Oct. 10, 1950 F. VOGEL 2,525,569

SAFETY RAZOR

Filed Nov. 28, 1945

Fig. 1.

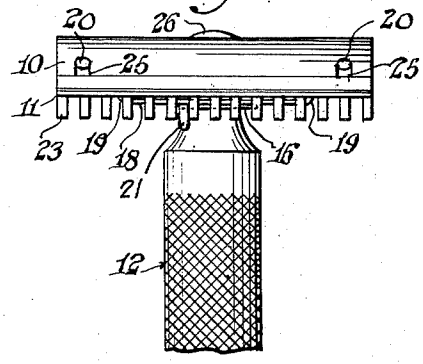


Fig. 2.

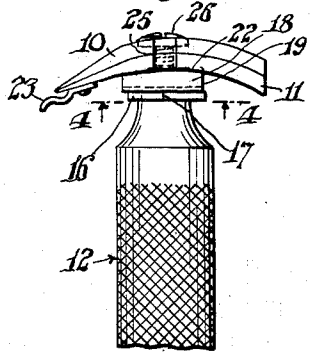


Fig. 4

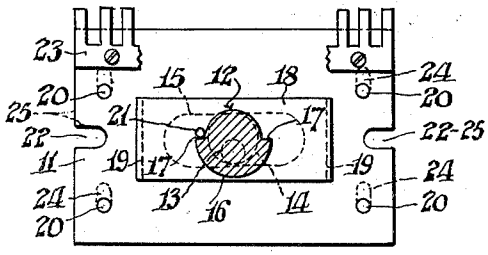


Fig. 3.

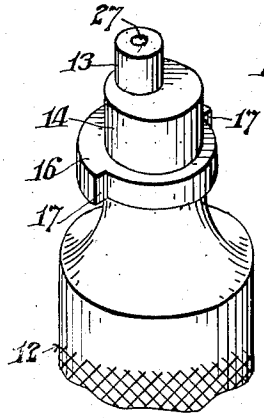


Fig. 5.

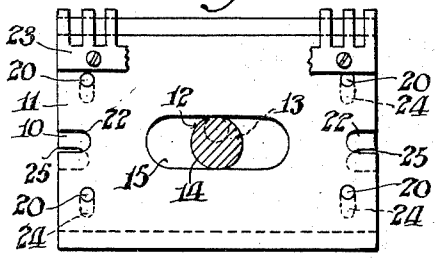


Fig. 6.

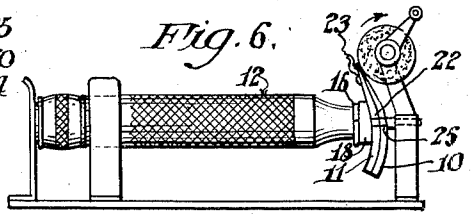
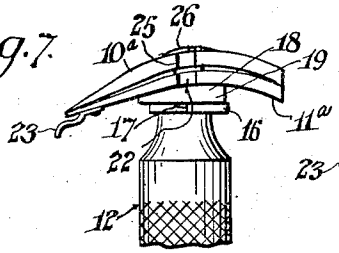


Fig. 7.



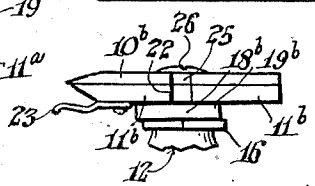


Fig. 8.

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SAFETY RAZOR

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5 Claims. (Cl. 30—35)

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My invention relates to new and useful safety razors, particularly of a type that can be resharpened and/or rehoned at selected periods and especially without the necessity of detaching the parts.

An object of the invention is to provide a safety razor wherein the single edged blade is, in effect, a permanent part of the razor although said blade can be replaced when worn out or damaged.

Another object of the invention is to provide a razor blade that can be sharpened in a novel manner, while assembled in the razor.

A further object of this invention is to provide in the razor, a bottom or backing plate projectible in juxtaposition to the cutting edge during sharpening operations and thereby prevent said cutting edge from being bent or turned over which might form a "wire edge," and said backing plate being retractable when the razor is to be used for shaving purposes.

A still further object of the present invention is to provide a safety razor of this kind so fashioned that the razor can be placed on a particular sharpening device only when the backing plate is projected.

With the above and other objects in view this invention consists of the details of construction and combination of elements hereinafter set forth and then designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same I will describe its construction in detail referring by numerals to the accompanying drawing forming a part hereof, in which:

Fig. 1 is a front view of the safety razor constructed in accordance with my invention, a portion of the handle being broken away.

Fig. 2 is a side elevation thereof.

Fig. 3 is an enlarged fragmentary isometric view of the handle.

Fig. 4 is a bottom view of the razor with the handle cut away on the line 4—4 of Fig. 2 and with the blade and backing plate aligned for sharpening said blade and a portion of the guard broken out.

Fig. 5 is a similar view a short distance above the line 4—4 or above the stop collar, with the spring removed and the backing plate retracted to expose the cutting edge of the blade for shaving purposes.

Fig. 6 is a view of the razor, on a reduced scale, mounted in a sharpening or honing fixture or machine.

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Fig. 7 is a side view similar to Fig. 2 of a slightly modified form of the razor.

Fig. 8 is a similar view of another modification.

In carrying out the invention as herein embodied 10 represents a razor blade and the associated backing or bottom plate 11 which are similarly curved in cross section so as to closely fit one another, as in Fig. 2. In Fig. 7 I have shown a blade 10*a* and a backing plate 11*a* curved on slightly different radii but the other parts of the apparatus are identical wherefore reference numerals indicating similar elements are the same throughout. The modified parts in Fig. 8 include a straight or flat blade 10*b* and a similar backing plate 11*b* which parallel each other and this necessitates that the upturned ends 19*b* of the flat spring 18*b* have straight edges to contact the underside of the backing plate 11*b*.

A handle 12 has an eccentric terminal journal portion 13 to fit into a hole in the blade 10, a centric neck 14 that fits the elongated aperture or slot 15 in the backing plate 11, and a stop collar 16 having two semi-circular rim portions of different radii to provide oppositely disposed stop shoulders 17. As the terminal journal portion 13 has a fixed position relative to the razor blade, as will be apparent from the description below, the neck 14 is eccentric to said terminal journal portion.

A flat spring 18 fits over the neck 14, and rests on the stop collar 16 and has upturned ends 19, Fig. 1. The backing plate 11 fits over the neck 14, with the latter in the slot 15, and rests on or engages the spring 18. Said backing plate has a number of guide pins 20 projecting from its top face and a stop pin 21 projecting from its bottom face in the path of travel of the shoulders 17, as well as notches 22 in the opposite side edges, and a guard comb 23 secured to the underneath face thereof at the forward edge so that the serrated portion projects beyond said forward edge. The flat spring 18 has a stop pin 21 projecting from its outer face in the path of travel of the shoulders 17.

The razor blade 10 is superimposed on the backing plate 11 and has elongated openings or slots 24 to register with the guide pins 20, as well as notches 25 in opposite side edges with which the notches 22 in the side of the backing plate are adapted to be selectively brought into alignment, and a countersunk hole for the reception of the screw 26 that is screwed into the hole 27 in the top end of the handle. The screw head is larger than the journal portion 13 of the handle so that while said head is partly em-

bedded in the blade there is sufficient material between the hole proper through the blade and its countersink to act as a bearing for the screw head. The screw 26 is tightened in the hole 27 sufficiently to cause the blade to exert pressure on the spring through the backing plate 11 until the desired tension is obtained and this will maintain said blade and backing plate in contact with one another.

In practice, with the parts in the positions shown in Figs. 2 and 4 the backing plate 11 is in the projected position and is underlying the cutting edge of the blade. This is the position of parts when the blade is to be sharpened or honed and one of the stop shoulders 17 is in contact with the stop pin 21. By rotating the handle approximately one-half of a turn, the neck 14 will move from the position indicated in Fig. 4 to the position shown in Fig. 5 and retract the backing plate so as to completely expose the cutting edge, except for the guard 23, at which time the razor may be used for shaving purposes.

While the backing plate 11 is retracted, the notches 22, 25 are out of line and nothing can be inserted in said notches, but when the backing plate is projected, Fig. 4, the notches 22 and 25 are in alignment, as shown.

A sharpening or honing machine or fixture is illustrated in Fig. 6 that is practical for the reception of a razor to be sharpened. This machine includes a support or base 28 with an upright rigid post 29 at one end having studs 30 to fit into the notches 22 and 25 when they are in alignment, that is, when the razor is in a closed position. The head of the razor is urged towards and held in engagement with the post 29 by a spring tongue 31 at the opposite end of the base 28, which spring tongue is adapted to engage the end of the handle 12 opposite the razor head. Between the post and spring tongue there is a holding bracket 32, in the form of a spring crotch, carried by the base to support the razor, particularly the handle thereof, and center said razor relative to the studs and a sharpening element to be presently described.

A suitable sharpening or honing element can be an abrasive wheel 33 so positioned or adjustable relative to the other features of the sharpening machine that it will contact the outer or upper face of the razor blade at the cutting edge and said wheel may be revolved manually or mechanically. During the sharpening or honing operations, the backing plate will be disposed in back of the cutting edge and therefore said edge cannot be bent or turned over or deformed so as to produce what is generally called a "wire edge."

It will be obvious that many styles of blades can be constructed and various forms of sharpening machines can be devised, but the main feature of the present invention is to provide a backing plate for disposition in back of the cutting edge of the blade to brace the same during sharpening operations and provide a construction that practically prohibits the sharpening operations until the backing plate is properly positioned.

Of course I do not wish to be limited to the exact details of construction herein shown and described, as these may be varied within the scope of the appended claims without departing from the spirit of my invention.

Having described my invention, what I claim as new and useful is:

1. A safety razor comprising a handle having an eccentric terminal journal end and a centric neck, a backing plate having a transverse slot and fitting over said neck, a spring connected to the handle and engaging the underside of said plate, a blade having a cutting edge and superimposed on the plate and connected to the journal end of said handle so that said handle can rotate and cause the plate, through the neck, to be retracted for exposing the cutting edge and projected beneath said cutting edge for bracing the latter when being sharpened, and means to hold the blade and plate on their respective portions of the handle.

2. In a safety razor, a backing plate, a blade superimposed on said plate, said plate and blade having notches in the side edges to be brought into alignment for mounting the razor in a fixture and thrown out of alignment when the razor is in condition for shaving, and a handle rotatably connected to said blade and having means coacting with said plate to reciprocate the latter relative to the blade.

3. The structure in claim 2, in combination with a spring engaging the handle and the backing plate to urge said plate into contact with the blade.

4. A safety razor comprising a blade having a cutting edge adapted to be sharpened on the outer top surface, a backing plate underlying said blade, a handle rotatably connected to said blade and having means to project said plate so as to be in juxtaposition to the cutting edge and retract said plate to expose said cutting edge by the rotation of the handle, a stop collar on the handle, stop shoulders on said collar, a flat spring between said stop collar and the backing plate, and a stop pin carried by the spring in the paths of travel of said shoulders for limiting the rotation of the handle.

5. A safety razor comprising a handle having an eccentric terminal journal end and a centric neck, a collar on the handle back of the neck, stop shoulders on said collar, a backing plate having a transverse slot fitting over the neck, a flat spring connected to the handle and engaging the underside of said backing plate, a stop pin on said spring in the paths of travel of the stop shoulders, a blade having a cutting edge and superimposed on the backing plate and connected to the eccentric journal end of said handle so that said handle can rotate and cause the plate, through the medium of the neck, to be retracted for exposing the cutting edge and projected beneath said cutting edge for bracing the latter when being sharpened, and means to hold the blade and plate on their respective portions of the handle.

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The following references are of record in the file of this patent:

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