Dec. 17, 1935. J. WEIGER 2,024,710

SAFETY RAZOR

Filed Feb. 9, 1933

Fig. 1.

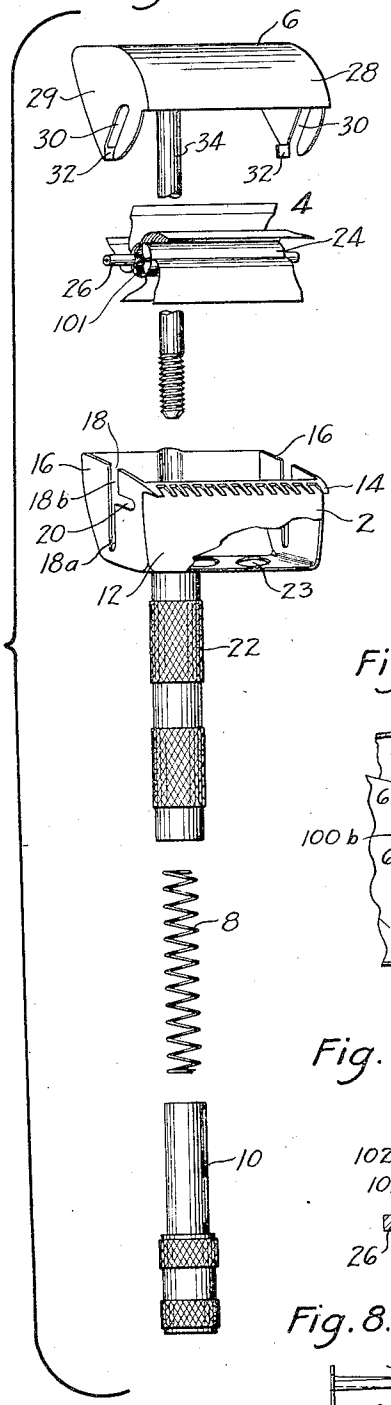


Fig. 2.

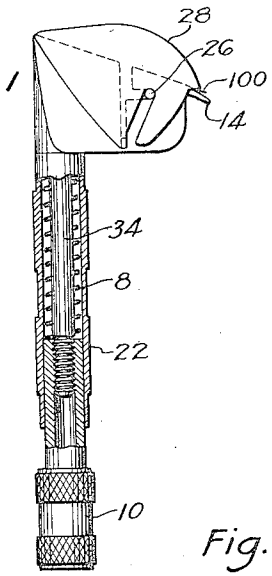


Fig. 3.

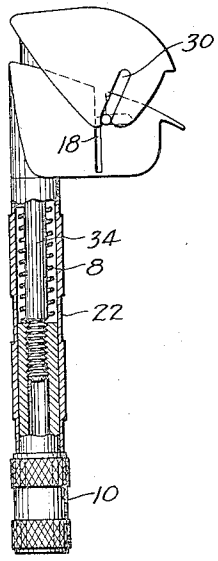


Fig. 4.

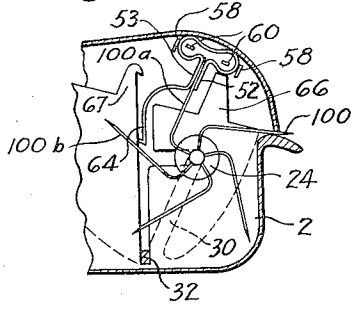


Fig. 5.

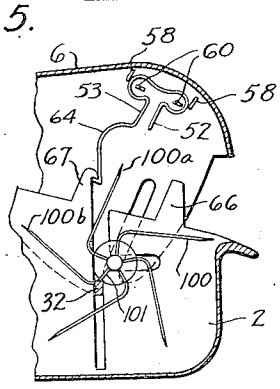


Fig. 7.

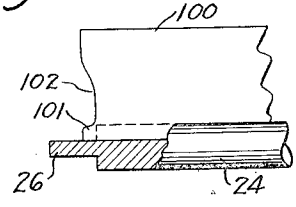


Fig. 6.

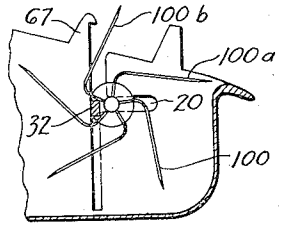


Fig. 8.

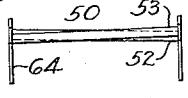
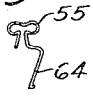


Fig. 8a.



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SAFETY RAZOR

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Application February 9, 1933, Serial No. 655,921

19 Claims. (Cl. 30—40)

This invention relates to razors and more particularly to safety razors.

One object of the present invention is a razor wherein the blade may be moved into and out of shaving position without uncovering the cutting edge. Another object is a razor of the type wherein one or more blades may be carried, the blade carrying member being adapted to move the same blade into and out of shaving position or to be rotated to bring a new blade into shaving position. Another object is a razor of the above mentioned type which may be readily cleaned without exposing the blade thereby eliminating the possibility of cutting the person cleaning same. A still further object is a razor wherein the guards automatically close over the cutting edge of the blade after being opened for cleaning or to receive a new blade. A further object is a razor having a sharpening device as a part thereof.

These and other objects will be readily understood from the following description and with references to the accompanying drawing in which:

Fig. 1 shows a perspective view of one embodiment of the razor with the parts in relative position for assembly;

Fig. 2 is a side view partly in section of the razor in assembled position with the blade in shaving position;

Fig. 3 is a side view of the razor with the casing members open and the blade withdrawn from shaving position;

Figs. 4, 5 and 6 are diagrammatic views illustrating how the device operates;

Fig. 7 is a diagrammatic view showing the construction of a blade and its mounting in the blade carrying member; and

Figs. 8 and 8*a* are front elevation and end views of the sharpener respectively.

Referring to the drawing, the razor comprises in general a blade housing 1 having a bottom casing 2 and a top casing 6, a blade carrying member 4, a recoil spring 8 and an extension member 10. The bottom casing 2 is provided with a front plate 12 having the usual toothed projections forming the lower blade guard 14 common to safety razors. The side plates 16 are provided with vertical slots 18, having a narrow lower portion 18*a* and wide upper portion 18*b*, and a transverse slot 20 extending forwardly from and at approximately right angles to, the slot 18. Depending from the bottom of the casing 2 is a hollow handle 22.

The top casing 6 consists of a top plate which serves as a top guard 28 for the razor blades and from which depend a pair of side plates 29, the side plates each being provided with an inclined slot 30, and extending downwardly from the rear edge of slot 30 is the inwardly projecting guide and turning lug 32. Depending from plate 28 is an operating arm 34.

The blade carrying member 4 is provided with a rotor 24 grooved to accommodate one or more blades, securely carried therein in any suitable way, the ends of the rotor being reduced in size to form the bearings 26.

The rotor 24 (Fig. 7) is slightly narrower than the blades, permitting them to project from the grooves therein to form a series of spaced projections 101 around the end of the rotor equal in number to the blades carried by same, which projections serve to rotate the rotor when contacted by projections 32 of top casing 6, as will be hereinafter described.

When assembled (Fig. 2) the blade rotor is supported within housing 1 by bearings 26 which project through slots 20 of bottom casing 2 and slots 30 of top casing 6. The operating arm 34 telescopes within handle 22 and as top casing 6 is lowered, lugs 32 enter slots 18. As bearings 26 project slightly beyond the sides of bottom casing 2 they contact first with lugs 32 which move them forward a sufficient distance to enter slots 30, and upon further downward movement the angular inclination of slots 30 moves rotor 24 forwardly to operative position carrying the blade 100 into shaving position between the lower guard 14 and top guard 28. Recoil spring 8 is then slipped into handle 22 around the operating arm 34, and the extension member 10 is then placed into handle 22 and screwed to arm 34 completing the assembly, the tension of spring 8 maintaining the casing members in closed position. Upon pushing upwardly on member 10, (Fig. 3) the upward movement of top casing 6 moves rotor 24 rearwardly, drawing blade 100 from between the guards out of shaving position but without exposing same. Upon releasing member 10 the compressed recoil spring 8 causes the parts to close and automatically return blade 100 to shaving position.

The operation of the razor to move the blade carrying member 4 into and out of operating position to move a blade into and out of shaving position or to bring a new blade into shaving position will be readily understood from Figs. 4, 5 and 6.

As casing member 6 is raised, lug 32 is also raised and slot 30 causes rotor 24 to move rearwardly, the ends of the blades being grooved at

102 to permit them to pass lug 32 as it moves vertically. As the rearward motion is rapid, rotor 24 will be carried far enough back to bring lug 32 under one of the blade projections 101 (Fig. 5) and, upon further upward motion, lug 32 rotates the rotor, bringing blade 100a into position to be carried horizontally into shaving position on the downward return of the top casing 6 (Fig. 6). On the downward motion lug 32 contacts the next projection 101 but the angle of impact is such that it tends to move the rotor forwardly without rotating same.

As illustrated in Figs. 4 to 6, a sharpener 50 of spring steel or other suitable material may be carried in the top casing 6. The sharpener comprises a pair of longitudinally extending jaws 52 and 53 inclined to each other at an angle of approximately 7° to give a sweeping motion as the blade is withdrawn therefrom. The jaws are hinged at their ends by the compound curvature 55 which tends to spring them open and is supported in top casing 6 by the indents 58 and 60. Depending from the rear jaw 53 is a hook 64 which projects downwardly into slot 18. When the top casing 6 is in closed position curvature 55 contacts with lug 66 on casing 2 which forces it upwardly between indents 58 which compresses same and forces the sharpening jaws tightly against the blade 100a. As casing 6 is lifted the sharpener wipes over the blade until hook 64 catches on hook 67 of casing 2, drawing the sharpener downwardly out of indents 58 until, in full open position, (not shown) the sharpener rests on indents 60 permitting the jaws to open and again receive the blade on the return movement.

As blade 100a, slot 30 and jaws 52 and 53 are all inclined at the same angle, the blade will readily leave the sharpener on the rearward motion of the rotor and return on the forward motion or if the next blade 100b has been rotated to the former position of 100a it will enter the sharpener on the forward motion.

It is apparent from the foregoing that by the one upward motion of the operating arm extension 10, the blade 100 is withdrawn from shaving position, the blade 100a withdrawn from the sharpener, and the rotor 4 turned through a predetermined amount, and that by a downward motion, which preferably is done automatically by spring 8, blade 100a is carried into shaving position and blade 100b into the sharpener thus requiring but a single manual operation to bring a new blade into shaving position. When it is desired only to clean the razor the parts may be moved to the position shown in Fig. 5 whereupon a stream of water may pass between the blade and lower guard and through holes 23 in bottom casing 2 and upon releasing the operating arm extension 10, the same blades will return to the shaving position or enter the sharpener.

Although the embodiment shown carries five blades this number may be varied, and the sharpener may or may not be included as desired. It will be noted that at no time after the blade or blades are inserted in the housing is the cutting edge of any blade left exposed therefrom, except when held between the guards. The razor is preferably made of a light, stainless and non-corrosive metal, and the blades of stainless steel.

As will be evident to those skilled in the art, the invention permits of various modifications without departing from the spirit thereof or the scope of the appended claims.

I claim:

1. A safety razor comprising a housing having top and bottom casing members, said casing members being movable relatively to one another, a blade carrying member within said housing, and means for supporting and moving said blade carrying member into and out of shaving position, said means comprising cooperating slots in said top and bottom casing members.

2. A safety razor comprising a housing having top and bottom casing members, said casing members being movable relatively to one another, a blade carrying member within said housing, and means for supporting and moving said blade carrying member into and out of shaving position, said means comprising cooperating slots in said top and bottom casing members, and operating means for opening and closing said casing members.

3. A safety razor comprising a housing having top and bottom casing members, said casing members being movable relatively to one another, a blade carrying member within said housing, and means for supporting and moving said blade carrying member into and out of shaving position, said means comprising cooperating slots in said top and bottom casing members, and operating means for opening and closing said casing members, and means for automatically returning said casing members to closed position.

4. A safety razor comprising a housing having top and bottom casing members, said casing members being movable relatively to one another, a blade carrying member within said housing, and means for supporting and moving said blade carrying member into and out of shaving position said means comprising cooperating slots in said top and bottom casing members, and including a hollow arm attached to one of said casing members, and an operating arm attached to the other of said members and movable in said hollow arm and spring means within said hollow arm for normally preventing movement of the operating arm.

5. A safety razor comprising a housing, a blade supported in said housing, said blade being totally enclosed by the housing at all times when same is withdrawn from shaving position and means for moving said blade into and out of shaving position wherein said blade housing comprises slotted top and bottom casing members, and including a hollow arm attached to one of said casing members and an operating arm attached to the other of said casing members and adapted to be movable in said hollow arm, and spring means carried within said hollow arm for normally preventing movement of the operating arm.

6. A safety razor comprising a housing having top and bottom casing members, one of said members being provided with a transverse slot and the other with a slot inclined to the transverse slot, a blade carrying member supported within said housing and provided with bearings projecting through said slots, and operating means for opening and closing said casing members whereby the blade carrying member is moved into and out of shaving position.

7. A safety razor comprising a housing having top and bottom casing members, an operating arm depending from said top casing, a hollow handle in which said operating arm telescopes depending from said lower casing, an extension member attached to said operating arm and projecting from said handle to permit said arm to be reciprocated to open and close said casing members, spring means carried in said handle and

bearing against said extension member a blade carrying member supported in slots in said casing members, the slots being angularly inclined to one another to cause said blade carrying member to be moved into and out of shaving position upon the opening and closing of said members.

8. A safety razor comprising a housing, a blade rotor adapted to carry a plurality of blades supported in said housing and means for first moving said rotor in a direction transverse to the longitudinal axis thereof to withdraw it from shaving position, then rotating same about its longitudinal axis, then returning it to shaving position.

9. A safety razor comprising a housing, a blade rotor adapted to carry a plurality of blades supported in said housing and means for first moving said rotor out of shaving position, rotating same about its longitudinal axis then returning it to shaving position, a sharpening device carried in said housing, and means operative upon movement of the rotor into and out of shaving position to cause said sharpening device to engage and disengage, respectively, one of said blades.

10. A safety razor comprising a housing, having top and bottom casing members, said members being movable relatively to one another, a blade rotor supported between said casing members, a plurality of blades carried by said rotor, one of said blades being in shaving position when said casing members are in closed position, and means controlling the opening and closing of said casing and adapted to contact with said rotor whereby said rotor is rotated to bring the next blade into shaving position.

11. The combination according to claim 10 including a sharpening device carried in said top casing and means operative upon opening and closing of the casing for causing said sharpening device to engage or disengage one of said blades.

12. A safety razor comprising a housing having top and bottom casing members, one of said casing members being provided with a substantially vertical slot and a transverse slot extending from the vertical slot, the other of said casing members being provided with a slot inclined to the transverse slot and provided with a lug at the base thereof adapted to fit in said vertical slot, a blade rotor having an enlarged central portion and reduced end portions supported between said casing members, a plurality of blades carried by said rotor and projecting beyond said enlarged portion forming a gear like end about the reduced portion, and means for opening and closing said casing members to cause said lug to contact with one of said blade projections to rotate the rotor a predetermined amount.

13. A safety razor having top and bottom casing members, means for opening and closing said casing members, a sharpening device having hinged jaws carried by one of said members, means carried by the other casing member for opening said jaws as the casing members are opened to permit the blade to enter between said jaws and means for closing the jaws over the blade sharpener as the casing members are closed whereby said sharpening device acts to sharpen the blade as the casing members are opened and closed.

14. A safety razor comprising a top blade guard and a bottom blade guard, a multi-edge cutting device supported between said guards, and co-operating means carried by said guards for opening and closing same whereby the cutting device is carried into and out of shaving position between the guards and simultaneously rotated to bring a new edge into shaving position.

15. A safety razor comprising, a top blade guard and a bottom blade guard, a rotor adapted to carry a plurality of blades supported within said guards, and co-operating means carried by said guards and said rotor for opening and closing the guards and turning the rotor whereby the blades are successively brought into shaving position.

16. A safety razor comprising a top blade guard and a bottom blade guard, a multi-edge cutting device supported between the guards, means for opening and closing said guards, and means acting automatically upon operation of said means for rotating said cutting device to bring a new edge into shaving position.

17. A safety razor comprising a top blade guard and a bottom blade guard, a blade supported between said guards, means for opening said guards to carry the blade out of shaving position and means for automatically closing said guards to return the blade to shaving position whenever said first mentioned means is released.

18. A safety razor comprising a top blade guard and a bottom blade guard, a sharpener carried by one of said guards, a multi-edge cutting device carried between said guards and having an edge normally in contact with the sharpening device and another edge in shaving position, and means for opening and closing said guards to cause the sharpening device to move over the edge in contact therewith and sharpen same.

19. A safety razor comprising an upper guard, and a lower guard, a handle rigidly secured to one of the guards, an operating arm secured to the other guard and movable in the handle for opening and closing the guards, said guards having cooperating supporting members for carrying a cutting device, a multi-edge cutting device carried by said members, one edge of said cutting device being in shaving position when the guards are closed, and cooperating means carried by said supporting members and said cutting device whereby upon a single operation of said operating arm, said cutting device is moved to withdraw one edge from shaving position and place another edge into shaving position.

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