

March 1, 1932.

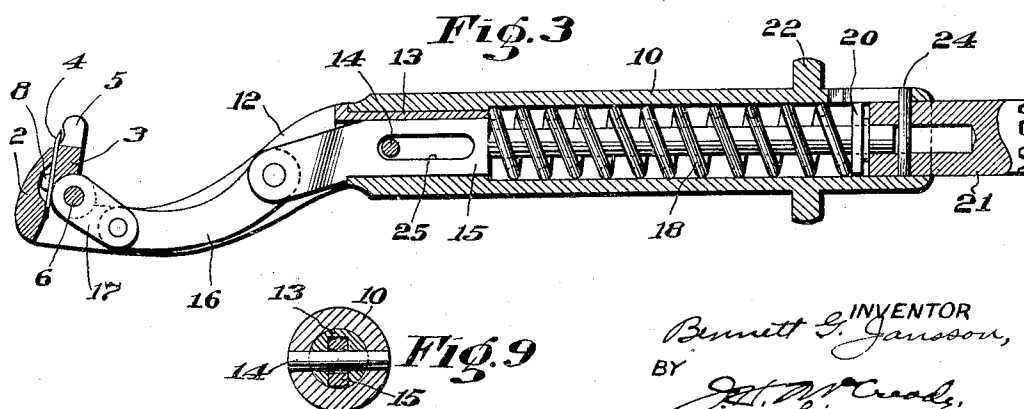
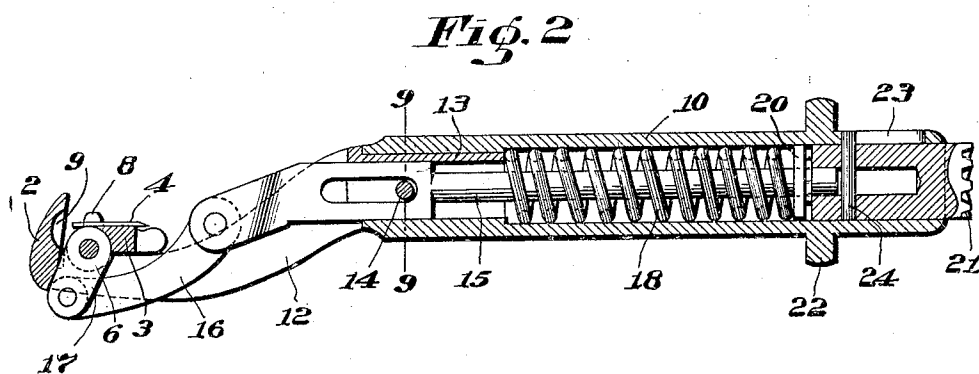
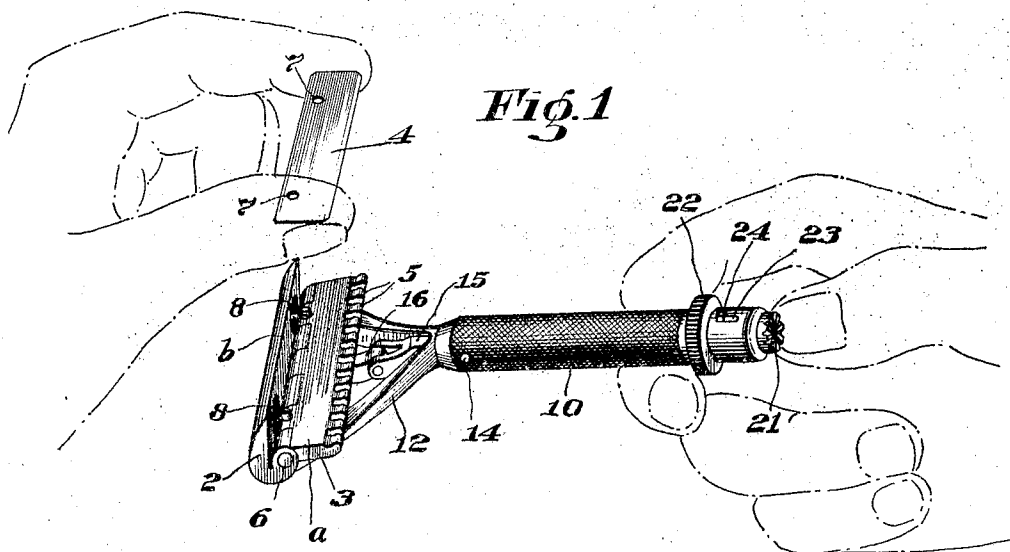
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1,848,078

SAFETY RAZOR

Filed June 20, 1931

2 Sheets-Sheet 1



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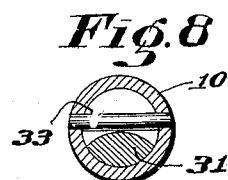
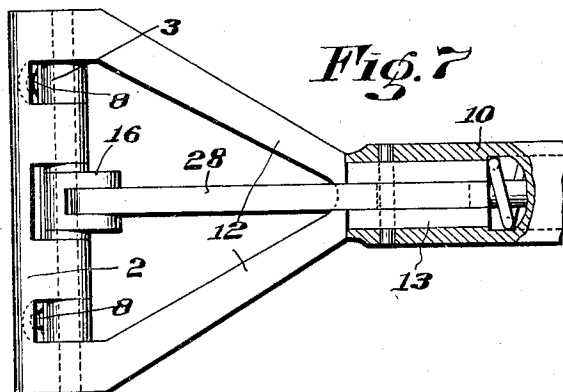
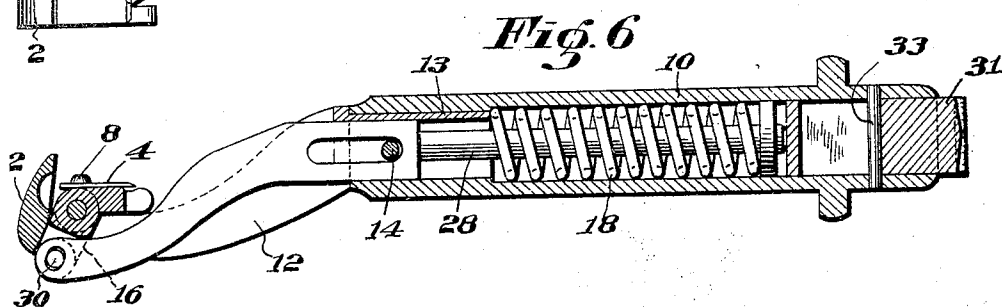
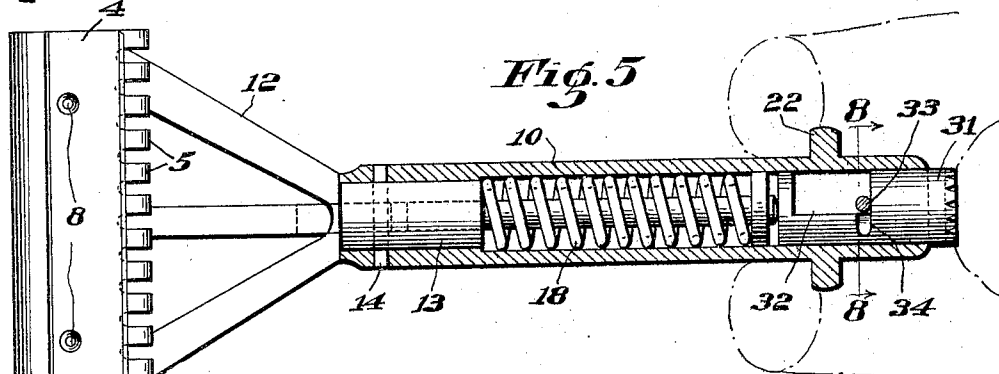
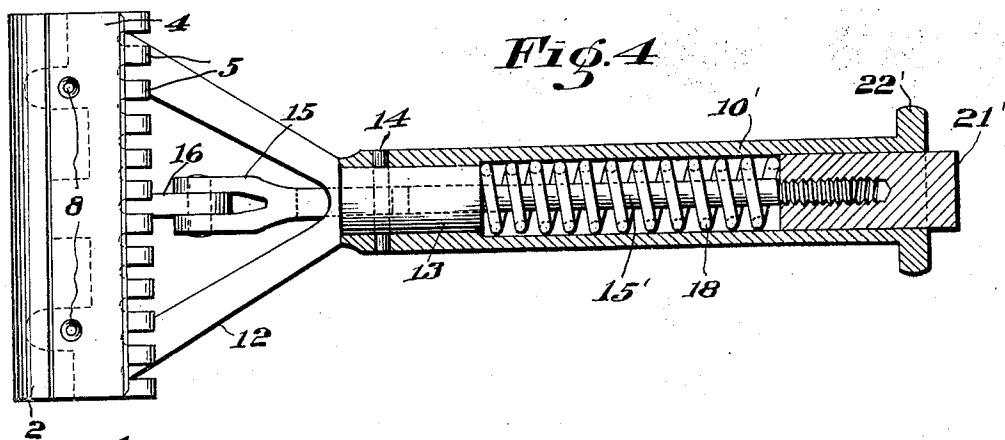
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SAFETY RAZOR

Filed June 20, 1931

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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SAFETY RAZOR

Application filed June 20, 1931. Serial No. 545,714.

To most users of safety razors the ability to change blades quickly is a very important consideration. This involves not only an arrangement of parts which will permit the quick and convenient release of the used blade, the introduction of a new blade, and the clamping of the new blade in shaving position, but it also involves the question of so relating these parts that the danger of cutting the fingers will be minimized, and liability of dropping or misplacing parts of the razor, or getting them out of adjustment, will be obviated.

These requirements suggest the desirability of a construction in which a spring will be used to operate parts for holding the blade clamped in shaving position with some manually operable means for releasing the blade against the tension of the spring.

An important objection, however, to any razor in which the blade is held clamped by a spring is that the edge of the blade is likely to vibrate during shaving. In fact, this objection exists in razor constructions of other types. Vibration of the blade during shaving is not only likely to result in a poor shave, but it also increases the danger of scraping and cutting the face.

The present invention is especially concerned with these considerations. It aims to devise a razor construction which will permit the quick and convenient changing of the blades while minimizing the danger of cutting the fingers, and in which any substantial vibration of the cutting edge of the blade during shaving will be prevented.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawings, and the novel features will be particularly pointed out in the appended claims.

In the drawings,

Figure 1 is a perspective view of a safety

razor constructed in accordance with this invention;

Figs. 2 and 3 are longitudinal sectional views of the razor shown in Fig. 1, showing the blade holder in open and closed positions, respectively;

Fig. 4 is a plan view of a razor similar to that shown in Fig. 1, but modified in minor particulars, the grip portion of the handle being shown in section;

Fig. 5 is a view similar to Fig. 4 showing another modification;

Fig. 6 is a longitudinal, sectional view of the construction shown in Fig. 5 but at right angles to the latter figure;

Fig. 7 is a rear elevation of parts of the razor shown in Figs. 5 and 6;

Fig. 8 is a sectional view on the line 8—8, Fig. 5; and

Fig. 9 is a sectional view on the line 9—9, Fig. 2.

Referring first to Figs. 1, 2 and 3, the razor there shown comprises a blade holder consisting of upper and lower jaws 2 and 3, respectively, arranged to clamp a razor blade 4 between them. The upper jaw forms a cap and the lower jaw a guard for the razor blade, the latter jaw having guard fingers 5 similar to those used on razors of prior constructions. These two jaws have interengaging ears or lugs, as shown in Fig. 1, through which a hinge pin 6 extends, thus pivoting the two jaws together for relative swinging movement into blade clamping and releasing positions. In the form shown the lower jaw 3 of the blade holder is provided with a relatively flat upper face *a*, Fig. 1, on which the blade 4 may be positioned, this particular form of blade being comparatively narrow, and the upper jaw has a corresponding flat face *b* to cooperate with the face *a* in gripping the blade. The blade has two holes 7—7 therethrough and the lower jaw 3 is provided with positioning pins 8—8 to enter these holes, the upper jaw being cut

out, as shown at 9, Fig. 2, to receive the pins. It may also be noted that the holder is slotted quite deeply to receive the blade so that when the blade is in its shaving position, as shown in Fig. 3, its rearward edge lies considerably behind the pivot pin 6 and well back toward the rearward edge of the holder, this arrangement being provided partly for the purpose of reducing the overall width of the holder.

The razor also includes a handle for the holder, the handle consisting of a tubular grip portion 10 and a forked shank portion 12. This shank portion may conveniently be formed integral with the cap or upper jaw 2 of the blade holder, and in any event should be rigid with the latter member. It also includes a part 13 which extends into the upper end of the grip 10 and is secured thereto by a pin 14. The shank also is curved, as best shown in Figs. 2 and 3, to offset the blade holder relatively to the grip portion 10 of the handle so that the cutting edge of the blade will be positioned closely adjacent to the axis of the grip 10. This relationship materially improves the "hang" of the razor and facilitates the guiding of the razor by the hand since the line along which the guiding movement is directed passes through or close to the shaving edge which is, of course, the part that must be accurately moved and controlled.

For the purpose of operating the blade holder to clamp or release a blade, a plunger 15 is mounted to slide longitudinally in the grip portion 10 of the handle and is positively connected with the lower jaw 3 by a link 16 and an arm 17, the arm being integral with, or otherwise rigidly secured to, the jaw 3. A coiled spring 18 located in the grip 10 encircles a part of the plunger 15 and abuts at its lower end against a disk 20 which is rigidly secured to the lower end of the plunger. The upper end of the spring abuts against the lower end of the shank member 13. This spring, therefore, tends to force the plunger downwardly and serves to maintain the jaw 3 in its closed or blade clamping position.

For the purpose of pushing the plunger upwardly to swing the lower jaw into its open position, a short plunger or push button 21 is slidably mounted in the lower end of the grip 10, the upper end of this button being drilled to receive the lower extremity of the plunger loosely. Consequently, by pushing upwardly on this button the lower jaw 3 may be swung into its open position, as shown in Figs. 1 and 2. As soon as the button is released the spring 18 acts immediately to return the lower jaw or guard 3 to its closed or blade clamping position again.

The operation of the plunger is facilitated by providing the grip 10 of the handle with

a disk-like enlargement 22 which can be engaged by the fingers while the thumb presses on the button 21, as shown in Fig. 1.

For the purpose of locking the blade holder in its open position, a bayonet slot 23 may be formed in the lower part of the grip and a pin 24 secured transversely in the push button 21 where its end will extend into the slot 23, so that by turning the button to the right, Fig. 1, when it has been pushed inwardly, it may be entered in a horizontal portion of the slot where it will prevent the spring 18 from forcing the plunger downwardly. The lower end of the button also may be roughened, as shown in the drawings, to give the thumb a better grip on it in making the turning movement either to lock or release the button.

Preferably, although not necessarily, the upper portion of the plunger 15 is flattened where it extends through the part 13 of the shank, and this part is slotted to form a guide for the flat part of the plunger, the flattened portion of the plunger also being slotted, as shown at 25, to receive the pin 14. The lower end of this plunger is guided by the engagement of the head or washer 20 with the walls of the bore in the grip 10.

In using this razor a blade may be very quickly removed by holding the razor in a horizontal position, as shown in Fig. 1, pushing inwardly on the button 21 and thereby swinging the lower jaw or guard 3 into a substantially horizontal open position where it lies against the arms of the shank 12, and then picking up the razor blade by its ends, as also indicated in said figure. A new blade may then be placed in the holder while holding the blade by its ends between the thumb and fore finger. This placing of a new blade in position is facilitated by holding the razor horizontally with the jaw 3 in a horizontal plane, as shown in Fig. 1. As soon as the blade has been dropped on to the surface *a* with the pins 8—8 entered in the holes 7—7, the button 21 may be released, whereupon the spring 18 immediately swings the lower jaw 3 into its closed position, as shown in Fig. 3. The razor then is ready for shaving. Usually the razor is held by the fingers and thumb of the right hand while the blade is removed and a new one replaced by the thumb and fore finger of the left hand. The holder of the razor may be steadied during this operation, if desired, by the third or little finger, or both, of the left hand.

Attention is particularly directed to the fact that in this construction the lower jaw or guard 3 only is moved, the upper jaw or cap 2 being rigid with the handle. This is important in the razor construction here shown in which the blade is clamped in its shaving position by a spring, since the force exerted on the blade by the resistance of the beard during shaving tends to move the blade

backwardly into its holder and to crowd it against the upper jaw or cap 2. This upper jaw, however, and the rear walls of the slot in which the blade is located are all rigid with the handle, so that the blade is rigidly supported adjacent to its edge and any substantial vibration of the blade during shaving is prevented, notwithstanding the fact that the blade is clamped in shaving position solely by the action of the spring 18. Any tendency of the blade to slip backwardly in the holder is prevented by the pins 8—8, the force so exerted on the pins tending, due to the relationship of the pins to the hinge pin 6, to close the jaw 3 all the more firmly and thus to assist, rather than oppose, the action of the spring 18. In this arrangement, therefore, the secure clamping of the blade which is essential to a good shave is obtained in a construction which permits a very quick changing of the blades and in which no parts of the razor are removed during the changing operation so that any possibility of dropping parts or placing them in poorly adjusted positions is prevented.

Fig. 4 shows a construction substantially like that illustrated in Figs. 1, 2 and 3, except that the push button 21' is screw threaded on to the lower end of the plunger 15', and the enlargement 22' has been moved down to the extreme end of the grip. In other respects these constructions are alike.

Figs. 5 to 8 also show a construction essentially like that illustrated in Figs. 1, 2 and 3, differing from it simply in eliminating the link 16 and in providing a different push button construction. In this embodiment of the invention the plunger 28, which corresponds to the plunger 15, is extended upwardly and is connected directly to the arm 17 by a pivot pin 30, this pivot pin extending through a slot formed in the extreme upper end of the plunger.

The push button 31 is slotted, as shown at 32, so that it can slide up and down past a pin 33 which is fixed transversely in the two walls of the grip 10, and this button is notched, as shown at 34, Fig. 5, to receive the pin when the button is given a slight rotating movement toward the right after being pushed upwardly to its extreme limit. When so positioned the button and pin lock the holder open. This arrangement, however, avoids the slotting of the lower end of the grip 10 which is desirable to prevent the entrance of lather and water into the bore of the grip where they might cause corrosion of the parts. The relatively close fit of the flattened portion of the plunger where it slides through the part 13 of the shank also is of advantage for this reason.

While I have herein shown and described preferred embodiments of my invention, it will be understood that the invention may be

embodied in other forms without departing from the spirit or scope thereof.

Having thus described my invention, what I desire to claim as new is:

1. A safety razor comprising a blade holder including upper and lower jaws for clamping a razor blade between them, said upper jaw forming a cap and said lower jaw a guard for the razor blade, a hinge connecting said jaws for relative opening and closing movement, a handle for said holder extending at approximately right angles thereto and secured rigidly to said upper jaw, a plunger slidable in said handle longitudinally thereof, positive connections between said plunger and said lower jaw whereby the lower jaw may be opened and closed by moving said plunger, and a spring in said handle for acting on said plunger in a direction to hold said lower jaw closed.

2. A safety razor comprising a blade holder including upper and lower jaws for clamping a razor blade between them, said upper jaw forming a cap and said lower jaw a guard for the razor blade, a hinge connecting said jaws for relative opening and closing movement, a handle for said holder extending at approximately right angles thereto and secured rigidly to said upper jaw, a plunger slidable in said handle longitudinally thereof, positive connections between said plunger and said lower jaw whereby the lower jaw may be opened and closed by moving said plunger, a spring in said handle for acting on said plunger in a direction to hold said lower jaw closed, and an operating element for said plunger comprising a push button projecting from the lower end of the grip portion of the handle, the handle being provided with an enlargement above its lower end for affording a grip for the fingers while the thumb pushes said button upwardly.

3. A safety razor comprising a blade holder including upper and lower jaws for clamping a razor blade between them, said upper jaw forming a cap and said lower jaw a guard for the razor blade, a hinge connecting said jaws for relative opening and closing movement, a handle for said holder extending at approximately right angles thereto and secured rigidly to said upper jaw, said handle including a grip portion and a shank connecting said grip portion with said upper jaw, said shank being curved to offset said holder relatively to the axis of the grip portion of the handle sufficiently to cause said axis to extend closely adjacent to the cutting edge of a blade clamped in shaving position in said holder, a plunger slidably mounted in said handle, positive connections between said plunger and said lower jaw for causing the movement of the plunger to swing the lower jaw into open and closed positions, a spring in said handle for acting on said plunger in a direction to hold said lower jaw

closed, and a member operatively connected with said plunger and arranged to be engaged by the hand to move said plunger against the action of said spring.

4. A safety razor comprising a blade holder including upper and lower jaws for clamping a razor blade between them, said upper jaw forming a cap and said lower jaw a guard for the razor blade, a hinge connecting said jaws for relative opening and closing movement, a handle for said holder extending at approximately right angles thereto and secured rigidly to said upper jaw, said handle including a shank rigid with said upper jaw and a tubular grip portion separate from but rigidly secured to the lower end of said shank, a plunger slidable in said handle, positive connections between said handle and said lower jaw for causing the movement of the plunger longitudinally of the handle to swing said lower jaw into its open and closed positions, said plunger being guided in the shank portion of said handle and also in the lower part of the grip portion of the handle, and a coiled spring in said handle encircling said plunger and operating thereon to push the plunger downwardly and thereby serving normally to hold said lower jaw closed.

5. A safety razor comprising a blade holder including upper and lower jaws for clamping a razor blade between them, said upper jaw forming a cap and said lower jaw a guard for the razor blade, a hinge connecting said jaws for relative opening and closing movement, a handle for said holder extending at approximately right angles thereto and secured rigidly to said upper jaw, a plunger slidable in said handle longitudinally thereof, positive connections between said plunger and said lower jaw whereby the lower jaw may be opened and closed by moving said plunger, a spring in said handle acting on said plunger to push it downwardly and thereby tending to hold said lower jaw closed, a push button projecting from the lower end of said grip portion and operable to push said plunger upwardly to open said lower jaw, and a transverse pin secured rigidly in said handle beside said button, said button being cut away to enable it to move longitudinally of the handle relatively to the pin and having a transverse notch therein to receive said pin to lock said lower jaw in its open position.

6. In a safety razor, the combination of a blade holder including a guard having a blade supporting face on the upper side thereof, a cap cooperating with said guard to clamp the blade on said face in position for shaving, said cap and guard cooperating to enclose the greater part of said blade leaving the edge portion thereof exposed, said cap and guard having interengaging hinge lugs extending from the rearward portions thereof, a pivot pin extending through said lugs and connect-

ing said cap and guard together for pivotal movement into open and closed relationship, a handle secured rigidly to said cap and located in a plane extending at approximately right angles to the cap, an operating member fastened to said guard for swinging said guard into and out of its blade clamping position, and spring means for holding said guard normally closed and in its blade clamping position but yieldable to permit said guard to be swung toward said handle into an open position to release the blade.

BENNETT G. JANSSON.

CERTIFICATE OF CORRECTION.

Patent No. 1,848,078.

Granted March 1, 1932, to

BENNETT G. JANSSON.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 4, line 1, claim 3, for the word "connected" read associated; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of April, A. D. 1932.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.