Oct. 27, 1953 S. SEGAL 2,656,599

SAFETY RAZOR

Filed April 18, 1952

Fig. 1.

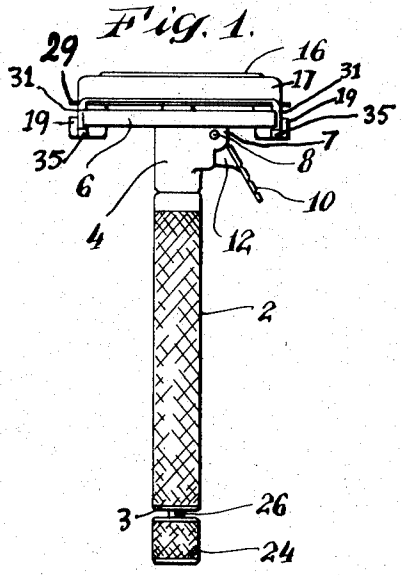


Fig. 2.

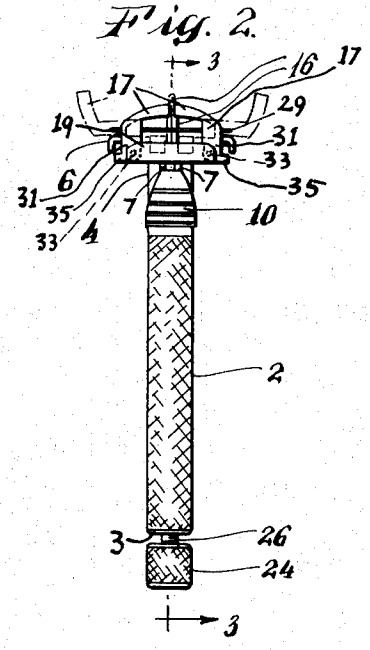


Fig. 3.

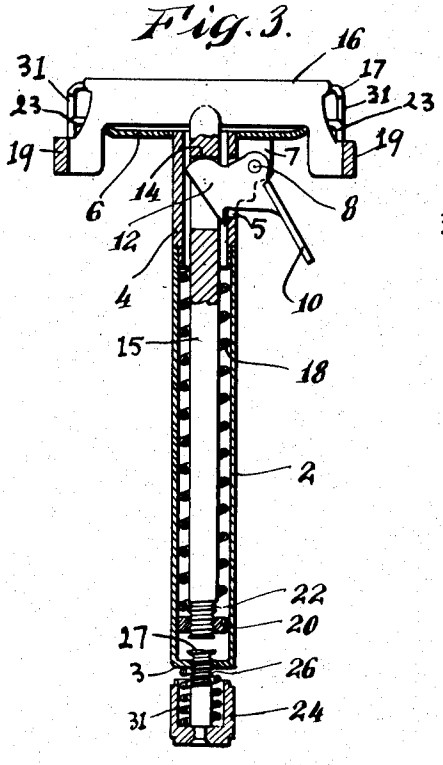
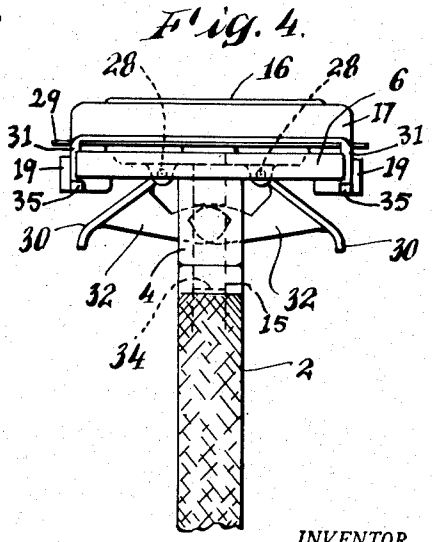


Fig. 4.



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Patented Oct. 27, 1953

2,656,599

UNITED STATES PATENT OFFICE

2,656,599

SAFETY RAZOR

Samuel Segal, New York, N. Y.

Application April 18, 1952, Serial No. 282,924

7 Claims. (Cl. 30—60.5)

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This invention relates to improvements in razors and particularly to razors of the safety type in which a relatively thin blade is carried by a blade-supporting member. More specifically, the invention relates to improvements in razors of the type in which is employed a cap member which comprises cooperating sections separately pivoted for transverse or lateral swinging movement from an open, blade-exposing position to a position covering the blade, and which has a carrier or spider member upon which the cap sections are pivotally mounted and which is arranged to be moved, first to cause a closing movement of the cap sections and then to move the cap sections bodily in their closed position to flex the blade and clamp it with a desired degree of pressure for shaving. In the hitherto known razor constructions of this type, the razor handle is provided with a threaded spindle and an operating nut by which the user may shift the spindle longitudinally in the handle and the continuous movement of the spindle in one direction or the other is utilized to move the carrier in the appropriate direction and to bring about the movement of the cap sections to swing the same into their open position for replacing a used blade or removing a blade for purposes of cleaning or the like. Thus one and the same movement is used in the hitherto known constructions for flexing a blade and for exchanging the same, so that the flexing will have to be readjusted each time when a blade has been removed from and reinserted into the razor. This is objectionable because the flexing adjustment requires more time and effort than the exchanging of blades or the like.

Therefore, one object of the present invention is the provision of a razor of the character described which has two independent operating means, one for quickly exchanging the blades, and another for adjusting the flexing of the blade exactly for obtaining the best shaving results. Thus with my new and improved razor construction, a new blade inserted in place of an old one will be flexed exactly in the same manner as the previous blade without any re-adjustment, and once the flexing has been adjusted properly, it will not be disturbed by the use of the razor for shaving nor by the removal of blades therefrom.

Another object of the present invention is the provision of a razor of the character described which permits an instantaneous swinging of the cap sections into their open position simply by depressing a small lever, and upon releasing said lever the cap sections will swing back automatically into their closed position and will cause a flexing of the blade exactly as adjusted.

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A further object of the present invention is the provision of a razor of the character described which is simple in construction, light in weight, handy and practical in use, sturdy and durable.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being undersood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawing, a preferred form of the invention has been shown.

In said drawing:

Figure 1 is a front elevation of a preferred embodiment of my invention;

Fig. 2 is a side elevation of the same;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2; and

Fig. 4 is a fractional front elevation of a modification.

Similar reference characters refer to similar parts throughout the several views.

In the drawing the numeral 2 denotes a hollow handle, which has a closed end portion 3 that is provided with a threaded hole. A tubular portion 4 is secured to, or made as a unit with, the open end portion of the handle 2 opposite the end portion 3, and has at least one lateral slot 5 (Fig. 3). To the portion 4 is secured a stationary guard member 6, which has a somewhat convex blade-supporting face provided with fulcrum shoulders over which a razor blade is flexed when clamped in shaving position.

A pair of lug portions 7 are extended from the lower side of the member 6 and have pivoted thereto at 8 a lever 10. The latter has a cam portion 12 which extends through the slot 5 into a slot 14 of a shaft 15, which is slidable in the handle 2 and secured to a carrier 16. A pair of cap sections 17 are pivotally mounted upon the carrier 16 in such a manner that upon forcing of the shaft 15 out of the handle 2 and thus raising the carrier 16, they are swung from the closed position shown in full lines to the open position indicated by dash-and-dotted lines in Fig. 2. The shaft 15 is partially moved out of the handle 2 by depressing the lever 10, so that the cam portion 12 will cause the shaft 15 to move in a direction opposite to that in which a spring 18 tends to force the shaft 15. The spring 18 preferably is a coil spring, as shown, through which a portion of the shaft 15 is extended. The main portion of the carrier 16 is shaped as an inverted U to whose web portion is secured the shaft 15, and to whose flange portions are secured the center

portions of cross pieces 19, which are right angularly disposed to the carrier 16. Thus the carrier forms with the cross-pieces 19 an I-shaped member, and the cap sections 17 are pivoted to the ends of those sides of the cross pieces 19 which face the part 16. The cap sections 17 are similar in shape and are inwardly concave and shaped to flex the blade over the fulcrum shoulders of the guard member 6 when in shaving position.

A nut 20 is screwed upon the threaded lower end portion 22 of the shaft 15, which extends through the spring 18. The latter rests with one end against the nut 20 and with its other end against the member 4, thus tending to force the shaft 15 into the position in which the cap sections 17 are in their closed position. The guard member 6 has a perforation in its center through which extends the shaft 15, and there are recesses 23 (Fig. 3) in the end portions of the member 6, through which extend the flange portions of the carrier 16, so that the cross-pieces 19 are beneath the member 6 when the carrier 16 is in its lowest position. The lowest points at which the downward travel of the parts 6, 15, 16 and 19 terminates upon releasing the lever 10 can be altered by turning a knurled head 24, from which extends a threaded bolt 26 which is screwed through the threaded hole in the lower end portion 3 of the handle 2. The end 27 of the bolt 26 preferably is increased, so that the bolt 26 cannot be screwed out of the handle 2 entirely. By screwing the bolt 26 more or less into the handle 2, the shaft 15 can be moved to a certain extent in a direction opposite to that in which the spring 18 tends to force it, so that the flexing of the razor blade 29 (Fig. 2) can be adjusted. A spring 31 (Fig. 3) preferably is interposed between the end portion 3 of the handle 2 and the head 24, so that there will be sufficient friction for preventing an accidental turning of the parts 24 and 6 relative to the handle 2.

The cap sections 17 have at their outer ends arm portions 31, which extend through recesses in the corner portions of the member 6, and by means of which the cap sections 17 are pivoted at 33 (Fig. 2) to the cross-pieces 19. The arm portions 31 have at their lower ends outwardly protruding lug sections 35, which engage the member 6 when the parts 15 and 16 are raised relative to the member 6, so that the cap sections 17 will be caused to swing from their closed position shown in full lines to their open position indicated by dash-and-dotted lines in Fig. 2. The web portion of the carrier 16 extends over a section of the longitudinal center portion of the member 6 and through the slot in the longitudinal center portion of the razor blade 29, so that the carrier 16 can move up and down without causing a change of the position of the blade 29.

According to the modification of Fig. 4, the member 4 is slotted at opposite sides, and at 28 there are pivoted two levers 30 to opposite portions at the lower side of the member 6. Each lever 30 is provided with a cam portion 32, extending through the slotted portions of the member 4 into a slot 34 in the shaft 15. The cam portions 32 partially lay one over the other. Thus the raising of the parts 15 and 16 relative to the handle 2 and the member 6 can be carried out either with two fingers of the operator engaging both levers 30, or with one finger engaging either one of the levers 30.

Since certain changes may be made in the above article and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent is:

1. A safety razor comprising a member having a blade-supporting face, a carrier having a blade-lifting portion which is movable with respect to the plane of said face, cap sections pivotally mounted upon said carrier and having connections with said member whereby they are swung transversely as the carrier is moved, a shaft right angularly disposed to said carrier and secured thereto, a hollow handle in which said shaft is slidable having secured to one of its ends said member, first operating means at one end portion of said handle constructed and arranged to move said shaft and carrier as well as the closed cap sections first as a unit and then to swing the cap sections on the carrier in unclamping a blade which has been clamped in position upon said member, and second operating means at the other end portion of said handle constructed and arranged to move the shaft as well as the carrier and closed cap sections only as a unit relative to said blade-supporting member so as to change the flexing of a blade which is clamped in position upon said blade-supporting member.

2. A safety razor comprising a guard plate having a blade-supporting face, a bar shaped as an inverted U having flange portions and a web portion extending over the longitudinal center portion of said guard plate and through the slot in the longitudinal center portion of a razor blade supported by the face of said guard plate, a cross-piece secured intermediate its ends to the lower section of each flange portion of said bar and being right angularly disposed thereto and adjacent each end of said guard plate so that said cross pieces form with said bar an I-shaped member, cap sections pivotally mounted to the ends of said cross pieces beneath said guard plate having lug portions protruding from their pivot points and adapted for engaging said guard plate so as to cause a swinging of the cap sections around the pivot points upon moving said I-shaped member relative to said guard plate, a shaft secured to and right angularly extended from the lower side of said bar intermediate its ends, a hollow handle into which said shaft is slidably extended being secured with one end to said guard plate, resilient means interposed between the aforementioned end of said handle and said shaft tending to force the latter into said handle, first means for manually moving said shaft in a direction opposite to that in which said resilient means tend to force the shaft being provided at one end of said handle, and second means for moving said shaft in the same direction as said first means independently from said first means being provided at the other end of said handle, said first means being adapted for moving said shaft and said I-shaped member so far that said cap sections swing on said I-shaped member, while said second means are adapted for moving said shaft and said I-shaped member only so far

as to change the flexing of the plate without causing a swinging of said cap sections.

3. A safety razor comprising a member having a blade-supporting face, a carrier having a blade-lifting portion which is movable with respect to the plane of said face, cap sections pivotally mounted upon said carrier and having connections with said member whereby they are swung transversely as the carrier is moved, a shaft right angularly disposed to said carrier and secured thereto, a hollow handle into which said shaft is slidably extended having a slotted end portion to which said member is secured, a spring interposed between said handle and said shaft tending to force the latter into the former, first operating means extending into said handle through said slotted end portion for moving said shaft in a direction opposite to that in which said spring tends to force the shaft, and second operating means at that end of said handle which is opposite to said slotted end portion for moving said shaft in the same direction as said first operating means independently of the latter.

4. A safety razor comprising a member having a blade-supporting face, a carrier having a blade-lifting portion which is movable with respect to the plane of said face, cap sections pivotally mounted upon said carrier, and having connections with said member whereby they are swung transversely as the carrier is moved, a shaft having a longitudinal slot near one of its ends and being right angularly disposed and secured to said carrier, a hollow handle into which said shaft is slidably extended having a slotted end portion to which said member is secured, a spring interposed between said handle and said shaft tending to force the shaft into the handle, manually operable cam means extending through the slotted end portion of said handle into the slot in said shaft and being adapted for moving said shaft in a direction opposite to that in which said spring tends to move said shaft, a bolt member having a head portion and a threaded shaft portion which is screwed into that end portion of said handle which is opposite to said slotted end portion and being in axial alignment with said shaft and adapted for moving the latter in the same direction as said cam means independently thereof, and friction means interposed between said bolt and said handle.

5. A safety razor comprising a member having a blade-supporting face, a carrier having a blade-lifting portion which is movable with respect to the plane of said face, cap sections pivotally mounted upon said carrier, and having connections with said member whereby they are swung transversely as the carrier is moved, a shaft having a longitudinal slot near one of its ends and being right angularly disposed and secured to said carrier, a hollow handle into which said shaft is slidably extended having a slotted end portion to which said member is secured, a spring interposed between said handle and said shaft tending to force the shaft into said handle, manually operable cam means pivoted to the lower side of said member and extending through the slotted end portion of said handle into the slot in said shaft and being adapted for moving said shaft in a direction opposite to that in which said spring tends to move said shaft, a bolt member having a head portion and a threaded shaft portion which is screwed into that end portion of said handle which is opposite to said slotted end portion and being in axial alignment with said shaft and adapted for moving the latter in the same direction as said cam means independently thereof, and a coiled resilient member interposed between said handle and the head portion of said bolt member.

6. A safety razor comprising a member having a blade-supporting face, a carrier having a blade-lifting portion which is movable with respect to the plane of said face, cap sections pivotally mounted upon said carrier and having connections with said member whereby they are swung transversely as the carrier is moved, a shaft having a longitudinal slot near one of its ends and being right angularly disposed and secured to said carrier, a hollow handle into which said shaft is slidably extended having a slotted end portion to which said member is secured, a spring interposed between said handle and said shaft tending to force the shaft into said handle, a lever having a handle portion and a cam portion being pivoted to the lower side of said member and extending with its cam portion through the slotted end portion of said handle into the slot in said shaft and being adapted for moving said shaft in a direction opposite to that in which said spring tends to move said shaft, a bolt member having a head portion end a threaded shaft portion which is screwed into that end portion of said handle which is opposite to said slotted end portion and being in axial alignment with said shaft and adapted for moving the latter in the same direction as said lever independently thereof, and a coiled resilient member interposed between said handle and the head portion of said bolt member.

7. A safety razor comprising a member having a blade-supporting face, a carrier having a blade-lifting portion which is movable with respect to the plane of said face, cap sections pivotally mounted upon said carrier, and having connections with said member whereby they are swung transversely as the carrier is moved, a shaft having a longitudinal slot near one of its ends and being right angularly disposed and secured to said carrier, a hollow handle into which said shaft is slidably extended having a slotted end portion to which said member is secured, a spring interposed between said handle and said shaft tending to force the shaft into said handle, a pair of levers having handle portions and cam portions being pivoted to portions of the lower side of said member which portions are located at both sides of said handle and said cam portions extending through the slotted end portion of said handle into the slot in said shaft and being adapted for moving said shaft in a direction opposite to that in which said spring tends to move said shaft, a bolt member having a head portion and a threaded shaft portion which is screwed into that end portion of said handle which is opposite to said slotted end portion and being in axial alignment with said shaft and adapted for moving the latter in the same direction as said cam portions independently thereof, and a coiled resilient member interposed between said handle and the head portion of said bolt member.

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