April 21, 1931. H. J. GAISMAN 1,802,171

SAFETY RAZOR

Filed April 14, 1927

Fig.1.

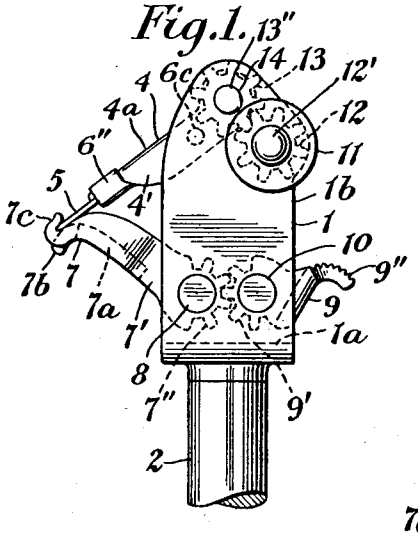


Fig.2.

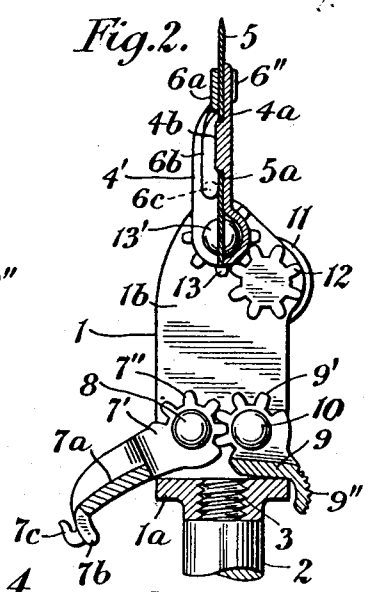


Fig.3.

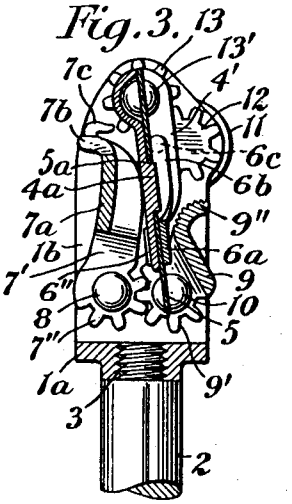


Fig.4.

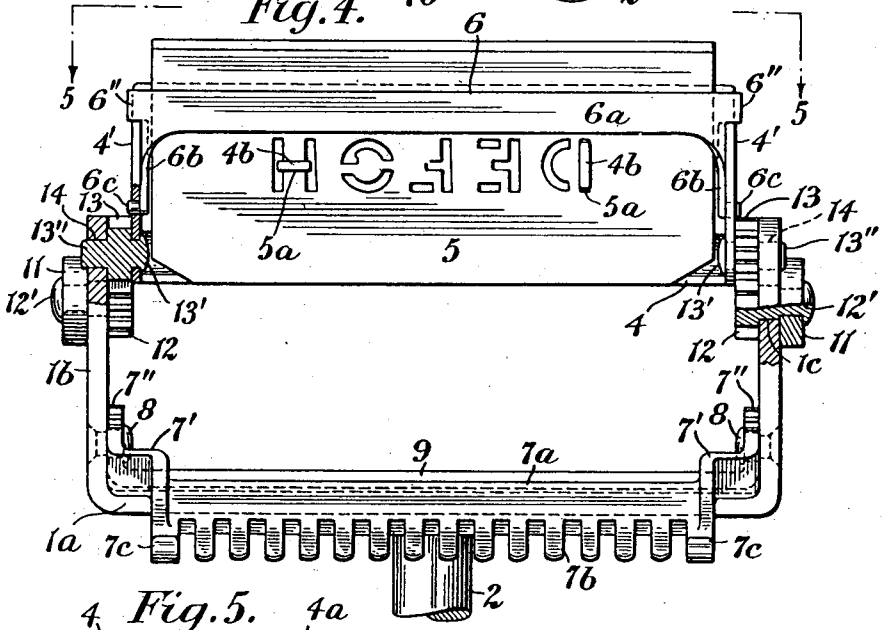


Fig.5.

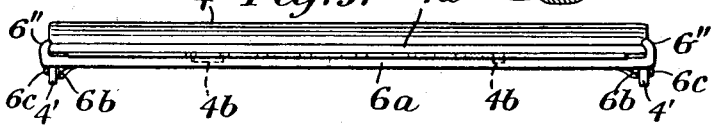
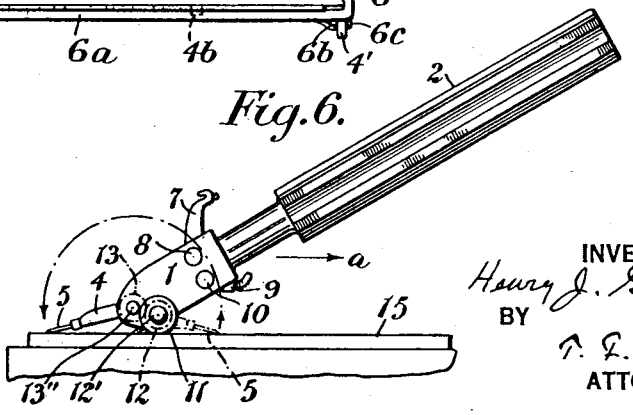


Fig.6.



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UNITED STATES PATENT OFFICE

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SAFETY RAZOR

Application filed April 14, 1927. Serial No. 183,686.

One of the objects of my invention is to provide a safety razor in which the blade holder with the blade and the guard may be folded compactly with the blade edge protected when not in use, and whereby the guard and the blade may be moved into cooperative relation for shaving.

Another object of my invention is to provide means for rocking the blade holder with the blade by reciprocating the razor along a strop or hone with blade holder driving means in contact with the strop or hone.

Another object is to provide a simple and efficient blade holder whereby the blade may be readily attached to and removed from the holder and will retain the required position for cooperation with the guard.

In carrying out my invention I provide a frame, a blade holder pivotally supported by the frame, a guard for the blade edge pivotally carried by the frame and adapted to extend outwardly therefrom to cooperate with the blade for shaving and to fold within the frame along the blade holder, and another member pivotally carried by the frame on the side opposite the guard adapted to fold along the blade holder, whereby said member and the guard may be folded within the frame with the blade holder and blade between them for retaining the blade compactly with the blade edge protected.

Another feature of my invention comprises means for rocking the blade holder for sharpening the edge of the blade, such as for stropping or honing it, comprising a roller carried by the frame and having its periphery extending from the frame in position to engage the strop or hone, with gearing connecting said roller with the blade holder, whereby when the roller is placed against a stropping or honing surface and the device is reciprocated along the latter the blade holder will be rocked for successively presenting opposite sides of the blade edge to the strop or hone to be dragged along such surface for sharpening the blade edge.

My invention also comprises a blade holder including a member in plate-like form against which the blade is to be laid, a blade retainer pivotally carried by said blade holder member and adapted to bear on the blade to retain it on the holder member, said retainer and holder member having cooperative means for keeping the retainer clamped against the blade. The holder member is provided with one or more projections adapted to enter corresponding apertures in the blade for maintaining the latter in proper position on the holder member for cooperation of the blade with the guard and with the strop or hone.

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 a side view of a safety razor embodying my invention, showing the parts in position for shaving;

Fig. 2 is a central section of the razor showing the blade released from the guard;

Fig. 3 is a section similar to Fig. 2 showing the blade holder and the blade folded within the frame;

Fig. 4 is a partly sectional side view of Fig. 2;

Fig. 5 is an edge view looking in the direction of the arrows in Fig. 4, and

Fig. 6 is a side view illustrating the razor in stropping position.

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

The numeral 1 indicates a frame shown comprising a base 1*a* and spaced uprights or sides 1*b*, and at 2 is a handle which may be attached to the base 1*a* in any desired way, such as by screw threads at 3. A blade holder is indicated at 4 shown comprising a plate-like member 4*a* against which the blade 5 is to be laid with its cutting edge projecting beyond said member. The blade holder is pivotally supported upon and between the uprights 1*b* so as to swing within and through the space enclosed by the base 1*a* and the uprights 1*b*, such space being of such dimension that the blade may swing freely therein and therethrough without engaging the base or the uprights. A blade retainer is indicated at 6 pivotally carried by the blade holder

member 4*a* and is shown comprising a transverse portion 6*a* to bear against the blade and arms 6*b* extending from said portion and provided with laterally disposed pivots or gudgeons 6*c* that are journaled in laterally extending projections or webs 4′ carried by the blade holder member. The blade holder member and the retainer are provided with means to detachably connect them together with the blade therebetween, for which purpose I have shown the retainer portion 6*a* provided at its ends with reversely bent lugs or jaws 6″ adapted to releasably grip the adjacent edge portions of member 4*a*, the lugs 6″ having sufficient flexibility or spring action to grip the holder member. When the blade is to be inserted in the holder the retainer 6 is swung away from member 4*a*, the blade is laid against said member, and the retainer is swung back with its bar 6*a* bearing against the blade and its lugs 6″ gripping the member 4*a* for retaining the blade. The blade holder member 4*a* is shown provided with projections 4*b* adapted to enter corresponding or complemental apertures 5*a* in the blade, said projections and apertures being so corelated as to retain the blade in proper position on the blade holder member 4*a*, so that the blade will not shift the pressure of the stop 7*c* against the blade. I have shown the openings 5*a* of the blade in the form of letters serving as a designation. The retainer 6 is shown so organized with relation to the openings 5*a* of the blade that the portion 6*a* of the retainer is at one side of said openings, such as adjacent to the outer edge portion of the blade holder member 4*a* in such a way that the designations may be read.

The blade holder is pivotally supported by the frame 1 for cooperation with a guard 7 that is pivotally supported by the frame. The guard 7 is shown comprising a bar 7*a* provided with guard teeth 7*b* along its outer edge and with spaced inwardly disposed arms 7′ pivotally supported by pivots 8 on the uprights 1*b* of frame 1, whereby the guard may swing relatively to the blade. Stops 7*c* upon the guard, shown in the form of hooks, are adapted to engage the blade edge near its corners to retain the said edge in shaving relation to the guard teeth when the parts are assembled for shaving, as illustrated in Fig. 1. When the blade holder and blade are released from the guard and hang freely between the uprights 1*b* in frame 1 the guard may be folded between said uprights along one side of the blade, as illustrated in Fig. 3. I have also shown a retaining member 9 pivotally supported at 10 upon the uprights 1*b* of frame 1, on the side opposite the guard, in such a way that the retainer may be folded within the uprights of the frame on the side of the blade opposite the guard when the parts are assembled as shown in Fig. 3, to keep the blade safely disposed within the frame so that the blade will not swing outwardly therefrom. By preference the guard member 7 and the retainer member 9 are geared together so as to operate in unison, for which purpose I have shown gear teeth 7″ connected with the guard and gear teeth 9′ connected with the retainer 9, said teeth being in mesh, whereby the member 9 may be manually operated for rotating it and thereby correspondingly operating the guard, whereby the member 9 and the guard may simultaneously be folded within the frame 1 on opposite sides of the blade, by pushing up the member 9, as illustrated in Fig. 3. By pulling the member 9 outwardly the guard will be correspondingly moved outwardly, as illustrated in Fig. 2, to release the blade, and by setting the blade edge against the guard member and pushing up on retainer 9 the guard will be caused to approach the blade to adjust the guard stops or hooks 7*c* against the blade edge for retaining the latter in shaving position. Frictional engagement of the sides of the gears 7″ and 9′ with the adjacent upright 1*b* will cause the guard to remain in shaving relation to the blade. For convenience the retainer 9 is provided with a finger piece 9″ which may be manipulated for operating the retainer and the guard.

For stropping a blade edge rollers 11 are pivotally carried by frame 1 and are provided with corresponding gears 12 in mesh with associate gears 13 connected to the blade holder. In the example illustrated the gears 9 have extending pivots or shafts 12′ which journalled in bearing holes 1*c* in the uprights 1*b* and the rollers 11 are secured to said pivots or shafts. As shown the gears 13 are connected to the projections or webs 4′ of the blade holder by means of projections or studs 13′ on the gears that pass through holes in said webs and are riveted thereto, the opposite sides of the gears being provided with outwardly extending pivots or gudgeons 13″ that are journalled in adjacent bearing holes 14 in the uprights 1*b* of frame 1, whereby the blade holder is pivotally supported on said frame. The blade holder may be connected to the gears 13 and pivotally supported upon frame 1 in any other desired way. The peripheries of the rollers 11 extend beyond the adjacent portions of frame 1 so as to engage a stropping or honing surface, such as a strop or hone indicated at 15, (Fig. 6). The rollers 11 are shown outside of frame 1 so as not to interfere with the blade nor the blade holder which may rotate through a complete circle between the uprights 1*b*.

When the razor is to be used for shaving the parts will be assembled as shown in Fig. 1, and when the blade is to be stropped the member 9 may be pulled outwardly, thereby causing the guard to release the blade, and the razor may be held in the hand with the rollers 11 against the strop or hone 15 with the blade resting thereon, in the manner illus-

trated in Fig. 6. When the razor is first moved along the strop or hone in the direction of the arrow *a* in Fig. 6 the rollers 11 in engagement with the strop or hone will rotate and cause the blade to be swung from the dotted position upwardly in the direction of the adjacent arrows through the frame to the full line position to drag behind the razor on the sharpening surface to sharpen the blade edge. In the last named position of the blade the rollers will slide along the stropping surface to the end of the stroke. When the direction of movement of the razor is reversed along the strop or hone the rollers 11 will be caused to rotate in such a way as to cause the blade holder to be rotated to reverse the position of the blade, (from the full line to the dotted line position in Fig. 6), to cause the adjacent corresponding edge of the blade to bear upon the stropping surface, and by pushing the razor along said surface the blade edge will be dragged thereon, for sharpening it. Thus, by reciprocating the razor along the stropping surface with the rollers 11 in engagement therewith the blade will be rocked to present opposite sides of its cutting edge alternately against the stropping surface, and as the blade rotates from one position to another it will swing within frame 1 free from contact with base 1*a* and the side uprights 1*b*. By adjusting the guard 7 and the retainer 9 on opposite sides of the blade, as indicated in Fig. 3, the blade will be kept in a protected position affording a convenient way for storing the blade in the frame for future use and for transportation. Instead of having gears 12, 13 at opposite ends of the blade holder such gears may be arranged at one end of the blade holder only, while the roller 11 at the opposite end of the frame is mounted for rotation without serving to rotate the blade.

My invention is not limited to the details of construction and arrangement of parts set forth as the same may be varied, 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, said frame having sides spaced apart a sufficient distance for the passage of the blade holder therebetween, the blade holder being of less length than the length of said space, whereby the blade holder and a blade carried thereby may freely swing through said space without engaging the frame, and a guard pivotally carried by and within the frame adapted to cooperate with the blade for shaving, said guard being of less length than said space and mounted to be folded within said space along the blade when the latter is within said space.

2. A safety razor as set forth in claim 1, in which the frame is provided with a blade retainer of less length than the length of said space adapted to be folded along the blade when the latter is within said space within the frame.

3. A safety razor comprising a frame, a blade holder pivotally carried thereby, said frame having a space of such dimension that a blade in the blade holder may swing freely therethrough without engaging the frame, a guard pivotally carried by the frame adapted to cooperate with the blade for shaving, said guard being mounted to be folded along the blade when the latter is within said space, a retainer pivotally carried by the frame adapted to be folded along the blade on the side opposite the guard when the blade is within said space, and gearing connecting the guard and the retainer for joint operation thereof.

4. A safety razor as set forth in claim 3, in which the retainer is provided with a finger piece adapted to be manipulated for operating the retainer and the guard teeth.

5. A safety razor as set forth in claim 3, in which the guard is provided with stops to cooperate with the blade for retaining the latter in shaving relation to the guard.

6. Blade stropping means comprising a frame, a blade holder pivotally carried thereby, a roller pivotally carried by the frame and located on the exterior and at one side thereof out of the path of the blade holder permitting the latter to rotate a complete circle and through the frame, and gearing interposed between the blade holder and the roller for rocking the blade holder when the roller is reciprocated along a sharpening surface.

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