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No. 764,574.

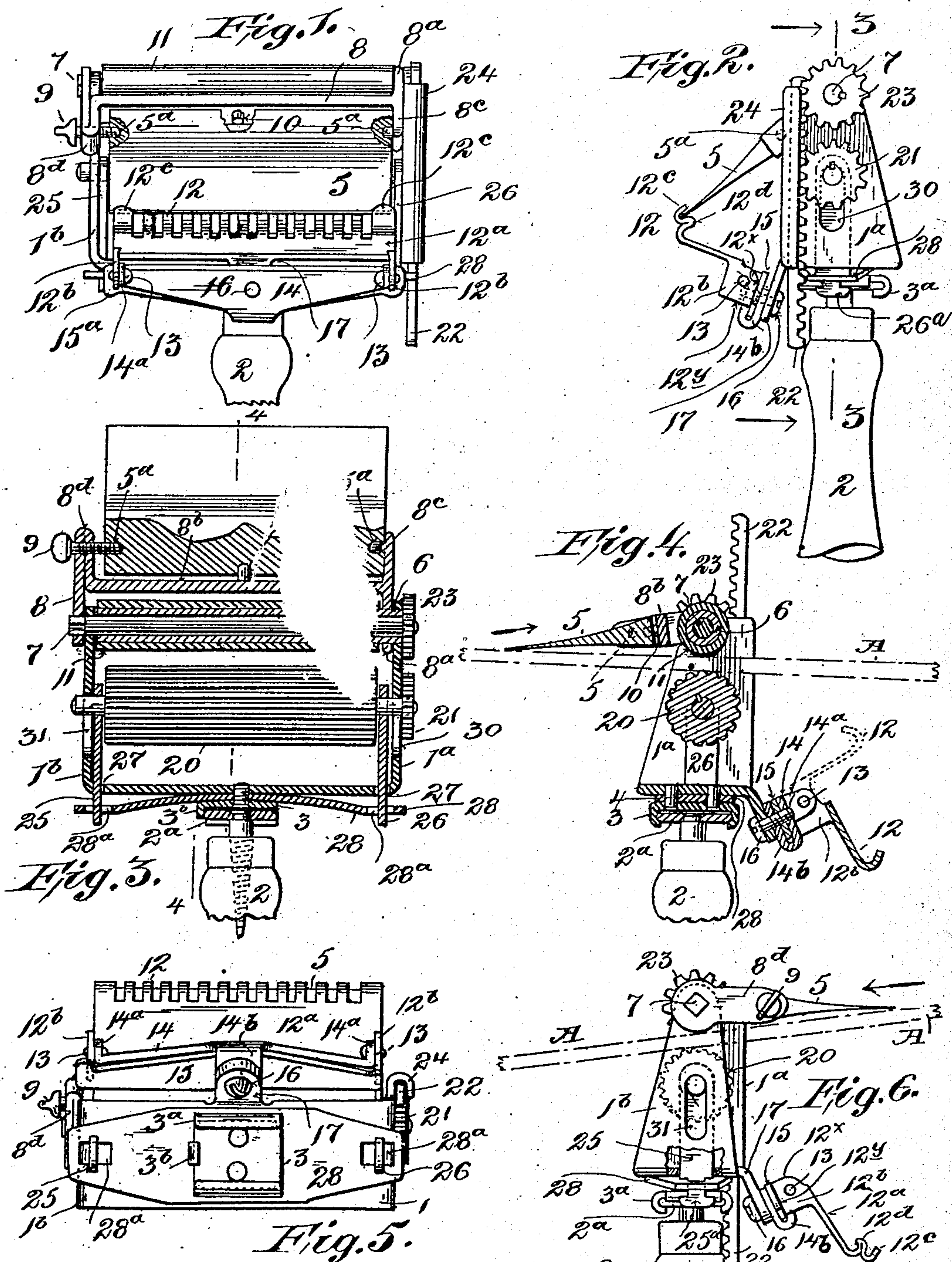
PATENTED JULY 12, 1904.

H. J. GAISMAN.

SAFETY RAZOR.

APPLICATION FILED MAR. 10, 1904.

NO MODEL.



Witnesses  
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## UNITED STATES PATENT OFFICE.

HENRY J. GAISMAN, OF NEW YORK, N. Y.

## SAFETY-RAZOR.

SPECIFICATION forming part of Letters Patent No. 764,574, dated July 12, 1904.

Application filed March 10, 1904. Serial No. 197,576. (No model.)

*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, State of 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 having a blade-guard, a blade pivotally supported, and means for rocking the blade while in the frame for stopping the blade edge without removing the blade from the frame, means also being provided for holding the cutting edge of the blade in shaving position with respect to the guard during the shaving operation.

One object of my invention is to provide improved means to cause a strop to rock the blade while in the frame and while released from the guard.

Another object is to provide improved means for holding the blade edge against the guard and for releasing the blade from the guard to enable the blade to rock for stopping purposes while in the frame, also to cause the guard to have adjustment with respect to the blade edge to provide for inequalities in the blade edge caused by sharpening it, and a further object is generally to improve the construction of such safety-razors.

The invention comprises a suitable frame provided with a blade-edge guard, a blade pivotally supported to rock in the frame, an adjustable member carried by the frame to co-act with a strop, means connected with said member for rocking the blade, and means for causing said member to bear firmly upon the strop to cause an efficient stopping action by keeping the strop under pressure, so that the blade edge may bear evenly on the same as the razor-frame is reciprocated along the strop.

The 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 front view of a safety-razor embodying my invention. Fig. 2 is a side

view thereof, looking from the right in Fig. 1. Fig. 3 is a vertical section substantially on the line 3 3 in Fig. 2. Fig. 4 is a vertical cross-section substantially on the line 4 4 in Fig. 3 looking from the left. Fig. 5 is an under side view of a razor, the handle being removed; and Fig. 6 is a side view looking from the side opposite Fig. 2, showing the strop in position.

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

The main frame of the razor is shown comprising a base portion 1 and uprights 1<sup>a</sup> 1<sup>b</sup>, and at 2 is a handle which may be connected with the frame in any suitable manner, being preferably detachably connected therewith. To this end I have shown the handle as provided with a rectangular head 2<sup>a</sup>, adapted to slide into and from a socket-piece 3, (shown provided with guiding-webs 3<sup>a</sup> and a stop 3<sup>b</sup>), rivets 4 holding the socket-piece on the frame. The blade 5 is pivotally supported in the frame, so as to rock back and forth to bear upon a strop A as the frame is reciprocated back and forth along the strop. The blade may be carried in a suitable holder pivotally mounted in the frame, and in the arrangement shown I have provided a hollow shaft 6, which is secured to and projects from the upright 1<sup>a</sup>, and within said shaft is journaled a shaft 7, to one end of which is secured the blade-holder 8, the opposite end 8<sup>a</sup> of which holder is journaled to rock upon the hollow shaft 6. (See Fig. 3.) In the arrangement shown the blade-holder has a cross-piece 8<sup>b</sup> and extensions 8<sup>c</sup> 8<sup>d</sup>, between which the blade 5 is located, a thumb-screw 9 serving to adjustably hold the blade in place in the holder. Between the blade and its holder I have shown pins for centering the blade and keeping it from displacement, for which purpose pins 10 are secured, respectively, upon the bar 8<sup>b</sup> and extension 8<sup>c</sup> and enter sockets 5<sup>a</sup> in the blade, the screw 9 likewise entering such a socket; but the pins could be on the blade and the sockets in the holder, if preferred. By this means the blade is securely detachably connected with the holder, and movement of the blade within its holder is prevented, while



at the same time the outer faces of the blade are unobstructed.

At 11 is indicated a roller loosely journaled upon the hollow shaft 6 and located between the end members of the blade-holder.

At 12 is indicated a guard adapted to coact with the blade edge in usual manner for shaving purposes. Said guard is shown movably connected with the frame, so as to be moved toward and from the razor edge, and to this end the guard is pivotally supported, as at 13, upon a bar or plate 14, carried by frame 1. In the example shown the guard comprises a plate 12<sup>a</sup>, having teeth produced on one edge and having lugs 12<sup>b</sup> at opposite ends connected with the pivots 13, that are carried by ears 14<sup>a</sup> on bar 14. (See Figs. 1 and 4.) By this means the guard is supported to swing toward and from the blade edge. To hold the guard against the blade edge and also away from it, as indicated in dotted and full lines, respectively, in Fig. 4, the adjacent edges or surfaces 12<sup>x</sup> 12<sup>y</sup> of the lugs 12<sup>b</sup> of the guard are formed at an angle to each other (see Figs. 2 and 6) and are adapted to bear against a spring 15, (shown in the form of a plate-spring connected with the bar 14,) the surface 12<sup>x</sup> being shown cam-like. As the lugs 12<sup>b</sup> bear on the ends of said spring, the latter tends to hold the guard in the operative and inoperative positions, the spring being secured between its ends and the latter bearing firmly against the lugs 12<sup>b</sup>. Thus when the guard is swung to the operative position, as in Fig. 2, the spring 15 bears against the corresponding edges or surfaces 12<sup>x</sup> of the lugs 12<sup>b</sup> and holds the guard firmly; the cam-like surfaces 12<sup>x</sup> causing the guard to advance with pressure against the blade edge, and when the guard is swung outwardly, as in Fig. 6, the edges 12<sup>y</sup> of the lugs 12<sup>b</sup> are acted upon by spring 15 to hold the guard in such position. For convenience of manufacture I provide the bar or plate 14 with a centrally-disposed bent-over lip 14<sup>b</sup>, between which and the bar 14 the spring 15 is located, a screw or rivet 16 serving to hold the bar 14 upon frame 1, as by means of a lug 17, projecting from the latter. The screw 16 is shown located centrally with respect to guard 12, and as the guard is carried by bar or plate 14—that is, supported by said screw—it will be understood that said guard is pivotally supported to have a rocking motion with respect to the edge of the blade or adjustment on its central axis in addition to the swinging motion of the guard toward and from the blade edge, permitted by the pivots 13 and lugs 12<sup>b</sup>. The guard is shown provided with lips 12<sup>c</sup>, that provide recesses with respect to prongs 12<sup>d</sup> to receive the edge of the blade. (See Figs. 2 and 6.) Thus if the edge of the blade is worn away unevenly, so that one part projects farther toward the guard than another, the cor-

responding side of the guard advances toward the reduced part of the blade edge, owing to the swiveling of the guard at the point 16, so that the guard may keep a relatively proper position with respect to the blade edge. When the guard is swung away from the blade edge to relieve the lips 12<sup>c</sup> from engagement with the blade, the latter can be swung back and forth for sharpening its edge while it remains in the frame.

At 20 is indicated a member to rock the blade, and it is shown in the form of a roller journaled in the main frame beneath the blade-shaft 6, so that a strop may be passed therebetween to enable the razor-blade edge to bear on the strop, as indicated in Figs. 4 and 6. The roller shown is supported so as to have movement toward and from the blade-shaft 6, or in a lateral direction with respect to its longitudinal axis, and is connected with the blade-holder, so as to oscillate the latter as the frame and the roller 20 are moved back and forth in contact with the strop. To the roller 20 or its pivot is secured a gear 21, that meshes with a rack 22, which meshes with a gear 23, secured on the shaft 7, to which the blade-holder is attached. The rack 22 is guided to reciprocate on frame 1, and to this end I have shown the frame 1 provided with a grooved member or channel 24, in which said rack slides, which member may be formed by bending the metal of the upright 1<sup>a</sup> into channel form to receive the rack or may be a separate piece secured on the frame. The relative arrangement of the gears and rack is such that when the roller 20 is rocked by contact with the strop the blade 5 and its holder will be caused to swing back and forth, carrying the blade edge over the strop from one side of the frame to the other, as shown in Figs. 4 and 6. The roller 20 is journaled upon blocks 25 26, (shown guided to travel along the uprights 1<sup>a</sup> 1<sup>b</sup>), in the upper ends of which blocks the pivots or shaft of roller 20 are journaled, and said blocks pass through apertures in the base 1 of the main frame indicated at 27. (See Fig. 3.) At 28 is a spring that bears against the blocks 25 26, with a normal tendency to push said blocks and the roller 20 toward shaft 6. In the arrangement shown the spring 28 is secured centrally to the base portion 1 of the main frame, as by the rivets 4, that pass through the clamp-piece 3, and said spring is shown in bow form and provided with slots 28<sup>a</sup>, through which pass the ends of the blocks 25 26, that project below base 1, said blocks having shoulders, against which said spring bears, and heads 25<sup>a</sup> 26<sup>a</sup> below the spring. The pivots or shaft of roller 20 are shown guided in slots 30 31 in uprights 1<sup>a</sup> 1<sup>b</sup>, respectively, whereby the roller 20 is guided to have lateral movement.

In using my improvements for shaving purposes the blade is turned down and the guard



raised against the edge of the blade, as indicated in Fig. 2, the spring 15 serving to hold the guard and blade edge in firm shaving position with respect to each other. When the blade edge is to be stropped, the guard is swung away from the blade, as indicated in full lines in Figs. 4 and 6. Then the blade is swung upwardly and the strop inserted between the rollers 11 and 20, and the spring 28 causes the strop to be firmly gripped between said rollers by pushing the blocks 25 and 26 toward the roller 11. (The roller 20 may be pushed down to admit the strop, as by gripping the projecting ends of spring 28, whereby the heads on the lower ends of the blocks 25 and 26 will pull down the blocks and roller 20.) The strop is then held taut and the frame reciprocated along the same. The roller 11 or the shaft 6, if the roller 11 should be dispensed with, serves as an abutment for the strop to be pressed against by the spring-pressed adjustable roller 20, so that a firm gripping of the strop is effected by the adjustable roller 20, and this adjustable roller also provides for the use of strops of varying thickness, so that a firm gripping of any desired strop will be effected to permit the efficient rocking of the blade-holder, while at the same time the strop and blade are brought into relative positions irrespective of the varying thicknesses of strops adapted to be used, which gives the blade edges substantially the same bevel at all times. When the frame is moved to the right, as in Fig. 4, the gear 21, connected with roller 20, will act to push up rack 22, which in turn will rotate gear 23, so that the blade edge will be moved over to the left in Fig. 4 to drag behind the frame, and as the tendency of the roller 20 is to continue rotating it will cause the blade edge to bear with pressure upon the strop. Then the frame is moved in the reverse direction, as to the left in Fig. 6. The roller 20 will reverse in rotation and will cause the rack 22 to descend, thereby swinging the blade 5 over to the right in Fig. 6, so that it will drag behind the strop and bear on the same. Thus each time the frame is moved back and forth along the strop, the blade will be swung over from side to side, each time dragging its edge on the strop behind the frame. When the blade edge is stropped, the blade is again swung down to the position shown in Fig. 2 and the guard pushed up into position against the blade edge. Thus it will be seen that in order to strop the blade edge it is not necessary to remove the blade from the razor-frame, and thereby the necessity of having an extra machine or handle for stropping the blade and the danger to the blade edge in removing it from and inserting it in the razor-frame is overcome, my improvements thereby saving time and being convenient in sharpening the razor-blade.

Modifications may be made in the details of

construction shown and described without departing from the spirit of my invention.

Having now described my invention, what I claim is—

1. A safety-razor comprising a frame provided with a guard, means for pivotally supporting a blade in the frame to have its edge lie in shaving position with respect to the guard, a roller adjustably carried in the frame to coact with a strop, and means connecting the roller with the means for pivotally supporting the blade for rocking the blade by said roller, substantially as described.
2. The combination of a frame, a blade-holder pivotally carried by the frame, a roller carried by the frame, means connecting said roller and holder for rocking the latter by the former, and means for permitting adjustment of the roller and holder with respect to each other, substantially as described.
3. The combination of a frame, a blade-holder pivotally carried by the frame, a roller carried by the frame, means connecting said roller and holder for rocking the latter by the former, means permitting adjustment of the roller and holder with respect to each other, and a spring arranged to cause the roller to create pressure on a strop against which the roller bears, substantially as described.
4. The combination of a frame, a blade-holder pivotally carried by the frame, means for rocking the holder by coaction of a strop, and means for adjusting the gripping action of the blade-rocking means with respect to a strop, substantially as described.
5. The combination of a frame, a blade pivotally supported thereby, means for rocking the blade in the frame, and means for adjusting the gripping action of the blade-rocking means with respect to a strop, substantially as described.
6. The combination of a frame, a blade pivotally supported thereby, a movable member carried by the frame and connected with the blade to rock the same, and means for causing said member to have adjustment with respect to a strop for gripping the latter, substantially as described.
7. The combination of a frame, a pivotally-supported blade, a movable member, an abutment to coact with the member, means to adjust the member and abutment one with respect to the other, and means to rock the blade by the member, substantially as described.
8. The combination of a frame, a blade-holder pivotally carried thereby, a roller adjustably carried by the frame to have movement toward and from said holder, an abutment opposed to the roller, a spring to press the roller toward the holder, and means for causing the roller to rock the holder, substantially as described.
9. A safety-razor comprising a frame, a blade-holder pivotally carried thereby, a guard



carried by the frame to lie in shaving position with respect to the blade edge, a roller adjustably carried by the frame to have movement toward the blade-holder, a spring to  
5 press the roller toward the holder, and means for causing the roller to rock the blade-holder, substantially as described.

10 10. The combination of a frame provided with opposed slots, a roller having its shaft or pivots journaled in said slots to have lateral movement, a blade-holder pivotally carried by said frame, means connecting the roller and holder to cause the holder to be rocked by the roller, and a spring connected with the roller  
15 for pressing the same toward the holder, substantially as described.

11. A safety-razor comprising a frame provided with a guard, means for pivotally supporting a blade in the frame to have its edge  
20 lie in shaving position with respect to the guard, a roller carried by said frame, a rack guided on said frame, and gears connecting the rack with the blade and the roller for rocking the blade by the roller, substantially as described.  
25

12. The combination of a frame, means for pivotally supporting a blade in the frame, a movable member carried by said frame, a rack guided on said frame, and gears connecting  
30 the rack with the blade and the movable member for rocking the blade by said member, substantially as described.

13. The combination of a frame, a blade-holder pivotally carried thereby, a gear connected with said holder, a roller carried by said frame, a gear connected with said roller, and a rack guided by the frame and in mesh with said gears, said roller being adjustably  
40 carried by the frame to have movement toward and from the holder, substantially as described.

14. The combination of a frame, a blade-holder pivotally carried thereby, a roller adjustably carried by the frame to have movement toward the holder and arranged parallel  
45 with the holder, and means for rocking the holder by the roller, substantially as described.

15. The combination of a frame, a shaft, a blade-holder pivotally carried on said shaft, a  
50 roller journaled on the shaft, a roller adjustably carried on the frame in alinement with the first-named roller whereby a strop may be received between said rollers, and means connecting said holder with the second-named  
55 roller for rocking the holder by said roller, substantially as described.

16. The combination of a frame, a blade-holder pivotally carried thereby, a roller adjustably carried by the frame, means connecting  
60 the roller and holder to rock the latter by the former, blocks connected with the roller, and a spring acting on said blocks to press the roller toward the holder, substantially as described.

17. The combination of a frame, a blade-holder pivotally carried thereby, a roller adjustably carried by the frame, means for rocking the holder by the roller, blocks guided by the frame and pivotally connected with the roller, and a spring carried by the frame and  
70 connected with said blocks for pressing the roller toward the holder, substantially as described.

18. The combination of a frame, a hollow shaft carried thereby, a shaft journaled within said hollow shaft, a blade-holder connected with the second-named shaft to be rocked thereby, a gear connected with said shaft, a roller carried by said frame, and gearing connecting said roller with the first-named  
80 gear for rocking the holder by the roller, substantially as described.

19. The combination of a frame, a hollow shaft carried thereby, a shaft journaled within said hollow shaft, a blade-holder having  
85 one part connected with said shaft and another part journaled on the hollow shaft, a gear connected with the interior shaft, a roller carried by the frame, and gearing connecting the roller with the first-named gear,  
90 substantially as described.

20. A razor of the class described comprising a frame, a guard carried thereby, means for pivotally supporting a blade in the frame so that the edge of the blade may lie  
95 in shaving position with respect to the guard; means carried by the frame for rocking the blade, and means for adjusting the gripping action of the blade-rocking means with respect to a strop, substantially as described.  
100

21. The combination of a frame, a blade pivotally supported thereby, a movable member, an abutment alined with said member whereby a strop may be received between said member and abutment, means to adjust  
105 the member and abutment one with respect to the other, means to cause the member and abutment to grip the strop and means to rock the blade by the member, substantially as described.  
110

22. In a safety-razor the combination of a frame with a guard centrally movably supported to have adjustment with respect to its central axis, substantially as described.

23. In a safety-razor the combination of a frame with a guard pivotally supported to swing on its longitudinal axis toward and from a blade and also pivotally supported to swing on an axis at right angles to its longitudinal axis for adjustment with respect to  
115 an uneven blade edge, substantially as described.

24. In a safety-razor the combination of a frame with a guard centrally pivotally supported to have adjustment with respect to an  
120 uneven blade edge, and means to hold the guard in position against the blade edge, substantially as described.



25. In a safety-razor the combination of a  
frame with a guard pivotally supported in a line  
parallel with the operative portion of the  
guard to swing toward and from a blade edge  
5 and pivotally supported between its ends to  
have adjustment at a right angle to its swing-  
ing motion on the first-named pivot, and  
means to hold the guard in position against  
the blade edge, substantially as described.

10 26. In a safety-razor the combination of a  
frame with a guard provided with a pivot  
located between its ends to permit the guard  
to have adjustment at an angle to the plane

of a blade edge, and means to hold the guard  
in position against the blade edge, substan- 15  
tially as described.

27. In a safety-razor the combination of a  
frame with a bar pivotally carried thereby, a  
guard pivotally carried by said bar, and a  
spring coacting with the guard to hold the 20  
latter against a blade edge, substantially as de-  
scribed.

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Witnesses:

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Correction in Letters Patent No. 764,574.

It is hereby certified that in Letters Patent No. 764,574, granted July 12, 1904, upon the application of Henry J. Gaisman, of New York, N. Y., for an improvement in "Safety-Razors," an error appears requiring correction, as follows: At the head of the sheet of drawings, the words and figures "Patented July 5, 1904," should read *Patented July 12, 1904*, and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 7th day of February, A. D., 1905.

[SEAL.]

F. I. ALLEN,  
*Commissioner of Patents.*