Dec. 16, 1930. H. J. GAISMAN 1,785,077

SAFETY RAZOR

Filed April 28, 1927

Fig.1.

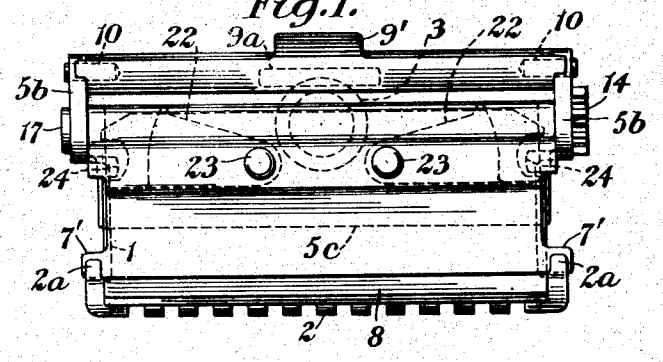


Fig.2.

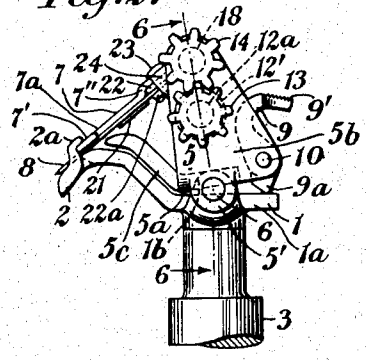


Fig.3.

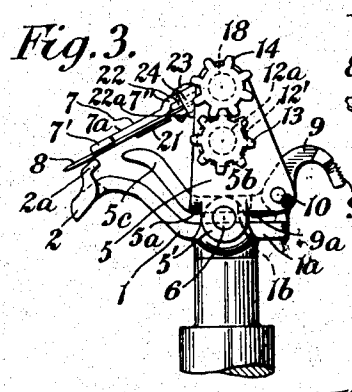


Fig.4.

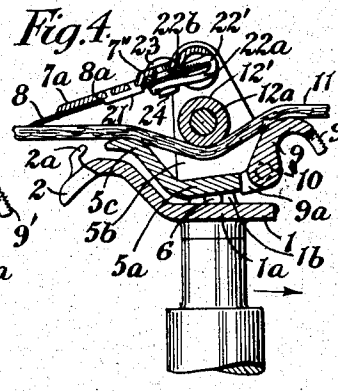


Fig.5.

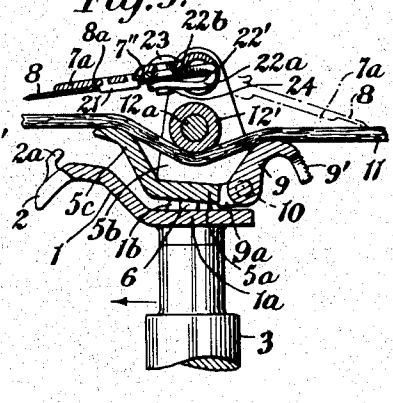


Fig.6.

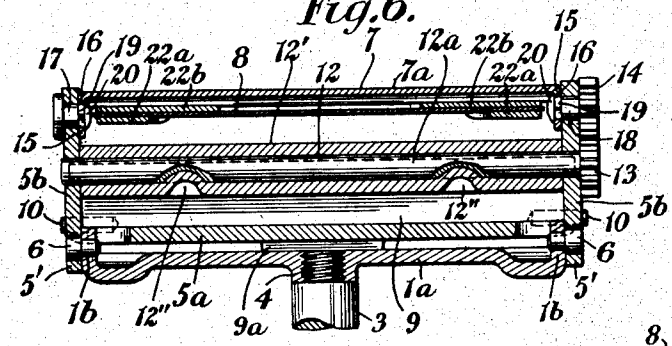


Fig.8.

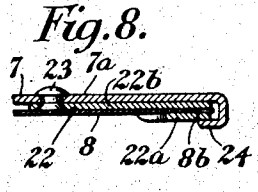


Fig.9.

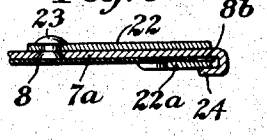
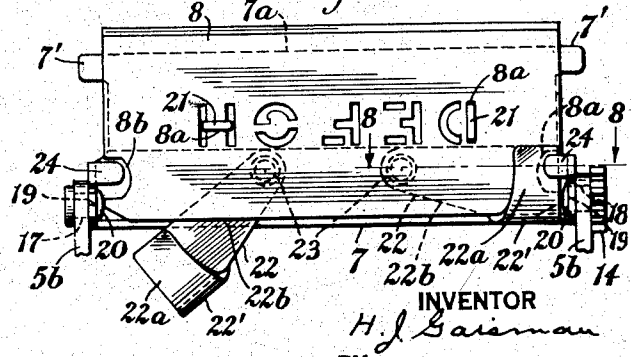


Fig.7.



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UNITED STATES PATENT OFFICE

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SAFETY RAZOR

Application filed April 28, 1927. Serial No. 187,154.

My invention has reference to improvements in the class of safety razors in which two frames are pivotally connected together, one of the frames being provided with a guard for a blade and the other frame provided with means for rocking the blade for stropping its edge.

An object of my invention is to provide the frame that carries the blade and the stropping means with a member that will cooperate with the other frame for retaining the blade in shaving relation to the guard, which member is adapted to cooperate with a strop for tensioning the latter in connection with the stropping means when the blade is to be stropped.

Another object of my invention is to provide an improved holder adapted to retain a blade in position to cooperate with the guard and with the strop for stropping the edge of the blade.

My invention comprises a frame provided with a handle and having a guard, a second frame pivotally connected with the first named frame and provided with a blade holder and with a movable member having a portion adapted when the member is in one position to cooperate with the first named frame to cause the blade to be retained in shaving relation to the guard, and when the member is in a different position the frames will be released and the member will cooperate with a strop during reciprocations of the razor along the strop for stropping the blade edge. A feature of the construction is such that when the direction of reciprocation of the razor along the strop is reversed the pivoted frame that carries the blade will tilt respecting the strop to initially lift the blade edge from the strop to prevent said edge from cutting the strop.

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 plan view of a safety razor embodying my invention;

Fig. 2 is a side view of Fig. 1 showing the blade in shaving position;

Fig. 3 is a view similar to Fig. 2 showing the blade released from the guard and the parts in position for stropping;

Figs. 4 and 5 are sectional views illustrating different positions of the razor respecting a strop;

Fig. 6 is a section substantially on line 6, 6, in Fig. 2, part being broken away;

Fig. 7 is a face view illustrating the blade holder and blade from the side opposite that shown in Fig. 1;

Fig. 8 is a cross section on line 8, 8, in Fig. 7, and

Fig. 9 is a sectional detail of a modification.

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

The numeral 1 indicates a suitable frame shown provided with a blade guard 2, indicated in comb-like form, and with a handle 3 which may be attached to the base 1*a* of frame 1 in any desired way, as by screw threads at 4. A second frame is indicated at 5 and is shown comprising a base 5*a* and spaced uprights 5*b* between which a blade holder is pivotally supported. The frame 5 is pivotally supported upon the frame 1 so that one frame will rock relatively to the other, for which purpose the base of frame 1 is shown provided at its ends with upwardly projecting lugs 1*b*, and the frame 5 is shown provided with outwardly disposed lugs 5′ adjacent to the lugs 1*b*, said lugs being pivotally connected by pivots at 6. The lugs 5′ may be formed by pressing them out from the metal of base 5*a*, (Fig. 6). A suitable blade holder 7 is pivotally supported between uprights 5*b*. The blade holder is provided with means to retain a blade 8 with its cutting edge in shaving relation to guard 2. Near opposite ends of the guard stops 2*a* are located for retaining the blade upon the guard. In the example illustrated the stops 2*a* are adapted to engage the corner portions 7′ of the blade holder to retain the blade upon the guard when frame 5 is tilted toward the guard, (Fig. 2). The blade edge may engage the stops 2*a* if preferred. A member 9 is

pivotally supported upon the lower portion of frame 5 by means of pivots 10 entering the uprights 5*b*, and said member is provided with a lateral projection 9*a* that is adapted to engage the base 1*a* for retaining the blade in shaving relation to the guard. The member 9 is shown provided with a finger piece 9′ for convenience in manipulating it. In the example illustrated when frame 5 is tilted, as in Fig. 2, the parts 7′ of the blade holder will engage the stops 2*a* of the guard and the member 9 will be folded inwardly respecting frame 5 so that the projection 9*a* will bear upon the base and thereby retain the parts in shaving position. When the member 9 is swung outwardly from frame 5 the projection 9*a* will be released from base 1*a* and will engage the base 5*a* of frame 5 to retain the member in an outwardly extending position to be engaged by a strop 11 when the blade edge is to be stropped, and the frames may rock or rotate relatively one to another, (Figs. 3, 4 and 5). When the member 9 is in the last named position it will extend outwardly respecting frame 5 in position to engage strop 11, and from the opposite side of frame 5 projects a strop tensioning arm 5*c*. A strop engaging roller or shaft 12 is journaled in frame 5 and provided with a gear 13 in mesh with a gear 14 secured to the blade holder. The roller or shaft 12 is shown comprising a tube 12′ located between the uprights 5*b* and a shaft member 12*a* extending within said tube and journaled in the uprights 5*b*. the gear 13 being secured to or formed on shaft member 12*a* and located on the outside of the adjacent upright 5*b*. The parts 12′ and 12*a* are secured together for rotation by means of dents 12″ in the tube entering depressions in the shaft members, (Fig. 6). The strop-engaging shaft or roller 12 is located in the space between the member 9 and the projection 5*c*.

When the blade is to be stropped the strop 11 is passed through the space between the uprights 5*b* under the shaft or roller 12 and upon the member 9 and the strop tensioning arm or projection 5*c* in manner illustrated in Figs. 4 and 5. When the strop is held taut the razor will be reciprocated along the strop and the tension of the strop against the shaft or roller 12, caused by the member 9 and arm or projection 5*c*, will rotate said shaft or roller, whereby through the gears 13, 14 the blade holder and the blade will be rocked to drag upon the strop behind the razor in a well known way for stropping the blade edge. When the blade has been stropped the razor is removed from the strop and the parts will be adjusted for shaving, as indicated in Fig. 2. At the initiation of a reverse stroke of the razor along the strop the frame 5 will turn on its pivots to cause the blade edge to rise from the strop to prevent cutting the latter.

The blade holder illustrated comprises a plate-like member 7*a* against which the blade 8 may be placed with its cutting edge projecting beyond said member. The member 7*a* is shown provided with laterally disposed lugs 15 having polygonal holes 16 adapted to receive pivot 17 at one end that is journaled in a bearing hole in the adjacent upright 5*b* and a pivot 18 at the opposite end to which the gear 14 is secured, said pivot being journaled in the adjacent upright 5*b*. Said pivots have polygonal portions 19 receiving the corresponding holes 16, and the inner ends of said pivots are riveted over at 20 to retain the parts for rotation together. The member 7*a* is shown provided with spaced projections 21 adapted to enter association complemental apertures 8*a* in blade 8 for retaining the blade in shaving position on member 7*a* so that the blade will not shift thereon. I have illustrated the apertures 8*a* in the nature of a designation, shown in the form of letters which may be of any suitable character. The blade holder member 7*a* is provided at its rear portion adjacent to the rear or heel of the blade with retaining members 22 having jaw portion 22*a* adapted to receive or grip the adjacent heel portion of the blade with the blade in shaving position on said member. The jaw-like members 22 are pivoted upon member 7*a* at 23 so as to swing away from said member to release the blade and toward said member to grip the blade. The members 22 may be formed by stamping them out of suitable sheet metal and folding their outer portions to form the jaws 22*a*, the bent portions 22′ of said members opposing the heel of the blade. In the form shown in Figs. 1 to 7 the rear portion of blade holder member 7*a* is offset at 7″, (Figs. 4 and 5), to receive the relatively flat shank-like portions 22*b* of the members 22 so that they may swing between the blade holder plate 7*a* and the blade. At opposite ends of the blade holder plate 7*a* are located lugs 24 which extend outwardly from the plate and reversely over the plate in spaced relation thereto so that when the members 22 are closed against the blade their outer edge portions 22*a* will squeeze under and against the overlying portion of the adjacent lug 24 which will grip the members to retain them in set position. The adjacent corner portions of blade 8 are provided with recesses or notches 8*b* of such dimensions as to pass over the lugs 24 when the blade is being placed upon the blade holder or removed therefrom to engage the apertures 8*a* of the blade with the projections 21 of the blade holder.

In the modification shown in Fig. 9 the blade holder plate 7*a* is flat and without the offset portion 7′ and the members 22 are pivotally supported on the exterior thereof to

receive the plate 7*a* and the blade therebetween.

Instead of using two jaw members 22 it will be understood that one of such jaw members may be used for cooperation with the blade and pivoted in any desired location at the rear of the blade holder plate 7*a*. The projections 21 of the blade holder when located within the apertures 8*a* of the blade keep the latter from sliding rearwardly along the blade holder, because of the proper co-relation between said projections and apertures, and the jaw members 22 retain the blade in proper position upon the blade holder plate so that the blade will be retained in proper relation to the guard for shaving. If a blade not having proper associate or complemental openings to cooperate with the projections 21 of the blade holder were to be placed upon the latter such blade would not be properly retained since pressure against the blade edge, such as in shaving, would tend to slide the blade rearwardly against the jaw members 22 and displace them to some extent so that the blade edge would not be retained in proper shaving relation to the guard. Furthermore, if it were attempted to place upon the blade holder plate a blade not having recesses or notches, such as 8*b*, to receive the lugs 24 such blade could not be placed in proper position upon the blade holder, as said lugs would oppose the blade and prevent it from being fitted in shaving position upon the blade holder.

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 provided with a guard, a second frame pivoted to the first named frame and having a blade holder and provided with a movable member adapted to engage the first named frame for retaining the blade in shaving relation to the guard, said member being cooperative with the second named frame for retaining the member in position to engage a strop for tensioning it, a roller carried by the second named frame to engage the strop, and gearing connecting said roller with the blade holder for rocking the latter.

2. A safety razor as set forth in claim 1, in which the second named frame is provided with a strop tensioning member on the side opposite the first named member, whereby the engagement of the strop with said members will cause the second named frame to tilt to move the blade edge from the strop when the direction of reciprocation of the razor along the strop is reversed.

3. A safety razor comprising a frame provided with a guard, a second frame having a blade holder and provided with a pivotally supported member having a projection adapted to engage the first named frame for retaining the blade in shaving relation to the guard, said member being adapted to be moved outwardly relatively to the second named frame with said projection of said member in engagement with the second named frame for retaining the member in position to engage a strop for tensioning the latter, a roller carried by the second named frame, and gearing connecting the roller with the blade holder for rocking the latter.

4. A blade holder adapted to receive a blade, said holder having projections, a blade having apertures associated with the projections to receive the latter, a jaw pivoted upon the holder adapted to receive and retain the rear portion of the blade, and a lug upon the holder extending over the latter and spaced therefrom to engage the jaw of said member when the latter is closed against the blade to retain said jaw in blade retaining position, the blade having a recess at its end adapted to receive the lug to permit the blade to be placed against the holder with the projections in the apertures of the blade.

5. A blade holder comprising a member to receive a blade, projections upon the member adapted to receive apertures in the blade, and a jaw-like member pivotally carried by the blade holder and adapted to receive the rear portion of the blade to retain the latter upon the holder, the first member being provided with a lug spaced therefrom separate from the projections and located in position to engage the jaw-like member to retain the latter in blade retaining position.

HENRY J. GAISMAN.