July 5, 1932. E. G. WEAVER 1,866,434

SAFETY RAZOR

Filed Dec. 22, 1930

Fig. 1.

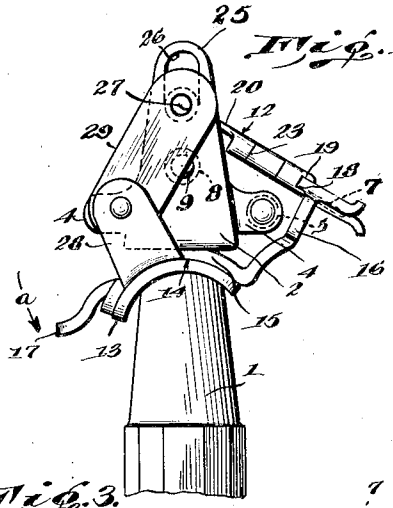


Fig. 2.

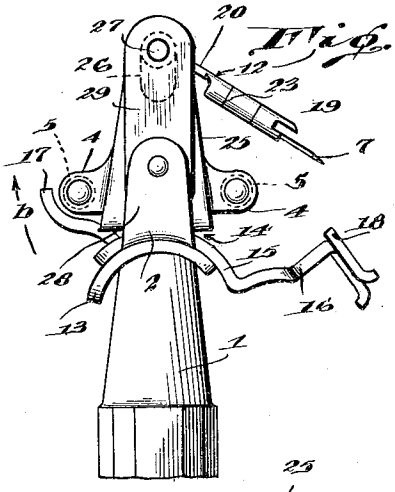


Fig. 3.

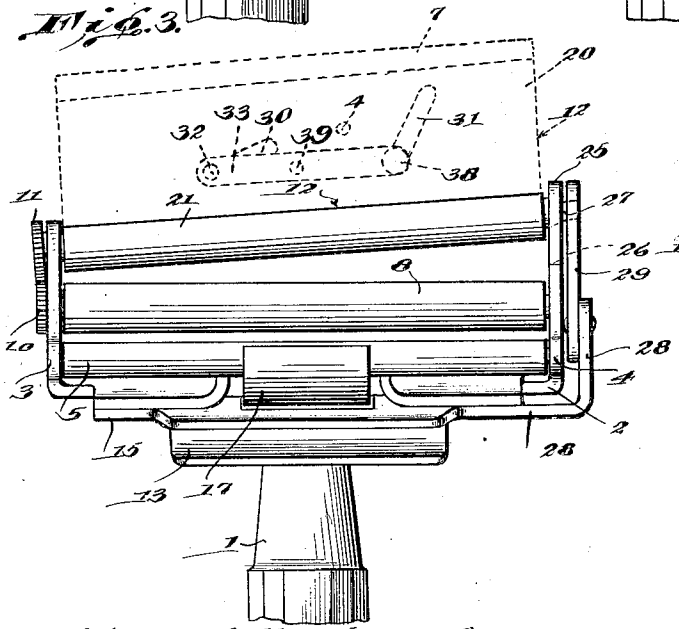


Fig. 6.

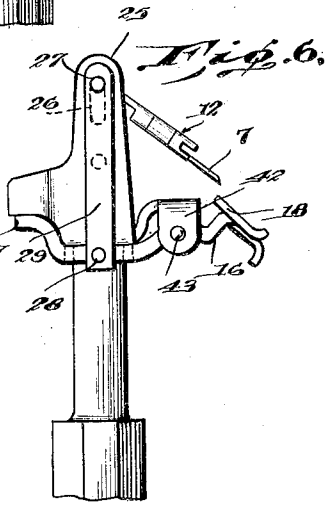


Fig. 4.

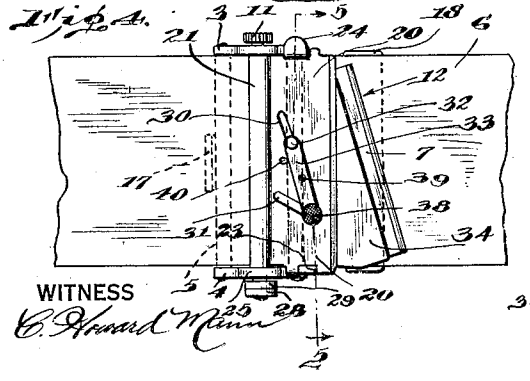


Fig. 5.

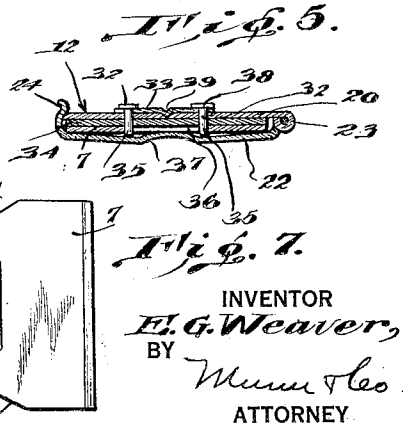


Fig. 7.

WITNESS

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UNITED STATES PATENT OFFICE

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SAFETY RAZOR

Application filed December 22, 1930. Serial No. 504,190.

This invention relates to improvements in safety razors, and it consists of the constructions, combinations and arrangements herein described and claimed.

An object of the invention is to improve a safety razor of the type wherein the blade can be stropped without removal from the frame, by perfecting means for canting the blade during stropping so as to secure the benefits of the more effective diagonal stroke.

Other objects and advantages will appear in the following specification, reference being had to the accompanying drawing in which

Figure 1 is a side elevation of the improved razor showing it in the closed or shaving position.

Figure 2 is a similar view showing the razor open in the stropping position.

Figure 3 is a rear elevation showing how the blade holder is tilted in the stropping position, the holder and blade being shown in the erect position in dotted lines merely for the purpose of emphasizing the obtainable diagonal stroke.

Figure 4 is a plan view of the razor as applied to a strop, illustrating the adjustment of the blade holder for the stropping operation.

Figure 5 is a cross section taken on the line 5—5 of Figure 4.

Figure 6 is an end elevation of a slightly different type of razor embodying a canting device identical in principle with the other form of the invention.

Figure 7 is a detail view of the razor blade.

This invention is an improvement in safety razors of the type more or less commonly known as the Valet auto strop razor as disclosed, for example, in the patent to Henry J. Gaisman, 1,492,246 of April 29, 1924. The razor of this particular type has the advantage of enabling stropping without removing the blade from the razor frame but the strokes are made to occur with the blade in position directly crosswise of the strop. The herein disclosed improvement adds a simple canting device from which the added advantage of a diagonal stroke is obtained.

So much of the known razor as is herein disclosed for the purposes of the invention is briefly described as follows:—The handle 1 is rigidly and permanently attached to a yoke-shaped frame 2 (Fig. 3), which has pairs of ears 3, 4 in which guide rollers 5 are journaled. These rollers ride beneath the strop 6 (Fig. 4) during the act of sharpening the blade 7.

Immediately above the rollers 5 there is a central roller 8 that is also journaled on the frame 2 as at 9. This roller rides on top of the strop 6 during the act of sharpening. There is a gear 10 (Fig. 3) on one shaft end of the central roller 8 that meshes with a corresponding gear 11 axially carried by a blade holder 12. In stropping the blade 7 the handle 1 is moved back and forth along the strop 6, and by virtue of the bearing of the roller 8 on the strop as well as the gear connections 10, 11 the holder 12 is swung first to one side then the other of the frame 2. This applies the opposite edges of the blade to the strop so that the blade is sharpened.

A curved rib 13 (Fig. 1) is fixedly and permanently secured to the frame 2 (usually by means of screws, not shown) in spaced relationship at 14 to the nether side of the frame 2. This space provides a place in which the curved base 15 of the guard 16 is movable when actuated by a finger-piece 17 on the rear.

In taking hold of the razor the thumb of the hand is instinctively placed on the finger-piece 17. A downward push (arrow *a*, Fig. 1) will rock the guard 16 toward the left so that each of a pair of lugs 18 with which it is provided at the ends, will engage recesses 19 in blade holder 12 and so establish a fixed connection between the blade holder and guard. Upon pushing the finger-piece 17 up (arrow *b*. Fig. 2) the guard 16 is swung to the right and out of range of the blade holder 12 so that the latter is left free to swing back and forth when the strop 6 is inserted between the rollers 5, 8 for the purpose of sharpening.

The blade holder 12 comprises a top plate 20 that is made as an integral part of the axial portion 21 that turns when actuated by the gear 10. A bottom plate 22 is hinged at 23 to one end of the top plate. There is

a spring catch 24 at the opposite end, the idea being to insert the blade 7 between the two plates and hold it in position by engaging the catch 24 with the top plate.

The improvement consists of making one leg 25 (Fig. 3) of the frame 2 higher than the other and providing the higher leg with a slot 26 in which the pintle end 27 of the axial portion 21 can move up and down. The curved base is provided with an integral extension 28 (Fig. 3) that is bent at right angles. A link 29 is pivotally connected between the pintle end 27 and the extension 28, the members 28, 29 constituting a toggle connection between the guard actuating mechanism and the blade holder.

It will be understood at once that when pushing the finger-piece 17 up (Fig. 2) the extension 28 will partake of the arcuate motion of the curved base 15. In straightening out the link 29 the pintle end 27 will be elevated in the slot 26 so that the axial portion 21 assumes the tilted position shown in Figure 3. The opposite bearing of the axial portion in the frame 2 as well as the gears 10, 11 are quite loose enough to enable the tilting of the axial portion.

In order to now make the blade 7 both lie flat on the strop 6 as well as to dispose the cutting edge at an angle to the strop thereby to obtain diagonal strokes, the top plate 20 (Fig. 4) is provided with two variously directed slots 30, 31 in which the studs 32 of a connecting spring plate 33 are movable. These studs carry a plate 34 on the nether side of the top 20 (Fig. 5), but extend sufficiently far below the plate 34 to provide projections 35 receivable either by a pair of holes or a slot 36 (Fig. 7) in the razor blade. It is the projections 35 and slot 36 that make a connection of the blade 7 with the holder 12. The bottom plate 22 is bowed at 37 in the middle in order to press against the blade at a point between the studs.

Notwithstanding these connections the plate 34 and razor blade 7 are shiftable between the top and bottom plates 20, 22 in order to arrive at the inclined stropping and straight across shaving positions. The shifting is done with the roughened head 38 (Fig. 4) of one of the studs 32. A push in the direction generally to the right will cant the blade 7 (Fig. 4) while a push to the left will straighten the blade to its shaving position. A detent 39 in the spring plate 33 is engageable with depressions 40 at each of the two positions so that the blade 7 will be kept in place until again shifted.

The corners of the blade 7 (Fig. 7) are cut away at 41 so that they will not project beyond the edge of the razor strop when the blade is adjusted to the canted position. The blade 7 is insertible in the holder 12 either side up. Consequently both corners are cut away so that the user will not be restricted to only the one position of the blade.

Figure 6 illustrates a slightly different type of razor which employs a different style of guard 16. The frame 2 is provided with ears 42 on which the guard 16 is pivoted at 43. The guard 16 is swung up and down by operation of the finger-piece 17 as before.

The extension 28 now takes a slightly different form, being reduced to a cylindrical cross section on its end in order to join the link 29. This extension 28 is integral with the guard 16 as before. A pivotal connection is made at 27 with the axial portion of the blade holder as before, the leg 25 being slotted at 26 to accommodate the raising and lowering of the one end of the axial portion. The blade holder 12 is the same in every respect as the blade holder 12 in Figure 4.

The operation is readily understood. A blade 7 (Fig. 4) is inserted in the holder 12 by releasing the catch 24 and swinging the bottom plate down so as to make the stud projections 35 accessible to the blade. Having fitted the stud projections in the slot 36 (Fig. 7), the blade holder 12 is closed. A downward push on the finger-piece 17 (arrow *a*, Fig. 1) locks the razor, so to speak, in readiness for shaving.

Upon desiring to strop the blade 7 the user pushes up on the finger-piece 17 (arrow *b*, Fig. 2) thereby swinging the guard 16 to the right and straightening the connection 28, 29 between the curved base 15 and the pintle end 27 of the axial portion 21. This raises the corresponding end of the axial portion (Fig. 3) so that the blade holder assumes the tilted position shown. This, alone, is not enough to obtain the benefits of a diagonal stroke. The roughened head 38 (Fig. 4) of one of the studs 32 is pushed down respecting the slots 30, 31 in the holder 12 thereby advancing and lowering the erstwhile high edge of the blade 7 and bringing it into a common plane with the other edge. In doing this the blade 7 is canted across the strop 6 (Fig. 4), and this canting will be preserved throughout each of the strokes of the razor along the strop 6.

While the construction and arrangement of the improved safety razor is that of a generally preferred form, obviously modifications and changes may be made without departing from the spirit of the invention or the scope of the claims.

I claim:—

1. A razor comprising a frame and a blade, a blade holder mounted on the frame, means for angling the blade in respect to the blade holder, and means for angling the blade holder in respect to the frame.

2. A razor comprising a frame and a blade, means for first shifting the position of the blade so that one side is higher than the other relatively to the frame, and means to again

shift the blade to lower and advance the high side to assume a diagonal position respecting a strop.

3. In combination with the guard shifting means of a razor of the type retaining the blade during the process of stropping, a blade holder, means by which one side of the blade holder is raised by operation of the guard shifting means to open position, and means to extend the high side of the blade in reference to the holder to reach the level of the strop and assume a diagonal stropping position thereacross.

4. A razor having a strop-driven roller and a blade holder geared thereto, guard shifting means in said razor; in combination, means actuated upon movement of the guard shifting means to an open position to cant the blade holder in reference to said gears and thus raise one side of the blade holder, and means to adjust the blade further forward on the high side then on the side adjacent to the gears, bringing the cutting edge uniformly level with the strop and disposing it diagonally thereacross.

5. A razor comprising a frame, a blade holder pivotally mounted on the frame, a blade guard and means for moving the blade guard toward and from the blade holder, and means for shifting the axis of the blade holder pivot during the movements of the blade guard.

6. A safety razor comprising a frame, a blade holder having an axial portion revolubly mounted at each end of the frame, a blade guard and means for moving it toward and from the blade holder, and means operated by said movement of the guard for shifting the axial portion respecting its revoluble mountings to assume positions straight across and on an incline with the frame.

7. A safety razor comprising a frame, a rockable blade guard, a blade holder, means by which the blade holder is pivoted on the frame, and means partaking of the rocking movement of the blade guard to shift the pivot of the blade holder.

8. A safety razor comprising a frame arranged to receive a strop, a blade holder pivotally and tiltably mounted on the frame, shiftable means carried by the blade holder to which a razor blade is applied, a blade guard having means for rocking it to open and closed positions, means operating simultaneously with said rocking movements to tilt the blade holder to an inclined set position across the frame, and means operable for acting on the shiftable means when said guard is open to diagonally position the blade respecting said strop.

9. In a razor having a rockable blade guard, a blade holder pivoted so that it can be shifted as well as turned, and linkage between the blade guard and holder, being connected to the holder to shift one end simultaneously with the rocking of the guard.

10. In a razor having a rockable blade guard, a frame including a pair of ears of which one is slotted, a blade holder pivoted on the ears having a pintle and extending through the slot, a rockable blade guard, and linkage between the blade guard and pintle end shifting said end in the slot so as to incline and straighten the blade holder across the frame as the guard is rocked to open and closed positions.

11. In a razor, a blade holder comprising a pair of hinged plates, one of said plates having variously directed slots and a pair of depressions, the other having a bowed portion, a companion plate and a razor blade situated between said first plates, the blade being pressed against by said bowed portion, studs occupying the slots and passing through the companion plate and blade, and a spring plate connecting the studs having a detent receivable by either depression.

12. A safety razor of the strop-receiving type, a holder, blade shifting means combined with the holder, a guard with means for rocking it to open and closed positions, means connecting the guard and holder to incline the holder upon opening the guard, and a blade attached to the holder having a cut away corner to come flush with a side of the strop when extended to a diagonal position by said blade shifting means.

13. In a razor, a frame and guard actuating mechanism carried by the frame, a blade holder supported by the frame, and a toggle connection between said mechanism and the blade holder for angling the blade holder simultaneously with an operation of said mechanism.

14. In a razor, a yoke-shaped frame including a pair of legs one of which is slotted, a blade holder having an axial portion supported by the legs, a part of the axial portion occupying the slot, actuating mechanism carried by the frame, and a toggle connection between said mechanism and the axial portion occupying the slot.

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