

Jan. 12, 1932.

R. E. THOMPSON
SAFETY RAZOR AND BLADE
Filed March 19, 1930

1,841,223

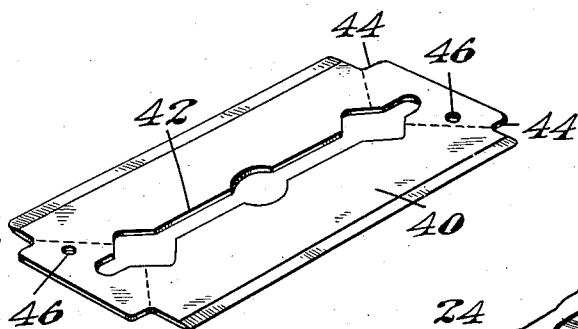


Fig. 1.

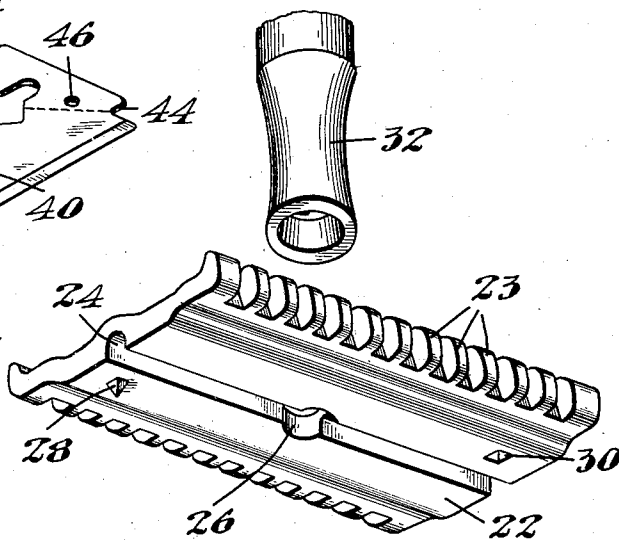


Fig. 2.

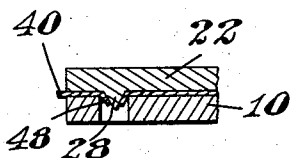


Fig. 4.

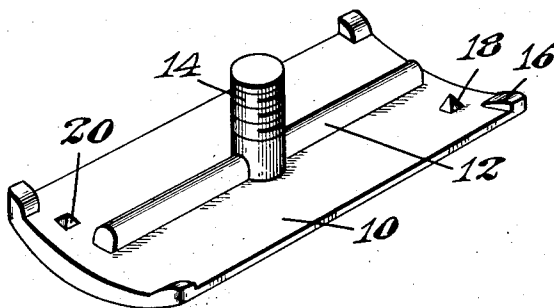


Fig. 3.

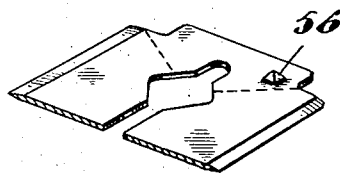


Fig. 5.

INVENTOR.

Ralph E. Thompson.
By H.W. Henway. Atty.

UNITED STATES PATENT OFFICE

RALPH E. THOMPSON, OF BROOKLINE, MASSACHUSETTS, ASSIGNOR TO GILLETTE SAFETY RAZOR COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF DELAWARE

SAFETY RAZOR AND BLADE

Application filed March 19, 1930. Serial No. 437,224.

This invention relates to safety razors employing replaceable blades, and in one aspect consists in a novel razor constructed and arranged so to treat a blade when clamped in the holder as to indicate unmistakably that the blade has been used. In another aspect my invention consists in the combination with such a razor of a blade adapted to be altered, marked or modified in its shape by being clamped in the holder so as to indicate the fact of its use.

It is important from the manufacturer's standpoint to discourage the practice of sharpening standard blades and their sale by unscrupulous dealers as original blades. By this practice the purchaser is misled, exposed to danger of possible infection and the annoyance of blades with inferior and unsatisfactory cutting edges. An object of the present invention is to provide a safety razor of a novel construction such that it will be impossible to clamp in it a blade for shaving purposes without permanently swaging or striking up from the material of the blade a characteristic upstanding configuration permanently incorporated in the blade structure and conspicuously indicating the history of the blade in respect to its prior use.

The attempt has been made heretofore to accomplish these results by providing the blade with a superfluous part which may be broken off in use, but this expedient not only introduces difficult problems into the manufacture of the blade but results in the formation of small jagged pieces of steel when the blade is used which are troublesome safely to dispose of. In accordance with the present invention, these objections are not only obviated but certain advantages are imparted to the used blade; for example, the swaged configuration imparted to it serves to insure the accurate location of the blade in the holder for every successive use, so that the user may exactly reestablish the original conditions of location and edge exposure for each individual blade. Further, where the upstanding configuration takes the form of a projecting rim or tit, it serves to hold a part of the blade away from a flat surface so that it may be easily picked up by the user. As

herein shown, an upstanding rim or tit is swaged upon each face of the blade so that regardless of which face is down, one end of the blade will be lifted from the supporting surface and its handling thus facilitated.

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 drawings, in which

Fig. 1 is a view in perspective, on an enlarged scale, of an unused blade;

Fig. 2 is a view in perspective of the holder parts of the safety razor;

Fig. 3 is a view similar to Fig. 1 of a used blade;

Fig. 4 is a fragmentary view in section through the holder illustrating the swaging operation.

Fig. 5 is a fragmentary view in perspective of a blade having a modified configuration.

The safety razor herein shown is of well-known commercial type including cap and guard members having cooperating blade-shaping faces between which a thin flexible blade is clamped and positioned and its edge exposure determined.

The cap member 10 has a concave blade-shaping face and parallel longitudinal edges adapted to engage the blade near its cutting edges and bend it over the surface of the guard. The blade 10 is provided with a central longitudinal rib 12 for locating the blade thereon and with a central threaded stud 14 with which the handle 32 cooperates in clamping the parts of the holder together. The cap 10 is herein shown as provided with reinforced corner lugs 16 and while this is a desirable characteristic, it is not essential to the present invention.

The guard member 22 is provided with a convex blade-shaping face terminating at either longitudinal edge in guard teeth 23. It is provided with a central aperture 26 through which the threaded stud 14 may freely pass and with a central longitudinal groove 24 to receive the rib 12 of the cap.

I provide the cap and guard members with

cooperating die elements and these may be arranged in any desired location and may be of any suitable shape. As herein shown, the cap 10 is provided at a point approximately midway between the end of the rib 12 and one of the corner lugs 16 with a four-sided pyramidal projection 18 which constitutes the male member of cooperating swaging dies. The guard member 22 is provided, in a corresponding location, with a square-sided opening 30, constituting the die cavity or female member of the pair of swaging dies. The cap 10 is further provided, at a diametrically opposite point, with a die cavity 20 and the guard member is provided at the same location with a pyramidal swaging projection 28. It will be understood that the two pair of swaging dies described act in opposite directions upon a blade positioned between the cap and guard, the member 18 cooperating with the die 30 to swage an upwardly-extending configuration in the interposed blade and the projection 28 corresponding with the die cavity 20 in swaging a downwardly-extending configuration in the blade.

The blade 40 herein shown as adapted for use with the holder above described is of the general type described in my copending application Serial No. 410,220, filed November 27, 1929. It is of thin flexible and resilient steel having oppositely-disposed cutting edges and corner recesses 44 defining a central elongated unsharpened portion of the blade. It is provided with a centrally disposed slot 42 of substantially the same length as the cutting edge which serves to locate or position the blade in the holder and also to eliminate bending stress from the blade material adjacent to the cutting edges. The bending stresses are thus concentrated in the end portions of the blade, which are softened in fan-shaped areas, indicated approximately by dotted lines in Figs. 1 and 3. The slot 42 intersects two diamond-shaped apertures which may be used for positioning the blade in holders provided with studs of similar shape. The blade is provided with a small hole 46 located in each of the softened areas, substantially half way between the slot 42 and the reentrant angle of a corner recess 44, where it will register with the die elements of the guard and cap. The holes 46 are preferably of such size as to receive the pointed end of the pyramidal projections 18 and 28 but are smaller in diameter than the dimensions of the base of these projections. The result is that when the blade is firmly clamped between the cap and guard the die projections 18 and 28 are forced against the edge of the holes 46 which, as already explained, are located within softened areas and are, consequently, of a flexible or ductile nature. The material of the blade is thus swaged or drawn upwardly, forming a more

or less irregular upstanding rim or a tit 48, as shown in Figs. 3 and 4. As the metal of the blade is expanded in this operation, it will be impossible to restore it to original condition or to bend it down again without noticeably distorting the original outline of the hole. The blade is thus unmistakably and indelibly marked as a used blade. It is, moreover, accurately and perfectly fitted to the individual holder in which it is to be used and, as already pointed out, it will no longer lie flat upon or adhere to a supporting surface but will rest in a spaced condition wherein it may be easily picked up. The tits, moreover, tend to prevent displacement of the blade in the holder in case the clamping engagement of the cap and guard is released by the user, as is sometimes done in order to secure an increased edge exposure of the blade. Further, the tits tend to hold the blade slightly away from the blade engaging faces of the holder when the clamping pressure is released and thus facilitate flushing the razor.

While I have shown the holes 46 in the blade as circular in outline, it will be understood that these may be of any desired shape which will facilitate the swaging operation or may be omitted entirely. In the latter case the blade, when clamped, will be modified by having imperforate conical projections or tits 56 formed therein, such as shown in Fig. 5. Furthermore, while it is desirable to form one or more swaged configurations in each end of the blade, it would be within the scope of the invention to treat the blade at a single point only.

I have disclosed a safety razor including a holder comprising two clamping members having parts shaped to grip and hold a blade in shaving position and to deform or corrugate portions of the blade so gripped and broadly claimed the same in my co-pending application Serial No. 465,480, filed January 3, 1930. The novel blade herein disclosed forms the subject matter of Letters Patent of the United States No. 1,772,432 granted August 5, 1930, on an application divided from the present application.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A safety razor comprising a cap having a swaging projection at one end and a die cavity at the other, a guard having a die cavity at one end and swaging projection at the other, and a thin flexible blade having ductile areas which contain openings registering with said swaging projections.

2. A safety razor comprising cap and guard members rectangular in outline and having curved faces adapted to clamp a flexible blade between them in a position of pronounced curvature and die projections located in a line extending obliquely of the holder

and adjacent to the opposite ends thereof, and a thin flexible blade adapted to be clamped between said members and having imperforate ductile areas therein located opposite to the die projections and in which tits may be formed by the action of the die projections.

3. A safety razor comprising blade clamping members, one having a blade-locating rib and the other a corresponding slot, and having also cooperating swaging elements disposed out of line with said rib, and a flexible blade internally apertured to receive said rib and having an imperforate ductile area which lies between the swaging elements.

4. A safety razor comprising blade clamping members, one having a blade-locating rib and the other a corresponding slot to receive the rib, and having also cooperating swaging elements located in pairs adjacent to the opposite ends of the rib and out of line therewith, and a flexible blade internally apertured to receive said rib and having imperforate ductile areas extending transversely from said aperture and into range of said swaging elements, whereby the blade may be marked at points spaced from the aperture.

5. A safety razor comprising a cap having a centrally disposed blade-locating rib, a flexible blade internally apertured to receive said rib and an adjacent imperforate ductile area, and a guard having a slot to receive said rib and a swaging projection offset with respect to the rib, the cap having a cavity oppositely disposed with respect to said projection of the guard.

6. A safety razor comprising a cap and guard having co-operating pairs of oppositely directed swaging elements therein constructed and arranged to swage oppositely directed configurations into a blade interposed between them.

7. A safety razor comprising a cap having a swaging projection in one location and a die cavity in another location, and a guard having a die cavity and a swaging projection disposed respectively opposite thereto.

8. A safety razor comprising a cap and guard having between them a blade-locating projection, and co-operating swaging elements on the cap and guard respectively which are laterally spaced from the blade-locating projection.

9. A safety razor comprising blade-clamping members, one having a blade-locating rib, and the other a corresponding slot, and having also co-operating swaging elements disposed out of line with said rib.

10. A safety razor comprising blade-clamping members, one having a blade-locating rib and the other a corresponding slot to receive the rib, and having also co-operating swaging elements located in pairs adjacent to the opposite ends of the rib and out of line therewith.

11. A safety razor comprising cap and guard members rectangular in outline and having curved faces adapted to clamp a flexible blade between them in a position of pronounced curvature, and die projections located in said members in a line extending obliquely thereof.

12. A safety razor comprising a cap and guard having between them a blade-locating projection, co-operating swaging elements on the cap and guard respectively which are laterally spaced from the blade-locating projections, and a flexible blade apertured to receive said blade-locating projection and having an imperforate ductile area which lies between said swaging elements.

Signed at Boston, Massachusetts, this 17th day of March, 1930.

RALPH E. THOMPSON.