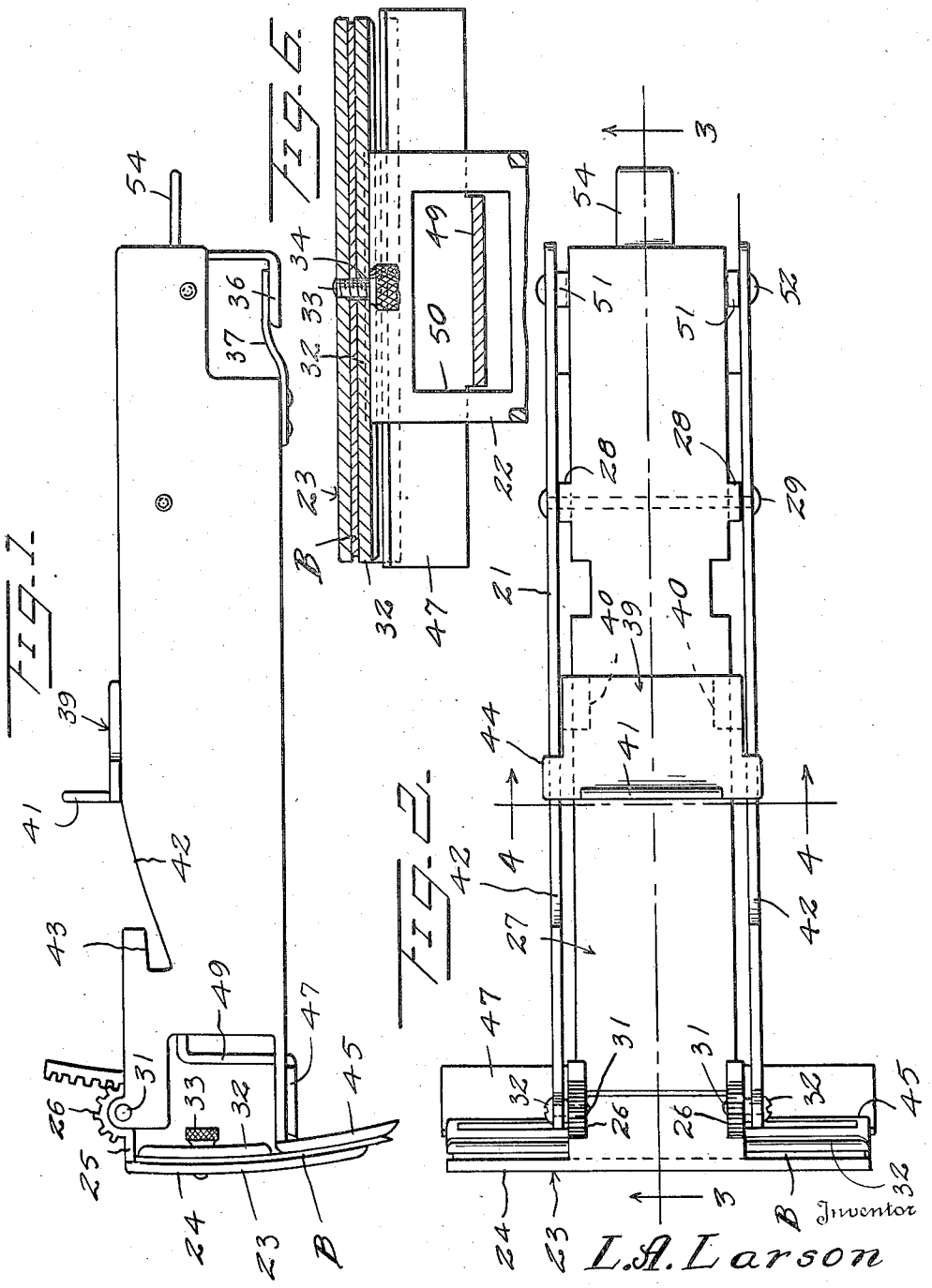
April 30, 1946. L. A. LARSON 2,399,552

SAFETY RAZOR

Filed Aug. 7, 1944 3 Sheets-Sheet 1



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SAFETY RAZOR

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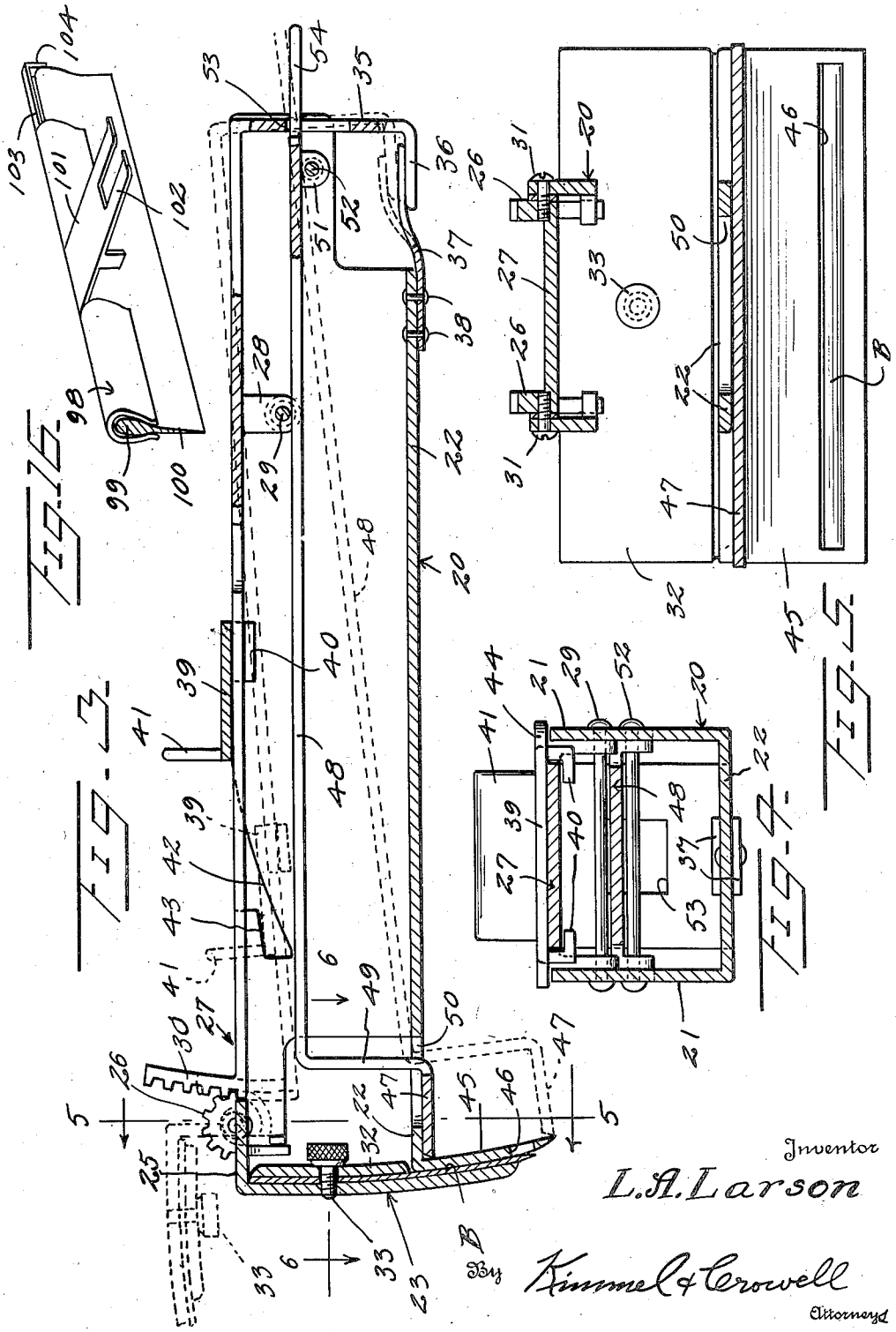

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SAFETY RAZOR

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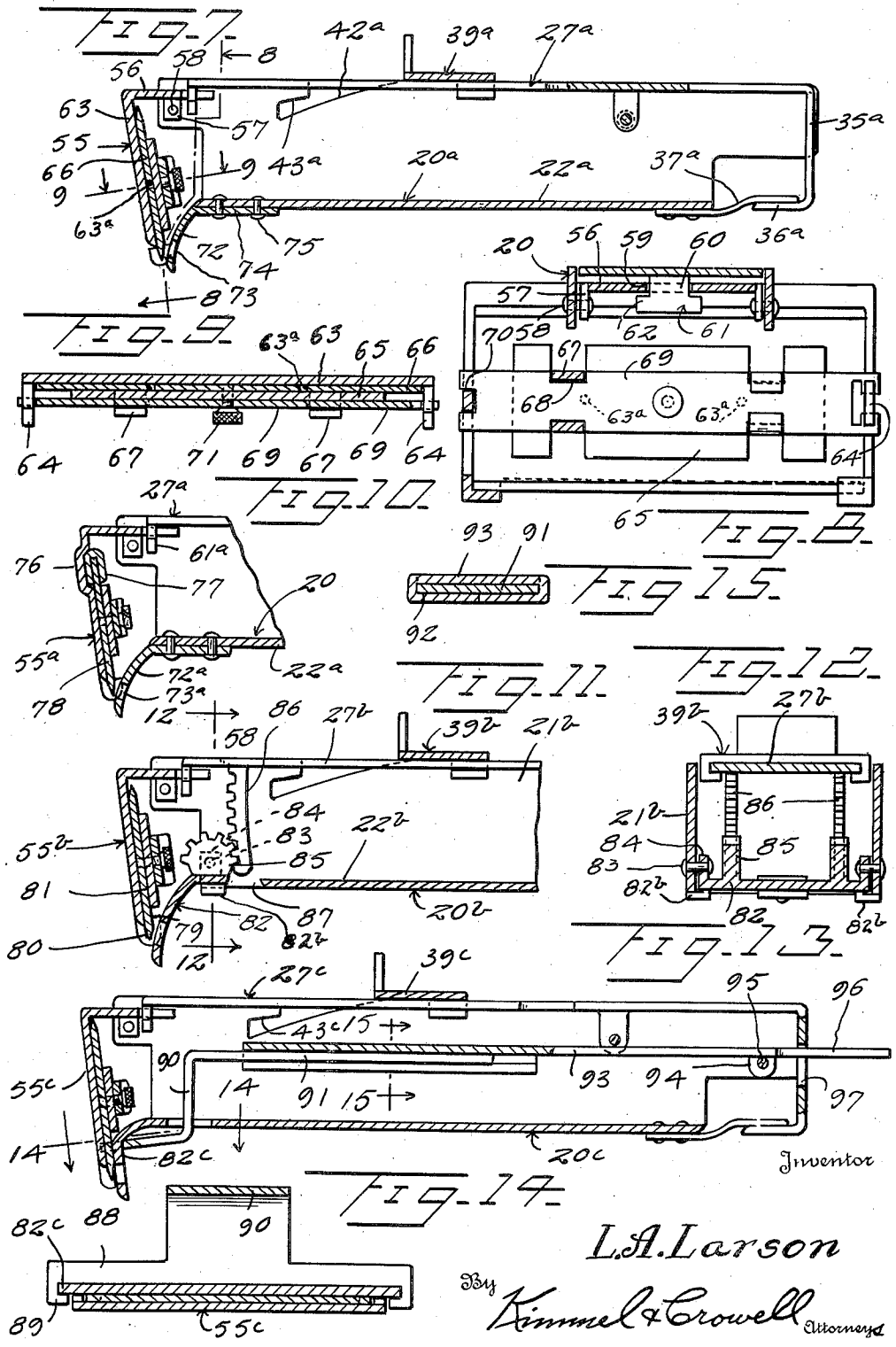

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2,399,552

SAFETY RAZOR

Louis A. Larson, Minneapolis, Minn.

Application August 7, 1944, Serial No. 548,376

13 Claims. (Cl. 30—41)

This invention relates to razor blade holders.

An object of this invention is to provide a holder which can be adapted to various types of razor blades, such as single or double edge or the old type straight back razor.

Another object of this invention is to provide a holder which includes a handle and a blade support, the support being pivotally carried by the handle and capable of being swung from an operative position to an inoperative position, the support when in inoperative position projecting forwardly so that the blade may be cleaned or removed.

A further object of this invention is to provide a holder of this type which is provided with a blade guard and also a guard cleaner, the cleaner being carried by a pivoted lever and adapted to wipe over the rear side of the guard.

A further object of this invention is to provide a holder of this type wherein the component parts thereof may be produced from stamped metal so that the device will be relatively light in weight and at the same time strong enough to withstand normal usage.

A further object of this invention is to provide a holder which in one form thereof is provided with a pivoted blade support and a pivoted guard, the blade support being so constructed and arranged that the guard cannot be swung on its pivot until the locking means for the blade support has been shifted to released position and the blade support swung outwardly and locked in its inoperative position.

A further object of this invention is to provide a holder which in another form thereof includes a pivoted blade support and a pivoted guard, and also includes a common operator for the support and the guard so that these parts will be moved simultaneously to either operative or inoperative position, and when in the latter position, will be spaced one from the other.

A further object of this invention is to provide an improved blade clamping means for removably clamping the blade on the blade support or holder.

With the foregoing objects and others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and illustrated in the accompanying drawings, wherein are shown embodiments of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a detail side elevation of a razor holder constructed according to an embodiment of this invention,

Figure 2 is a detail top plan of the device,

Figure 3 is a longitudinal section taken on the line 3—3 of Figure 2,

Figure 4 is a transverse section taken on the line 4—4 of Figure 2,

Figure 5 is a sectional view taken on the line 5—5 of Figure 3,

Figure 6 is a fragmentary sectional view taken on the line 6—6 of Figure 3,

Figure 7 is a longitudinal section of a modified form of this device,

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

Figure 9 is a sectional view taken on the line 9—9 of Figure 7,

Figure 10 is a fragmentary longitudinal section of a modified form of blade holder or clamp,

Figure 11 is a fragmentary longitudinal section of a further modification of this invention,

Figure 12 is a sectional view taken on the line 12—12 of Figure 11,

Figure 13 is a longitudinal section of a modified form of this invention,

Figure 14 is a sectional view taken on the line 14—14 of Figure 13,

Figure 15 is a sectional view taken on the line 15—15 of Figure 13, and

Figure 16 is a perspective view of another modification of holder.

Referring to the drawings, and first to Figures 1 to 6 inclusive, the numeral 20 designates generally a handle which is formed of opposite parallel side members 21 and a bottom member 22. The handle 20 is open at the top, the purpose for which will be hereinafter described. A razor blade holder or support 23 is pivotally mounted on the forward end of the handle 20 and includes a plate 24 which is longitudinally curved with the concave side thereof rearmost or innermost, and the plate 24 has extending from the upper end thereof a rearwardly extending arm 25 on the opposite edges of which adjacent the rear thereof there are two fragmentary spur gears 26.

An elongated lever or holder operator generally designated as 27 which is provided intermediate the ends thereof with a pair of downwardly extending ears 28 is disposed between the sides 21 of the handle 20. The lever 27 is rockably mounted on a pivot 29 extending through the sides 21 of the handle, and the forward end of the lever or operator 27 has extending upwardly therefrom a pair of toothed racks 30. The racks 30 mesh

with the fragmentary spur gears 26 so that when the forward end of the lever 27 is rocked downwardly or inwardly of the handle 20, the racks 30 will rotate the spur gears 26 which are fixed relative to the extension or arm 25 and are mounted on a pivot 31. The pivot 31 extends between the forward ends of the side handle members 21. The blade holder or support 23 also includes a pressure plate 32 disposed on the rear or concave side of the plate 24 and a blade B is adapted to be interposed between the pressure plate 32 and the concave side of the plate 24. A threaded screw 33 is threaded into the plate 24, extending through an opening 34 in the pressure plate 32 so as to tightly clamp the blade B with the lower end thereof projecting from the lower end or edge of the plate 24.

In order to provide a means whereby the lever 27 will be held in its uppermost position, which is substantially parallel with the upper edge of the side members 21, the rear end of the lever 27 is formed with a right angular extension 35 which terminates at its lower end in a forwardly extending extension 36. A spring 37 secured by fastening members 38 to the lower wall 22 of the handle engages the upper or inner side of the extension 36 and constantly urges the lever 27 to a position for maintaining the blade holder 23 in an operative position.

The lever 27 is adapted to be rocked downwardly to a holder inoperative position by pressing the forward end of the lever 27 inwardly of the handle. A slide 39 which is formed with returned opposite edge portions 40 is slidable on the lever 27 and is formed with an upwardly projecting finger engageable member 41. The upper edges of the side members 21 are formed with cutouts 42 overhung at the forward end by keepers 43. The locking member or slide 39 will normally be disposed in the position shown in Figure 3, and the slide 39 is also formed with oppositely extending tongues 44 slidably engaging the upper edges of the side members 21. When the slide 39 is moved forwardly it will ride downwardly with pressure of a finger on the lever 27 or the slide 39 along the inclined cutout 42 until the tongues 44 engage under the keepers 43. At this time the lever 27 will be disposed in the dotted position shown in Figure 3, and the blade holder 23 will be disposed in the outwardly extending position shown in dotted lines in Figure 3. Downward rocking of the forward end of the lever 27 will raise the rear end of the lever against the tension of the spring 37.

The bottom wall 22 of the handle 20 has secured to the forward end thereof a blade guarding member 45 which is of the same width as the length of the blade B and the guard 45 is provided with a concave rear side as shown in Figures 1 and 3. The guard 45 is provided adjacent the lower edge thereof with an elongated slot 46 so that the hair, soap, cream or the like may pass through the guard 45 to the rear side thereof.

The guard 45 is adapted to be cleaned by means of a cleaner 47. The cleaner 47 is adapted to wipe the rear concave side of the guard 45 and normally is disposed in the position shown in Figures 1 and 3 against the lower side of the bottom wall 22 of the handle 20. The cleaner 47 is formed integral with or secured to an elongated cleaner operating lever 48 which at the forward end thereof is provided with a right angular extension 49 loosely engaging through an opening 50 formed in the bottom wall 22. The lever 48 adjacent the rear thereof is provided with a pair of ears 51 through which a pivot member 52 engages, the pivot member 52 being secured to the sides 21 of the handle. The lever 48 projects rearwardly of the pivot 52 through an opening 53 which is formed in the right angular extension 35 of the lever 27. The lever 48 rearwardly of the pivot 52 is provided with a narrow extension or handle 54 loosely engaging through the opening 53 so that the lever 48 may be rocked downwardly to the dotted line position, shown in Figure 3, after the lever 27 has been rocked downwardly or inwardly, the latter lever normally holding the cleaner lever 48 in its inoperative position by reason of the engagement of the extension 54 with the upper edge of the opening 53 in the blade operating lever extension 35.

Referring now to Figures 7, 8 and 9, there is disclosed a modified form of this invention which includes a handle 20a which is similar to the handle 20 and which has pivotally secured to the forward end thereof a razor blade holder or support 55 which at its upper end is provided with a rearwardly extending arm 56. The arm 56 is formed with a pair of downwardly or inwardly extending ears 57 through which pivot members 58 engage. The pivot members 58 engage through the sides of the forward ends of the handle 20a so that the holder 52 will be pivotally mounted on the forward end of the handle.

The holder 55 includes a rearwardly opening slot 59 in the arm 56 and the stem portion 60 of a T-shaped holder operator 61 engages loosely in the slot 59. The head portion 62 of the T-shaped member 61 is lowermost and engages the lower sides of the bifurcation formed by the rearwardly opening slot 59. The T-shaped member 61 is formed as a right angular and downwardly extending extension of an operator 27a which is similar in many details to the operator 27.

A lever locking slide 39a is slidably carried by the lever 27a and is adapted to slide downwardly and inwardly along the upper edge of a cutout 42a and engage in a keeper 43a formed in the sides of the handle 20a. The rear end of the lever 27a is formed with a right angular extension 35a which at its lower end is formed with a forwardly extending extension 36a which is engaged by a flat spring 37a carried by the bottom wall 22a of the handle.

The blade holder 55 includes a relatively flat body or forward plate 63 which at the opposite edges thereof is formed with T-shaped members 64. A pressure plate 65 is adapted to engage against the rear side of the blade 66 and is formed with rearwardly extending ears 67 engaging in slots 68 formed in an elongated bar 69. The bar 69 at the opposite ends thereof is formed with outwardly opening slots 70 which engage on the opposite edges of the stem of the T-member 64 so that when a pressure applying screw 71 which is threaded through the bar 69 is turned to a pressure applying position, the inner end of the screw 71 will bear against the rear side of the pressure plate 65, thereby forcing the bar 69 rearwardly so that the rear side of bar 69 will bear against the heads of the T-members 64, and the plate 65 wil be forced forwardly into clamping position against the rear or inner side of the blade 66.

The handle 20a on the lower side thereof has fixedly secured thereto an arcuate guard 72 which is formed with an elongated opening 73. The guard 72 at its upper edge is formed with a rearwardly extending base 74 which is secured by fastening members 75 to the bottom wall 22a.

Referring now to Figure 10, the form of razor holder herein shown is similar in substantially every detail to the structure shown in Figures 7, 8 and 9 with the exception that the blade holder 55a is formed adjacent the upper edge thereof with a transversely extending offset 76. This offset 76 is provided to receive the stiffening element 77 which is carried by the upper edge of a single-edge blade 78. In other respects the structure shown in Figure 10 is the same in every detail to that shown in Figures 7, 8 and 9.

Referring now to Figures 11 and 12, there is disclosed a further modification of this invention. A handle 20b which a similar in most details to the handle 20 has pivotally mounted between the sides 21b thereof a holder operating lever 27b similar in every detail to lever 27a. The lever 27b is adapted to be locked in its downward position by means of a sliding locking member 39b similar to locking member 39. A blade holder 55b which is similar in substantially every detail to the holder 55 is pivotally mounted on pivot members 58b carried by the forward end of the handle 20b.

The holder 55b at the lower edge thereof is formed with upturned tongues or reverted blade holding members 79 which are positioned adjacent the opposite edges of the holder 55b and are formed with notches 80 in which the lower corners of the blade 81 are adapted to engage. A pivoted guard member 82 is pivotally mounted on pivot members 83 carried by the bottom wall 22b of the handle 20b, the guard 82 being formed with a pair of upwardly extending ears 84 through which the pivot member 83 engages. The guard 82 also has secured thereto a pair of fragmentary spur gears 85 which are positioned within the hollow handle 20b and are engaged by a pair of downwardly extending toothed racks 86 which are fixed to the lower side of the lever 27b.

The bottom wall 22b is formed with a pair of openings 87 through which the racks 86 are adapted to engage when the lever 27b is rocked downwardly. With a construction as shown in Figures 11 and 12, both the holder 57b and the guard 82 are rocked forwardly and upwardly to inoperative position, upon inward rocking of the lever 27b. As the holder 55b and the guard 82 are mounted on spaced pivots they will be positioned in spaced apart relation when the lever 27b is moved inwardly to position the blade holder and guard in inoperative position.

Referring now to Figures 13 to 15, there is dislosed a still further modification of this invention. A handle 20c is provided which is similar in every respect to handle 20 with the exceptions to be hereinafter noted. A blade holder 55c which is similar in every respect to blade holder 55 is pivotally mounted on the forward end of the handle 20c and is adapted to be rocked outwardly and forwardly to an inoperative position upon rocking of a lever 27c similar to lever 27b. The lever 27c is locked in a selected position by means of a slidable lock 39c carried by the lever 27c and adapted to slide downwardly to engage a keeper 43c similar to keeper 43.

The handle 20c has formed integral with the forward end thereof a downwardly extending blade guard 82c and the guard 82c is adapted to be cleaned by means of a cleaner 88 which is adapted to wipe the rear side of the guard 82c. The opposite ends of the cleaner 88 is formed with hooks or guide members 89 as shown in Figure 14 engaging over the opposite edges of the guard 82c. The cleaner 88 is carried by an L-shaped extension 90 formed on the forward end of an elongated bar 91. The bar 91 is slidable in a channel 92 which is formed in the forward end of a rock lever 93. The rock lever 93 adjacent the rear thereof is formed with a pair of ears 94 through which a pivot member 95 engages and the lever 93 is also formed with a handle or operator 96 extending loosely through an opening 97 formed in the rear portion of the lever 28c. In the present instance, the guard 82c is straight so that in order for the cleaner 88 to constantly wipe the rear side of the guard 82c, it is necessary to provide for a sliding connection between the cleaner 88 and the lever 93.

Referring now to Figure 16, there is disclosed a perspective view of a blade holder for use in holding a straight edge razor blade. The blade holder shown in Figure 16 is adapted to be used with handles 20a, 20g or 20c. The holder shown in Figure 16 which is designated generally by the numeral 98 is constructed in the form of a split resilient tube wherein the enlarged back 99 of a straight edge razor 100 is adapted to slidingly engage. The split tube 98 is formed with a rearwardly extending arm 101 having a bifurcated rear end portion 102 between which the T-shaped end of the holder operating lever similar to the T-shaped end 61 is adapted to slidingly engage. The tubular member 98 is formed with a longitudinal extension 103 having a downwardly extending stub member 104 against which the adjacent end of the blade 100 is adapted to abut.

In the construction shown in Figures 11 and 12, the guard 82 is formed with a pair of outwardly projecting stop members 82b which engage the lower edge of handle 21b so as to limit the rearward swinging of guard 82.

In the construction shown in Figures 7, 8, and 9, the plate 63 is provided with pins 63a for engagement through openings in blades of different makes so that this holder may be used with various types of blades. This same construction may be incorporated in any one or all of the forms of the invention herein disclosed.

What I claim is:

1. A razor blade holder comprising a handle, a guard carried by one end of said handle, a blade holder pivotally carried by said handle, a holder operating lever pivotally carried by said handle and extending lengthwise thereof, correlated means carried by said handle and said holder whereby the latter will be rocked to operative or inoperative position upon rocking of said lever, and spring means constantly urging said lever to maintain said holder in operative position.

2. A razor blade holder as set forth in claim 1 which includes means whereby said lever may be locked to maintain said holder in either operative or inoperative position.

3. A razor blade holder as set forth in claim 1 which includes a lever locking member slidably carried by said lever, said handle being formed with a keeper for engagement with said locking member to thereby hold said lever in a position to maintain said holder in inoperative position.

4. A razor blade holder comprising a handle, a blade holder pivotally carried by said handle, a guard pivotally carried by said handle, a common operator carried by said handle engageable with said holder and said guard for effecting rocking of said holder and guard to operative or inoper-

ative position, and spring means for normally maintaining said operator in a position whereby said holder and guard will be in an operative position.

5. A razor blade holder as set forth in claim 4 including releasable locking means for locking said operator in operative or inoperative position.

6. A razor blade holder as set forth in claim 4 including a lengthwise adjustable locking member carried by said operator for holding the latter in operative position.

7. A razor blade holder as set forth in claim 4 including a lengthwise adjustable locking member slidably carried by said operator for holding the latter in operative position.

8. A razor blade holder as set forth in claim 4 wherein said holder includes a pivoted plate, a pressure plate on the rear side of said first plate, a bar having outwardly opening slots in the opposite ends thereof, T-shaped holding members carried by said first plate engaging in the slots of said bar, and a pressure applying screw threaded through said bar.

9. A razor blade holder comprising an elongated handle, a razor blade holder pivotally carried by one end of said handle, a holder operating lever pivotally carried by said handle, correlated means connecting said lever with said holder, spring means constantly urging said lever to maintain said holder in operative position, a guard carried by said handle, a guard cleaning member disposed in a position for wiping engagement with said guard, and means swingably supporting said cleaning member, said supporting means being disposed within said handle.

10. A razor blade holder comprising an elongated handle, a razor blade holder pivotally carried by one end of said handle, a holder operating lever pivotally carried by said handle, correlated means connecting said lever with said holder, spring means constantly urging said lever to maintain said holder in operative position, a guard carried by said handle, a guard cleaning member disposed in a position for wiping engagement with said guard, and means swingably supporting said cleaning member, said supporting means comprising an elongated lever pivotally mounted within said handle.

11. A razor blade holder comprising an elongated handle, a razor blade holder pivotally carried by one end of said handle, a holder operating lever pivotally carried by said handle, correlated means connecting said lever with said holder, spring means constantly urging said lever to maintain said holder in operative position, a guard carried by said handle, a guard cleaning member disposed in a position for wiping engagement with said guard, and means swingably supporting said cleaning member, said supporting means comprising an elongated lever pivotally mounted within said handle, and means carried by said second lever engageable with said first lever whereby said second lever will be moved to inoperative position when said first lever is rocked to position said holder in operative position.

12. A razor blade holder comprising an elongated handle, a razor blade holder pivotally carried by one end of said handle, a holder operating lever pivotally carried by said handle, correlated means connecting said lever with said holder, spring means constantly urging said lever to maintain said holder in operative position, a guard carried by said handle, a guard cleaning member disposed in a position for wiping engagement with said guard, and means swingably supporting said cleaning member, said supporting means comprising an elongated lever pivotally mounted within said handle, said first lever having an opening in the rear thereof, and an extension carried by said second lever engaging within said opening whereby said second lever will be rocked in at least one direction upon and by rocking of said first lever after the latter has been rocked to position the holder in operative position.

13. A razor blade holder comprising an elongated handle, a razor blade holder pivotally carried by one end of said handle, a holder operating lever pivotally carried by said handle, correlated means connecting said lever with said holder, spring means constantly urging said lever to maintain said holder in operative position, a guard carried by said handle, a guard cleaning member disposed in a position for wiping engagement with said guard, and means swingably supporting said cleaning member, said lever and supporting means for said cleaning member being so arranged and constructed that when the said lever is rocked to maintain said holder in operative position after said cleaner has been rocked to cleaning position, said supporting means will be operated simultaneously by and with said lever.

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