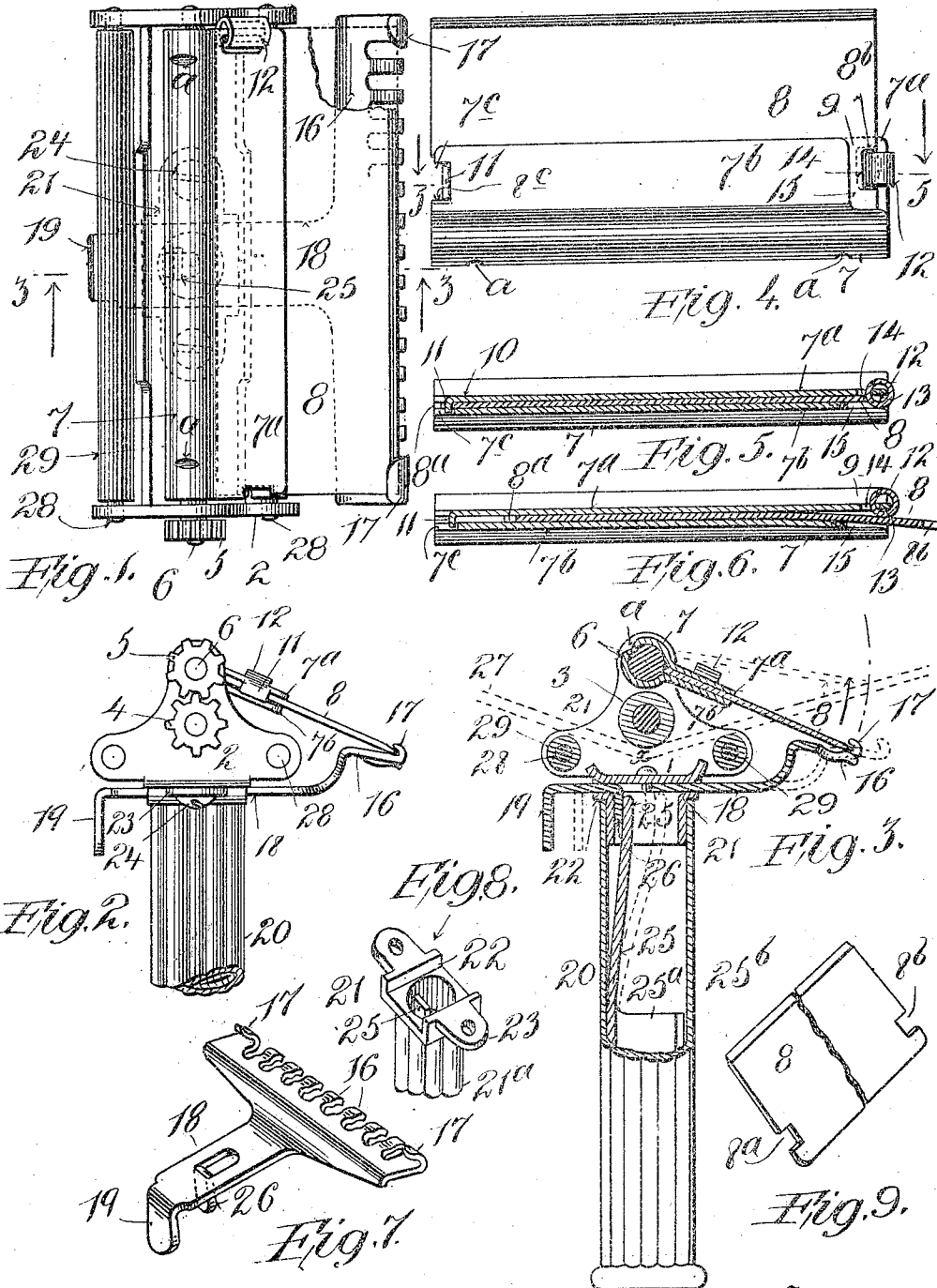


H. J. GAISMAN.
 RAZOR.
 APPLICATION FILED JULY 13, 1908.

1,022,727.

Patented Apr. 9, 1912.

2 SHEETS-SHEET 1.



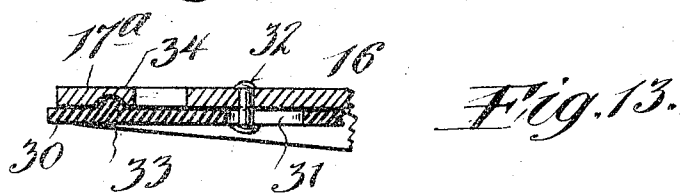
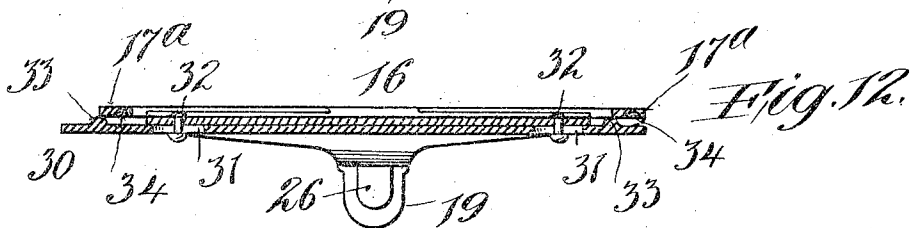
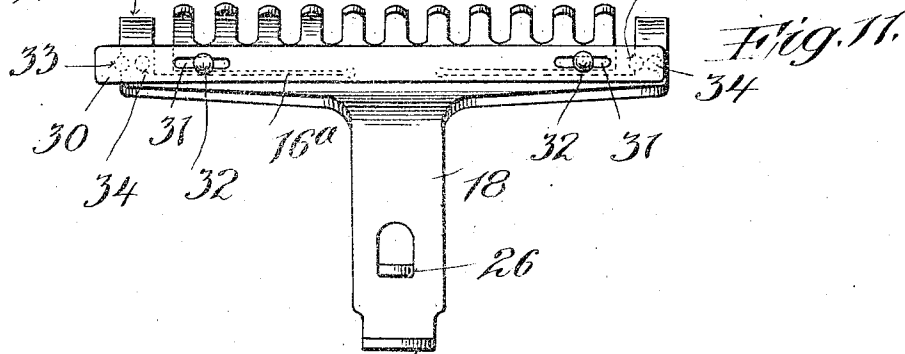
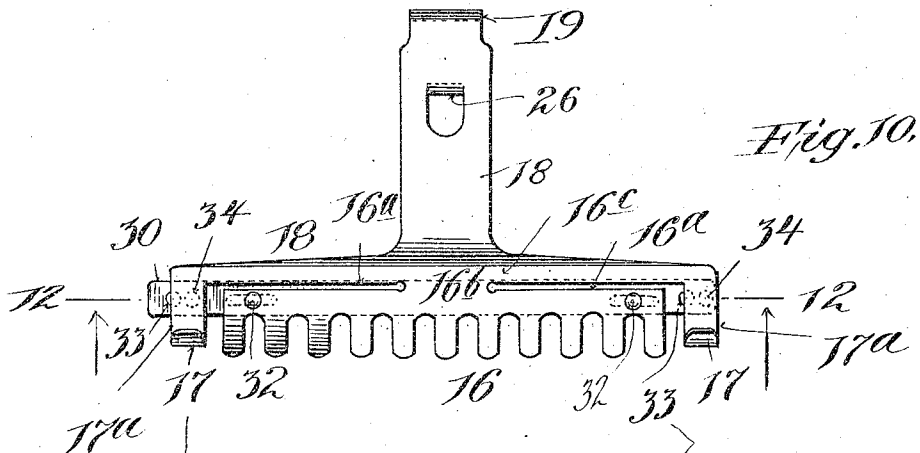
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 2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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RAZOR.

1,022,727.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed July 13, 1906. Serial No. 326,026.

To all whom it may concern:

Be it known that I, HENRY J. GAISMAN, a citizen of the United States, and resident of New York city, borough of Manhattan, New York, have invented certain new and useful Improvements in Razors, of which the following is a specification.

One object of my invention is to provide an improved blade holder whereby the blade may be readily inserted and removed and will be firmly held when in position for use.

In carrying out this part of my invention I provide a blade holder with a pair of jaws to receive a blade between them, and which jaws have means to detachably retain the blade in its holder, and so arranged as to permit the blade to be applied to and removed from the holder by sliding the blade lengthwise, and such holder firmly grips the back part of a thin blade to stiffen the same.

I have shown my improvements as applied in connection with the class of safety razors shown in Patent No. 759,262, issued to me May 10, 1904, wherein means are provided in the razor to permit the blade to be rocked back and forth for stropping it.

Another object of my invention is to provide improved means for movably supporting a guard so that the same may readily be applied to and removed from engagement with the blade, to permit the latter to be held for shaving purposes and to be rocked for stropping it, and to this end I provide the razor with a guideway that receives an extension from the guard to support and guide the latter so that it may be moved toward and from the blade edge, and a spring co-acts with the guard extension to normally hold the guard in operative position with respect to the blade.

A further object is to provide improved means for adjusting the guard with respect to the blade edge.

The invention further comprises the novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein,

Figure 1 is a plan view, partly broken, of a safety razor embodying my improvements, Fig. 2 is a side view thereof, Fig. 3 is a vertical section, substantially on the line 3, 3, in Fig. 1, Fig. 4 is a detached face view of the blade holder and blade, Fig. 5 is a

section on the line 5, 5, in Fig. 4, Fig. 6 is a similar view showing the blade partly detached from the holder, Fig. 7 is a perspective view of the guard, Fig. 8 is a detail perspective view of the guideway for the guard, Fig. 9 is a detail perspective view of the blade, Fig. 10 is a plan view showing the guard provided with means to adjust it with respect to the blade edge, Fig. 11 is an inverted plan view thereof, Fig. 12 is a section on the line 12, 12 in Fig. 10, and Fig. 13 is a detail sectional view enlarged of part of Fig. 12.

Similar numerals of reference indicate like parts in the several views.

In the drawings the frame of the razor is indicated as having a base portion 1 and upturned end portions 2, between which end portions a roller 3 is journaled and it carries at one end a gear 4 that meshes with a gear 5 secured to the blade holder. In the example illustrated the gear 5 is secured to a shaft 6 that carries the blade holder 7. The blade holder is shown in the form of sheet metal folded around shaft 6 and having parallel outwardly-extending jaws 7^a, 7^b which receive the blade 8 between them. The blade holder 7 may be secured to shaft 6 by denting the metal of the blade holder into depressions in the shaft, at *a*, or by a screw, or in any other suitable manner. The jaws 7^a, 7^b of the blade holder are arranged to firmly grip the blade 8 between them, as by spring action, and said jaws are shown open or unobstructed at one end, as at 9, to permit the blade 8 to be there inserted and pushed lengthwise between the jaws, and at the opposite end 10 the space between the jaws is shown closed by a lug or abutment 11 to limit the passage of the blade lengthwise between the jaws. Said lug may be formed by stamping it out of one jaw, as 7^a, at one edge and folding it across the space between the jaws and entering the lug in a recess 7^c in the edge of the jaw 7^b, as clearly shown in Figs. 4, 5 and 6. At the opposite or open end of the jaws I provide an abutment or stop 12 to engage the blade to prevent detachment of the blade from its holder during use. The stop 12 is shown carried by the jaw 7^a and is illustrated in the form of a sleeve mounted upon a bar 13 that is shown formed on the jaw 7^a by cutting a slot 14 therein, whereby the stop 12 will lie in the path of the blade

when the latter is between the jaws to prevent the blade from sliding from between the jaws, as shown in Fig. 5, unless pushed. To permit the ready insertion of the blade
 5 between the jaws and its removal therefrom without undue resistance by the stop 12, I have shown the jaw 7^b as cut away at one end; at 15, so as to be shorter than the jaw 7^a, providing thereby a space between the
 10 stop 12 and the adjacent edge of jaw 7^b. This space permits the insertion of the blade lengthwise between the jaws past the stop 12, as illustrated in Fig. 6, and when the blade is pushed fully across the jaws it will
 15 snap behind the stop 12 as shown in Fig. 4, and when the blade is pushed lengthwise from the left in Fig. 5 it will slide past the stop 12, as shown in Fig. 6. The stop 12 is shown loosely journaled upon bar 13 so
 20 that it may normally lie in front of the blade end, as in Fig. 5, or may be pressed to one side by the blade when the latter is inserted or removed, as in Fig. 6. The said construction of the stop 12 causes it to act
 25 as an anti-friction roll relatively to the bend of the blade while latter is being inserted and pushed home between the jaws or withdrawn therefrom. To retain the blade and prevent it from being pulled outwardly or
 30 sideways from its holder I provide the blade with notches or recesses 8^a, 8^b in its opposite ends or edges which are adapted to engage the stops 11 and 12.

My improvements permit a relatively thin
 35 and somewhat flexible blade to be used, if desired, which can bend at the space 15 while being pushed into or from its holder, and the back of the blade may rest against the shaft 6, as shown in Fig. 3, to resist the pressure
 40 of the guard against the blade when adjusted for shaving, while the holder shown, by firmly gripping the thus rearwardly abutted blade at its back part stiffens it.

45 The guard I have shown is indicated, generally, at 16 and at its outer corners is shown provided with lugs or lips 17 that are turned back in hook-like form to receive and bear
 50 against the blade edge near its two ends, whereby to hold the blade in shaving position with respect to the guard. The guard is mounted to have movement relatively to the blade edge, and is shown provided
 55 with an extension 18 that extends across, preferably beneath, the frame to the side opposite the guard where it is provided with a finger piece or enlargement 19 to be pushed. The extension 18 is shown stamped
 60 out of the same piece of metal as the guard and thereby is rigid therewith. The extension 18 supports the guard and permits adjustment thereof, and for this purpose I have shown the extension 18 as carried in a
 65 guideway located between the base 1 of the frame and the handle 20. As a convenient

means for the purpose I have shown a head 21 having a depressed portion or guideway 22 in which the extension 18 of the guard is received, and said head is shown
 70 provided with lugs 23 having apertures through which screws 24 may pass for firmly holding the head 21 to the base 1 of the frame. The head 21 is shown provided with a tubular extension 21^a that is secured
 75 to handle 20 by suitable means, and is shown within said handle (see Fig. 3), and thereby the handle is secured to the frame with the extension 18 adapted to slide in its
 80 guideway between the frame and handle. At 25 is shown a spring located within the handle 20 and adapted to co-act with extension 18 of the guard to firmly hold the guard pressed toward the blade and said
 85 spring is shown bearing against a lug 26 extending downwardly from extension 18 through the bore in the head 21, which lug may be pressed out of the metal of extension 18 if desired. The spring 25 may
 90 be held within handle 20 in any suitable manner. For convenience of applying and removing the spring I have shown the same provided with a tubular portion 25^a that is
 95 separated or split as at 25^b and having an outward spring tendency, whereby when the part 25^a is pushed into the handle 20 it will be firmly held in position therein by spring action and may be readily withdrawn from the handle.

By means of the roller 3 and gears 4, 5, 100 the blade holder with its attached blade may be rocked back and forth for stropping the edge of the blade, and for this purpose I have shown a space, indicated at *x* in Fig. 3, between the lower edge of roller 3 and the base 1 of the frame through which a
 105 strop, indicated by dotted lines 27 in Fig. 3, may be passed, and in order to create proper tension of the strop upon roller 3, I provide rods or rollers to bear on the strop on opposite sides of roller 3. For this purpose I have shown rods 28 extending between and secured to the uprights 2 of the frame upon which rods the rollers 29 are
 110 mounted.

115 It will be noted that the rollers 29 are so located relatively to roller 3 and the edge of the blade that not only is the strop powerfully pressed against roller 3 to turn it when the strop is held taut, but also that the angle of the surface of the strop relatively to the
 120 edge of the blade may be varied at will during stropping by drawing the strop more or less taut and thus greater or less friction and at greater or less angle may be secured with advantage in sharpening.
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The guard may be arranged to permit its adjustment with respect to a blade edge to provide for a more or less close shave, and I have shown an arrangement for this purpose in Figs. 10 and 13 wherein part of the
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material of the guard is shown cut away on opposite sides of the center, at 16^a, providing a flexible connecting piece at 16^b between the comb-like member of the guard 5 and the main support or member at 16^c, which permits said comb-like member to have movement relatively to the other member 16^c of the guard and with respect to the blade edge that is held near the corners by 10 the lugs or lips 17.

At 30 is a bar slidably mounted upon the guard, preferably on its lower side, and adapted to cause the comb-like member of the guard to move toward and from the 15 blade edge. I have shown the bar 30 provided with slots 31 receiving rivets 32 carried by the comb-like member 16 of the guard and having heads which support the bar 30 so it may slide lengthwise. The bar 20 30 is shown provided with projections 33 that are adapted to engage the extended portions 17^a of the main support or member of the guard, which provides a rest for the blade edge, and from which the lugs or lips 17 25 project, and said portions 17^a of the guard are shown provided with recesses or reentrant parts 34 into which the projections 33 of bar 30 are adapted to fit. This arrangement is such that when bar 30 is slid 30 to one position, as at the left in Fig. 12, so that its projections 33 engage the portions 17^a of the guard, the comb-like member of the guard will be caused to move away from the blade edge by reason of the relative 35 bending of the comb-like member and the extended portions 17^a with respect to each other, and when bar 30 is moved in the opposite direction, so that its projections 33 enter the recesses 34, the tension will be relieved and the comb-like member of the 40 guard will move nearer to the blade edge, the first mentioned position of the guard with respect to the blade edge providing for a relatively coarse shave, and the second mentioned position of the guard and blade edge providing for a relatively close shave. While I have shown the comb-like member and the main member 16^c as made in a single 45 piece of material, they could be separate pieces secured together by the connecting piece 16^b.

In using my improvements the blade is inserted in the holder by pushing the blade past the stop 12 between the jaws 7^a, 7^b, as 55 indicated in Fig. 6, until the notches 8^a, 8^b of the blade engage the stops 11 and 12, and then the blade is swung down upon the guard, the latter pushed outwardly, as in dotted lines in Fig. 3, thus enabling the 60 lugs 17 to engage the edge of the blade near each end, and then the finger piece 19 is released, whereupon spring 25 acting upon extension 18 through lug 26, will draw the guard back to cause the lugs 17 to engage 65 the blade as aforesaid, while the blade will

be held firmly in shaving position with respect to the guard. When it is desired to strop the edge of the blade the finger piece 19 will be pushed causing the guard to move away from the blade, the latter is 70 then swung out of the way of the strop, and the latter may be pushed through the space *x* under roller 3 and above rollers 19, after which by holding the strop taut and reciprocating the razor back and forth along 75 it the blade will be caused to swing or rock correspondingly and dragged behind the frame with its edge against the strop. The strop may then be withdrawn and the blade adjusted to the guard in manner before de- 80 scribed.

By having the blade holder firmly grip the back end of the blade, the latter when thin is stiffened so that it will properly act upon the strop for sharpening its edge and 85 corrects tendency to horizontal warping of the blade.

The relation and disposition of the parts as described ensures continuous precision of adjustment between the guard and blade 90 edge notwithstanding wear of the latter.

Changes may be made in the details and arrangements shown and described without departing from the spirit of my invention.

I do not in this application claim separately the blade shown and described, nor the particular arrangement of the frame and blade holder adapted to receive said blade, as the same are included in my application for patent on razors filed October 21, 1911. 100

Having now described my invention what I claim is:—

1. A blade holder having a pair of jaws to receive a blade between them, and stops carried by the jaws in line with the space 105 between the jaws, one of said stops being rotatable, combined with a blade having recesses to receive said stops, said rotatable stop being mounted to rotate in the direction of travel of the blade into and from the 110 holder.

2. A blade holder provided with a pair of jaws adapted to receive a blade between them, one of said jaws being longer than the other providing a space near their adjacent ends, and stops in line with the space 115 between said jaws, one of said stops being located adjacent the first mentioned space to permit a blade to be freely pushed between the jaws past the adjacent stop. 120

3. The combination of a shaft, with a blade holder comprising a piece of metal folded around said shaft and secured thereto and forming a pair of jaws adapted to receive a blade between them, dents in said 125 metal entering depressions in the shaft.

4. The combination of a shaft, with a blade holder comprising a piece of metal folded around said shaft and secured thereto and forming a pair of jaws adapted to re- 130

ceive a blade between them, dents in said metal entering depressions in the shaft, and stops carried by said holder to retain a blade therein.

5 5. The combination of a shaft, with a blade holder comprising a piece of metal folded around the shaft and having a pair of jaws, said metal being cut away near one end to provide one jaw longer than the
10 other.

6. The combination of a shaft with a blade holder comprising a piece of metal folded around the shaft and having a pair of jaws, said metal being cut away near
15 one end to provide one jaw longer than the other, and stops located in line with the space between said jaws, one of said stops being located adjacent said cut-away part.

7. A blade combined with a blade holder comprising a pair of jaws adapted to receive a blade between them, one of said jaws having a stop journaled thereon to rotate in the direction of the travel of the blade into and from the holder.

25 8. A blade combined with a blade holder comprising a pair of jaws adapted to receive a blade between them, one of said jaws having a bar, and a sleeve journaled on the bar to serve as a stop for a blade.

30 9. A blade combined with a blade holder comprising a pair of jaws adapted to receive a blade between them, one of said jaws having a slot providing a bar, and a sleeve journaled on said bar providing a stop for a blade.

35 10. A blade combined with a blade holder comprising a pair of jaws adapted to receive a blade between them, one of said jaws having a slot providing a bar, and a sleeve journaled on said bar providing a stop for a blade, the jaw carrying said sleeve being longer than the other jaw to provide a space adjacent said sleeve.

45 11. In a razor, the combination of a frame and a blade holder, with a movable guard having an extension for supporting the guard, and a guideway slidably supporting the extension at an angle to the axis of the handle said guard having lugs to engage
50 and hold the blade in shaving position upon the guard, the movement of the extension being at an angle to the axis of the handle.

55 12. In a razor, the combination of a frame and a blade holder, with a guard having a rigid extension movable at an angle to the axis of the handle, a guideway to slidably support the extension at an angle to the axis of the handle, and a spring to move the guard toward the blade.

60 13. In a razor, the combination of a frame and a blade holder, with a guard having an extension, a handle, and a guideway between the frame and handle slidably receiving said extension for supporting and
65 guiding the guard, the movement of the ex-

tension being at an angle to the axis of the handle.

70 14. In a razor, the combination of a handle, a blade, and means to support the blade, with a guard having a rigid extension extending transversely beneath the blade to support the guard and projecting beyond the handle in position to be pushed, said guard also having lugs to engage
75 and hold the blade, a guideway slidably supporting said extension crosswise of the axis of the handle, and a spring to move the guard toward the blade.

80 15. In a razor, the combination of a frame having means to support a blade, with a guard having a rigid extension to support the guard, a guideway between the frame and handle to slidably support the extension at an angle to the axis of the handle, and a spring to move the guard toward a blade, said extension having a portion located in position to be manually operated.

85 16. In a razor, the combination of a blade, a frame provided with means to engage the back edge of the blade, a guard having lugs shaped to engage and hold the cutting edge of the blade upon the guard, said guard having an extension rigid therewith and located beneath the blade, a guideway to slidably support the extension at an angle to the axis of the handle, and a spring to move the guard and its lugs toward the blade, said extension projecting beyond the handle in position to be operated to release the guard from the blade, said extension having movement at an angle to the axis of the handle.

90 17. A safety razor guard comprising a member adapted to coact with a blade edge in shaving, and a member 17^a provided with means to engage the blade edge, a bar movably connected with one of said members and adapted to coact with the other member, and means for causing the guard to extend near to or farther from the blade edge according to the position of adjustment of said bar.

95 18. A safety razor guard comprising a member to coact with a blade edge in shaving, members 17^a flexibly connected therewith to act as a rest for and hold the blade, edge, a bar slidably mounted upon one of said members, and means interposed between the bar and the other member to cause the guard to approach or recede from the blade edge according to the position of adjustment of said bar.

100 19. A safety razor guard comprising a member to coact with a blade edge in shaving, member 17^a flexibly connected therewith to act as a rest for and hold the blade, a bar slidably mounted upon one of said members, and projecting and reëntrant parts between the bar and the other members for causing the guard member to be at
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one distance from the blade edge when the projections mesh with said reëntrant parts and to be at a different distance from the blade edge when said projections engage corresponding members.

20. A safety razor guard comprising a piece of material having a main member and extended portions provided with lugs to engage a blade, and a comb-like member flexibly connected with the main member between said lugs, a bar movably connected with the comb-like member and adapted to coact with said extended portions, projecting and reëntrant parts between said bar and the comb-like member whereby the comb-like member will be at one distance from the blade edge in one position of said bar when the projecting and reëntrant members mesh, and the comb-like member will be at another distance from the blade edge when the projecting and reëntrant members are out of mesh.

21. In a razor the combination of a handle provided with a blade support, a blade, a guard movable beneath the blade and provided with lugs formed to receive the blade edge and hold the blade upon the guard, said guard having an extension rigid therewith to thereby support the guard, a guideway slidably supporting said extension at an angle to the axis of the handle, the latter extending beyond the handle in position to be normally operated, and a spring within the handle acting upon said extension

and handle to hold said lugs in engagement with the blade, said extension having movement at an angle to the axis of the handle.

22. A safety razor having a handle and blade holding means comprising an abutment for one edge of a blade, and a movable guard provided with lugs to engage and hold another edge of the blade with respect to the guard, a rigid extension projecting from the guard, a guideway slidably supporting said extension at an angle to the axis of the handle, the latter having a portion in position to be manually operated, and a spring arranged to normally hold said lugs in engagement with the blade and to permit the lugs to release the blade when said extension is operated.

23. A safety razor provided with a handle, a movable guard having lugs to engage and hold a blade with respect to the guard, means to engage the opposite part of the blade, said guard having an extension rigid therewith and projecting across the axis of the handle, a guideway movably supporting said extension, the latter having a portion arranged to be manually operated to actuate the guard, and a spring to operate the guard.

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