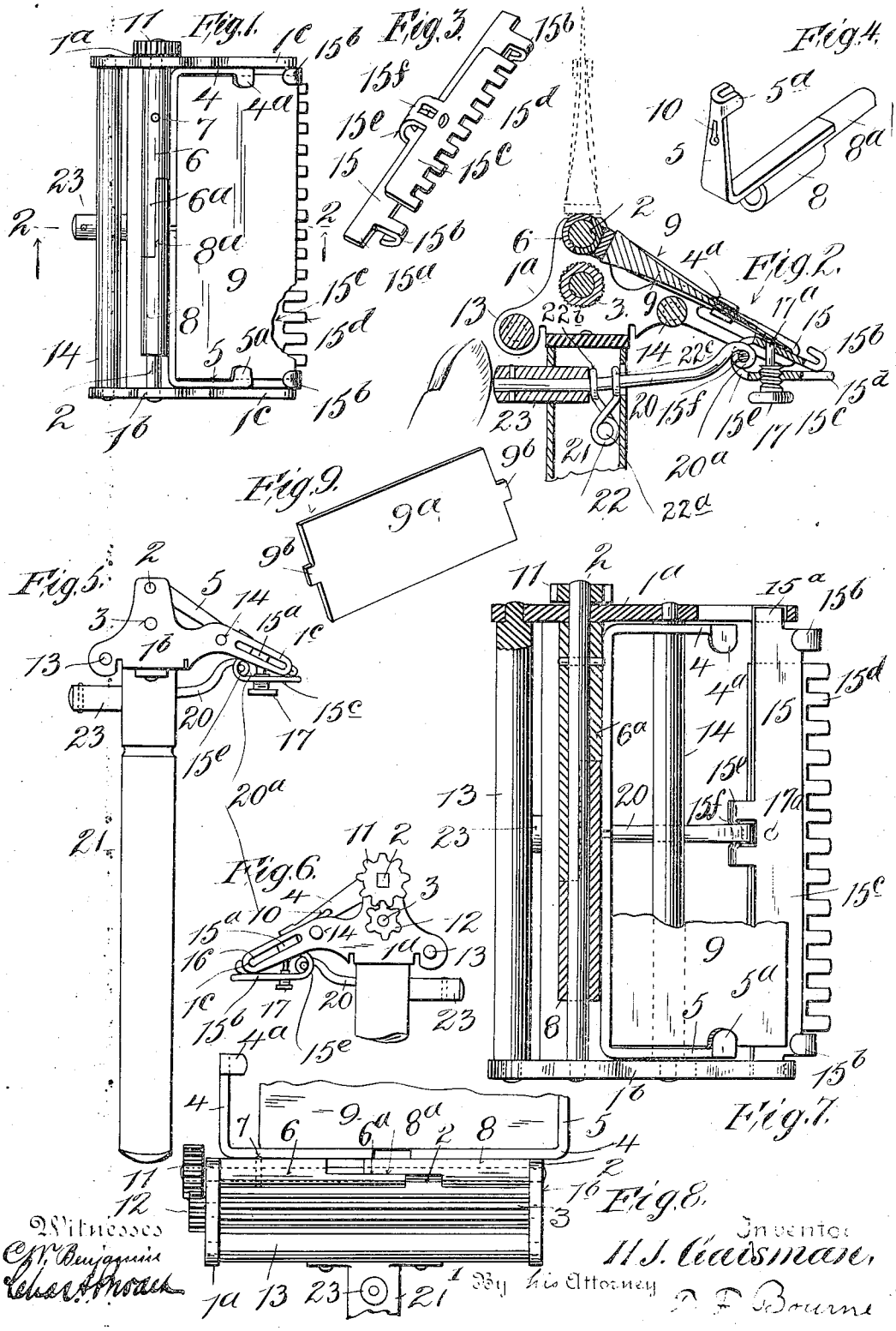
H. J. GAISMAN.

SAFETY RAZOR.

APPLICATION FILED JUNE 10, 1905.

1,022,726. Patented Apr. 9, 1912.



Witnesses
C. V. Benjamin
Edward Thorn

Inventor
H. J. Gaisman.
By his Attorney
F. F. Baume

UNITED STATES PATENT OFFICE.

HENRY J. GAISMAN, OF NEW YORK, N. Y., ASSIGNOR TO AUTO STROP COMPANY, A CORPORATION OF NEW YORK.

SAFETY-RAZOR.

1,022,726. Specification of Letters Patent. Patented Apr. 9, 1912.

Application filed June 10, 1905. Serial No. 264,603.

To all whom it may concern:

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

My invention relates to improvements in the class of safety razors wherein a frame having a guard is provided with a pivotally supported blade, and with means for rocking the blade for stropping its edge while the blade remains connected with the frame, which class of razors is disclosed in Letters Patent No. 759,262 issued to me May 10, 1904.

Objects of my invention are as follows:—to simplify the means for removably supporting the blade in its holder and to provide a holder adapted to hold blades of different styles, such as blades having a single cutting edge and a solid back, and blades having a plurality of cutting edges; to simplify the means for rocking the blade; to permit the guard to be readily adjusted toward and from the blade edge to conveniently release the blade to permit it to be rocked for stropping purposes; to permit adjustment of the guard with respect to the blade edge to allow a more or less "close" shave to be obtained; and also generally to simplify and improve the construction of such razors.

In carrying out my invention I provide a frame, and a blade holder pivotally supported thereby and having two end members adapted to engage the ends of a blade, one of said members being movable toward and from the other, means for locking said members in rotative engagement, and means for rocking the blade holder; I also provide the blade holder with a gear that meshes with a gear on a roller journaled in the frame beneath the holder and provide the frame with guides for the strop on opposite sides of the roller, whereby the strop works against the under side of the roller or its side farthest from the holder for causing the edge of the blade to swing in the reverse direction to travel of the frame.

In carrying out a further part of my invention I provide the frame with a guard, and guides for the guard so that it may readily slide toward and from the blade edge, a finger piece connected with the guard, and a spring for normally holding the guard against the razor edge, whereby when said finger is pressed upon it will move the guard away from the razor edge to release the latter for stropping purposes. In the construction of my improved guard I provide two members, one having ordinary comb like teeth and the other having means to engage a blade edge near its corners, with means for regulating the distance between the two members of the guard for adjusting the guard teeth more or less closely to the blade edge.

My invention also 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 of a safety razor embodying my invention, Fig. 2 is a cross section thereof, enlarged, on the line 2, 2, in Fig. 1, Fig. 3 is a detail perspective view of the guard, Fig. 4 is a similar view of part of the blade holder, Fig. 5 is a side view of the razor looking from the under side in Fig. 1, Fig. 6 is a view similar to Fig. 5, looking from the opposite side, Fig. 7 is a plan view, partly in section, on an enlarged scale, Fig. 8 is a rear view of the razor, showing the manner of adjusting the blade in its holder, and Fig. 9 is a detail view of a blade having cutting edges on opposite sides.

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

The frame of the razor shown comprises a base piece 1 and uprights 1^a, 1^b in which are journaled the shaft 2 of the blade holder and the roller 3 for rocking the same. As shown, the blade holder comprises two end members 4, 5, projecting outwardly and parallel and having ears 4^a, 5^a to engage the ends of a blade, one member, as 4, being secured to the shaft 2 and the other member 5 being mounted to slide thereon. In the construction shown the member 4 is secured upon or formed with a tube or bearing 6, having one end partly cut away, as at 6^a, and secured upon shaft 2, as by a pin 7, and the member 5 is secured to or formed with a tube or bearing 8 mounted to slide upon shaft 2 and having an end partly cut away, as at 8^a, to match the cut away part 6^a of tube 6, whereby said tubes have sliding en-

gagement with respect to each other, but are held in rotative relation by the co-acting faces so as to rock in unison by and with shaft 2. Tube 8 is sufficiently short to enable it to slide along shaft 2 between tube 6 and upright 1^b for the purpose of receiving and releasing the blade 9, but when the member 5 is pressed toward the member 4 the blade will be firmly held between said members, as by friction between shaft 2 and tube 8 and the interlocking sections 6^a, 8^a. The blade shown, except in Fig. 9, is generally of well known construction having a cutting edge and a solid back portion. In Fig. 9 the blade 9^a is indicated as a thin blade, to be made preferably of sheet steel, provided with cutting edges on opposite sides and having lugs 9^b projecting from its ends adapted to enter slots or recesses 10 in the members 4, 5, of the blade holder, whereby such thin blade 9^a may be firmly secured in the holder. By having the projections 8^b disposed centrally of the blade the latter may be readily adjusted in its holder to enable either edge to be used as desired.

The blade holder or its shaft 2 is provided with a gear 11 that meshes with a gear 12 secured to roller 3, a space being provided through the frame beneath roller 3 for the passage of a strop, whereby as the frame is reciprocated along the strop the engagement of roller 3 with the strop will cause the blade holder to rock for stropping the edge of the blade. At 13, 14 the frame is provided with guides, preferably in the form of rollers journaled in the frame on opposite sides of roller 3 against which the strop may bear, whereby when the strop is in position between rollers 13 and 14 and held taut and the frame is reciprocated the tension of the strop against roller 3 will cause the blade holder to rock back and forth.

The guard device for the edge of the blade is arranged as follows:—At 15 is a plate or bar having its end portions or lugs 15^a received freely in slots or guides 16 on the extended members 1^c of the main frame, the plate 15 serving as a rest for the blade edge and having lips or lugs 15^b bent upwardly to receive the blade to hold the latter on the plate or rest. At 15^c is a plate or bar having comb-like teeth 15^d to co-act with the edge of the blade, which plate 15^c is carried by plate 15 and movable with relation thereto, thereby being adjustable toward and from the edge of the blade. For this purpose I have shown the plates 15 and 15^c connected at their rear edges by hinge like or spring members 15^e. The plates 15 and 15^c and the hinge members 15^e together with the lugs 15^b and teeth 15^d may be stamped from a single piece of metal, bent at the parts 15^e substantially into the relation shown in Fig. 3, the members 15^e acting in the nature of a spring to hold the plates 15, 15^c normally apart. I provide means for causing the comb-like teeth 15^d to be adjusted toward and from the blade edge, as in a vertical direction with respect thereto, and for this purpose I have shown a screw 17 having threads meshing in a threaded aperture in plate 15^c and provided with a shank 17^a journaled in an aperture in plate 15 (see Fig. 2) whereby when the screw 17 is rotated the plates 15 and 15^c may be adjusted toward or from each other and held by the tension of the members 15^e in such adjusted positions. By this means, as the plate 15 has a substantially permanent position with respect to the blade edge that is engaged by the lugs 15^b the comb-like guard 15^d may be adjusted toward or from the blade edge and firmly held to permit a more or less "close" shave to be obtained.

The means for adjusting the guard toward and from the blade edge to permit the blade to be released for stropping purposes are as follows:—At 20 is a bar or rod movably connected at one end with the guard and guided at the other end by the handle 21 that is secured to frame 1, a spring 22 acting on rod 20 and handle 21 serving normally to hold the lugs 15^b against the blade edge. At 23 the rod 20 is shown provided with a finger piece projecting through an aperture in the back of handle 21, the spring 22 being shown within handle 21 and bearing against finger piece 23 and against the handle (see Fig. 2). The spring shown has a central coil at 22^a and eyes 22^b, 22^c that receive rod 20, eye 22^b bearing against finger piece 23 and eye 22^c bearing against the handle. For convenience in manufacture I have shown rod 20 as provided with an eye 20^a at its outer end located between the members 15^e and receiving a piece 15^f, that connects members 15^e which may be stamped integral with the members 15^e or may be a separate pin connecting said members with the eye 20^a. The arrangement shown permits a relatively loose or pivotal connection between rod 20 and the guard, whereby the guard may adjust itself to various positions with respect to the blade edge, to enable the lugs 15^b to engage the blade edge, notwithstanding unevenness of the latter that may occur through wear. With this construction spring 22 through rod 20 normally tends to draw the guard toward the blade edge to cause the lugs 15^b to hold the blade firmly with respect to the guard for shaving purposes, but when it is desired to release the blade from the guard for rocking and stropping the blade it is merely necessary to press finger piece 23, which by pushing rod 20 will slide the guard and its lugs 15^b away from the blade edge, (as shown in Fig. 2), whereby the blade will be free to be raised (as in dotted lines in said figure),

to permit a strop to be passed through the frame beneath roller 3, so that by then holding the strop taut and reciprocating the frame along the strop, the blade will be rocked for stropping its edge. To re-adjust the blade edge to the guard the latter is pushed outwardly, by pushing against finger piece 23, the blade is lowered against the guard, the finger piece is released, spring 22 acting to draw the guard against the blade, and the lugs 15^b will engage the blade, (see Fig. 1.)

The various details of construction shown and described may be varied and changes made without departing from the spirit of my invention.

I do not in this application separately claim the blade holder and the means for rocking the same, as the same are included in my application for patent on stropping machines filed October 21, 1911.

Having now described my invention what I claim is:

1. A safety razor comprising a blade-holder, a blade, a guard for the shaving edge of the blade, lugs to hold the blade, means for causing a relative movement between said holder and said lugs to release the blade, and means for adjusting said guard while the blade remains at rest.

2. In a razor, the combination of a frame, and a blade holder with a guard having an extension, a handle, and a guide-way transversely of the handle slidably receiving said extension for operating the guard, the movement of the extension being at an angle to the axis of the handle.

3. In a razor, the combination of a frame and a blade-holder with a movable guard having an extension for operating the guard, and a guideway slidably supporting the extension at an angle to the axis of the handle, said guard having lugs to engage 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.

4. The combination of a handle, a razor blade which, when in shaving position, is inclined at an acute angle to said handle, a movable guard for the shaving edge of the blade moving in a line substantially at right angle to said handle provided with lugs over-lying the edge of the blade and disposed in substantially the plane thereof.

5. In a safety razor a frame, means to rotatively support a blade in said frame with its operative edge projecting radially from its axis of rotation, a blade supporting member carrying lugs and a guard, means stationary relatively to said frame to movably support said member, means to constantly press said member relatively to said blade in a direction angular to that of said blade's radial projection from said axis, to engage said lugs against said edge, and so hold the blade and guard together in operative relation for shaving.

6. In a safety razor a frame, means to rotatably support a blade in said frame with its operative edge projecting radially from its axis of rotation, a blade supporting member carrying lugs and a guard, means stationary relatively to said frame to movably support said member, a spring to constantly press said member relatively to said blade in a direction angular to that of said blade's radial projection from said axis, to engage said lugs against said edge, and so hold the blade and guard together in operative relation for shaving.

7. In a safety razor a frame, means to rotatably support a blade in said frame with its operative edge projecting radially from its axis of rotation, a blade supporting member carrying lugs and a guard, means stationary relatively to said frame to movably support said member, a spring to constantly press said member relatively to said blade in a direction angular to that of said blade's radial projection from said axis, to engage said lugs against said edge, and a finger piece to push said member in the opposite direction to release said blade.

8. In a safety razor a frame, a shaft carried by and rotatable in said frame, a blade holder carried by and rotating with said shaft, a blade carried by said holder and having its operative edge projecting radially from the axis of rotation of said shaft, a blade supporting member carrying lugs and a guard, means stationary relatively to said frame to movably support said member, a spring to constantly press said member relatively to said blade in a direction angular to that of said blade's radial projection from said axis, to engage said lugs against said edge, and a finger piece to push said member in the opposite direction to release said blade.

9. In a safety razor a frame, a shaft carried by and rotatable in said frame, a gear on said shaft, a blade holder carried by and rotating with said shaft, a blade carried by said holder and having its operative edge projecting radially from the axis of rotation of said shaft, a roller journaled in said frame, a gear on said roller intermeshing with said gear on said shaft, a blade supporting member carrying lugs and a guard, means stationary relatively to said frame to movably support said member, a spring to constantly press said member relatively to said blade in a direction angular to that of said blade's radial projection from said axis, to engage said lugs against said edge, and a finger piece to push said member in the opposite direction to release said blade.

10. In a safety razor a frame, means to rotatably support a blade in said frame

with its operative edge projecting radially from its axis of rotation, a blade supporting member carrying lugs and a guard, said member being disposed beneath the axis of rotation of said blade and projecting in one direction into the path of rotation of said blade and having an extension projecting in the opposite direction beyond said axis, means stationary relatively to said frame to thus and movably support said member, means to yieldingly, constantly and limitedly press said member in the direction of its said extension and transversely of said axis, whereby, when said blade is subtended by said member, said lugs are pressed against the edge of the blade to hold the latter in operative relation with the guard for shaving.

11. In a safety razor a frame, a shaft carried by and rotatable in said frame, a blade holder carried by and rotating with said shaft, a blade carried by said holder and having its operative edge projecting radially from the axis of rotation of said shaft, a blade-supporting member carrying lugs and a guard, said member being disposed beneath said shaft and projecting in one direction beyond said shaft and into the path of rotation of said blade and having an extension projecting in the opposite direction beyond said shaft, means stationary relatively to said frame to thus and movably support said member, a spring to press said member in the direction of its said extension and transversely of said axis and thus the lugs of said member against said blade when supported by said member.

12. In a safety razor a frame, a shaft carried by and rotatable in said frame, a blade holder carried by and rotating with said shaft, a blade carried by said holder and having its operative edge projecting radially from the axis of rotation of said shaft, a handle secured to said frame below said shaft, a blade supporting member carrying lugs and a guard, said member being disposed between said shaft and said handle and projecting in one direction into the path of rotation of said blade and having an extension projecting in the opposite direction beyond a line extending from said shaft to said handle, means stationary relatively to said frame to thus and movably support said member, a spring to press said member in the direction of its said extension and transversely of said line and thus the lugs of said member against said blade when subtended by said member, whereby, when said blade is subtended by said member, said lugs are pressed against the edge of the blade to hold the latter in operative relation with the guard for shaving, and the blade released from said lugs by pressure in the opposite direction upon said extension of said blade supporting member.

13. In a razor, the combination of a frame and a blade holder, with a guard having an extension, a handle connected with the frame, a guideway for slidably supporting and guiding said extension at an angle to the axis of the handle, and a spring located within the handle and having a spring-like portion holding the spring to the handle.

14. In a razor, the combination of a handle provided with a blade support, a blade, a guard movable relatively to the blade support and having lugs formed to hold the blade edge upon the guard and prevent the blade from rising therefrom, said guard having an extension beneath the blade, and a guideway slidably supporting the extension said extension having movement at an angle to the axis of the handle.

15. A razor having a handle and provided with a blade support, a blade, a guard provided with lugs near opposite ends bent back providing spaces to receive the blade edge, means for movably supporting the guard so that it may slide bodily beneath the blade to cause its lugs to engage and release the blade edge, and a spring acting with the guard to cause its lugs to engage the blade edge to hold the blade edge in shaving position upon the guard.

16. A razor having a handle and provided with a blade support, a blade, a movably supported guard provided with lugs near opposite ends bent back providing spaces to receive the blade edge, a bar extending beneath the blade from the guard, means to slidably support the bar, and a spring to draw the guard lugs toward the blade edge to hold the blade upon the guard in shaving position.

17. A razor having a handle and provided with a blade support, a blade, a movably supported guard provided with lugs to engage the blade edge, a bar disposed substantially centrally of the guard and extending beneath the blade, a guide for slidably supporting said bar, and a spring operating with the guard to draw its lugs against the blade edge to hold the blade edge in shaving position upon the guard.

18. A razor having a handle and provided with a blade support, a blade, a movably supported guard having lugs providing recesses to receive the blade edge to hold the blade edge upon the guard, a bar extending from the guard beneath the blade, a guideway beneath the blade for slidably supporting said bar, and a spring acting with the guard to normally draw said lugs into engagement with the blade edge.

19. A razor having a handle and provided with a blade support, a blade, a movably supported guard having lugs providing recesses to receive the blade edge to hold the blade edge upon the guard, a bar ex-

tending from the guard beneath the blade, said handle having a guideway slidably supporting said bar, and a spring co-acting with said bar and handle to hold said lugs in engagement with the blade edge.

20. A razor having a handle and provided with a blade support, a blade, a movably supported guard provided with lugs bent back to engage and hold the blade edge upon the guard, a spring actuated bar extending from the guard beneath the blade and projecting beyond the handle on the side opposite the guard, and a guideway slidably supporting said bar.

21. A safety razor comprising a blade, a handle provided with means to engage the back of the blade, a movably supported guard having lugs receiving the cutting edge of the blade and overlying the same to hold the blade in shaving position upon the guard, a bar extending from the guard, a guideway for the bar, and a spring acting to draw the guard beneath the blade to engage its lugs with the blade.

22. A safety razor comprising a blade, a frame provided with means to support the blade, a guard, said frame having guides for movably supporting the guard, a bar extending from the guard, a guideway slidably supporting the bar, and a spring acting to draw the guard toward the blade.

23. A safety razor comprising a blade, a frame provided with means to support the blade, a guard, said frame having guides for movably supporting the guard, a bar extending from the guard, a guideway slidably supporting the bar, and a spring acting to draw the guard toward the blade, said guard having lugs to engage the blade to hold the blade upon the guard.

24. A safety razor comprising a blade, a frame provided with means to support the blade, a guard, said frame having guides movably supporting said guard, a bar extending from the guard, a guideway for said bar, and a spring acting to draw said guard toward the blade.

25. A safety razor comprising a blade, a frame provided with means to support the blade, a guard, said frame having guides movably supporting said guard, a bar extending from the guard, a guideway for said bar, and a spring acting to draw said guard having lugs bent to receive and hold the blade upon the guard.

26. A safety razor comprising a frame provided with a handle, a blade holder pivoted in the frame, means to rock said holder, a guard, means for movably supporting the guard upon the frame, said guard having lugs to hold a blade upon the guard, a rod connected with the guard and guided by the handle, and a spring located within the handle and connected with the rod for holding the guard against the blade edge, substantially as described.

27. A safety razor comprising a frame, means for firmly holding a blade therein, a guard provided with lugs to engage and hold a blade upon the guard, and means for adjusting the guard within the frame in a lateral direction toward and from the blade edge, said means comprising a bar extending from the guard, and a guideway supporting and guiding said bar, the bar projecting beyond the guideway in position to be manually operated, substantially as described.

28. A safety razor comprising a frame, means for firmly holding a blade therein, a rest for the blade edge carried by the frame, a guard movably supported in the frame beneath the rest, and means for adjusting the guard toward and from the blade edge, substantially as described.

29. A safety razor comprising a frame, means for supporting a blade therein, a movable rest for the blade provided with means to engage the blade, a movable guard beneath the rest, and means for adjusting the guard toward and from the blade edge in a lateral direction, substantially as described.

30. A safety razor comprising a frame, means for holding a blade, a rest for the blade provided with lugs to hold the blade upon the rest, a guard beneath the rest, and a screw connecting the rest with the guard for adjusting the guard toward and from the blade edge, the rest and guard being movable with respect to the blade, substantially as described.

31. A safety razor comprising a frame, means to hold a blade therein, a plate carried by and extending across the frame to receive the blade and provided with lugs to hold the blade upon the plate, a guard beneath the plate, and means connecting the guard and plate for adjusting the guard toward and from the blade edge, the rest and guard being movable with respect to the blade, substantially as described.

32. A safety razor comprising a frame, means to hold a blade therein, a movable plate carried by the frame to receive the blade, a movable guard beneath the plate, and means connecting the guard and plate for adjusting the guard toward and from the blade edge, said plate being provided with lugs to receive the blade, substantially as described.

33. A safety razor comprising a frame, means for holding a blade therein, a plate movably guided upon said frame to receive the blade edge, a guard beneath the plate, and a screw connecting the plate and guard for adjusting the guard toward and from the blade edge, substantially as described.

34. A safety razor comprising a frame

means for holding a blade therein, a plate movably guided upon said frame to receive the blade edge, a guard beneath the plate, and a screw connecting the plate and guard for adjusting the guard toward and from the blade edge, said plate being provided with lugs to receive the blade, substantially as described.

35. A safety razor comprising a frame, means to hold a blade therein, a plate carried by the frame, a guard connected with the plate at the rear edges and movable at the opposite edge, and means for adjusting the guard toward and from the blade edge, substantially as described.

36. A safety razor comprising a frame, means to hold a blade therein, a plate carried by the frame, a guard connected with the plate at the rear edges and movable at the opposite edge, and a screw connecting the guard and plate for adjusting the outer edge of the guard toward and from the blade edge, substantially as described.

37. In a safety razor a frame, a shaft carried by and rotatable in said frame, a gear on said shaft, a blade-holder carried by and rotating with said shaft, a blade carried by said holder and having its operative edge projecting radially from the axis of rotation of said shaft, a roller journaled in said frame, a gear on said roller intermeshing with said gear on said shaft, strop tensioning rollers journaled in said frame on opposite sides of said roller, a blade supporting member carrying lugs and a guard, means stationary relatively to said frame to movably support said member, a spring to constantly press said member relatively to said blade in a direction angular to that of said blade's radial projection from said axis, to engage said lugs against said edge, and a finger piece to push said member in the opposite direction to release said blade.

38. In a safety razor, the combination of a flat rectangular blade having one or more cutting edges, a blade holding device therefor comprising a pair of relatively movable clamping jaws, a spring normally actuating them, a blade seat on said clamping jaws comprising a guard for the cutting edge or edges, and means receiving and overhanging opposite edges of the blade holding it flatwise on the blade seat and fixed from displacement in any direction, a centrally disposed handle on the under side of the blade seat, and means on said blade holding device arranged crosswise of the handle whereby the normal action of the spring is opposed and overcome to effect the insertion and removal of the blade.

39. In a safety razor, the combination of a flat rectangular blade having one or more cutting edges, a blade holding device therefor comprising a pair of clamping jaws, one fixed and one movable thereon, a spring normally actuating the movable clamping jaw, a blade seat on said clamping jaws comprising a guard for the cutting edge or edges, and means receiving and overhanging opposite edges of the blade holding it flatwise on the blade seat and fixed from displacement in any direction, a centrally disposed handle on the under side of the blade seat, and means on said blade holding device arranged cross wise of the handle whereby the normal action of the spring is opposed and overcome to effect the insertion and removal of the blade.

40. In a safety razor, the combination of a flat rectangular blade having one or more cutting edges, a blade holding device therefor comprising a pair of clamping jaws, one fixed and one slidably movable thereon, a spring normally actuating the movable clamping jaw, a blade seat on said clamping jaws comprising a guard for the cutting edge or edges, and means receiving and overhanging opposite edges of the blade holding it flatwise on the blade seat and fixed from displacement in any direction, a centrally disposed handle on the underside of the blade seat, and means on said blade holding device constituting a backward extension of the movable clamping jaw across the axis of the handle of the blade holder whereby the normal action of the said spring may be opposed and overcome to effect the removal and insertion of the blade.

HENRY J. GAISMAN.

Witnesses:
T. F. BOURNE,
CHAS. A. BROACH.