July 8, 1930. H. J. GAISMAN 1,770,171

SAFETY RAZOR

Original Filed Nov. 10, 1927

Fig. 1

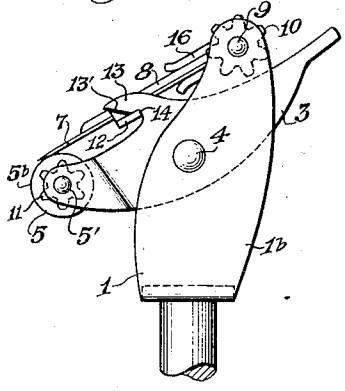


Fig. 2

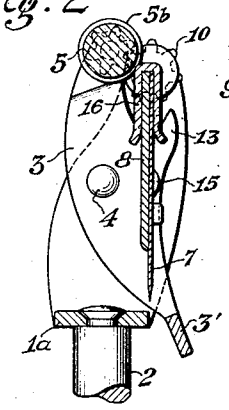


Fig. 4

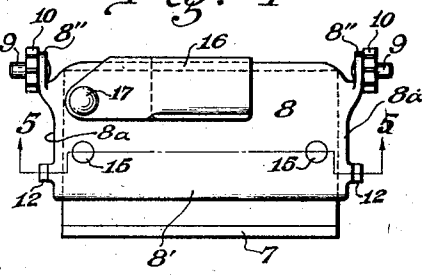


Fig. 5

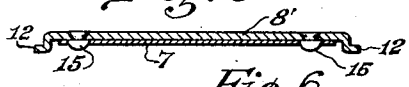


Fig. 3

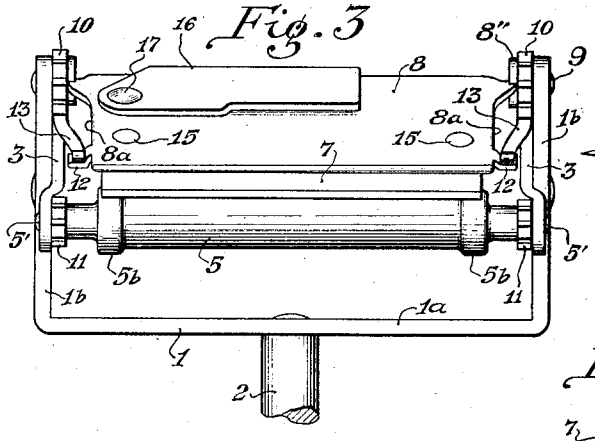


Fig. 6

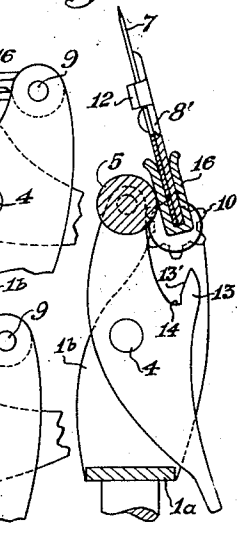


Fig. 7

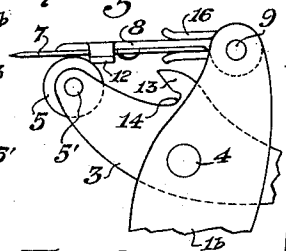


Fig. 8

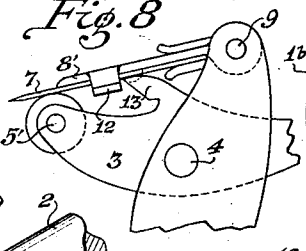


Fig. 10

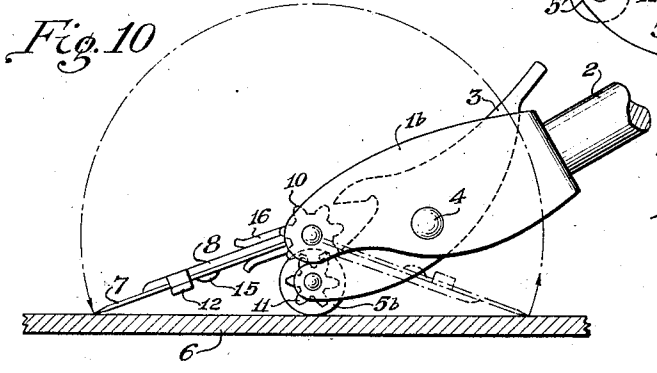
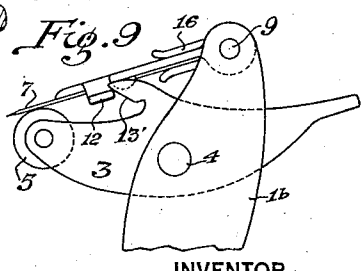


Fig. 9



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Patented July 8, 1930 1,770,171

# UNITED STATES PATENT OFFICE

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## SAFETY RAZOR

Application filed November 10, 1927, Serial No. 232,220. Renewed February 18, 1929.

One of the objects of my invention is to provide a safety razor in which the guard for the blade edge will serve as an actuating member for rocking or rotating the blade for sharpening the blade edge.

Another object of the invention is to so arrange the parts of the razor that when the guard and the blade are out of shaving relation the blade may be folded within the razor frame for storage and transportation.

In carrying out my invention I provide a frame, a guard member pivotally carried by the frame, a blade holder pivotally carried by the frame, means to retain the guard member and the blade in shaving relation, and means cooperative between the guard member and the blade holder, when the guard member and the blade holder are out of shaving relation, for causing rocking or rotation of the blade for sharpening its edge when the guard member is reciprocated in contact with a sharpening surface.

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 side view of a safety razor embodying my invention;

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

Fig. 3 is a side view of Fig. 1;

Fig. 4 is a detail plan view of the blade holder;

Fig. 5 is a section on line 5, 5, in Fig. 4;

Figs. 6, 7, 8 and 9 are detail views illustrating different positions of the parts, and

Fig. 10 is a side view illustrating the position of the razor for sharpening the blade edge.

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

The frame 1 of the razor is shown comprising a base $1^a$ and spaced uprights $1^b$, to which base a handle 2 is attached in any desired or well known way, such as by riveting. A pair of spaced arms 3 are pivotally supported at 4 upon and between the uprights $1^b$, and said arms at one end are shown connected by a cross piece 3′ serving as a finger piece for manipulating the arms 3. The parts 3 and 3′ serve as a frame pivotally carried by frame 1. Between the arms 3 a guard member 5 is journaled, as by pivots 5′ at the ends of said guard member rotative in bearing holes in the arms 3. In the example illustrated the guard member 5 is shown in the form of a roller having a recessed mid-portion $5^a$ between spaced annular projecting surfaces $5^b$ that are adapted to engage a sharpening or stropping surface 6. A blade 7 is adapted to rest upon the projecting surfaces $5^b$ of the guard member when the parts are in shaving position, (Fig. 1), and at such time the recessed portion $5^a$ provides a space between the guard member and the blade edge for clearance at the blade for lather during shaving. At 8 is indicated a blade holder which may be of any suitable construction and is pivotally supported between the uprights $1^b$. Said blade holder is shown provided with pivots 9 at opposite corners, which are journaled in holes in the uprights $1^b$. The blade holder illustrated comprises a plate 8′ having ears 8″ at opposite corners, from which the pivots 9 extend. The blade holder is provided with gears 10 shown located at the pivots 9 for rotating the blade holder, and the guard member 5 is shown provided with gears 11 which are adapted to mesh with the gears 10 when the guard member is folded toward and adjacent to the blade holder, as indicated in Figs. 2 and 10. The blade holder plate 8′ is provided with laterally disposed stops or lugs 12 at its ends near the front corners, which lugs extend edgewise beyond the plate, which plate is shown recessed at its ends at $8^a$, (Fig. 3), and said lugs are shown offset from the plane of plate 8′. The arms 3 are shown provided with projections or fingers 13 which are adapted to overlie stops 12 when the parts are in shaving relation to retain the blade upon the blade holder, (Fig. 1). Said projections are shown extending inwardly respecting the plane of arms 3 to engage the stops 12 which are spaced apart a distance less than the distance between said arms to permit the blade holder to swing between said arms, (Fig. 3). As illustrated, the arms 3 at the inner portions of the pro-

jections or fingers 13 are provided with recesses at 14 to receive the adjacent edges of the stops 12 to retain the parts, and the inner edges of the projections 13 are shown inclined at 13′ respecting the stops 12 so as to engage and slide along said stops when the parts are being assembled in shaving position, (Fig. 9).

The plate 8′, as illustrated, is provided with spaced projections 15 to enter holes in the blade to retain the latter from displacement edgewise when the blade is placed against the blade holder plate 8′. To detachably retain the blade against plate 8′ a retainer 16, shown in the form of a jaw, is pivoted at 17 upon plate 8′. The arrangement described is such that the blade may be placed against the plate 8′ with the projections 15 passing through the holes in the blade and the jaw-like retainer may be swung against the rear edge of plate 8′ to grip and retain the blade on said plate. When the blade is to be removed the retainer 16 may be swung outwardly to release the blade and the blade holder plate.

Assuming that the parts are in the folded position shown in Fig. 2, and that it is desired to strop the blade edge, the razor will be presented to the sharpening or stropping surface 6 with the portions $5^b$ of the guard member 5 bearing against said surface, as illustrated in Fig. 10, with the gears 10 and 11 in mesh. By reciprocating the razor along said surface the guard member 5 will be caused to rotate, and by means of the gearing the blade will be rocked to swing between and beyond the arms 3 and uprights $1^b$, so that one or another of its edges will drag along the surface 6 for sharpening or stropping the edge. When it is desired to adjust the parts for shaving, as from the folded position of Fig. 2, the blade holder with the blade may be swung from between the uprights $1^b$ to be supported on the guard member 5, as indicated in Fig. 6, whereupon the arms 3 will be rotated to move the guard member from the folded position toward the shaving position of Fig. 1. As the member 5 is moved outwardly, from the position shown in Fig. 6, the blade will bear on said member, the parts assuming the positions substantially shown in Figs. 7 and 8, and as the member 5 is being moved outwardly from the position shown in Fig. 8 the projections 13 will advance over the stops 12, as illustrated in Fig. 9, whereby continued rotation of the arms 3 will cause the guard member and the blade to assume shaving relation with the projections 13 engaging the stops 12 to retain the parts, as illustrated in Fig. 1. When the guard is to be folded the arms 3 will be turned clockwise in Fig. 1, whereupon the projections 13 will recede from the stops 12 and the guard member will elevate the blade, so that when the parts are turned to the position of Fig. 2 the blade holder and the blade may be located between the arms 3 and uprights $1^b$ in the folded position.

My invention provides a simple and compact form of razor in which the guard 5 performs the double functions of serving as a guard for the blade edge and as an actuator for rocking the blade for stropping its edges, and the invention affords means for folding the guard member and the blade holder and blade in a compact relation with the blade protected between the arms 3 and the uprights $1^b$ of the main frame, providing safety for storage and transportation of the razor.

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 rotative guard member movably carried by the frame, a blade holder pivotally carried by the frame, means to retain the blade in shaving relation to the guard member, and means cooperative between the guard member and the blade holder for rocking the latter by the guard member when the blade and the guard member are out of shaving relation.

2. A safety razor as set forth in claim 1, in which the means for rocking the blade holder comprise a gear connected with the guard member and a gear connected to the blade holder, said gears being arranged to intermesh when the guard member and the blade are out of shaving relation.

3. A safety razor comprising a frame, arms pivotally carried by the frame, a guard member pivotally carried by said arms, a blade holder pivotally carried by the frame, means to retain the guard member and blade in shaving relation, and means cooperative between the guard member and the blade holder when the guard member and the blade are out of shaving relation for rocking the blade holder by the guard member.

4. A safety razor as set forth in claim 3, in which the means for rocking the blade holder comprise a gear connected with the guard member and a gear connected with the blade holder, said gears being arranged to intermesh when the guard member and the blade are out of shaving relation.

5. A safety razor as set forth in claim 3, in which the means to retain the guard member and the blade in shaving relation comprise a stop on the blade holder and a projection on one of the arms to interengage when the blade is in shaving position respecting the guard member.

6. A safety razor comprising a frame, arms pivotally carried by the frame, a guard mem-

ber pivotally carried by the arms, said guard member having spaced projecting portions to receive a blade, and a recessed portion between said projecting portions to provide a space for lather between the guard member and the blade, a gear connected with the guard member, a blade holder pivotally carried by the frame, means to retain the guard member and the blade in shaving relation, and a gear connected with the blade holder to mesh with the first named gear when the guard member is out of shaving relation to the blade.

7. A safety razor as set forth in claim 6, in which the blade holder is provided with a stop and one of the arms is provided with a projection to engage said stop to retain the blade and guard member in shaving relation.

8. A safety razor as set forth in claim 6, in which the blade holder is provided with a stop and one of the arms is provided with a projection to engage said stop to retain the blade and guard member in shaving relation, said projection having a recessed portion to engage the stop.

9. A safety razor as set forth in claim 6, in which the blade holder is provided with a stop offset from the plane of the blade holder for engagement with the projection to retain the blade in shaving relation to the guard member.

10. A safety razor as set forth in claim 6, in which the blade holder is provided with a stop in position to pass freely in the space between said arms, and one of the arms is provided with a projection extending inwardly respecting the place of the arm in position to engage said stop to retain the blade and guard member in shaving relation.

11. In a safety razor, a frame, an oscillatively mounted blade holder carried by the frame, a guard frame, a guard rotatively mounted therein, means for mounting the guard frame for movement for correlating the guard to the blade for guarding the blade, or movement into operative relation with the blade holder, and means for imparting the motion of the guard to the blade holder when the said guard is rotated in engagement with a surface.

12. In a safety razor, a frame, an oscillatively mounted blade carried by the frame, a rotative guard, a member carrying the rotative guard, means for mounting the member on the frame for movement whereby the guard may coact with the blade or with the blade holder, and means for imparting the motion of the guard to the blade holder when said guard is rotated in engagement with a surface.

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