April 21, 1931. H. J. GAISMAN 1,802,172

SAFETY RAZOR

Filed Nov. 19, 1927

Fig. 1

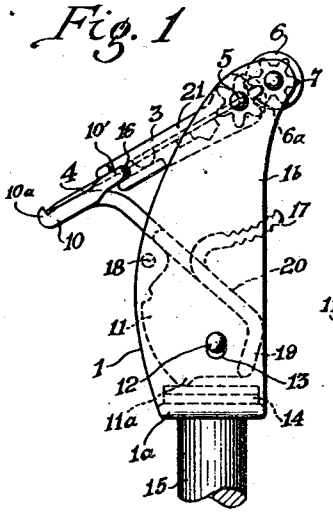


Fig. 2

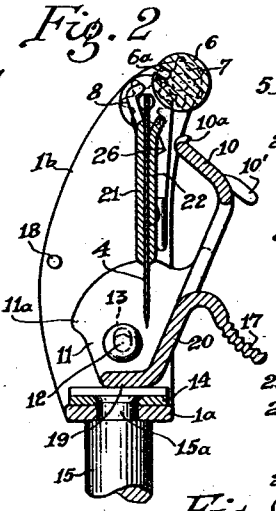


Fig. 7

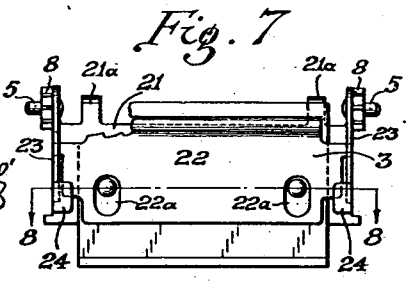


Fig. 6

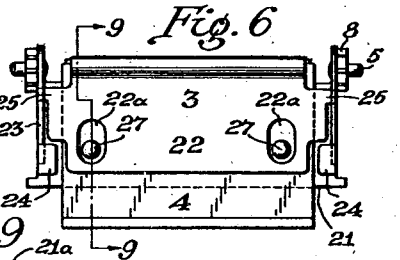


Fig. 9

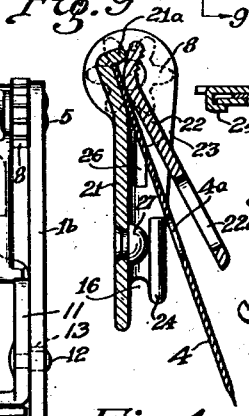


Fig. 8

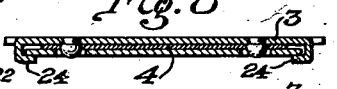


Fig. 3

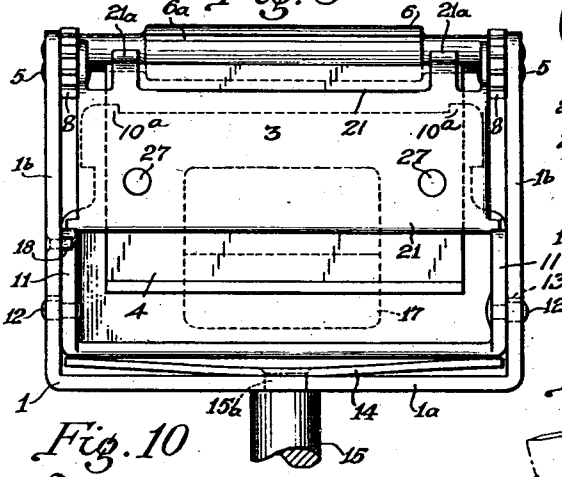


Fig. 5

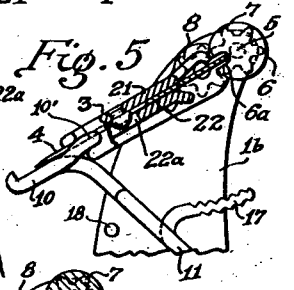


Fig. 4

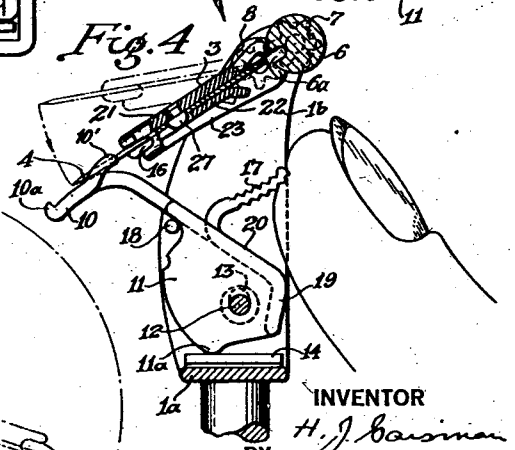
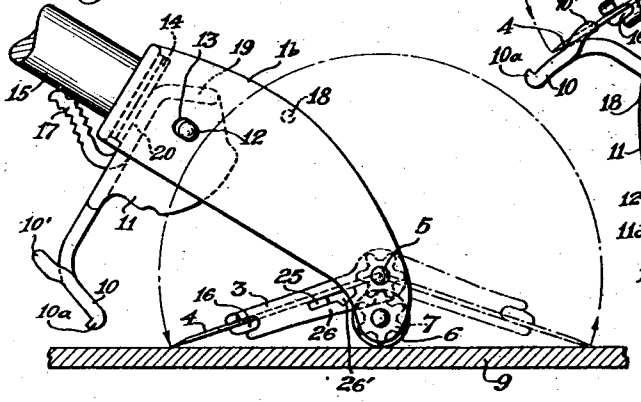


Fig. 10



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UNITED STATES PATENT OFFICE

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SAFETY RAZOR

Application filed November 19, 1927. Serial No. 234,356.

My invention relates to improvements in safety razors of the class provided with a rockable blade holder, and with a guard movably supported with respect to the blade holder for cooperation with the blade for shaving, which blade holder and guard may be folded in a compact position for transportation and storage.

An object of my invention is to provide improved means to retain a guard in cooperation with a blade and blade holder for shaving and in a position folded with respect to the frame, and to retain the guard in another position remote from the blade holder to permit the latter to be rocked for sharpening the blade.

Another object is to provide simple means to cause the blade holder to be retained by the guard when the blade is in shaving relation to the guard.

Another object is to permit the blade to be displaced from shaving relation to the guard in case the blade used in the blade holder is not properly organized for cooperation with the blade holder to be retained in shaving relation to the guard.

My invention also 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 an edge view of my improved razor;

Fig. 2 is a vertical section of Fig. 1;

Fig. 3 is a side view of the parts in the position of Fig. 2;

Fig. 4 is a sectional view illustrating the parts in position for assembling the blade and guard for shaving or for releasing said parts;

Fig. 5 is a sectional view illustrating the position of a blade that is not properly organized for cooperation with the blade holder to retain the blade in shaving relation to the guard;

Figs. 6 and 7 are views illustrating the blade holder showing the parts in different positions;

Fig. 8 is a section on line 8, 8, in Fig. 7;

Fig. 9 is a section on line 9, 9, in Fig. 6, and

Fig. 10 is a side view illustrating the razor in stropping position.

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

The main frame 1 of the razor may be of any suitable construction, the same being shown comprising a base 1*a* and spaced uprights 1*b*. At 3 is a blade holder pivotally supported by and between the uprights 1*b* adapted to detachably retain a blade 4. The blade holder may be pivotally supported in the main frame in any desired way. In the example illustrated the blade holder is provided with pivots 5 at opposite corners journaled in holes in the uprights 1*b*. At 6 is a roller journaled upon and between the uprights 1*b*, which roller is operatively connected with the blade holder for rotating the latter. In the example illustrated the roller is provided with gears 7 that are in mesh with gears 8 secured to the blade holder, whereby when the roller is reciprocated along a stropping or sharpening surface 9 the roller will be rotated for correspondingly rocking the blade holder and the blade. A guard member includes a guard 10 for the blade edge provided with spaced side arms or webs 11 that are pivotally supported upon and between the uprights 1*b* by means of pivots 12, which pivots operate in slots 13 in the uprights 1*b*, and thereby the guard member may have some lateral movement. The guard is shown provided with stops 10*a* adapted to engage the blade edge when the blade and guard are in shaving position, (Fig. 1). At 14 is a spring carried by the main frame and having opposite ends free to cooperate with the guard member. Said spring may be secured to the frame in any desired way. In the example illustrated a handle 15 is secured to the base 1*a* and engages spring 14 to secure the latter to base 1*a*, said parts being shown riveted together at 15*a*. The guard member is adapted to engage spring 14 to retain the guard member in various positions. The arms 11 of the guard member are shown provided with projecting portions 11*a* adapted to engage the end portions of spring 14

when the guard and the blade are assembled in shaving position so that the spring will retain the guard in such position, at which time projections 10′ of the guard member enter recesses 16 at the adjacent corners of the blade holder, (Figs. 1 and 5), to retain the guard and the blade holder in shaving relation, the guard being movable in a direction transverse to the cutting edge of the blade to engage and disengage the projections 10′ and the recesses 16. The action of spring 14 upon the guard member will retain the blade holder and guard from relative movement while the blade edge engages the stops 10*a* of the guard in shaving position, (Fig. 1). The pivots 12 operating in the slots 13 permit the guard to have easy rotary motion against spring 14 as well as to accommodate the guard to its various positions. The guard member is shown provided with a finger piece 17, which may be stamped from the metal of the guard member, to facilitate operation of the latter. A projection 18 on one of the uprights 1*b* is in position to limit the forward movement of the guard relatively to the main frame. When the guard is to be assembled in shaving relation to the blade the finger piece 17 may be pushed to advance the guard through the frame and the projection 18 will stop the movement of the guard, whereupon the blade may be rested upon the guard, (Fig. 4), and when the guard member is released the spring 14, by acting upon the projections 11*a*, will cause the guard to move toward the blade and the blade holder to assemble the parts, as in Fig. 1. The guard member is also provided with a relatively flat portion 19 that is adapted to engage spring 14 when the guard is in a folded position with respect to frame 1, as indicated in Fig. 2, and the blade holder with the blade may also be folded within the frame between the uprights 1*b*, (Fig. 2), for compact assembly of the parts for storage and transportation. The guard member is also provided with a relatively flat portion 20 which is adapted to engage spring 14 when the guard is moved out of the main frame, as indicated in Fig. 10, to permit stropping of the blade edge.

The blade holder may be of any desired construction adapted to detachably retain the blade 4. In the example illustrated the blade holder is substantially the same as the blade holder set forth in my application filed October 22, 1927, Serial No. 227,884. As illustrated the blade holder comprises two main members 21 and 22, the member 21 having laterally disposed webs 23 at its ends from which keepers or clips 24 extend substantially parallel with and spaced from the member 21, which parts may be formed from a single sheet of metal. The member 22 is operatively fitted between the projections or webs 23, provided at its ends with projections 25 which extend into slots 26 having offset portions 26′, (Fig. 10), which slots permit the member 22 to slide as well as to rotate or swing pivotally relatively to member 21. The edge portions of member 22 are adapted to fit in the spaces between the member 21 and the keepers 24 when the blade is assembled in shaving position to retain the parts together, (Fig. 7). The member 21 is provided with spaced projections or studs 27 adapted to enter holes 4*a* in the blade to retain the latter in shaving position, and the member 22 is provided with slots 22*a* to receive said projections and permit member 22 to slide relatively to said projections. The member 21 is shown provided with abutments 21*a* attached to the inner edge of said member in position to engage the inner edge of the member against which the heel of the blade may bear when the latter is inserted angularly between the members 21 and 22 to register the blade openings 4*a* with the projections 27, as illustrated in Fig. 9. When the parts 21 and 22 are clamped against the blade and the projections 27 are in the openings 4*a* of the blade the latter will be retained in proper position in the blade holder and against the spring thrust of the stops 10*a* of the guard. In the event that a blade should be made by an unauthorized manufacturer having openings at 4*a* too large to snugly fit the projections 27 the blade would be liable to slide rearwardly within the blade holder, and in order that the blade edge may move sufficiently far away from the guard to preclude proper shaving the roller 6 is provided with a longitudinal slot 6*a* located in such position that when the guard and the blade holder are assembled for shaving, as in Fig. 1, said slot will oppose the inner edge or heel of the blade, whereby such unauthorized blade may slide at its rear edge into said slot and thereby the blade edge will be displaced so far back from the guard as to preclude proper shaving, as illustrated in Fig. 5.

Assuming that the parts are in the folded position of Fig. 2 and it is desired to assemble the blade and the guard for shaving, the guard member may be pushed through the frame and in turn said member will push out the blade holder and the blade so that the blade will rest upon the guard, as shown in Fig. 4, the projection 18 stopping the advance of the guard member through the frame and the projecting portion 11*a* of the guard member will bear upon spring 14. When the guard member is released said spring will operate against the guard member to cause the guard and the projections 10′ to advance toward the blade and the blade holder respectively. The guard stops 10*a* will engage the blade edge and the projections 10′ will enter the recesses 16 of the blade holder. When it is desired to release the guard from the blade holder the guard will be pushed away from the blade and the latter will be moved out-

wardly to permit the guard to pass under the blade. The portion 19 of the member will engage spring 14 to retain the parts when folded, as in Fig. 2. When it is desired to sharpen the blade edge the guard member will be moved to the position shown in Fig. 10 to be retained by the spring 14 bearing against the portion 20 of the guard member, and the razor will be positioned over the sharpening surface 9 with the roller 6 thereon, as in Fig. 10. The razor may then be reciprocated along surface 9, whereby the roller will cause rocking of the blade and the blade holder through frame 1, so that opposite sides of the blade edge will be dragged along the sharpening surface for stropping the blade edge, the blade holder and blade being caused to rock from one side to another at the commencement of each stroke of the razor along surface 9.

Changes may be made in the details of construction and arrangement of parts set forth, within the scope of the appended claims, without departing from the spirit of my invention.

Having now described my invention what I claim is:—

1. A safety razor comprising a frame, a blade holder pivotally carried thereby, a guard member pivotally carried by the frame, a spring carried by the frame and cooperative with the guard member, the guard member having projecting portions at its sides to be engaged by said spring, and means co-operative between the guard member and the blade holder to retain the latter and a blade in shaving relation to the guard with the spring operative against said projections the guard being movable in a direction transverse to the cutting edge of the blade to engage and disengage the said means, the spring acting with the guard member to retain said means in operative relation.

2. A safety razor as set forth in claim 1, in which the guard member is provided with a portion to engage the spring to retain the guard in folded relation to the frame out of cooperation with the blade holder.

3. A safety razor as set forth in claim 1, in which the guard member is provided with a portion to engage the spring to retain the guard in folded relation to the frame out of cooperation with the blade holder said guard member having another portion to engage said spring to retain the guard out of relation to the blade holder and to the blade to permit the latter to move through the frame.

4. A safety razor comprising a frame, a blade holder pivotally carried thereby, a guard member pivotally carried by the frame, and movable transversely with relation to a blade in the blade holder, and a spring carried by the frame and cooperative with the guard member, the guard member having projecting portions to be engaged by said spring, the guard member having a projection and the blade holder having a recess to receive said projection, the said spring and the projections of the guard member being cooperative to retain the second named projection and the recess of the blade holder in operative relation to retain the blade in shaving relation to the guard.

5. A safety razor comprising a frame having a base and spaced uprights, a blade holder pivotally carried by and between said uprights, a guard member located between said uprights, said guard member having pivots, said frame having slots receiving the pivots to permit the guard member to have movement relatively to the frame as well as pivotal movement, and a spring carried by the frame and cooperative with the guard member to retain the latter in different positions relatively to the frame, the guard member and the blade holder having cooperative means to retain a blade in shaving relation to the guard, the spring being cooperative with the guard member to retain the latter and the blade holder with the blade in shaving relation to the guard.

6. A safety razor comprising a frame, a blade holder pivotally carried thereby, a roller pivotally carried by the frame, gearing connecting the blade holder and the roller for rocking the former by the latter, the roller having a longitudinal slot, a guard, and means to retain the guard and the blade holder with the blade in operative relation, the gearing being so arranged as to retain the slot in the roller in position to receive the heel of the blade in case the blade slides rearwardly in the blade holder when the guard and the blade are assembled in shaving position.

HENRY J. GAISMAN.