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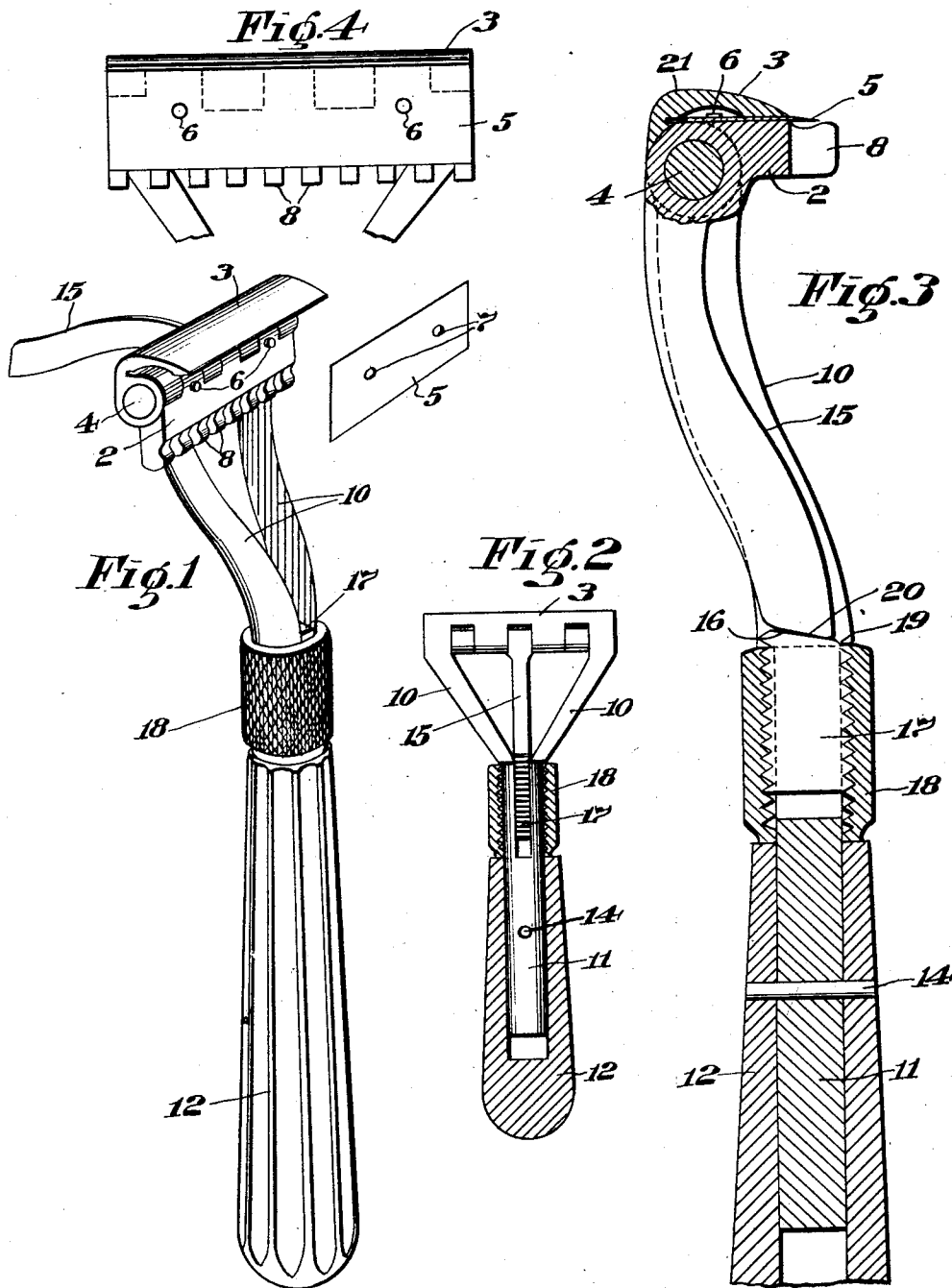
B. G. JANSSON ET AL

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SAFETY RAZOR

Filed Feb. 26, 1930

2 Sheets-Sheet 1



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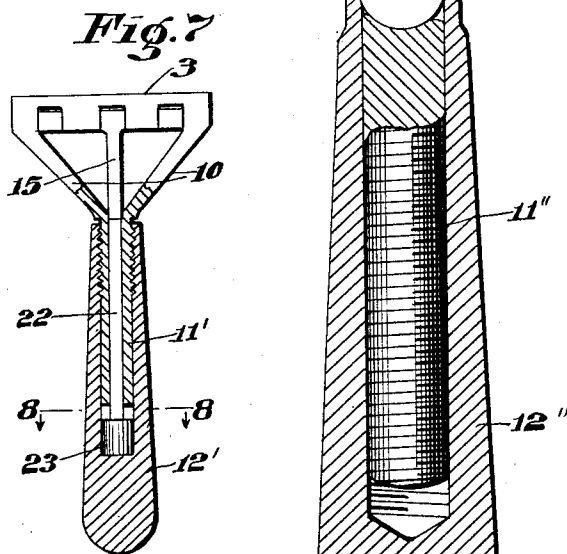
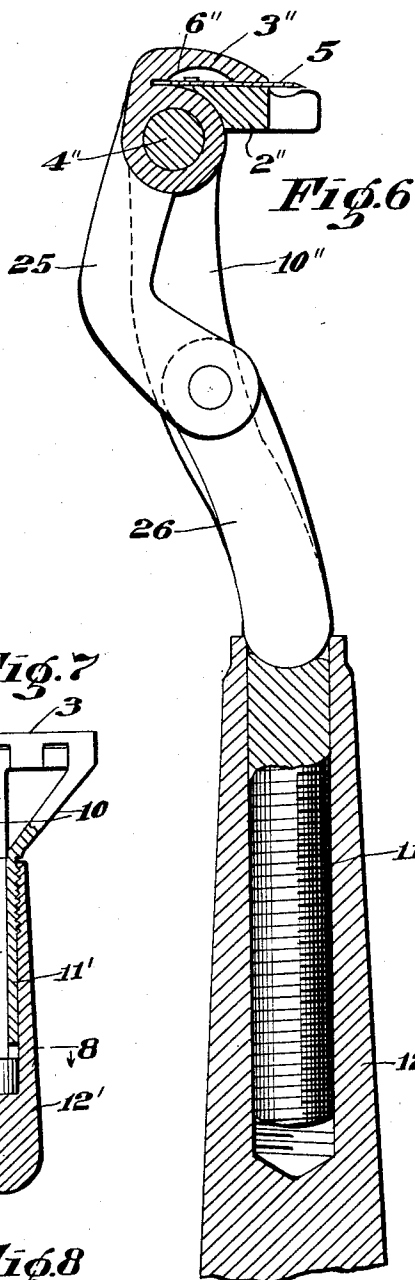
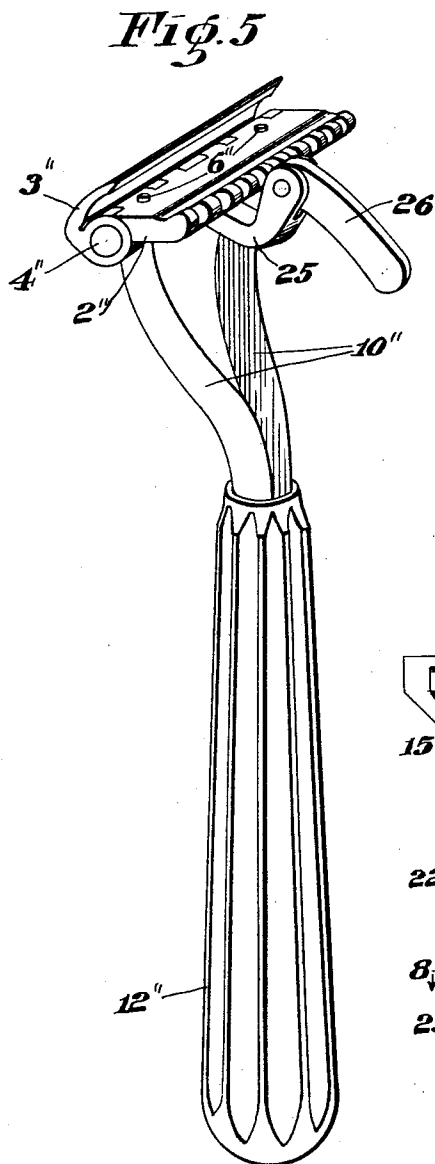
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## UNITED STATES PATENT OFFICE

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## SAFETY RAZOR

Application filed February 26, 1930. Serial No. 431,542.

This invention relates to safety razors and more especially, although not exclusively, to that type of razor having a narrow holder for the blade so as to facilitate shaving around the nose and in other places which are difficult to shave closely with large blades and holders.

The invention aims to improve devices of this general character with a view to facilitating the placing of the blades in, and their removal from, the holder, and more especially to devising a construction in which the blade will be clamped positively in position for shaving while still being quickly removable when desired.

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 razor embodying features of this invention, showing the holder in its open position and the blade removed therefrom;

Fig. 2 is a rear view on a smaller scale of the construction shown in Fig. 1, but showing the handle in section;

Fig. 3 is a sectional view, partly in elevation, of the construction shown in Figs. 1 and 2;

Fig. 4 is a front elevation of the holder in its open position;

Fig. 5 is a perspective view illustrating another embodiment of the invention;

Fig. 6 is a vertical sectional view, partly in elevation, showing the razor illustrated in Fig. 5 on a somewhat larger scale;

Fig. 7 is a view similar to Fig. 2 but showing a somewhat different arrangement for producing the blade clamping action; and

Fig. 8 is a sectional view on the line 8—8, Fig. 7.

Referring first to Figs. 1 to 4, inclusive, the razor there shown comprises a blade holder which includes a guard 2 and a head or cap 3. These parts are provided with inter-engaging ears through which a pivot stud 4 extends and hinges the parts 2 and 3 together.

A blade of a construction suitable for use in this razor is shown in Figs. 1 and 3 at 5, and is designed to be clamped between the members 2 and 3 of the holder in position for shaving. It may be centered or positioned in the holder in any convenient manner, preferably by two pins 6—6 projecting from the blade supporting face of the guard 2 and adapted to enter holes 7—7 formed in the blade 5. This construction ensures the location of the cutting edge of the blade in the desired relationship to the fingers 8 of the guard.

Either of the blade clamping members 2 and 3 may be mounted to swing relatively to the other for the purpose of clamping and releasing the blade. In the particular construction shown in Figs. 1 to 4, inclusive, the guard 2 is arranged to swing and the cap 3 is made rigid with a part of the handle. That is, the handle includes a split or bifurcated shank portion 10 which terminates at its lower end in a rod 11 and is secured at its upper end to, or is made integral with, the cap 3. A hand piece or grip 12 is mounted on the section 11 of the shank piece, the two being secured together in this particular case by a pin 14.

In order to swing the guard 2 into and out of its blade clamping relationship to the cap 3, it is provided with an arm 15, preferably made integral with the guard and projecting rigidly therefrom. When the holder is closed this arm extends along the shank portion of the handle between the bifurcated members 10, and some means preferably of a screw threaded character is associated with the handle to act on this arm in a direction to cause it to move the guard 2 into its blade clamping relationship to the cap 3.

As shown in Fig. 3, the lower end of the arm 15 has a bevelled or cam shaped face 16 to engage the end of a relatively thin screw threaded plunger 17 which is slidably mounted in the shank member 11 of the handle, this part 11 being slotted to receive the plunger 17. A knurled sleeve 18 loosely encircles the shank 11 and is internally threaded to engage the threaded edges of the bar shaped plunger 17, the sleeve being held

against any substantial movement longitudinally of the axis of the handle by its engagement with the grip 12 and with a shoulder 19 on the shank. The arm 15 can swing freely into or out of the space between the split sections 10 of the shank, and the plunger 17 is guided in the slotted portion of the shank for movement axially of the handle.

It will be clear from an inspection of Fig. 3 that when the knurled sleeve 18 is revolved in one direction it will force the plunger 17 upward and the engagement of the inclined or cam shaped end 20 of this plunger with the cam face 16 on the lower end of the arm 15 will swing the arm toward the right or in a counter-clockwise direction, thus positively forcing the guard 2 upwardly and clamping the blade 5 securely against the cap 3. A reverse rotation of the sleeve 18 will move the plunger 17 downwardly, thus releasing the arm 15 and permitting it to be swung in a clockwise direction into an open position, as shown in Fig. 1, where the blade will be released and can readily be removed from the holder.

In inserting a blade in the holder it is placed against the surface of the guard with the pins 6—6 entering the holes 7—7, and the arm 15 then is swung downwardly between the shank members 10—10, after which the sleeve 3 is revolved to lock the arm as above described. During this swinging movement the rearward edge of the blade will describe an arc about the axis of the pivot 4, and consequently, the cap 3 is cut away on its lower surface, as indicated at 21, Fig. 3, to provide a suitable clearance for this edge of the blade.

It should be noted that the parts 2 and 3 clamp the blade closely adjacent to its cutting edge and that the clamping action is produced positively. Consequently, any possibility of the blade vibrating in the holder is effectually prevented. At the same time the blade can be quickly placed in the holder and clamped in shaving position or released and removed from the holder.

Figs. 7 and 8 show a modification of the construction shown in Figs. 1 to 4, inclusive, the holder parts 2 and 3 and the shank 10 and arm 15 being like those above described. The section 11' of the shank, however, is externally threaded along the region adjacent to its junction with the fork pieces 10—10, and the grip 12' is internally threaded to engage the threads on the section 11'. This embodiment of the invention also includes a plunger 22 which is square in cross-sectional form and slides in a square hole in the shank piece 11'. Its lower end preferably is enlarged somewhat, as shown at 23, and abuts against the bottom of the hole in the grip 12'. The upper end of the plunger has an inclined face like the face 20, Fig. 3, to engage the cam face 16 on the arm 15. Consequently,

when the grip 12' is revolved in one direction it will force the plunger 22 upwardly, thus acting on the arm 15 in exactly the same way that the plunger 17 operates on it in the construction shown in Fig. 3. That is, it moves the arm 15 in such a direction as to cause the clamping of the blade in the holder, and it locks the arm in its blade clamping position, both the movement of the plunger and the locking of it being effected positively. A reverse rotation of the grip 12' releases the arm 15 and permits it to be swung into position to open the holder.

Still another embodiment of the invention is illustrated in Figs. 5 and 6. In this construction the guard 2'' is made integral with, or is rigidly secured to, the bifurcated section 10'' of the shank piece, and the lower end 11'' of the shank is externally threaded, the grip 12'' being screw threaded on to it. The cap 3'' is mounted to swing relatively to the guard 2'' and is provided with an arm 25 extending rigidly therefrom. A second arm or link 26 is pivoted to the free end of the arm 25, and its lower rounded end is adapted to be engaged by the upper end of the grip 12 as shown in Fig. 6. Consequently, when the grip 12'' is threaded upwardly on the shank 11'' it forces the arm or link 26 upwardly, thus operating through the arm 25 to swing the cap 3'' down where it will clamp the blade 5 securely against the upper surface of the guard 2''. A reverse rotation of the grip 12'' moves it away from the guard, thus releasing the arm 26 and permitting the holder to be swung open. It should be observed that in this arrangement the arms 25 and 26 have a toggle action in transmitting the thrust of the grip 12'' which is utilized in clamping the blade.

In both of the modifications above described the blade is clamped positively along the region closely adjacent to its cutting edge, as in the construction shown in Figs. 1 to 4, and in all of these constructions the blades may be inserted and locked in the holder or removed therefrom quickly and with relatively little effort.

While we have herein shown and described preferred embodiments of our 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 our invention, what we desire to claim as new is:

1. A safety razor comprising a holder including two members hinged together for clamping a razor blade between them in position for shaving, a handle for said holder, one of said members having an arm, said handle including a screw threaded member, and means including a second screw threaded part having a threaded engagement with said screw threaded member for positively moving

said arm to relatively move said members into their blade clamping relationship.

2. A safety razor comprising a holder including two members hinged together for clamping a razor blade between them in position for shaving, a handle for said holder, one of said members having an arm, and means for operating said arm to clamp said members on said blade, said means including a plunger carried by an intermediate portion of said handle and slidable longitudinally thereof and a screw threaded part rotatable about the axis of said handle for acting on said plunger to slide it.

3. A safety razor comprising a holder, a handle for said holder, said holder including a cap rigid with said handle and a guard pivoted to said cap, an arm rigid with said guard and projecting therefrom for swinging said guard into or out of its blade clamping relationship to said cap, said arm being arranged to extend along the handle when in its clamping position, a device carried by said handle for locking said arm in position to hold the blade clamped, and screw threaded means for positively moving said device into locking relationship to said arm.

4. A safety razor comprising a holder including a cap and a guard hinged together, an arm rigid with said guard and projecting therefrom for swinging the guard into and out of its blade clamping relationship to said cap, a handle for said holder comprising a shank rigid with said cap and a grip portion threaded on said shank, and a plunger slidable in said handle arranged to be operated by the turning of said grip on said shank, said plunger serving to engage said arm to force it into position to cause said guard and cap to clamp a blade between them.

5. A safety razor comprising a holder including a cap and a guard hinged together, an arm rigid with said guard and projecting therefrom for swinging the guard into and out of its blade clamping relationship to said cap, a handle for said holder comprising a shank rigid with said cap and a grip portion mounted on said shank, an internally threaded sleeve rotatable around the axis of said handle, and a plunger slidable in said handle and adapted to be moved backward and forward by the rotation of said sleeve, said plunger being arranged to engage said arm and operative to move said arm to force said guard into blade clamping relationship to said cap.

6. A safety razor comprising a holder including a cap and a guard hinged together, an arm rigid with said guard and projecting therefrom for swinging the guard into and out of its blade clamping relationship to said cap, a handle for said holder comprising a shank rigid with said cap and a grip portion threaded on said shank, and

means arranged to be operated by the rotation of said grip on said shank for acting on said arm to relatively move said cap and guard into their blade clamping relationship.

7. A safety razor comprising a blade holder including a guard and a cap relatively movable to clamp a blade between them, a handle rigid with said cap and including a grip portion and a split shank connecting said grip portion with said cap, said guard being hinged to said cap to swing from its blade clamping relationship to the cap into an open position, an arm extending from said guard to swing between the split portions of said shank, and means carried by said handle for acting on said arm to force said guard into blade clamping relationship to said cap, said means including a cam and an operating element carried by said handle and mounted for rotary movement around the axis of said handle.

8. A safety razor comprising a blade holder including guard and cap members hinged together for engaging a razor blade adjacent to its edge and clamping said blade in position for shaving; a handle for said holder extending at approximately right angles thereto; said handle including a slotted portion; and means for relatively moving said members to clamp a blade between them; said means including a bar shaped plunger slidably mounted in the slot in said handle and threaded at its opposite edges, and a sleeve in threaded engagement with said plunger and rotatably mounted on an intermediate portion of said handle for operating said plunger.

9. A safety razor comprising a blade holder including guard and cap members hinged together for engaging a razor blade adjacent to its edge and clamping said blade in position for shaving; a handle for said holder extending at approximately right angles thereto; said handle including a grip portion and a split shank connecting said grip portion with said holder; and means for relatively moving said guard and cap to clamp a blade between them, said means including a plunger having an externally threaded part slidable in the split portion of said shank, and a sleeve rotatable about said shank and internally threaded to engage the threaded part of said plunger.

10. A safety razor comprising a blade holder including guard and cap members hinged together for engaging a razor blade adjacent to its edge and clamping said blade in position for shaving; a handle for said holder extending at approximately right angles thereto; said handle having a split shank portion rigidly connected with one of said members and a grip portion mounted on said shank; an arm extending rigidly from the other of said members for rela-

- tively swinging the latter member into and out of blade clamping relationship to its companion member; said arm being arranged to swing into the split portion of said shank; a plunger for operating said arm; said plunger being slidably mounted in the split portion of said handle and being externally threaded, and a sleeve internally threaded to engage the threaded part of said plunger and rotatably mounted on an intermediate portion of said handle.
11. A safety razor comprising a blade holder including guard and cap members hinged together for engaging a razor blade adjacent to its edge and clamping said blade in position for shaving; a handle for said holder extending at approximately right angles thereto; said handle including a shank split to provide two arms rigidly connected to one of said members; an arm projecting rigidly from the other of said members and arranged to swing in the space between said arms to open or close the holder and having a part to extend along said shank when the holder is closed, and means slidable longitudinally of said handle for engaging said arm and holding it in position to maintain said members clamped on a blade.
12. A safety razor comprising a blade holder including guard and cap members hinged together for engaging a razor blade adjacent to its edge and clamping said blade in position for shaving; a handle for said holder extending at approximately right angles thereto; one of said members having an arm projecting rigidly therefrom and said arm having a cam face thereon; a plunger for engaging said cam face, said plunger being slidably in said handle; and means carried by said handle for operating said plunger to cause it to act through said arm to clamp said members on said blade.
13. A safety razor comprising a blade holder including guard and cap members hinged together for engaging a razor blade adjacent to its edge and clamping said blade in position for shaving; a handle for said holder extending at approximately right angles thereto; one of said members having an arm projecting rigidly therefrom and said arm having a cam face thereon; a plunger for engaging said cam face; said plunger being slidably in said handle; and a screw threaded sleeve having threaded engagement with said plunger and rotatably mounted on said handle for operating said plunger to cause it to act through said arm to clamp said members on said blade.
14. 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 connecting 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, said handle including a shank portion and a grip portion, an arm fastened to said guard for movement therewith as the guard swings toward and from said shank portion of the handle, and means carried by said handle for acting on said arm in an endwise direction relatively to the arm to force said guard into its blade clamping relationship to said cap.
- In testimony whereof we have hereunto signed our names to this specification.
- BENNETT G. JANSSON.  
CHARLES J. EMERSON.