Feb. 11, 1936. E. SCHODLBAUER 2,030,658

SAFETY RAZOR

Filed Feb. 3, 1934

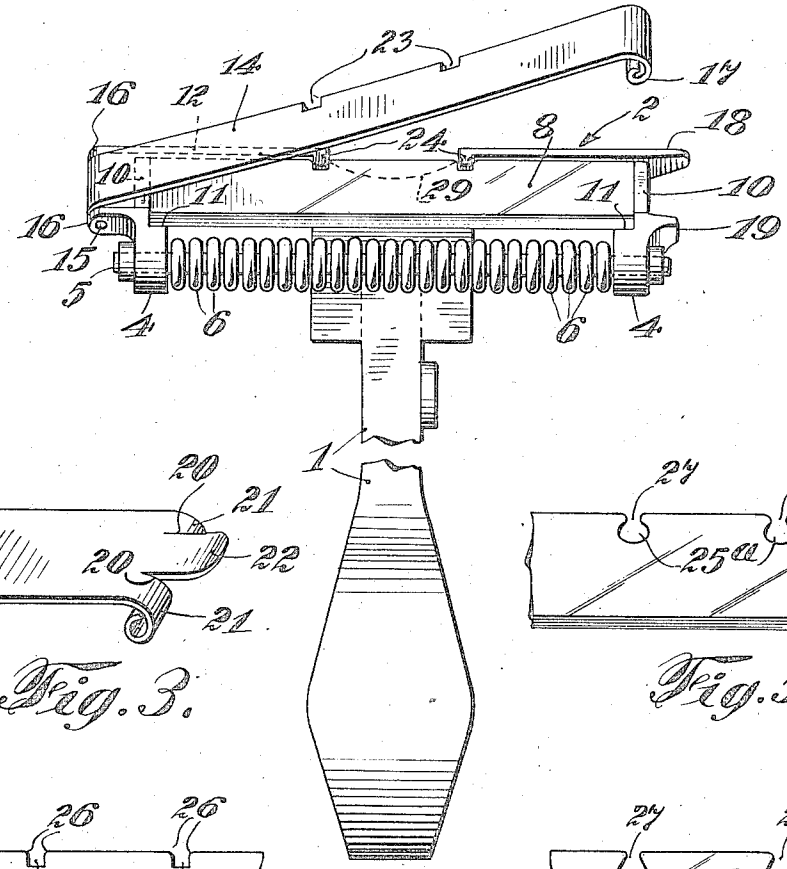


Fig. 1.

Fig. 3.

Fig. 5.

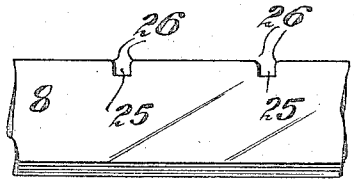


Fig. 4.

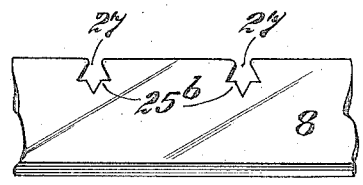


Fig. 6.

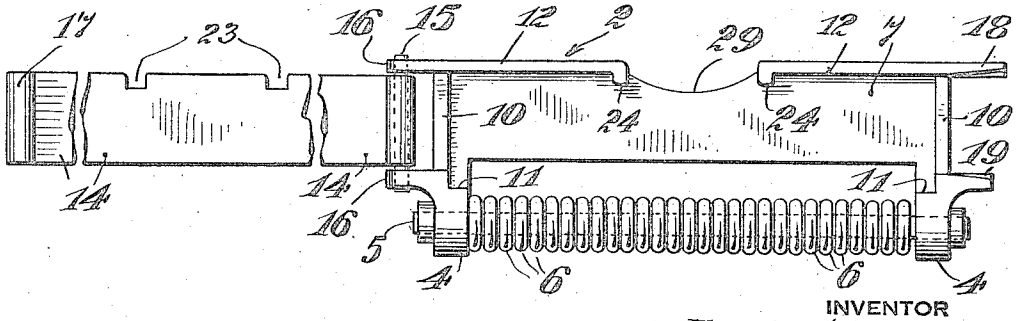


Fig. 2.

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UNITED STATES PATENT OFFICE

2,030,658

SAFETY RAZOR

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Application February 3, 1934, Serial No. 709,549

10 Claims. (Cl. 30—58)

The present invention relates to safety razors and is an improvement upon my prior patent, No. 1,848,666, although some of the features of the present improvement may be embodied in other types of constructions.

Safety razors usually are cleaned after each shave, which ordinarily requires the removal of the blade. In many instances, the blade is removed and replaced by a new blade or is sharpened before shaving. By reason of the frequent use of the razors and the removal and replacement of the blade before or after each use, an improvement in the attachment and removal of the blade or in the assembly and disassembly of the parts is important as a convenience to the user. A saving of time or of annoyance may mean the difference between satisfaction and dissatisfaction. Since millions of people from all walks of life use safety razors daily, it is essential that the razors be simple in construction and substantially fool-proof so that each person can readily remove and replace the blades without difficulty, and so that the blades are retained in accurate position, regardless of the care used in inserting them. In my prior patent, provision was made for quick and convenient removal of the blade, but the present invention is a further improvement in this respect.

The present invention aims to achieve the above results without increasing materially the cost of the construction and without complicating the construction or the manufacture of the parts.

An object of the present invention is to provide a safety razor with parts which can be readily manufactured at a low cost.

Another object of the invention is to provide a safety razor from which the blades can be readily removed and replaced with a minimum of time and effort.

Another object of the invention is to provide an improved safety razor of the class described, in which the blade is held accurately in place without requiring any particular care on the part of the user in inserting the blade.

Another object of the invention is to facilitate removal of the blade.

A further object of the invention is to facilitate cleaning the razor after shaving.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the accompanying claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawing, forming a part of the specification, wherein

Fig. 1 is a front elevational view of the razor with the blade clamping member raised to permit removal of the blade;

Fig. 2 is a top plan view of the razor with the clamping member swung back and with the blade removed;

Fig. 3 is a detailed perspective view of one end of the clamping member showing a modification thereof;

Fig. 4 is a fragmentary top plan view of a blade having one form of slots therein;

Fig. 5 is a fragmentary top plan view of a blade having another form of slots therein; and

Fig. 6 is a fragmentary top plan view of a blade having a third form of slots therein.

Referring more particularly to the drawing, there is shown a safety razor having a handle 1 and a blade holder 2 secured together in any suitable manner, for example, as shown in my previous Patent No. 1,848,666. The holder 2 may also be provided with a pair of projections 4 adapted to receive and retain the ends of a shaft 5, on which suitable rings 6 are loosely mounted to serve as a guard for the cutting edge of the blade, as described more particularly in my said prior patent.

The holding member 2 preferably has a flat surface 7 adapted to receive and support a razor blade 8. The ends of the blade may abut against the upwardly extending projections 10 to prevent longitudinal movement thereof. Projections 11 extending from the projections 10 serve to engage the end portions of the cutting edges of the blade to cooperate with the projections 12 engaging the opposite edge of the blade to hold the blade against forward or backward movement with respect to the guard members.

A clamping bar 14 is adapted to clamp the blade 8 on the holding member 2. Preferably, this bar is hinged to one end of the holding member by means of a pin 15 extending through suitable apertures in the pair of spaced extensions 16 on the holding member 2. The hinged end of the clamping member 14 is bent or rolled to extend about the pin 15 to form a hinged connection. The other end of the clamping member is preferably rolled in a similar manner to form a resilient projection 17 adapted to snap over and be secured to the other end of the holding member. The end of the holding member adapted to receive the free end of the clamping member is

preferably provided with extensions 18 and 19 adapted to guide the free end of the clamping member into proper position. It is desirable, also, but not essential, to have the inner sides of the projections 18 and 19 flared or tapered upwardly and outwardly to facilitate the entry of the free end of the clamping member 14 and to guide it accurately into its locking position. If desired, the clamping member 14 may be slightly arced or curved downwardly between the ends thereof to make it slightly resilient and to increase its clamping action. In this manner, when the clamping member is locked on the holding member 2, the blade is held more securely in position.

The rolled end 17 of the clamping member 14 provides a very effective projection having sufficient resilience to snap over the end of the holding member and, at the same time, having sufficient strength to hold it securely in position. The rolled portion also offers a convenient means for engagement with the thumb or finger to raise the clamping member and remove the blade. By hinging the clamping bar 14 to the holding member 2, the parts of the razor need not be disassembled in order to remove or replace the blade. Another advantage is that the several parts are connected while the blade is removed, and cannot accidentally fall apart or become lost.

It may be desirable, in some cases, to provide a more convenient means than the rolled end 17 for engaging and raising the clamping member 14. A slightly different construction is shown in Fig. 3 for this purpose, wherein the end of the clamping member is slotted, as shown at 20, to form a tab or end part 22 and the two side portions are rolled, as shown, to form projections 21 adapted to engage the end of the holding member in the same way as projection 17. In the construction shown in Fig. 3, the outwardly extending end part 22 serves as a more convenient means for engaging and raising the clamping member. If desired, the tip of the end part or tab 22 may be bent slightly upwardly to facilitate engagement thereof.

In the manufacture of safety razor blades, considerable difficulty is encountered in maintaining their length the same in all cases. Due to limitations in manufacture, the length varies within certain limits. For this reason, the upstanding projections 10, with a blade of minimum length, permit a slight longitudinal movement unless prevented by the clamping member. To eliminate such movement, there is provided in the present construction a pair of projections 24, which may be formed by bending inwardly the ends of the upstanding projecting portions 12. These projections are adapted to register with corresponding recesses or slots 23 formed in the clamping member 14 and within recesses or slots 25 formed in the blade. The recesses 25 may be substantially rectangular, as shown in Fig. 4, but preferably the entrance portions are flared outwardly to facilitate entry of the projections 24 therein. Preferably, the width of the recesses is such that the sides thereof wedge against the projections 24 to prevent any longitudinal movement of the blades. Other forms of recesses are shown at 25a and 25b, in Figs. 5 and 6, respectively. In these figures, the entrance portion is flared outwardly slightly to form a converging neck portion 27. The bottom of the recesses below the neck is preferably of a slightly greater width than the neck portion. The advantage of the neck portion 27 is that the unsupported metal is more resilient or flexible than the wall portions of the recesses 25 in Fig. 4, and allows for greater inaccuracies in the manufacture of the blades, without impairing the fit between the recesses and the projections 24. The bottoms of the recesses may be of any desired shape, for example, star-shaped, as shown in Fig. 6, to improve the appearance or to serve as a trade-mark.

In removing and replacing the blade, the clamping member 14 is engaged by its rolled end 17 or by the projection 22, as shown in Fig. 3, and the end is raised upwardly about its opposite hinged end so that the blade is completely exposed and may be removed without difficulty. If desired, the central portion of the blade holding member 2, intermediate the projections 24, may be provided with a recess 29 so that the blade extends outwardly above the recess and may be readily engaged. Thereafter, the parts may be washed, and the blade sharpened or changed. When the blade is replaced, the projections 24 on the holder fit into the recesses 25 of the blade, forming substantially a wedging action which holds the blade against longitudinal movement. The end portions of the cutting edge abut against the projections 11 and the opposite edge of the blade abuts against the projection 12 to hold it against forward or backward movement. After the blade has been placed in the holder, the clamping member 14 is swung about its hinge and the free end clamped over the end of the holder to hold the blade in the holder. The razor is then ready to be used. The handle is preferably detachable from the holder to facilitate manufacture of the parts but may be integral with it, if desired.

It will be seen that the present invention provides a simple construction made from parts which can be readily manufactured. The blade is securely held in position against movement in any direction and can be removed and replaced in minimum time and with minimum effort. The parts of the holder are completely exposed when the clamping member is raised so that they may be readily reached for cleaning purposes. The guard rings cooperate with the cutting edge to prevent injuries to the face and, in addition, to afford a massaging action which gives a cleaner, smoother and more comfortable shave.

As various changes may be made in the form, construction and arrangement of parts without departing from the spirit and scope of the invention and without sacrificing its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. In a safety razor, the combination of a holding member, a clamping bar hinged at one end of said holding member for clamping a razor blade in operative position, the opposite end of said bar having a projection adapted to snap over the other end of the holding member to hold the bar in position, said other end of the holding member having a pair of raised projections extending along the sides of said clamping bar, said projections having upwardly and outwardly tapering surfaces at the sides thereof adapted to guide the sides of the free end of said clamping bar into its closed position.

2. In a safety razor, the combination of a supporting member made of relatively thin metal, one edge of said supporting member being bent upwardly to form an abutment for one edge of the razor blade, projections extending inwardly from said upwardly bent portion, a razor blade

having a plurality of recesses in one edge thereof adapted to register with said projections to hold the razor blade accurately in position, and a clamping member adapted to further secure said razor blade in position.

3. In a safety razor, the combination of a supporting member having an upwardly extending abutment at one side thereof, a razor blade seated on said member and adapted to fit against said abutment, a plurality of loosely mounted rings mounted on said supporting member adjacent to the cutting edge of the blade, projections extending inwardly from said abutment on said supporting member, said blade having recesses at the edge opposite to the cutting edge adapted to fit and engage said projection to accurately position the blade on the supporting member, and a bar hinged to one end of said supporting member adapted to hold said blade in position.

4. In a safety razor, the combination of a holding member having a substantially flat surface adapted to support and hold a razor blade, a pair of upwardly and outwardly extending portions on one end of said member having apertures therein, a pin extending through said apertures, a bar having one end rolled about said pin to hinge said end to the holding member, and fitting between said portions, the other end of said bar being bent to engage and snap over the other end of said holding member, and a pair of upwardly and outwardly extending portions at said other end of said holding member having tapered surfaces on the inner sides thereof for guiding the free end of the bar into engagement with the holding member.

5. In a safety razor, the combination of a supporting member adapted to receive a single edge razor blade, said supporting member having portions at one edge bent upwardly to form an abutment for the edge of the blade opposite to the razor edge and projections extending inwardly from said upwardly bent portions, a single edge razor blade having a plurality of slots on the edge opposite to the razor edge, said projections being adapted to fit into said slots to hold said blade accurately in position, and an elongated clamping bar hinged at one end thereof to said holding member and having a projection at the opposite end thereof snapped into engagement with said holding member to hold the blade in position.

6. In a safety razor, the combination of a blade supporting member, one edge of said supporting member having an upwardly extending portion to form an abutment for one edge of a razor blade, projections extending inwardly from said upwardly extending portion, and a blade clamping bar hinged at one end thereof to said blade supporting member and having a projection at the opposite end adapted to be snapped over a portion of said supporting member, said bar having a plurality of recesses at one side between the respective ends thereof adapted to register with said projections to hold said bar accurately in position.

7. In a safety razor, the combination of a holding member, a projection formed at one edge of said holding member, a razor blade having a recess in one edge thereof adapted to register with said projection, a converging neck portion at each side of said recess formed substantially at the edge of the blade providing an entrance portion of reduced width for the recess, said converging neck portions being adapted to wedge against and engage the projection at opposite sides thereof to hold the blade accurately in position, and a clamping member extending across the top of the blade for holding said blade on said holding member.

8. In a safety razor, the combination of a blade holding member having a pair of upwardly extending portions at one side thereof to form abutments for one edge of the blade, a projection extending inwardly from each of said upwardly extending portions, said blade holding member having a recess therein between said projections to facilitate removal of the blade, a razor blade having recesses in one edge thereof adapted to register with said projections to hold the razor blade in accurate position with respect to said blade holding member, and means for clamping said blade on said holding member.

9. In a safety razor, the combination of a blade holding member having a pair of upwardly bent edge portions at one side thereof to form abutments for one edge of the blade, a projection extending inwardly from each of said upwardly bent portions, said holding member having a recess between said projections to facilitate removal of the blade, a razor blade having recesses in one edge thereof adapted to register with said projections to hold the razor blade in accurate position with respect to said blade holding member, and means for clamping said blade on said blade holding member, said clamping means having recesses therein adapted to register with said projections.

10. In a safety razor, the combination of a blade holding member having a substantially rectangular blade receiving cavity, upwardly extending rectangular portions at the four corners of said blade receiving cavity adapted to engage the corners of a blade and hold the blade in position, projections at one side of said blade receiving cavity extending transversely inwardly with respect to said cavity, a razor blade having recesses adapted to register with said projections to accurately position said blade, and means for clamping said blade on said holding member.

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