Feb. 11, 1930. H. J. GAISMAN 1,747,152

SAFETY RAZOR

Filed June 25, 1927

Fig. 1.

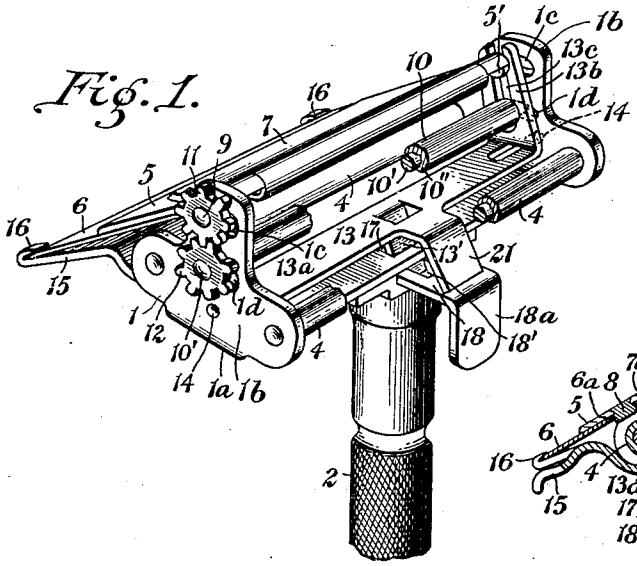


Fig. 2.

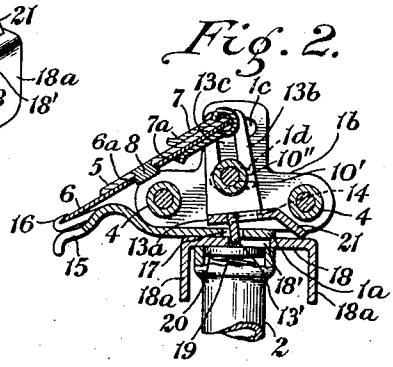


Fig. 3.

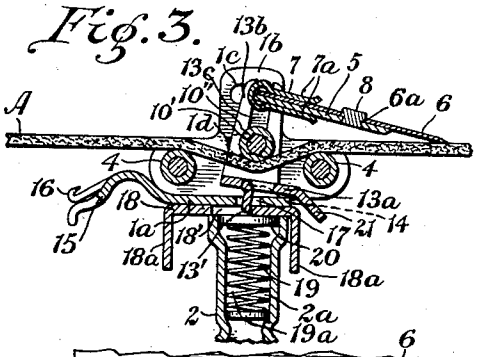


Fig. 4.

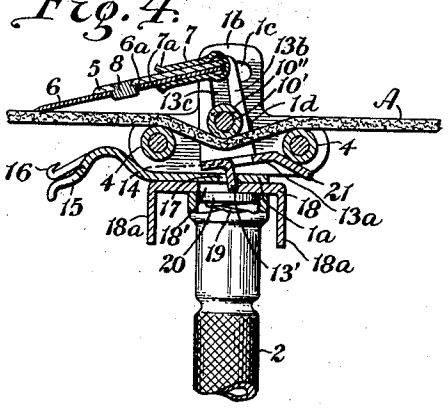


Fig. 5.

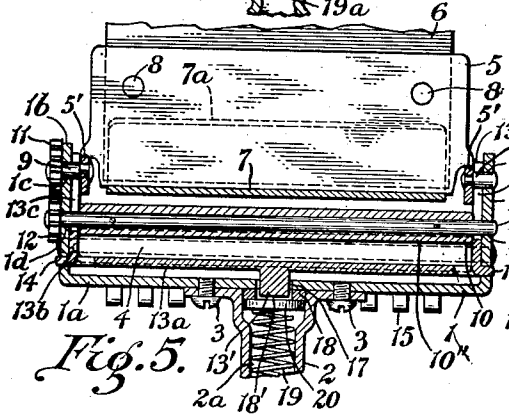
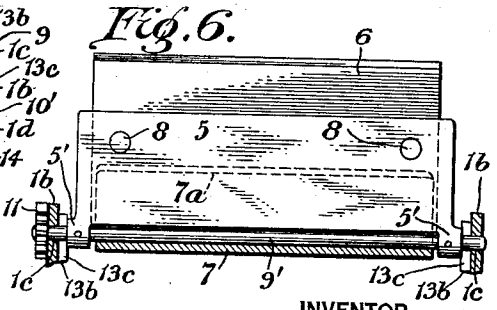


Fig. 6.



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UNITED STATES PATENT OFFICE

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SAFETY RAZOR

Application filed June 25, 1927. Serial No. 201,345.

The object of my invention is to provide a safety razor and means for stropping the blade while in the razor, including simple and effective means for causing the blade edge to be raised from a strop at the initiation of the reverse movement of the razor along the strop for stropping the blade edge.

In carrying out my invention I provide a frame having strop tensioning means and a second frame pivotally supported within the first named frame, a roller to engage the strop and movable laterally relatively to the first named frame, a blade holder having end portions guided by the first named frame, said roller and blade holder being engaged by the second named frame for shifting the position of the blade holder, and means operatively connecting the roller with the blade holder for rocking or rotating the latter by the former when the razor is reciprocated along the strop for stropping the blade edge.

My invention also comprises means operative with the second named frame for retaining the blade in shaving relation to the guard.

My invention comprises 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 a part hereof, wherein

Fig. 1 is a partly broken perspective view of a safety razor embodying my invention;

Fig. 2 is a central section illustrating the parts in shaving position;

Figs. 3 and 4 are sectional detail views illustrating the parts in stropping positions;

Fig. 5 is a partly sectional side view of the razor, and

Fig. 6 is a sectional detail of a modification.

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

The main frame 1 is shown comprising a base 1^a and spaced uprights or sides 1^b, to which base a handle 2 may be secured in any desired way, such as by screw 3. Said frame is shown provided with spaced strop-tensioning means, such as rollers at 4, in a well known way. A blade holder is indicated at 5 to which a blade 6 may be attached in any desired way. In the example illustrated the blade holder comprises a plate-like member upon which the blade may be laid with its cutting edge projecting beyond the holder and a blade retainer 7 is adapted to clamp the rear portions of the blade holder and of the blade to detachably retain said parts together. In the example illustrated the retainer 7 comprises a piece of metal bent or folded to form spaced jaws 7^a of spring-like tendency adapted to be slid along the blade holder and the blade to retain and release the blade. The blade holder is shown provided with spaced projections or pins 8 adapted to enter corresponding holes 6^a in the blade to retain the latter from edgewise displacement on the holder, (Fig. 3). The blade holder is pivotally and slidably supported by the uprights 1^b for which purpose the blade holder at opposite ends is provided with pivotal means, such as pins at 9, which pins may be riveted to ears 5′ of the blade holder, (Fig. 5), although the pivotal means may be a single shaft 9′ extending across the blade holder and from opposite ends thereof into slots 1^c to which shaft the blade holder is secured, (Fig. 6). The uprights 1^b are provided with laterally disposed preferably arcuate slots 1^c near the outer portions of said uprights in which the pivotal means of the blade holder are located, whereby said pivots may slide along said slots for lateral movement of the blade holder relatively to the uprights 1^b of frame 1. The metal at the ends of slots 1^c limits the lateral movements of the blade holder in frame 1. An operating roller or shaft for the blade holder is indicated at 10 and has end portions 10^a slidably guided in slots 1^d of the uprights 1^b to limit lateral displacement of said roller. The roller illustrated comprises a shaft 10′ upon which roller a tube 10″ is mounted, the ends of the tube being spaced a suitable distance from the uprights 1^b. The blade holder with the roller 10 are geared together as by a gear 11 secured to one of its pivots 9 or its shaft, and a gear 12 secured to the corresponding end of the roller, such as to its shaft 10′, (Figs. 1 and 5), whereby when the strop A engages said roller and the razor is reciprocated along the strop, the roller will be rotated for rocking or rotat-

ing the blade holder to present opposite sides of the blade at its cutting edge to the strop for sharpening said edge. A controlling member for the blade holder and the roller 10 is indicated at 13 and is pivotally mounted within frame 1, being pivoted to the uprights 1^b by means of pivots 14. The controlling member 13 is shown comprising a base or cross piece 13^a having projecting end portions or uprights 13^b extending adjacent to and between the uprights 1^b of frame 1, and between the end portions of the blade holder and the tube 10'', the uprights 13^b being shown provided with openings or slots 13^c receiving the pivots 9 of the blade holder and the end portions 10^a of roller 10. In the example illustrated the pivots 14 of the controlling member 13 are struck out of the metal thereof and extend laterally into holes in the uprights 1^b, whereby said member is pivotally supported to rock within frame 1 between the strop tensioning means 4.

When the strop A is passed through the razor it will engage the tensioning members 4 and the roller 10. When the razor is moved along the strop toward the left in Fig. 3 the blade edge will drag on the strop for sharpening said edge, the pivots 9 engaging the adjacent ends of slots 1^e. When the direction of movement of the razor along the strop is reversed the engagement of roller 10 with the strop will cause the controlling member 13 to swing on its pivots 14 relatively to the initial movement of frame 1 along the strop, as toward the left in Fig. 3, in such a way as to cause the blade edge initially to be lifted from the strop to prevent cutting the latter, and the pivots of the blade holder with the end portions of roller 10 will slide respectively in the slots 1^e and 1^d of frame 1 until they abut the metal at the corresponding ends of the slots, during which period the roller 10 will be rotated by engagement with the strop to rock or swing the blade from the position shown in Fig. 3, the parts assuming the position shown in Fig. 4, to present the blade edge to the strop. When the razor is moved along the strop toward the right in Fig. 4 the blade edge will be dragged on the strop, and at the initiation of reverse movement of the razor along the strop the controlling member 13, by reason of engagement of roller 10 with the strop, will be moved to the right relatively to frame 1, (in Fig. 4), to initially raise the blade edge from the strop, and continued movement of the razor along the strop will cause rotation of roller 10 to swing the blade back to the position shown in Fig. 3, and so on for each reciprocation of the razor along the strop. By the means described the rotary or rocking movement of the controlling member 13 within frame 1 has the effect of moving the blade holder and the roller 10 laterally within said frame while the gears remain in mesh to effect the initial lifting of the blade edge from the strop and the rotation of the blade from one stropping position to another in such a way that the strop-tensioning members 4 upon the main frame 1 will not be moved by the strop so that the roller 10 may act on the strop independently of the tensioning members as a means to rock the controlling member 13, whereby the blade holder that is slidably carried by the main frame may be shifted along the slots 1^e to initially raise the blade edge from the strop without interference from the strop-tensioning means.

The frame 1 is shown provided with a guard 15 at one side, which is provided with blade stops 16 shown in the form of hooks adapted to retain the blade in shaving relation to the guard, (Fig. 2). The base 13^a of the controlling member 13 is shown provided with a downwardly extending projection 13' which may be struck from the metal of said base and extends through an opening 17 in base 1^a of frame 1 in a position to enter a slot 18' in a retaining member 18. The member 18 is shown fitted to slide in the direction toward and from the guard and slidably supported within the upper end of bore 2^a of handle 2 against the base 1^a, said member being frictionally retained by means of a spring 19 within the handle pressing at one end against a disk 20 to force the disk frictionally against member 18 for frictionally pushing the latter against base 1^a, so that member 18 will remain in set position. The opposite end of spring 19 bears against a stop 19^a within handle 2, (Fig. 3). The member 18 is shown provided with spaced depending projections 18^a at opposite sides of the handle and spaced therefrom affording finger pieces for pushing the slide member back and forth. The controlling member 13 is provided with a projection 21 on one side, which is shown inclined and adapted to engage slide member 18 when the latter is in the position shown in Figs. 1 and 2 to retain the blade edge against the stops 16 of the guard for maintaining the blade in shaving position respecting the guard. When it is desired to strop the blade edge the member 18 will be pushed from the position shown in Fig. 2 to the position shown in Figs. 3 and 4, which will release the projection 21 from member 18 and said member will engage the projection 17 to cause tilting of controlling member 13 to withdraw the blade edge from the guard stops so that the controlling member 13 will be free to rock during stropping of the blade edge. When the blade is to be used for shaving the blade will be laid against the guard stops and the member 18 will be pushed to the right in Fig. 2, to cause tilting of the controlling member 13, to engage the blade with the guard stops and to cause the projection 21 to be engaged by the slide member

18 to retain the blade edge engaged by the stops 16.

Having now described my invention what I claim is:—

1. Blade stropping means comprising a frame having spaced uprights, a blade holder and a strop engaging roller geared together, the uprights having means cooperative with the blade holder and with said roller slidably guiding them for lateral movement, and a controlling member movably carried by the frame separately from the blade holder and roller and having means cooperative with the blade holder and roller for initially moving the blade holder to cause the blade edge to rise from the strop by engagement of the latter with the roller at the initiation of reciprocating movements of the frame along the strop.

2. Blade stropping means as set forth in claim 1, in which the means for guiding the blade holder and roller for lateral movement includes slots in the uprights receiving adjacent portions of the blade holder and the roller.

3. Blade stropping means as set forth in claim 1, in which the controlling member is provided with openings receiving adjacent portions of the blade holder and the roller for causing lateral movements thereof respecting the frame.

4. Blade stropping means comprising a frame having spaced uprights provided with laterally disposed slots, a blade holder having pivotal means in some of said slots, a strop engaging roller having portions in other of said slots, means gearing said blade holder and roller together, and a controlling member movably carried by the frame and cooperative with said holder and roller for causing movement thereof relatively to the frame for raising the blade edge from the strop.

5. Blade stropping means comprising a frame having spaced uprights, a blade holder and a strop engaging roller geared together, the uprights having means cooperative with the blade holder and with said roller guiding them for lateral movement, a controlling member pivotally carried by the frame and provided with openings receiving the pivotal portions of the blade holder and the roller for causing movement thereof relatively to the frame to raise the blade edge from the strop during initiation of reciprocative movements of the frame along the strop, the engagement of the roller with the strop causing the gears to rock the holder and blade for stropping the blade edge.

6. Blade stropping means comprising a frame having a base and spaced uprights provided with spaced slots laterally disposed, a blade holder having pivotal portions operative in some of said slots, a strop engaging roller having portions operative in other of said slots, said blade holder and roller having gears in mesh, a controlling member comprising a base having spaced uprights, means pivotally supporting said member with its uprights adjacent to the uprights of the frame, the uprights of the controlling member having openings receiving the pivotal portions of the blade holder and the adjacent portions of the roller, whereby the controlling member will be moved at the initiation of reciprocating motions of the frame along a strop to initially raise the blade edge from the strop.

7. Blade stropping means comprising a frame having spaced uprights and provided with spaced strop tensioning means, a blade holder and a strop engaging roller geared together, the uprights having means cooperative with the blade holder and with said roller guiding them for lateral movements, and a controlling member pivotally carried by the frame between the strop tensioning means and cooperative with the blade holder and roller for moving them laterally for causing the blade edge to rise from the strop at the initiation of reciprocating movements of the frame along the strop.

8. Blade stropping means as set forth in claim 7, in which the controlling member includes a base pivotally carried by the frame and provided with spaced uprights having openings receiving adjacent portions of the blade holder, the controlling member being operative between the uprights of the frame.

9. A safety razor comprising a frame having a blade guard, a blade holder guided by the frame for lateral and pivotal movements, means guided by the frame for rotating the holder by cooperation with a strop, a controlling member movably carried by the frame separately from the blade holder and roller and having means cooperative with the blade holder and with the first named means for moving the blade holder laterally, and means to retain the blade in cooperation with said guard.

10. A safety razor as set forth in claim 9, in which the means to retain the blade in cooperation with the guard includes a projection on the controlling member and a retaining member movable relatively to the controlling member to engage said projection to cause said controlling member to retain the blade in relation to the guard.

11. A safety razor as set forth in claim 9, in which the means to retain the blade in cooperation with the guard includes an inclined projection on the controlling member, and a slidable retaining member cooperative with said projection to cause said controlling member to retain the blade in relation to the guard.

12. A safety razor as set forth in claim 9, in which the means to retain the blade in cooperation with the guard includes a projection on the controllng member, a retaining member movable relatively to the controlling

member to engage said projection, and means to retain the slidable member in and out of cooperation with said inclined projection.

13. A safety razor comprising a frame having a guard provided with blade stops, a blade holder carried by the frame for lateral and pivotal movements, means for rotating the holder by cooperation with a strop, a controlling member pivotally carried by the frame and cooperative with the blade holder for moving the latter laterally, and a retainer movable relatively to the frame and cooperative with the controlling member for moving the blade from the blade stops.

14. A safety razor as set forth in claim 13, in which the means for moving the controlling member includes a projection thereon cooperative with the retaining member, the retaining member being slidable relative to the controlling member for actuating the latter.

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