

July 16, 1946.

J. NELSON

2,404,141

RAZOR BLADE HOLDER

Filed Dec. 11, 1943

Fig. 1

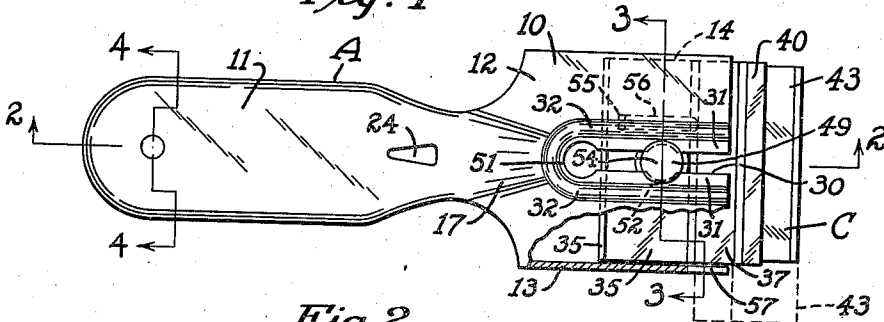


Fig. 2

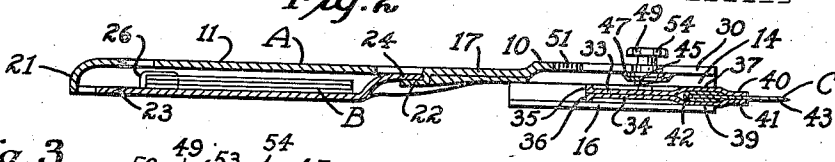


Fig. 3

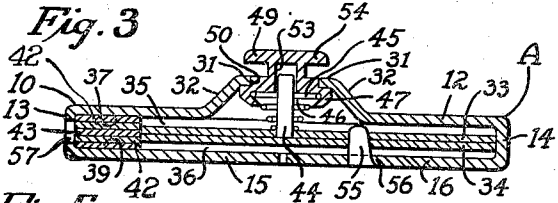


Fig. 4

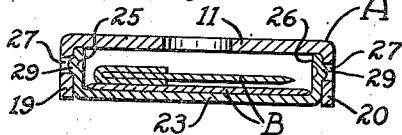


Fig. 5

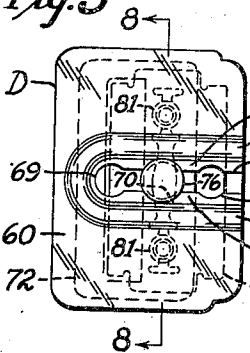


Fig. 6

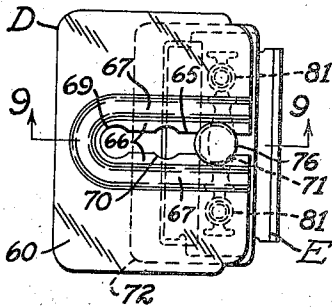


Fig. 7

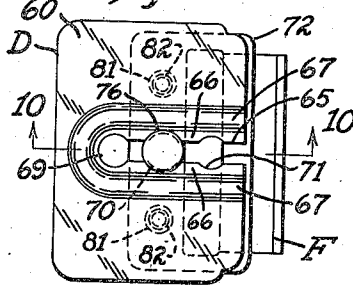


Fig. 9

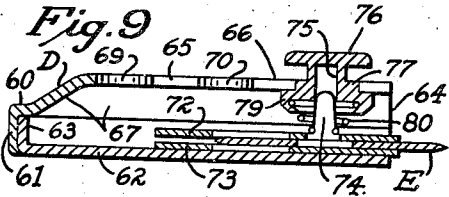


Fig. 8

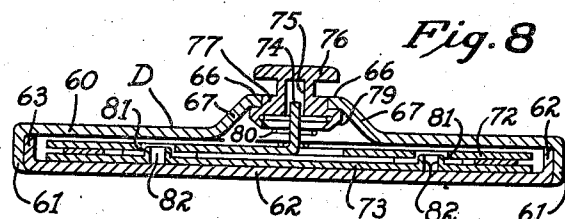
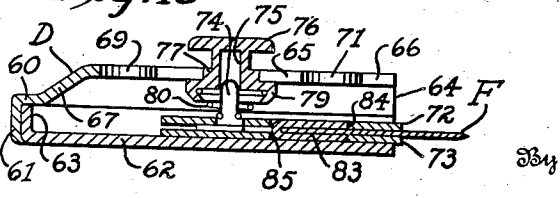


Fig. 10



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UNITED STATES PATENT OFFICE

2,404,141

RAZOR BLADE HOLDER

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Application December 11, 1943, Serial No. 513,899

15 Claims. (Cl. 30-162)

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My invention relates to an improvement in scraper blade holders, wherein it is desired to provide a novel and effective means of holding a razor blade for scraping purposes.

The object of my invention lies in the provision of a scraper blade holder supporting a razor blade so that it may retract or project from its holder. In retracted position the scraper blade edge is held in protected position. In projected position the razor blade is in readiness for full operation for its designed purpose.

A feature of the present invention lies in the provision of a novel means for holding the razor blade in selected position. This means comprises a pin or knob which is secured to the reinforcing plate to which the razor blade is secured, and which extends through a slot in the hollow enclosure in which the razor blade and reinforcing plate are slidably positioned. This pin or knob is engageable in spaced enlargements in the slot so that the blade may be held in adjusted position.

A further feature of the present invention lies in the simplicity of assembly of the apparatus. The razor blade is removably secured to its slidable reinforcing member and a spring pin device is also attached to this reinforcing plate structure. The razor blade and its reinforcing plate may then be inserted into the hollow body of the holder, and is mounted therein for retractable movement.

A feature of the present invention lies in the fact that the portion of the hollow enclosure adjacent the slot in which the adjustment pin is engaged is off-set onto a plate parallel the adjacent surfaces of the enclosure. Accordingly a part of the spring urged pin may lie interiorly of the slot edges to hold the pin or knob in proper relation to the reinforcing plate.

A feature of one form of my invention lies in the provision of a slot at one side edge of the holder through which a blade may be inserted or rejected. Accordingly blades may be changed when found necessary or desirable without removing the supporting reinforcing member from its enclosure.

A further feature of my invention lies in the fact that the holder may be such as to support a razor blade of the double edge type or of the single edged type. The reinforcing plate is reversibly positioned in its enclosure and is removable therefrom. When in one position in relation to the holder a single edged blade is supported for slidable movement receded into or projecting from the enclosure. In reversed po-

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sition my reinforcing plate structure is arranged to support a blade of the double edged type, either receded into or projecting from the enclosure. Thus my holder is useable with blades of either of these types.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawing forming a part of my specification:

Figure 1 is a top plan view of my razor blade holder, a portion of which has been broken away to show the construction thereof.

Figure 2 is a longitudinal section through the holder illustrated in Figure 1, the position of the section being indicated by the line 2-2 of Figure 1.

Figure 3 is a cross-sectional view through the holder, the position of the section being indicated by the line 3-3 of Figure 1.

Figure 4 is a cross-sectional view through the handle portion of the tool, the position of the section being indicated by the line 4-4 of Figure 1.

Figure 5 is a top plan view of a modified form of holder construction shown holding a double edged blade in retracted position.

Figure 6 is a view similar to Figure 5 showing the double edged blade in projected position.

Figure 7 is a view similar to Figures 5 and 6 showing the holder clamping a single edged type razor blade in projected position.

Figure 8 is a sectional view through the holder, the position of the section being indicated by the line 8-8 of Figure 5.

Figure 9 is a sectional view longitudinally through the holder shown in Figures 5 and 6, the position of the section being indicated by the line 9-9 of Figure 6.

Figure 10 is a sectional view through the holder shown in Figure 7, the position of the section being indicated by the line 10-10 of Figure 7.

The holder A, illustrated in Figures 1 through 4 of the drawing, comprises a hollow head, indicated in general by the numeral 10 and a handle 11 secured thereto. The head 10 is provided with an upper substantially flat panel 12, foldably connected side edge walls 13 and 14, and opposed bottom panels 15 and 16. The bottom panels, side edge panels, and top wall panel are all connected together, and are preferably formed of a single piece of sheet material bent in substantially rectangular form.

The top surface panel 12 extends rearwardly beyond the remaining panels and is provided with

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a central bulge 17 which extends into the integral handle portion 11. The handle 11 is provided with oppositely positioned side walls 19 and 20 and with a down-turned end flange 21 forming a reinforcement for the handle and also providing a channel-shaped hollow within the handle in which extra razor blades may be kept.

A tongue 22 is bent from the material forming the handle at substantially the longitudinal center of the handle, as best illustrated in Figure 2 of the drawing. A closure plate 23 is shaped to fit between the side walls 19 and 20 of the handle, this closure plate being provided with an upwardly curved tongue 24 which extends between the tongue 22 and the under-surface of the handle body 11. Opposed side flanges 25 and 26 are provided on the closure plate 23, which fit within the side wall flanges 20 and 19, respectively, of the handle 11, as illustrated in Figure 4 of the drawing. Spaced apertures 27 are provided in the side wall flanges 19 and 20, and raised knobs 29 on the flanges 25 and 26 engage in these apertures 27 under spring tension. The closure plate 23 is thus held in place under spring tension and may support a series of extra razor blades, illustrated in general by the numeral B, contained within the hollow body of the handle 11.

Extending longitudinally of the head 10, I provide in the upper panel 12 a slot 30. Portions 31 on opposite sides of the slot 30 are off-set into spaced parallel relation with the remainder of the upper panel 12 of the head 10. The off-set portions 31 are connected by off-sets 32 to the remainder of the surface of the panel 12.

The razor blade reinforcing comprises a pair of clamping plates 33 and 34, which are spot welded, or otherwise connected together. Spacing flanges 35 and 36 are provided on the rear edges of these plates 33 and 34, respectively, so as to hold the plates in proper relation to the head 10. The plates 33 and 34 are provided with off-set portions 37 and 39 which terminate in clamping lips 40 and 41, respectively. The off-set portions 37 and 39 are spread apart to receive the reinforcing edge 42 on the blade 32 of a single edged razor blade C. The clamping lips 40 and 41 engage the blade 43 outwardly of the reinforcing member 42, embracing the edge of the blade 43 opposite the cutting edge thereof. A finger 44 is bent up from about the center of the upper plate 33 and extends upwardly at substantially right angles thereto. A conical spiral spring 45 encircles this finger 44 and is secured at its small diameter end to the finger adjacent the surface of the plate 33. The large diameter end of the spring 45 is resiliently held within the circular recess 46 within the circular flange 47 of the adjusting button 49. The flange 47 is arranged to ride beneath the off-set portions 31 of the head 10 adjacent the slot 30, this flange 47 retaining the adjustment pin 49 from outward movement through the slot 30.

A circular shoulder 50 is provided adjacent the flange 47, this shoulder 50 being engageable in either of a pair of circular enlargements 51 and 52 in the slot 30. When the adjustment pin 49 is in registry with either of the enlargement openings 51 or 52, the shoulder 50 is engaged therein, and the razor blade reinforcing plates 33 and 34 are held from longitudinal slidable movement. However, when the pin is depressed so that the shoulder 50 is below the level of the off-set portions 31, adjacent the slot 30, the pin may slide along the slot into any adjusted position.

The pin 49 is provided with a hollow cylindrical shank 53 and a head 54 at the upper extremity thereof. The shank 53 is of proper interior diameter to accommodate the upper end of the finger 44. This shank 53 is also of proper outside diameter to slide longitudinally within the slot 30. Thus when the pin 49 is depressed, compressing the spring 45, the pin may slide from one extreme position to the other.

In order to prevent the razor blade and its reinforcing plates 33 and 34 from sliding out of the head 10 once the holder has been assembled, I provide a finger 55 which is preferably broken upwardly from the bottom plate 16 into the longitudinal slot 56 in the plates 33 and 34. This finger 55 is formed in the lower plate 16 during the formation of the holder, but remains coplanar with the plate 16 until the razor blade reinforcing plates 33 and 34 are engaged within the head 10. Through the use of a suitable instrument the finger 55 is then broken upwardly into the slot 56, thus limiting the slidable movement of the razor blade and its reinforcing plates and holding the reinforcing plates assembled within the head 10.

As best illustrated in Figures 1 and 3 of the drawing, a slot 57 is provided in the side edge 13 of the head 10, extending toward the rear of the head some distance from the front edge thereof. This slot 57 is provided to permit insertion and withdrawal of the razor blade C from between the plates 33 and 34. When the razor blade is in the projected position illustrated in Figures 1 and 2 of the drawing, pressure against the upper edge of the blade C, as viewed in Figure 1 of the drawing, may slide the blade C transversely out from between the plates 33 and 34 to disengage the blade from the holder. A new blade may be inserted between the plates 33 and 34 in the same way, a blade being illustrated in partially removed position in dotted outline in Figure 1 of the drawing. When the blade is in retracted position, it is held from lateral slidable movement by the side edge 13 of the head 10.

From the foregoing description it will be obvious that a single edge razor blade may be inserted between or withdrawn from between the reinforcing plates 33 and 34 at any time the blade is in extended position. When in the retracted position described the blade is held tightly from movement by engagement of the circular shoulder 50 with the enlargement 52 in the slot 32. When moving longitudinally from one extreme position to the other button or pin 49 is depressed until the shoulder 50 is positioned beneath the off-set portions 31, whereupon the blade and its reinforcing plates may be moved rearwardly to retract the blade until the shoulder 50 engages in the circular enlargement 51. When in this extreme position, the blade is held from movement by engagement of the shoulder 50 within the recess 51, and the blade will remain retracted until the pin 49 is again depressed and longitudinal force exerted thereupon to move the blade into open position.

In Figures 5 through 10 of the drawing I disclose a modified form of holder, which has many features in common with the construction above described. This razor blade holder D is provided with no handle and is extremely compact, and therefore can be easily carried in a pocket or purse.

The holder D includes a hollow rectangular outer body having a slot in one edge thereof from

which the blade may project. The body is preferably formed of an upper panel 60 having marginal flanges 61 along three adjoining marginal edges thereof. The flanges 61 and 63 extend into telescopic relationship and are secured together to hold the upper and lower panels 60 and 62, respectively, in substantially parallel relationship. The provision of the flanges 61 and 63 along three adjoining edges leaves a fourth edge 64 open, and it is through this open edge that the blade and its reinforcing member may project and retract.

The upper panel 60 is provided with a slot 65 therein at substantially right angles to the open front side 64. Portions 66 of the upper panel 60 are off-set onto a plate substantially parallel and above the plane of the remainder of the panel 60, these off-set portions 66 being connected by off-sets 67 to the remainder of the panel. The slot 65 is provided with three longitudinally spaced circular enlargements 69, 70, and 71.

The razor blades are arranged to be clamped between two separate clamping plates 72 and 73. The upper clamping plate 72 is provided with an upstanding ear 74 cut therefrom and arranged to extend into the hollow shank 75 of the headed adjusting pin 76. The shank 75 is of proper outer diameter to slide in the slot 65 and is provided with a circular flange or shoulder 77 of a size to fit snugly within the enlargements 69, 70 and 71. A still larger flange 79 is provided at the lower extremity of the shank 75 and this flange 79 is recessed to receive the large diameter end of a spiral coil spring 80. The small diameter end of the spring 80 is engaged in opposed notches formed at the base of the ear 74. The headed pin 76 and the upper reinforcing plate 72 are held together by the spring 80.

The upper plate 72 is provided with a pair of oppositely disposed spaced apertures 81 there-through, while the lower plate 73 is provided with upturned circular projections 82 which engage within the apertures 81. These projections 82 are arranged to fit through the perforations originally found in double edged razor blades, and the projections hold the blade from twisting with respect to the reinforcing plates 72 and 73.

When the razor blade holder D is holding a double edged razor blade E, as illustrated in Figures 5, 6, and 9 of the drawing, the projections 82 extend through apertures in the blade E, and one edge of the blade projects beyond the adjacent edges of the reinforcing plates 72 and 73. When the blade E is in retracted position, as illustrated in Figure 5 of the drawing, the adjusting button or pin 76 is engaged in the central enlargement 70. When it is desired to project the razor blade E the pin 76 is depressed, compressing the spring 80 and longitudinal pressure is applied to slide the razor blade E and its plates 72 and 73 outwardly into the projecting position illustrated in Figures 6 and 9 of the drawing. The shoulder 77 then engages in the enlargement 71, holding the blade in projecting position. The blade is retracted by depressing the button 76 and sliding the blade and plates rearwardly until the shoulder 77 becomes engaged in the enlargement 70.

When the holder D is used for supporting a single edged razor blade F, as illustrated in Figures 7 and 10 of the drawing, the position of the reinforcing plates 72 and 73 is reversed. The reinforcing strip 83 embracing the rear edge of the blade F engages in longitudinally extending slots 84 and 85 in the reinforcing plates 72 and 73, re-

spectively. When thus reversed, the blade F will be found to be in projecting position when the button 76 is in the intermediate slot enlargement 70. By depressing the pin or button 76 and exerting a rearward pressure on this pin or button, the razor blade may be slidably moved into retracted position in which the shoulder 77 is engaged in the enlargement 69. Thus the holder is suitable for use with either type of blade, whether it be possessed of two cutting edges or a single cutting edge.

In accordance with the patent statutes, I have described the principles of construction and operation of my razor blade holders, and while I have endeavored to set forth the best embodiments thereof, I desire to have it understood that these are only illustrative of a means of carrying out my invention, and that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A razor blade holder comprising a hollow receptacle having an open side therein, a pair of reinforcing plate means slidably in unison toward and away from said open side, razor blade means supported between said reinforcing plate means to slide therewith, a slot in said receptacle extending at substantially right angles to said open side and communicating therewith, an operating means resiliently secured to one of said reinforcing plate means and extending through said slot, spaced enlargements in said slot, and shoulder means on said operating means resiliently urged into said enlargements to hold said reinforcing plate means from movement toward or away from said open side of said receptacle.

2. A razor blade holder comprising a hollow receptacle having an open side, a pair of clamping plate means within said receptacle and slidable in unison toward and away from said open side, a slot in said holder extending at substantially right angles to said open side and communicating therewith, spaced enlargements in said slot, means resiliently secured to said reinforcing plate means for sliding the same toward and away from said open side, said operating means extending through said slot, means on said operating means engageable in said spaced enlargements to hold said reinforcing plate means from slidable movement, and a razor blade secured between said reinforcing plate means for movement therewith.

3. A razor blade holder comprising a hollow receptacle having an open side therein, a slot in said receptacle extending at substantially right angles to said open side and communicating therewith, a pair of reinforcing plate means slidably positioned in said receptacle for movement in unison toward or away from said open side, an operating button resiliently secured to said reinforcing plate means and extending through said slot, a razor blade secured between said reinforcing plate means and slidable therewith from a position projecting from said open edge to fully enclosed position, and spaced enlargements in said slot, shoulder means on said operating button resiliently urged into said enlargement as said operating button is operated to slide said reinforcing plate means, said shoulder means being engageable in one of said enlargements to hold said razor blade in projected position and engageable in another of said enlargements to hold said razor blade in enclosed position.

4. A razor blade holder comprising a hollow

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receptacle having an open side, a pair of reinforcing plate means slidable in unison in said hollow receptacle and designed to support a razor blade therebetween, a slot in said receptacle extending at substantially right angles with respect to said open side thereof and communicating therewith, finger means on one of said reinforcing plate means projecting toward said slot, an operating button mounted on said finger for axial movement with respect thereto, resilient means between said button and said reinforcing plate means, a flange on said button engageable within said receptacle inwardly of said slot, shoulder means adjacent said flange, spaced enlargements in said slot adapted to receive said shoulder means, and button head means on said button extending through said slot.

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A razor blade holder comprising substantially flat receptacle having an open side, a slot in said receptacle extending at substantially right angles to said open side, outwardly off-set portions adjacent said slot, a button having a flange inwardly of said off-set portions and a second flange outwardly of said off-set portions, razor blade supporting means slidable within said receptacle, and means resiliently connecting said button to said razor blade supporting means.

6. A razor blade holder comprising a hollow receptacle having an open side, a razor blade supporting means within said body slidable toward and away from said open side, a slot in said receptacle body extending at substantially right angles to said open side, outwardly off-set portions in said receptacle body on opposite sides of said slot forming an outwardly bowed slotted channel in said receptacle body, a button in said slot having a flange slidable in said channel and a second flange outwardly of said body, said button extending through said slot, means resiliently securing said button to said razor blade supporting means, spaced enlargements in said slot, and shoulder means on said button engageable in said enlargements to hold said razor blade supporting means in a selected position.

7. A razor blade holder comprising a hollow receptacle body having an open side, a razor blade supporting means engageable with opposite sides of a blade slidable in said body toward and away from said open side, a slot in said receptacle extending at substantially right angles to said open side and communicating therewith, spaced enlargements in said slot, a button extending through said slot resilient means connecting said button to said razor blade supporting means, shoulder means on said button resiliently engageable in said enlargements, and means for limiting the outward movement of said razor blade supporting means with respect to said body.

8. A razor blade holder comprising a hollow receptacle body having an open side, a razor blade supporting means engageable with opposite sides of a blade slidable in said body toward and away from said open side, a slot in said body at substantially right angles to said open side, a button extending through said slot, a finger means on said razor blade supporting means engaging said button to guide the same, and resilient means connecting said finger means and said button.

9. A razor blade holder for single edged razor blades having a thickened edge opposite the cutting edge thereof, the holder comprising a hollow receptacle body having an open end, a razor blade clamping means slidable in said body to-

ward and away from said open end, said razor blade clamping means including a pair of resilient plates embracing the thickened edge of the blade and contacting opposite sides of the blade adjacent the thickened edge, a slot in said body at substantially right angles to said open end, means secured to said razor blade clamping means and extending through said slot for actuating said razor blade clamping means, and a slot in an edge of said receptacle body adjacent said open end, said slot registering with the thickened edge of said blade in one position thereof, said blade being removable from between said clamping means through said slot.

10. A razor blade holder comprising a hollow receptacle body having an open end, a slot in said body extending at substantially right angles to said open end, a razor blade support slidable within said body toward and away from said open end, said support including a pair of clamping plates engageable with said blade to hold said blade from longitudinal movement relative to said support while permitting transverse movement thereof relative to said support, means on said support extending through said slot for moving said razor blade support, and a slot in said body registerable with said razor blade in one position thereof to permit said razor blade to be slidably disengaged from between said clamping plates.

11. A razor blade holder comprising a hollow receptacle body having an open end, a slot in said body extending at substantially right angles to said open end, a razor blade support slidable within said body and movable toward and away from said open end, an operating means on said support extending through said slot, said razor blade support including a pair of substantially flat plates designed to lie in superimposed relationship, transversely extending elongated registering slots through said plates adapted to receive the thickened edge of a single edged razor blade, spaced apertures in one of said plates, and lugs on the other of said plates designed to extend into said apertures to hold said plates in proper relative position.

12. A razor blade holder for supporting single edged razor blades with a thickened reinforcing edge and for supporting double edged razor blades with spaced apertures therethrough, comprising a body, a razor blade support movably secured relative to said body, said support comprising a pair of superimposed plates, elongated registering slots through said plates adapted to receive the thickened edge of a single edged razor blade, a pair of spaced apertures in one of said plates, and a pair of spaced lugs in the other of said plates designed to extend through said apertures and through the apertures of a double edged razor blade.

13. A razor blade holder comprising a hollow receptacle having an open end, reinforcing plate means slidably supported in said hollow receptacle and movable toward and away from said open end, said reinforcing plate means arranged to support a razor blade, a slot in said reinforcing plate means longitudinally of the direction of movement thereof within said hollow receptacle, and a finger on said hollow receptacle engageable in said slot to limit slidable movement of said reinforcing plate means relative to said hollow receptacle.

14. A razor blade holder for a razor blade having a reinforced edge comprising a hollow recep-

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tacle having an open side, reinforcing plate means slidable in said hollow receptacle toward and away from said open side and including a pair of clamping members designed to embrace the reinforced edge of a razor blade and to engage said blade adjacent said reinforcing edge, a slot in one edge of said hollow receptacle in communication with said open end through which the reinforced edge of the razor blade may slide laterally with respect to the direction of movement of said reinforcing plate means, a slot in said reinforcing plate means longitudinally of the direction of movement thereof, and a finger on said hollow receptacle engageable into said slot to limit outward movement of said reinforcing plate means relative to said hollow receptacle.

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15. A razor blade holder for single edge razor blades having a thickened edge opposite the cutting edge thereof, the holder comprising a hollow receptacle body having an open end, a razor blade clamping means slidable in said body toward and away from said open end, said razor blade clamping means including a pair of resilient plates embracing the thickened edge of the blade and contacting opposite sides of the blade adjacent the thickened edge, and a slot in the edge of said receptacle body adjacent said open end, said slot registering with the thickened edge of said blade in one position thereof, said blade being removable from between said clamping means through said slot.

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