greater distance from its adjacent guard portion than any other cutting edge is spaced or offset from its guard portion.

29. A safety razor comprising a blade having several cutting edges, and a holder provided with means for securing the blade thereto and having guard portions, the blade and guard portions being so positioned with relation to each other that the blade may be set, without adjustment thereof, with any of its cutting edges spaced or offset a greater distance from its guard portion than any other cutting edge is spaced or offset from its guard portion, the guard portion for the cutting edge that is offset or spaced the greater distance projecting beyond such edge to a greater extent than any other guard portion projects beyond its coöperating cutting edge.

30. A safety razor comprising a reversible blade having opposite cutting edges, and a holder provided with means for securing the blade thereto and having guard portions, the blade and guard portions having a prearranged, permanent, fixed relation so that on the reversal of the blade either of its cutting edges will be spaced or offset a greater distance from its adjacent guard portion than the other cutting edge is spaced or offset from its guard portion.

31. A safety razor comprising a holder having oppositely located, rigid, recessed end members forming opposed sockets, and a blade extending into such sockets, the end walls of the sockets being spaced a greater distance apart than the length of the blade at its socket-engaging portions to permit endwise movement of the blade in the sockets for the insertion and removal of such blade.

32. A safety razor comprising a holder having oppositely located, rigid, recessed end members forming opposed sockets, a blade extending into such sockets, the end walls of the sockets being spaced a greater distance apart than the length of the blade at its socket-engaging portions to permit endwise movement of the blade in the sockets for the insertion and removal of such blade, and means for holding the blade against endwise movement.

33. A safety razor comprising a holder having oppositely located, rigid, recessed end members forming opposed sockets, a blade extending into such sockets, the end walls of the sockets being spaced a greater distance apart than the length of the blade at its socket-engaging portions to permit endwise movement of the blade in the sockets for the insertion and removal of such blade, and resilient means for holding the blade against endwise movement.

34. A safety razor comprising a holder having oppositely located, rigid, recessed end

members forming opposed sockets, and a blade extending into such sockets, the end walls of the sockets spaced a greater distance apart than the length of the blade at its socket-engaging portions to permit movement of the blade in the sockets for the insertion and removal of such blade, one of the sockets having greater depth than the other thereby to permit the insertion of one blade end a sufficient distance to enable the opposite blade end to be brought to register with and to have endwise movement into its socket.

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