Sept. 2, 1930. H. J. GAISMAN 1,774,829

SAFETY RAZOR

Filed Oct. 19, 1927

Fig. 1

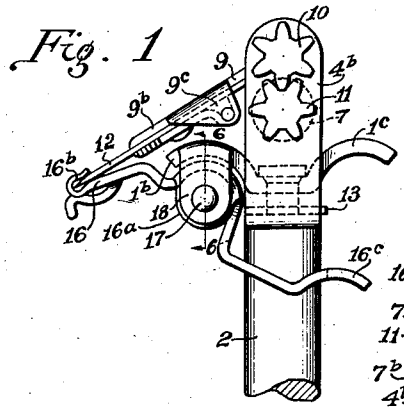


Fig. 2

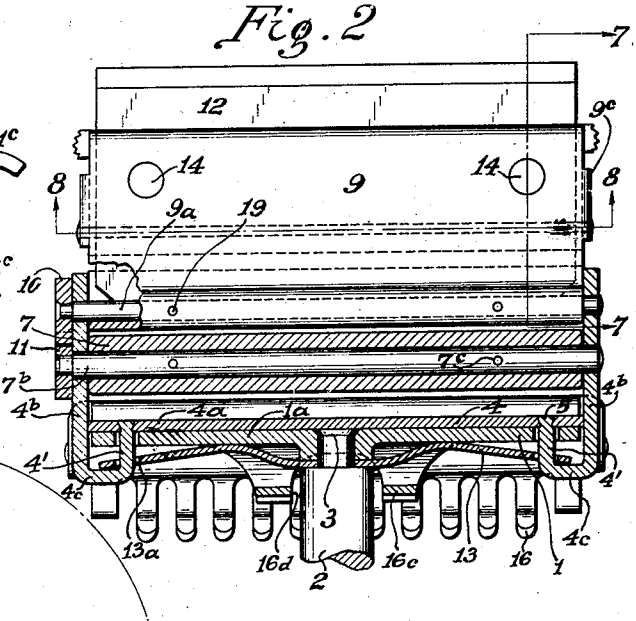


Fig. 3

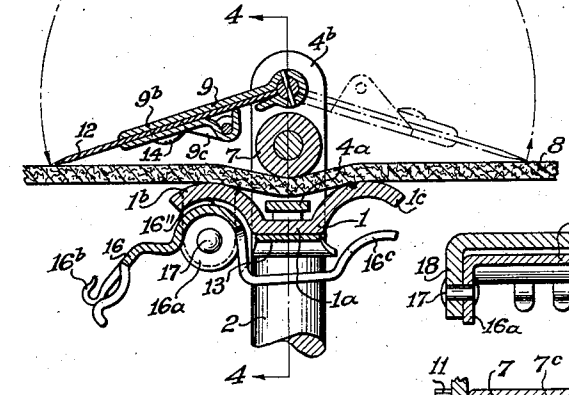


Fig. 6

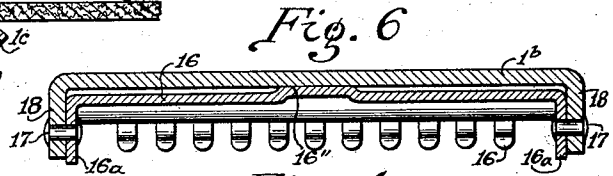


Fig. 4

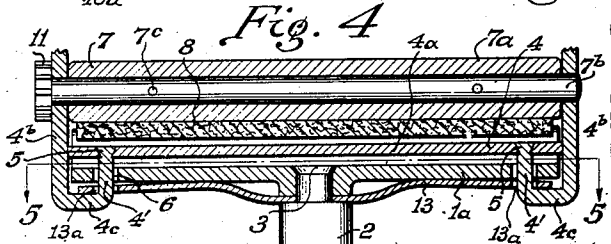


Fig. 7a

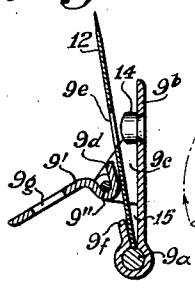


Fig. 7

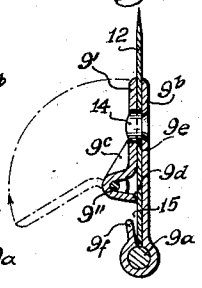


Fig. 5

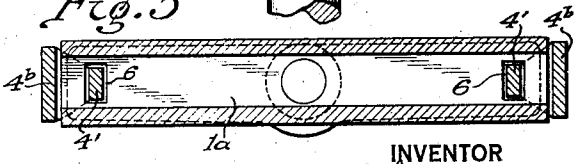
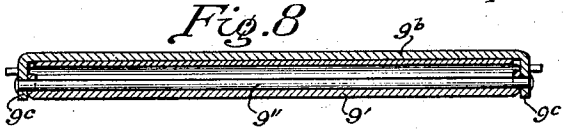


Fig. 8



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UNITED STATES PATENT OFFICE

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SAFETY RAZOR

Application filed October 19, 1927. Serial No. 227,110.

My invention relates to improvements in safety razors and has particular reference to the class in which a strop is inserted through the frame for stropping the blade when the razor is reciprocated along the strop. In this class of razors, commonly known as the Auto Strop razor, it has been customary to provide strop-tensioning means on the frame on opposite sides of a roller that engages the strop for causing rotation or rocking of the blade holder, and such strop-tensioning means and roller have been in permanent relation for receiving the strop therebetween. Strops for such safety razors frequently vary in thickness and if the strop is too thick it is more or less inconvenient in stropping the blade.

An object of my invention is to provide a safety razor of the class set forth with means movably guiding the blade-holder operating-roller with respect to the strop-tensioning means and to resiliently press the roller toward the strop, whereby strops of varying thickness may be readily accommodated in the razor and the stropping of the blade will be facilitated.

In carrying out my invention I provide a main frame having strop-tensioning means and a blade guard, a second frame carrying a blade holder and strop-engaging roller geared together, means movably guiding said frames to permit movement of the roller toward and from a strop, and means normally tending to move said roller toward the strop, preferably in a resilient manner, whereby the roller may move relatively to the strop-tensioning means to accommodate strops of varying thicknesses to permit ready reciprocation of the razor along the strops.

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;

Fig. 2 is a partly sectional front view of the razor;

Fig. 3 is a partly sectional view illustrating the razor in stropping position;

Fig. 4 is a sectional detail substantially on line 4, 4, in Fig. 3;

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

Fig. 6 is a section on line 6, 6, in Fig. 1;

Figs. 7 and 7ª are sectional details of the blade holder, substantially on line 7, 7, in Fig. 2, and

Fig. 8 is a section on line 8, 8, in Fig. 2.

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

The numeral 1 indicates a main frame shown comprising a base 1ª and a handle 2 which may be secured to the base in any desired way, such as by riveting at 3, (Fig. 4). The frame is provided on opposite sides of the plane of the handle with strop-tensioning means 1ᵇ, 1ᶜ, shown projecting laterally from base 1ª. A second frame is indicated at 4, shown comprising a strip or plate 4ª provided with spaced arms 4ᵇ which are guided by the base 1ª for movement relatively thereto. The arms 4ᵇ are shown reversely bent at 4ᶜ, the inner ends of the portions 4′ of which are secured to the strip or plate 4ª, as by riveting at 5, the adjacent portions 4′ of the said arms being shown guided in slots 6 in base 1ª. A roller 7 is journalled between the arms 4ᵇ and is located in a plane between the strop-tensioning means 1ᵇ, 1ᶜ, whereby a strop 8 may pass between said roller and said strop-tensioning means, (Figs. 3 and 4). A blade holder 9 is pivotally carried by and between the arms 4ᵇ and is shown provided with a gear 10 in mesh with a gear 11 that is connected with the roller 7, whereby when the razor is reciprocated along the strop the blade holder will be rocked or rotated to present opposite sides of the edge of the blade 12 to the strop for stropping or sharpening said edge. By reason of the movable connection of the two frames strops of varying thicknesses may be passed through the razor, and in order to keep the roller 7 pressed operatively against the strop I have illustrated a spring 13 cooperative with the arms 4ᵇ and normally tending to operate the second frame 4 in a direction toward the base 1ª. The spring 13 is shown secured at its central portion between

base 1^a and handle 2, and the opposite ends of said spring are shown provided with slots 13^a receiving the adjacent portions 4′ of the arms 4^b, whereby the spring presses against the bent portions 4^c of said arms tending normally to press the roller toward the base 1^a and against an intervening strop.

The roller 7 is shown comprising a tubular member 7^a through which passes a shaft 7^b that is journaled in the arms 4^b, the parts being secured together in any suitable way, such as by pins 7^c, to which shaft the gear 11 is secured. The blade holder is shown provided with a shaft 9^a that is journaled in the arms 4^b and which may be secured to the blade holder in any desired way, as by pins 19, said shaft being shown provided with the gear 10.

When the parts described are not used for stropping the strip or plate 4^a will be pressed by spring 13 against the base 1^a, as illustrated in Fig. 2, and when the strop is passed through the razor it will bear against the tensioning means 1^b, 1^c and against the roller 7, thereby causing the frame 4 to move relatively to the frame 1 to accommodate the strop according to its thickness, the spring maintaining the roller under tension against the strop, facilitating the use of strops of varying thicknesses, and at the same time the roller will be kept under proper contact with the strop for causing rotation or rocking of the blade holder in a well known way for stropping the blade edge during reciprocation of the razor along the strop.

The blade holder is shown comprising a plate-like member 9^b provided with projecting ears 9^c at its ends and a blade clamping member 9′ carried by shaft 9″ that is journaled in the ears 9^c, whereby the member 9′ may be swung toward and from the plate 9^b. The member 9′ is provided with a projecting portion 9^d adapted to bear against the blade 12 to retain the blade, as shown in Fig. 7, and to be swung away from the blade to release the latter, as shown in Fig. 7^a. The blade holder 9^b is shown provided with spaced studs or projections 14 adapted to pass through holes 9^e in the blade and through holes 9^g in member 9′ to retain the blade in shaving position with the heel of the blade abutting against the shaft 9^a, between plate 9^b and an angularly disposed flange or projection 9^f providing a space 15 in which the inner portion of the blade is guided and located, (Figs. 7 and 7^a).

A guard for the blade edge is indicated at 16, which is shown pivotally supported by pivots 17 that enter ears 18 extending from the strop-tensioning member 1^b, and ears 16^a bent laterally from the guard, whereby the guard may be rotated to cause its stops 16^b to engage the blade edge to retain the blade in shaving relation to the guard and the guard may be moved away from the blade edge to release the blade for stropping and for inserting new blades, as illustrated in Fig. 3. The guard 16 is shown provided with a laterally projecting portion 16″ that is adapted to engage the strop-tensioning member 1^b to retain the guard frictionally in set position, due to the tension between the parts 16 and 1^b, as illustrated in Fig. 6. A finger piece 16^c extends from the guard on the side of the handle opposite the guard, being provided with an opening 16^d, (Fig. 2), movably receiving the handle, whereby the guard may be manipulated.

My invention is not limited to the details of construction 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. Blade sharpening means comprising a frame provided with strop-tensioning members, a second frame movable relatively to the first named frame and provided with a blade holder and means to rotate said holder for sharpening a blade edge, and means normally pressing said rotating means in the direction of the strop for accommodating strops of varying thicknesses.

2. Blade sharpening means comprising a frame provided with strop-tensioning members, a second frame movable relatively to the first named frame and provided with a blade holder and means to rotate said holder for sharpening a blade edge, and spring-acting means cooperative between said frames for normally pressing said rotating means toward a strop.

3. Blade sharpening means comprising a frame provided with strop-tensioning members, a second frame movably guided by the first named frame, the second frame being provided with a blade holder and with a strop-engaging roller geared together, and spring means cooperative with said frames for normally pressing the roller toward a strop.

4. Blade sharpening means comprising a frame provided with spaced strop-engaging members, a second frame movably guided by the first named frame and provided with a strop-engaging roller located in a plane between said strop-engaging members, a blade holder pivotally carried by the second named frame and geared to said roller to be rotated thereby, and spring means cooperative between said frames for normally pressing the roller toward a strop.

5. Blade sharpening means comprising a frame including a base and strop-tensioning means on opposite sides of the base, a second frame comprising a strip having spaced arms, means movably guiding said arms on the first named frame, a strop engaging roller carried by said arms, a blade holder pivotally carried by said arms, gearing connecting said

roller and holder for rotating the latter by the former, and spring means connected with the first named frame and cooperative with said arms for normally pressing the roller toward said base.

6. Blade sharpening means comprising a frame including a base and strop-tensioning means on opposite sides of the base, a second frame comprising a strip having spaced arms, said arms having reversely extending portions and said base being provided with slots receiving said arm portions for movably guiding the second frame on the first named frame, a roller journaled between said arms, a blade holder journaled between said arms, gearing connecting said roller and blade holder for rotating the latter by the former, and a spring carried by the first named frame and cooperative with said arms for normally resiliently pressing the roller toward a strop.

7. A blade holder comprising a plate-like member provided with ears near its ends, a shaft supporting said holder and a blade clamping member pivotally carried by said ears and provided with a projecting portion adapted to engage a blade to retain the latter against said plate-like member, said shaft being in position to engage the heel of the blade when said member releases the blade.

8. A blade holder as set forth in claim 7, in which the plate-like member is provided with projections adapted to enter holes in the blade, and the clamping member is provided with openings adapted to receive said projections, the engagement of the blade with the shaft causing the holes in the shaft to be in position to receive said projections.

9. A blade holder comprising a plate-like member, a shaft secured to said member, said member having a flange adjacent to the shaft and angularly spaced from the member to receive and guide the heel portion of a blade, and a blade clamping member pivoted on the first named member to retain the blade against said member.

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