

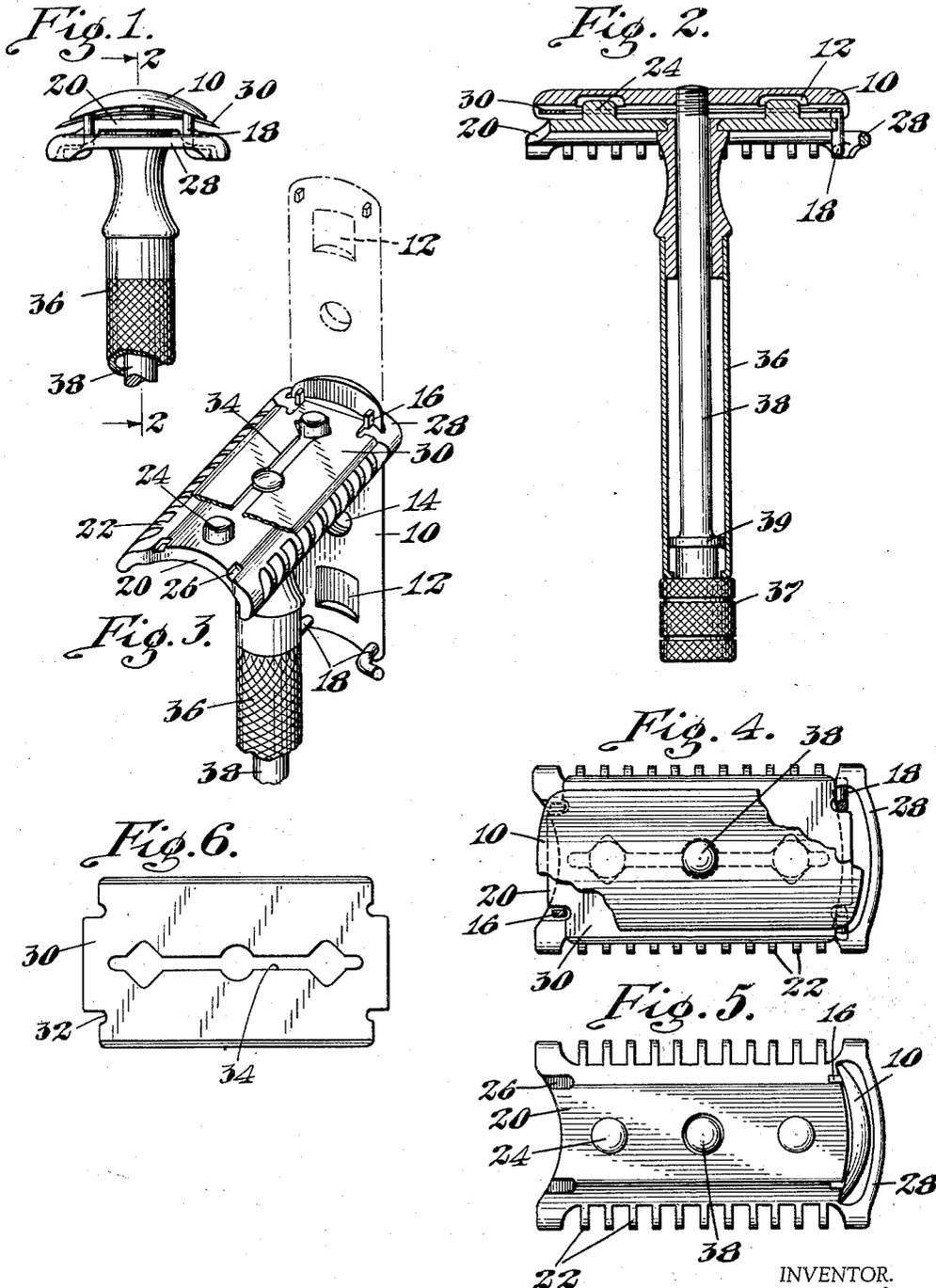
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SAFETY RAZOR

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## UNITED STATES PATENT OFFICE

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## SAFETY RAZOR

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This invention relates to safety razors of the type in which a thin, flexible blade is clamped in operative position between cap and guard members for shaving. In using razors of this type, the convenience of the user requires that the blade-positioning and clamping operations be quickly and conveniently effected and that the cap and guard may be as easily separated to permit the removal and replacement of blades. My invention contemplates a novel construction of cap and guard so constructed and arranged that these operations may be effected with an unusual degree of convenience and without entirely disconnecting the parts, thus avoiding the annoyance of loose parts which may become misplaced and lost. To this end, an important feature of my invention comprises co-operating cap and guard members directly interconnected with each other by means of a connection which permits them to be superposed in blade-clamping relation or to be moved in a path at right angles to each other for the purpose of exposing the blade-receiving face of one member.

There are many ways in which the desired results may be achieved, but as herein shown, I provide an opening in the guard member of such dimensions that the cap member may be tilted into angular position and passed freely therethrough. In this way, the blade-receiving face of the guard may be fully exposed so that a blade may be presented and removed by the user without obstruction of any kind. By providing limit stops at the opposite ends of the cap, the latter is prevented from being entirely disengaged from the guard at any time. The cap is thus maintained at all times within convenient reach of the user who is never at a loss to determine its whereabouts. The manipulation of the cap in this manner, moreover, may be effected without danger of cutting the fingers or damaging the sharp edges of the blade.

I have referred to limit stops for preventing complete disengagement of the cap and guard. In accordance with another feature of the invention, I may provide limit stops in

the shape of projecting lugs which have the additional function of co-operating with recesses in the blade or in the guard to establish an accurate location of the cap with respect thereto; or the limit stops may be utilized as part of a hinge-construction connecting the cap and guard but permitting them to be moved into a position at substantially right angles to each other.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawing, in which,—

Fig. 1 is a view of the razor in end elevation.

Fig. 2 is a view in longitudinal section.

Fig. 3 is a view in perspective showing the razor in blade-receiving position.

Fig. 4 is a plan view of the assembled razor, portions of the cap being broken away.

Fig. 5 is a similar view showing the blade removed, and

Fig. 6 is a plan view of a blade suitable for use in a razor.

The razor shown in the drawing comprises a cap member 10 having a lower, concave, blade-shaping surface and parallel longitudinal edges adapted to contact with the blade adjacent to its cutting edges. The cap is provided with a pair of recesses 12 in its blade-engaging face and with a centrally-disposed threaded hole 14. At one end of the cap is provided a pair of projecting lugs 16 and at the other end a pair of out-turned hooks 18.

The guard member 20 of the razor has a generally convex blade-shaping face having formed therein a pair of parallel shoulders over which the blade is flexed when clamped in operative position. Along its opposite edge, the guard member 20 is provided with teeth 22 as is customary in razors of this type. A pair of spaced, blade-locating studs 24 project from the blade-engaging face of the guard and a pair of recesses 26 is provided at one end to receive the lugs 16 of the cap with clearance and so permit the latter to assume its proper relative position to the

guard. At its other end, the guard is provided with a bail-shaped projection 28 forming with the body of the guard a transversely-extended passage of such dimensions as to receive the cap 10 freely when the latter is turned into a substantially upright position, as indicated in dot-and-dash line in Fig. 3. The rear end of the guard, or the inner wall of the opening formed by the bail 28, acts as a transverse fulcrum shoulder upon which the cap may be tilted from the horizontal position shown in Fig. 2 to the vertical position shown in Fig. 3. The hooks 18 project downwardly through the opening formed by the bail 28 when the cap is in its horizontal position and, when the cap is tilted, the hooks 18 swing in under the guard. The shape of the opening formed by the bail 28 is best shown in Figs. 4 and 5, Fig. 5 showing also the amount of clearance afforded to the cap 10 when the latter is in its upright position.

A blade 30, suitable for use in the illustrated razor, is shown in Fig. 6. This is provided with oppositely disposed cutting edges and with corner recesses 32 designed to fit accurately upon the cap lugs 16 and the hooks 18. The blade is also provided with an aperture 34 comprising an elongated slot having spaced enlargements shaped to fit upon the blade-locating studs 24 of the guard and thus accurately locate the blade in position when it is presented thereto.

The handle of the razor comprises a barrel 36 having a solid head which is riveted or otherwise securely fastened to the guard 20. Within the barrel 36 is freely received a stem 38, threaded at its upper end to make clamping engagement with the threaded hole 14 of the cap 10 and provided at its lower end with a knurled head 37 for convenience in manipulation. Within the barrel 36 the stem 38 is provided with a collar 39 and the end of the barrel 36 is flanged beneath this collar and between it and the knurled head 37, so that the stem is confined to limited longitudinal movement in the handle. When disengaged from its threaded connection with the cap 10, the stem 38 is free to drop until its collar 39 engages the flange at the lower end of the barrel 36 and in this movement the upper end of the stem 38 is brought flush with the blade-engaging face of the guard 20, as shown in Fig. 3.

It will be noted that the parts of the razor herein disclosed are at all times connected so that in use there is no danger of displacing loose parts. On the other hand, the construction is such that the blade-receiving face of the guard 20 is fully exposed without obstruction when in blade-receiving condition, the cap being entirely removed and dropped below the blade-receiving face of the guard. On the other hand, the cap may be easily brought into blade-clamping position and readily clamped to establish the shaving

relationship of the parts. With the razor in the condition shown in Fig. 3, the blade may be conveniently placed by the user upon the guard, being accurately and positively located by the studs 24 which engage the enlargement in the blade-locating aperture 34. The cap 10 may then be brought into its superposed, blade-clamping position by slipping it upwardly through the opening in the guard member to some such position as that indicated in Fig. 3 by dot-and-dash line. The loose connection supplied by the out-turned hooks permits the cap to be tilted or swung from vertical to longitudinal position about the end of the guard, and having located the cap upon the blade it may be drawn down into clamping relation by screwing the stem 28.

It will be understood that the blade is accurately located upon the guard member 20 by means of the studs 24, the outer ends whereof are received with clearance in the recesses 12 of the cap member. The cap member, on the other hand is accurately located with respect to the blade 30 by the engagement of its lugs 16 and hooks 18 with the recesses 32 of the latter and thus proper registration and alignment of the whole assembly is insured.

Having thus described my invention what I claim and desire to secure by Letters Patent of the United States is:

1. A safety razor comprising a guard member having an opening through one end thereof, and a cap shorter than the guard arranged to be superposed thereon and having spaced retaining projections extending through said opening, the inner edge of the opening serving as a fulcrum shoulder about which the cap may be tilted to carry said retaining projections beneath the guard and in positioning itself for passage into said opening.

2. A safety razor comprising a guard having a blade-supporting face and a transversely-extended passage located adjacent to one end of said face, a cap having a co-operating concave blade-flexing face and means for permanently connecting the cap to the guard which leaves the cap free to be tilted into a position in which it may be moved endwise through the passage in the guard and suspended in vertical position therefrom.

3. A safety razor comprising cap and guard members shaped to clamp between them a flexible blade when arranged in superposed relation, one of said members having an opening therein through which the other may be moved endwise to expose the blade-engaging face of the other, and means for limiting such endwise movement and preventing separation of said members.

4. A safety razor comprising a guard member having at one end a bail-shaped projection supplying a transverse opening, and

a cap of less width than said opening having a concave blade-engaging face disposed opposite to the guard and spaced lugs extending from said face and of sufficient length to engage the inner edge of said opening when the cap has been passed through the same for substantially its full length.

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