April 16, 1929. H. J. GAISMAN 1,709,070

SAFETY RAZOR

Filed Jan. 27, 1927

Fig. 1.

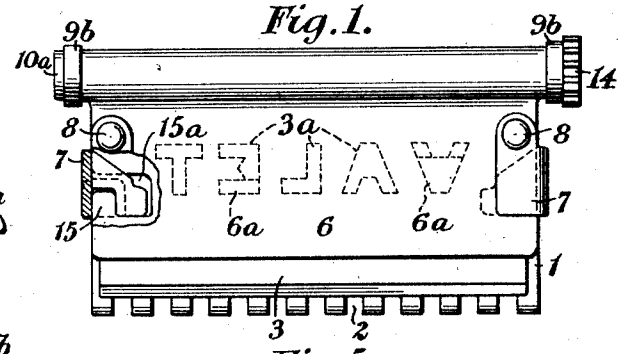


Fig. 2.

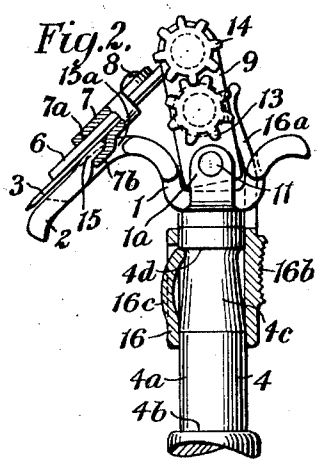


Fig. 5

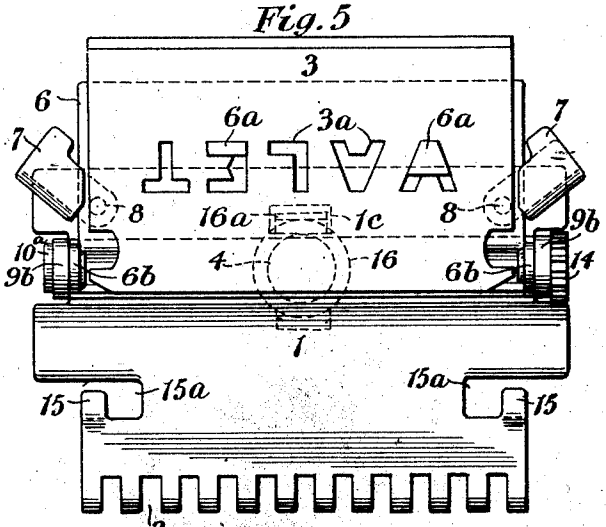


Fig. 3.

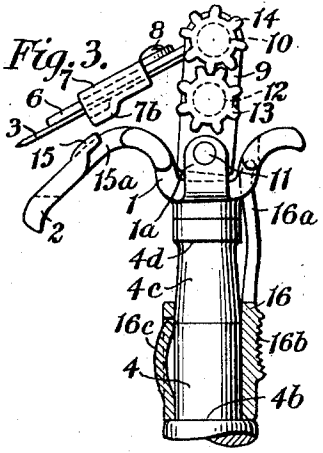


Fig. 6.

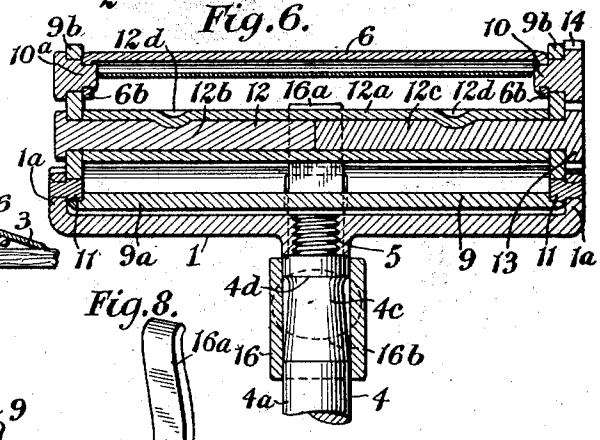


Fig. 4.

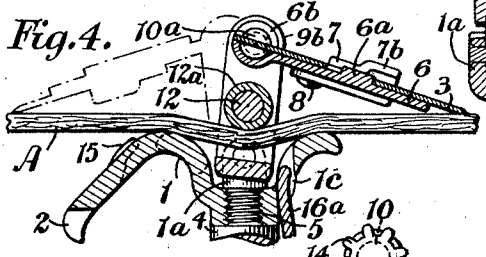


Fig. 8.

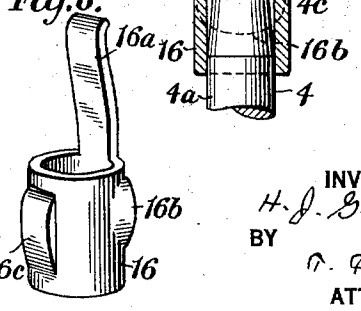


Fig. 7.

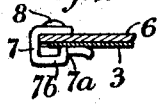
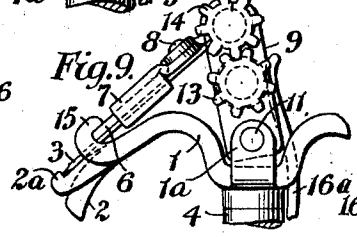


Fig. 9.



INVENTOR
H. J. Gaisman
BY
R. F. Bourne
ATTORNEY

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UNITED STATES PATENT OFFICE.

HENRY J. GAISMAN, OF NEW YORK, N. Y., ASSIGNOR TO AUTOSTROP PATENTS CORPORATION, OF DOVER, DELAWARE, A CORPORATION OF DELAWARE.

SAFETY RAZOR.

Application filed January 27, 1927. Serial No. 163,865.

My invention relates to improvements in safety razors and is particularly applicable in the class of razors and blade stropping means in which the blade is rocked or rotated for stropping its edge as the device is reciprocated along the strop. My invention is illustrated in connection with the class of razors known on the market as the Auto Strop safety razor.

An object of my invention is to provide a simple and improved form of blade holder in which the blade may be readily fitted and detached.

Another object of the invention is to provide improved means in a safety razor for movably supporting a blade holder to cause the edge of a blade to rise from a strop at the time that the reciprocating motions of the razor along the strop are reversed to prevent cutting of the strop, and also to retain the cutting edge of 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 plan view of a safety razor embodying my invention;

Fig. 2 is a partly sectional side view of Fig. 1;

Fig. 3 is a substantially similar view, showing the parts in a different position;

Fig. 4 is a detail cross section;

Fig. 5 is a plan view illustrating the parts in position for inserting or removing a blade;

Fig. 6 is a longitudinal sectional view of the razor;

Fig. 7 is a detail section;

Fig. 8 is a detail perspective view of a retainer, and

Fig. 9 is a side view illustrating a modification.

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

The numerals 1 indicates a base or frame shown provided with a guard 2 for a blade 3. The guard may be in ordinary comb-like form, as illustrated. A handle is indicated at 4 which may be detachably connected with frame 1 as by screw threads at 5. At 6 is indicated a blade holder, shown in the form of a substantially flat plate, upon which the blade 3 may rest with its cutting edge projecting in position to cooperate with the guard for shaving. The blade holder or plate 6 is provided with means for positioning the blade thereon and for clamping them together shown arranged as follows: an arm or latch 7 is pivotally supported upon holder or plate 6 by means of a rivet 8 so as to swing edgewise respecting the holder. The arm or latch 7 is provided with a jaw or recessed portion at 7^a near its free end adapted to receive the edges of the blade 3 and the holder or plate 6 therebetween to retain said parts clamped together. An arm or latch 7 is shown at opposite ends of holder or plate 6, near the inner portions of the latter, to correspondingly clamp and retain the end portions of the blade. The holder or plate 6 is shown provided with projections 6^a adapted to enter apertures or openings 3^a in the blade to retain the blade in shaving position on the holder. Said apertures or openings may be stamped through or embossed in the material of the blade and the projections 6^a may be formed by embossing or pressing the metal of the holder. I have illustrated apertures 3^a in the blade in the form of a trade-mark, name or symbol, such as Valet, and the projections 6^a are located in such relation to the trade-mark or symbol apertures or impressions 3^a that when the blade is laid upon the holder or plate 6 certain of the apertures 3^a of different letters will be in position to receive certain projections 6^a, whereby when the blade and the holder are clamped together the blade will be prevented from sliding along the holder and will be retained in desired position. The feature described of utilizing a trade-mark, name or symbol on one part in cooperation with projections on another part, such as in the blade and holder, are set forth in my application filed June 24, 1924, Serial No. 721,972. When the projections 6^a are in the apertures or impressions 3^a of the blade and the jaws of the arms or latches 7 are closed against said parts the blade will be retained in shaving position on the holder, (Fig. 1). To release the blade it will merely be necessary to swing the arms or latches outwardly, as in

dicated in Fig. 5. In such position of the parts the blade may be applied to the holder and the latches swung back to retain the blade.

In the example illustrated the blade holder is pivotally supported by a frame 9 which is shown provided with a base portion 9^a extending over the base or frame 1 and with spaced arms 9^b between which the blade holder is pivoted. The blade holder is shown provided with ears 6^b, which may be stamped from the metal of the holder plate and bent substantially at right angles thereto to fit adjacent to the arms 9^a, (Fig. 6), to which arms said ears are pivoted by means of pivots at 10, 10^a. The pivots have shoulders and heads by which they are secured to the ears and the pivots are journaled in the arms 9^a. The frame 9 is pivotally connected with frame 1 by means of pivots 11 which are shown located in outwardly disposed arms or projections 1^a shown extending from base 1 at substantially right angles thereto, (Fig. 6), whereby frame 9 may rock relatively to frame 1. The frame 9 is provided with a shaft or roller 12 adapted to engage a strop A for rotating the shaft, which shaft is provided with a gear 13 in mesh with gear 14 that is secured to or carried by the pivot 10, whereby the holder 6 may be rocked for stropping the blade edge when the razor is mounted on the strop and is reciprocated along the latter for rotating the shaft 12, (Fig. 4). The shaft or roller 12 is shown comprising a tube 12^a receiving shafts 12^b, 12^c which are secured to the tube, as by denting portions 12^d of the tube into recesses in the shafts, whereby said parts are rotatively united and are kept from endwise displacement relatively to each other. (Fig. 6).

The frame 1 is provided with one or more retainers 15, preferably one at each end of the guard, shown in hook-like form adapted to retain the holder with the blade in shaving relation to the guard. The arms or latches 7 are shown provided with outwardly projecting portions 7^b, in recess form, adapted to receive the corresponding retainer 15, (Fig. 2), to retain the holder and blade in shaving relation to the guard. The guard portion of frame 1 is shown provided with openings 15^a, (Fig. 5), adapted to receive the projecting portions 7^b of the arms or latches 7 to permit engagement of the retainers 15 therewith, (Fig. 2). Since the frame 9 will rock respecting frame 1 the blade holder may be connected to the frame 1, in shaving relation, by tilting frame 9 to the right, as indicated in Fig. 3, placing the blade in position upon the guard and pushing frame 9 to the left in Fig. 2 to cause the retainers 15 to enter the recessed projecting portions 7^b of the arms or latches 7, and the reverse operations may be effected for releasing the blade holder and blade from the guard.

Instead of providing the arms or latches 7 with the projecting portion 7^b to engage the retainers 15 the forward edge portions of holder 6 may be utilized to engage the retainers 15, as indicated in Fig. 9. In such form the frame 9 may be moved to the right hand in Fig. 9 to release holder 6 from retainers 15 and may be pushed toward the left in said figure to engage said parts. The guard may have stops 2^a at the corners of the blade, (Fig. 9).

Means are provided to retain the blade in shaving relation to the guard, or in other words to keep the retainers 15 in cooperation with the projecting portions 7^b of the latches 7 or with the holder 6 for shaving purposes. In the example illustrated a retainer member 16, shown in the form of a sleeve or tube, is slidably mounted upon the reduced portion 4^a of handle 4 adapted to rest against a shoulder or stop 4^b thereon, (Fig. 3), the member or sleeve 16 being shown provided with a projection or finger 16^a slidable through an opening 1^c in frame or base 1, (Fig. 4), to be located behind shaft or roller 12 to retain the frame 9 and thereby the blade holder or plate 6 so that the latter will be retained by the retainers 15 with the blade in shaving relation to the guard for shaving. A finger piece or seat 16^b on member 16 permits ready sliding of the latter along the handle. The member 16 is shown provided with a spring-acting stop 16^c, which may be stamped from the metal of the sleeve and has an inward spring tendency adapted to slide along an inwardly tapering portion 4^c of handle 4 to engage a stop shoulder 4^d on the handle to limit the outward movement of sleeve 16 when its projection or finger 16^a is engaged with shaft or roller 12, (Fig. 2), and to keep the sleeve from falling from the handle when the latter is removed from frame or base 1.

When the parts are in shaving position, (Figs. 1 and 2), and it is desired to strop the edge of the blade the sleeve 16 will be slid to move its projection 16^a away from shaft or roller 12 and then the strop will be pushed through the razor under said shaft or roller for stropping, (Fig. 4). When the razor is moved along the strop, as to the left in Fig. 4, the cutting edge of the blade will drag on the strop for stropping it. When the razor is first moved in a reverse direction along the strop, as to the right in Fig. 4, the engagement of the strop with shaft or roller 12 will cause the frame 9 to be tilted to raise the blade edge from the strop to prevent cutting of the latter, and as the razor is continued along the strop the gears will reverse the position of the blade so as to cause its cutting edge to bear on the strop, (as in dotted lines in Fig. 4), correspond-

ing action taking place each time the direction of sliding the razor along the strop is reversed.

Having now described my invention what I claim is:—

1. A safety razor comprising a frame provided with a guard, a second frame journaled in the first named frame, a blade holder pivotally carried by the second named frame and provided with one or more arms having jaws to receive the holder and the blade to retain them together, the first named frame being provided with one or more retainers to cooperate with said arm or arms for retaining the blade holder and the blade in shaving relation to the guard, and means to maintain the retainers and jaws in cooperation.

2. A safety razor as set forth in claim 1, in which the arms are provided with outwardly projecting portions to receive the retainers.

3. A safety razor as set forth in claim 1, in which the arms are provided with outwardly projecting portions to receive the retainers, the first named frame being provided with openings to receive the projecting portions of the arms.

4. A safety razor comprising a frame having a guard and a handle, a frame pivotally mounted on the first named frame, a blade holder carried by the second named frame, cooperative means between the blade holder and the first named frame for retaining the blade holder and the blade in shaving relation to the guard, and a member operative along the handle to retain the holder and first named frame in shaving relation.

5. A safety razor as set forth in claim 4, in which the second named frame is provided with means pivotally supporting the blade holder, a shaft, and gears connecting said means and shaft for rocking the blade holder for stropping the blade edge.

6. A safety razor comprising a frame having a guard and a handle, a frame pivotally mounted on the first named frame, a blade holder pivotally mounted on the second named frame, and cooperative means between the blade holder and the first named frame for retaining the blade in shaving relation to the guard, the second named frame having a shaft to engage a strop, gears connecting said shaft and the blade holder for rotating the latter by the former, and a member slidable along the handle and provided with a finger to engage said shaft to retain the blade holder and blade in shaving relation to the guard.

7. A safety razor as set forth in claim 6, in which the handle and the member thereon have cooperative means to limit sliding of the member along the handle.

8. A safety razor as set forth in claim 6, in which the member comprises a sleeve operable along the handle in conjunction with a stop thereon to keep the member from sliding from the handle.

HENRY J. GAISMAN.