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2,361,332

SAFETY RAZOR

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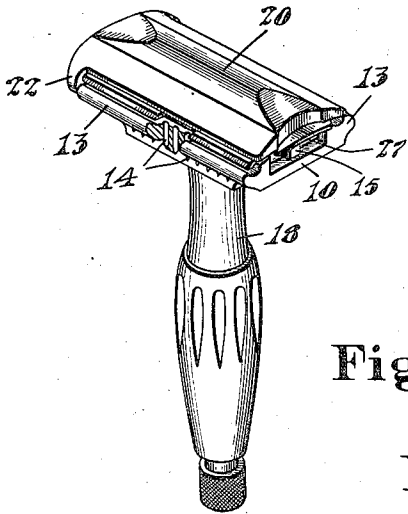


Fig. 1.

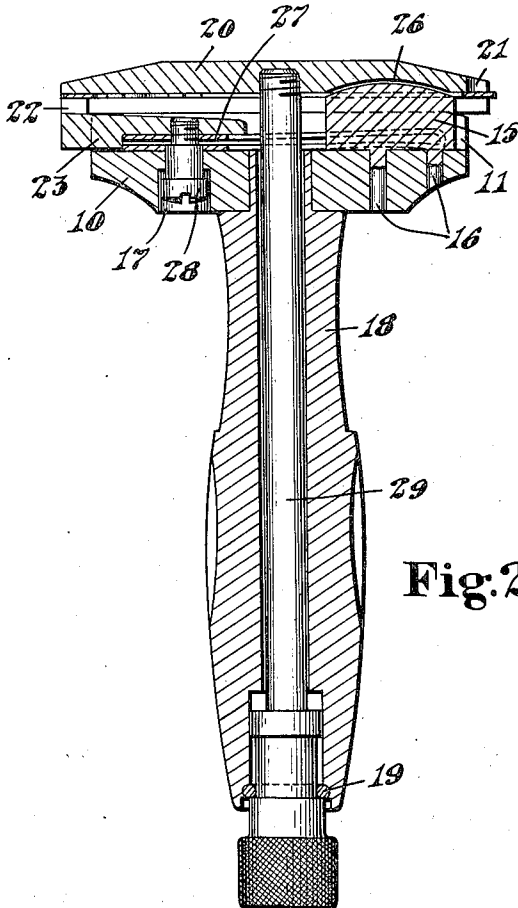


Fig. 2.

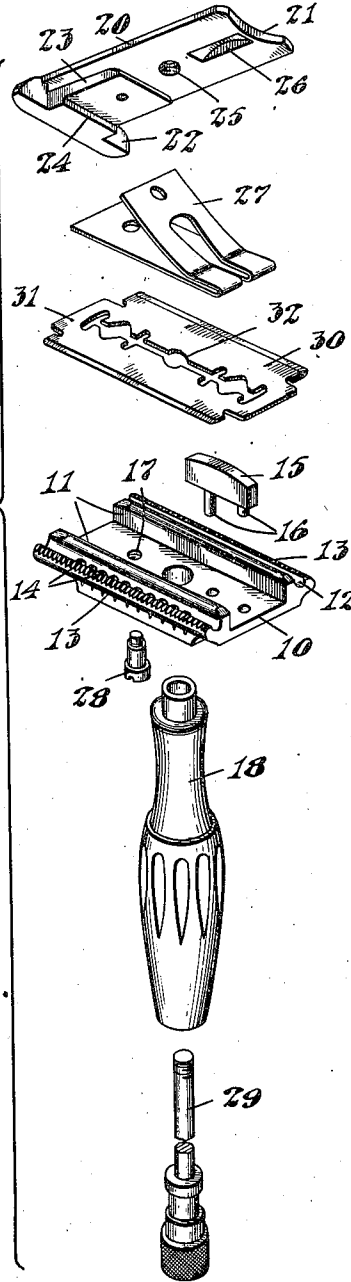


Fig. 3.

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SAFETY RAZOR

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6 Claims. (Cl. 30-65)

This invention relates to safety razors of the type in which a thin flexible blade is clamped in position for shaving between two blade clamping members, such as a cap and a guard or blade support.

The invention consists in a novel razor of this general type organized and adapted to receive a blade presented edgewise between the cap and guard members while the latter are separated only to a limited extent for that purpose, that is to say, the cap and guard members are interconnected to permit limited separation for the presentation of the blade and for all practical purposes the razor thus functions as a one-piece razor having no loose parts to become lost or mislaid. At the same time it is so constructed and arranged that, when desired, it may be disassembled and separated into component parts for thorough periodic cleaning or inspection. It is, moreover, organized so that blades may be supplied by hand or from a magazine according to the preference of the user.

The razor of my invention is herein shown as designed for use in connection with slotted blades shouldered at their ends to define wide unsharpened end portions, and, while it is in no sense limited to the employment of such blades, the invention includes features which are of importance particularly where it is desired to use blades of that design. For example, the razor has positive means for locating one end of such a blade by engagement with one of its unsharpened end portions, and a projecting rib for similarly locating the other end of the blade.

In one aspect the present invention consists in improvements upon the razor of my prior Patent No. 2,299,416, dated October 20, 1942, in which the cap and guard are shown as connected by an external arm. The object of the present invention is to provide a razor construction in which cap and guard members are connected without the necessity of employing exposed movable parts. To this end an important feature of the invention consists in a safety razor having cooperating blade-clamping members, one of which has an internal channel containing a spring and the other having an arm engaged by the spring, that is to say, both the arm and the spring are enclosed within the channel of the razor. By employing these novel features I am enabled to provide a safety razor of compact and self-contained structure with all moving parts enclosed. The design moreover lends itself particularly well to be embodied in moulded plastic material such as Bakelite.

My invention also includes as another novel feature adjustable means for connecting the blade-clamping members in such a manner as to permit them a limited amount of separation to receive a blade inserted edgewise between them and, by adjustment precisely to determine the amount of such separation in accordance with the most favorable and convenient conditions for the particular type of blade being employed.

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 in perspective of the complete razor showing a portion of the guard in section;

Fig. 2 is a view of the razor in longitudinal section on an enlarged scale; and

Fig. 3 is a perspective view showing the parts of the razor in exploded relation.

In the illustrated embodiment of the invention the razor head includes an elongated blade-supporting member 10 substantially rectangular in outline and having a pair of upstanding parallel ribs 11 defining a deep longitudinal channel between them. The upper edges of the ribs 11 provide fulcrum shoulders over which the blade is flexed in use. Outwardly of each of the ribs 11 the blade supporting member is shouldered to provide a longitudinal valley 12 outside of and adjacent to each rib. Each of these shoulders also provides a longitudinal guard bar or flange 13 which is designed to underlie the cutting edge of the blade in spaced relation thereto. A series of vertical parallel passages 14 extend downwardly from each valley 12 opening beneath the guard bar and so serving as unobstructed outlets for lather while the razor is being used. In the medial axis of the channel between the ribs 11 and at one end thereof is provided a short upstanding blade-locating rib 15. This is secured in place by pins which extend downwardly into the body of the member 10, as well shown in Fig. 2, and in the assembled razor serves positively to locate one end of the blade by fitting in the slot thereof. A shouldered aperture or bore 17 extends upwardly through the bottom of the member 10 and opens into the bottom of its channel.

The cap member 20 is substantially the same length as the blade-supporting or guard member and has parallel edges which engage the blade outside the fulcrum shoulders and flex it transversely when the blade is clamped for shaving. At one end the cap is provided with a concave

recess 21 for the purpose of affording convenient access to the end of the blade in inserting it beneath the cap. At its other end the cap is provided with a downwardly extending transverse wall or flange 22 supporting a wide flat arm 23 which extends inwardly beneath the body of the cap in spaced relation thereto as best shown in Fig. 2. The flange 22 has an aperture therein fitting the end of the blade. The arm 23 is provided with a transverse shoulder 24 and is reduced in thickness beyond this shoulder to provide space for the ends of a U-shaped spring 27. The cap is provided centrally with a tapped hole 25 in which is received the threaded end of a spindle 29 and with a longitudinal groove 26 in its inner face for the reception of the rib 15.

A shouldered screw 28 is located in the shouldered bore 17 of the guard member and threaded at its inner end for connection with the arm 23. The spring 27 is perforated and apertured to clear the screw 28 and the spindle 29. The position of the screw 28 adjustably determines the maximum amount of separation of the cap from the guard member. The cap 20 is always urged away from the guard member by the pressure of the spring 27 against the arm 23 but this movement of separation is limited by the head of the screw 28. In Fig. 2 the cap is shown in its clamped position with clearance under the head of the screw 28 indicating the amount of lost motion permitted by the connection. The handle 18 is bored to receive the elongated spindle 29 and this is rotatably retained in position in any desired manner, as for example by a circular key 19 as shown in Fig. 2. When the spindle is disengaged from the cap the spring 27 and clearance of the screw permit a slight tilting movement of the cap about its flanged end.

While the razor herein disclosed is not limited to any particular type of blade it is shown as employing a double-edged blade 30 of the "Gillette" type, that is to say, a blade of thin flexible steel sharpened along both longitudinal edges and having notches in each corner which define elongated unsharpened end portions 31 at both ends. The blade is also provided with a central longitudinal slot and this is widened between its ends into intermediate openings of various outlines and provided at its center with a circular opening 32 of sufficient diameter to allow passage of the clamping spindle 29 with clearance.

In assembling the razor thus described the spring 27 is first placed in the channel of the guard member 10 with its perforations in line with the bore 17. The cap 20 is then pressed down with its arm 23 upon the spring while the screw 28 is inserted and screwed into its tapped hole in the arm 23. The screw 28 is turned for adjustment until the two parts are separated by the desired amount and when properly adjusted there will be a narrow passage between the top of the rib 15 on the guard member and the bottom of the groove 26 of the cap member. The spring 27 maintains at all times whatever separation between the cap and guard members may be permitted by the screw 28. A blade may now be readily inserted from the right-hand end of the razor, its solid end riding up upon the rib 15 in its progress and eventually settling itself upon the edges of the ribs 11 of the guard member. The blade 30 may be pushed to the left until its elongated unsharpened end portion is positioned in the aperture of the flange 22 and when it reaches this position its other end is positively

located by the rib 15 which fits within its longitudinal slot.

I have described the razor of my invention as being supplied by hand with a blade but it may be conveniently used in connection with the magazine of my earlier Patent No. 2,288,979, dated July 7, 1942. For this purpose the magazine may be equipped with a forwardly projecting forked arm arranged to enter the channel of the razor with one arm passing on each side of the blade-locating rib 15. When a blade has been supplied to the razor either by hand or from a magazine the spindle 29 is screwed home and the cap 20 drawn downwardly in a positive manner first to flex and then clamp the blade in the manner already explained.

When the shaving operation has been completed the spindle 29 is rotated reversely permitting the blade-clamping members to be separated by the action of the spring 27 and thereupon the used blade may be withdrawn by hand from the head or under certain conditions the used blade may be merely shaken out from between the separated blade-clamping members. As soon as the spindle 29 disengages the threaded hole 25 in the cap it drops down out of the space between the blade-clamping members and so frees the blade for removal by endwise movement toward the right as seen in Fig. 2. Each time the solid end portion of the blade passes over the rib 15 it reacts against the cap to tilt it slightly about its flanged end.

If it should be desired to disassemble the razor the screw 28 may be removed and thereupon the cap 20 may be removed and access had to the interior of the razor head.

Having thus disclosed my invention and described in detail an illustrative embodiment thereof, I claim as new and desire to secure by Letters Patent:

1. A safety razor having a head which includes a ribbed blade-supporting member having a longitudinal channel therein, a cooperating blade-clamping member having an end wall with an aperture to receive one end of a blade inserted between said members, an arm projecting inwardly from said wall into the said channel, and a spring in the channel acting upon said arm and tending to separate said members.

2. A safety razor having a head which includes a longitudinally channeled blade-supporting member, a cooperating blade-clamping member having an arm projecting longitudinally into said channel, a spring interposed between the arm and the bottom of the channel, and means for adjustably determining the separating movement of the blade-clamping member from said blade-supporting member under the actuation of said spring.

3. A safety razor having cooperating blade-clamping members shaped to flex an interposed blade between them, one member having a recess and the other an arm enclosed in the recess, a spring tending to separate said members, and adjustable means for limiting their extent of separation.

4. A safety razor having cooperating blade-clamping members shaped to flex an interposed blade between them, one member having an elongated recess and the other a spaced arm fitting in the recess, a spring in the recess engaging the arm and positive means acting on said arm for limiting the movement of the arm in the recess.

5. A safety razor having cooperating blade-clamping members shaped to flex an interposed

blade between them, one member having spaced ribs on its inner face and the other an arm shaped to fit between said ribs and to pass beneath a blade resting upon the ribs, and connecting means permitting a limited separating movement between said members.

6. A safety razor having a guard member with spaced parallel ribs, a cap member with an under-

lying arm shaped to fit freely between said ribs, a blade-locating rib in one end of the guard member located between its said parallel ribs, and a lost motion connection at the other end of the guard member between it and said cap member.

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