H. B. HARTMAN.

SAFETY RAZOR.

APPLICATION FILED FEB. 24, 1916.

1,247,266.

Patented Nov. 20, 1917.

2 SHEETS—SHEET 1.

FIG. 1.

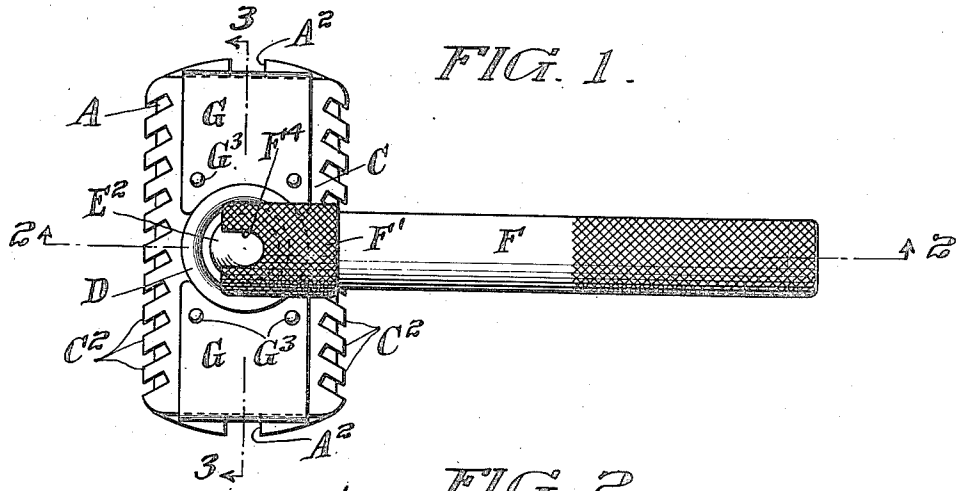


FIG. 2.

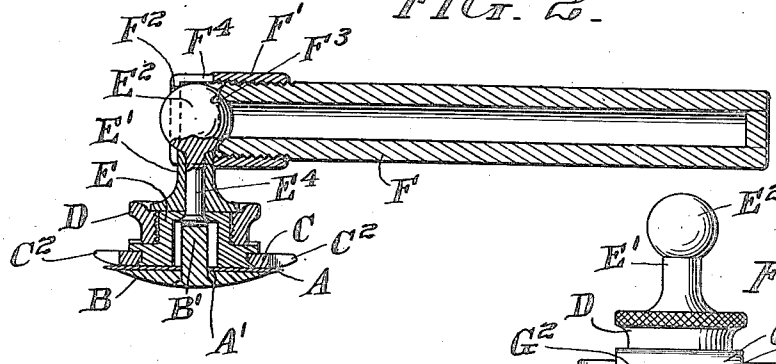


FIG. 5.

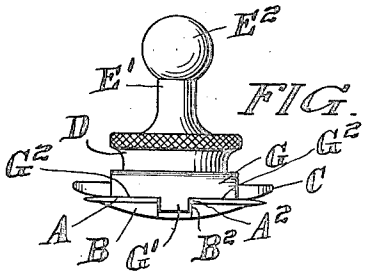


FIG. 3.

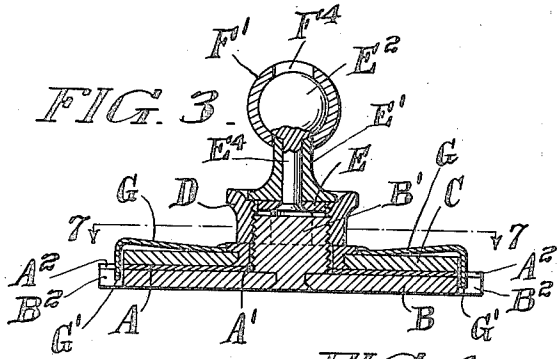


FIG. 6.

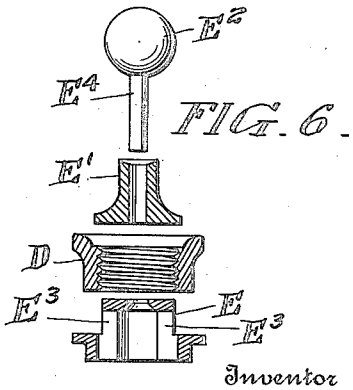
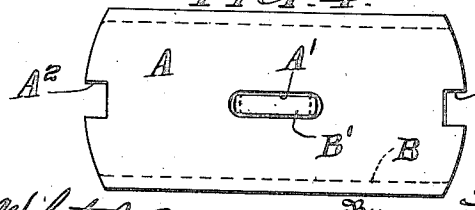


FIG. 4.



Witness

Daniel Webster, Jr.

Inventor

Harry B. Hartman

By Francis T. Chamberlain

Attorney

H. B. HARTMAN.

SAFETY RAZOR.

APPLICATION FILED FEB. 24, 1916.

1,247,266.

Patented Nov. 20, 1917.

2 SHEETS—SHEET 2.

FIG. 10.

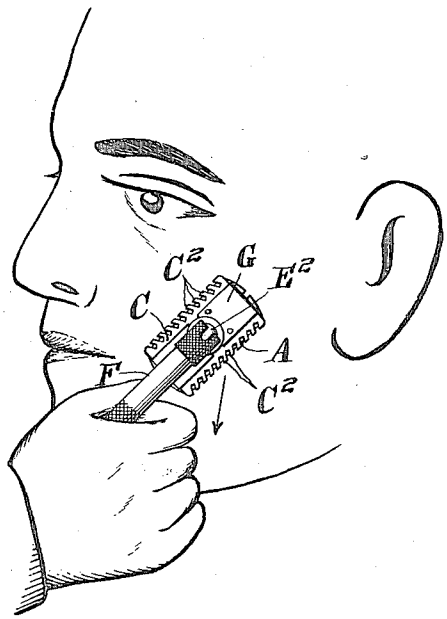


FIG. 11.

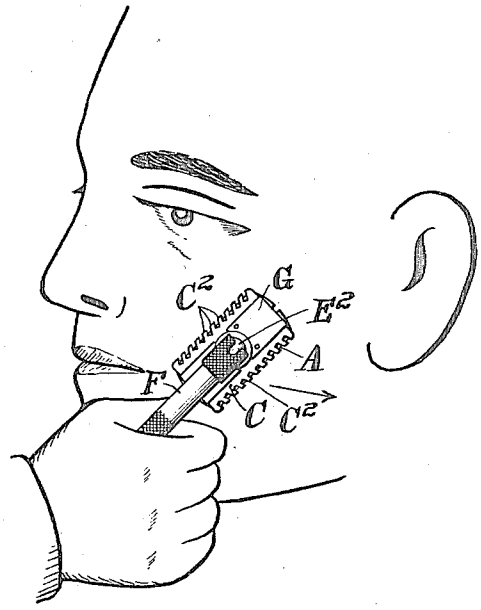


FIG. 8.

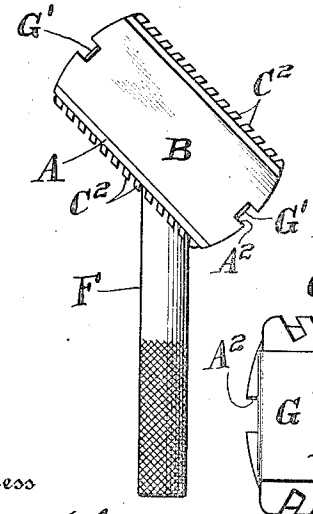


FIG. 9.

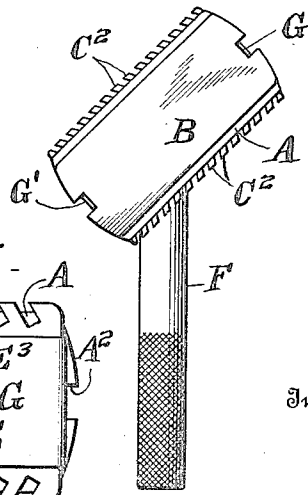
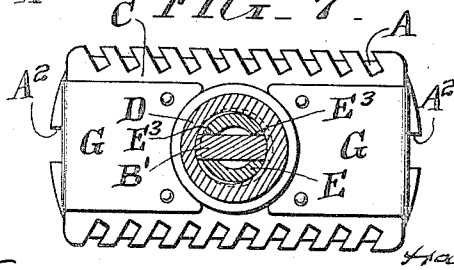


FIG. 7.



Witness

Daniel Webster Jr.

Inventor

Harry B. Hartman

By Francis T. Chamberlain

his Attorney

UNITED STATES PATENT OFFICE.

HARRY B. HARTMAN, OF SCOTTDALE, PENNSYLVANIA.

SAFETY-RAZOR.

1,247,266. Specification of Letters Patent. Patented Nov. 20, 1917.

Application filed February 24, 1916. Serial No. 80,111.

To all whom it may concern:

Be it known that I, HARRY B. HARTMAN, a citizen of the United States of America, and resident of Scottdale, in the county of Westmoreland and State of Pennsylvania, have invented a certain new and useful Improvement in Safety-Razors, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My present invention relates to safety razors and particularly to safety razors of the type in which a double edged blade is detachably secured in a holder or clamping device to which an operating handle is attached.

The primary object of my invention is to provide a razor of the type referred to which may be readily adjusted to vary the relation between the active cutting edge and the hand of the user so that the razor may be held in the various ways in which different persons may need or prefer to hold the razor to get the best results, and in particular to facilitate the use of the razor in such manner as to insure an angling impact of the cutting edge against the beard to be cut in the various adjustments of the razor. For this purpose I form the blade holder of the razor with a set of comb or guard teeth adjacent each cutting edge and inclined at an acute angle thereto, oppositely inclining the two sets of comb teeth to the direction of the cutting edges of the blade, and I connect a handle to the center of the blade holder by means permitting a practically universal adjustment of the handle so that the latter may extend at any angle with reference to the direction of the cutting edges and of the inclined comb teeth.

Further objects of my invention are to provide improvements in the holder to facilitate insertion and removal of a razor blade, and the adjustment of the razor to effect a closer or less close shave.

The various features of novelty which characterize my invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, however, and the advantages possessed by it, reference should be had to the accompanying drawings and descriptive matter in which I have illustrated and described a preferred embodiment of my invention.

Of the drawings:

Figure 1 is a plan view of a complete razor;

Fig. 2 is a sectional elevation, the section being taken on the line 2—2 of Fig. 1;

Fig. 3 is a section taken on the line 3—3 of Fig. 1;

Fig. 4 is a plan view of the blade with the front holder plate in place beneath it;

Fig. 5 is a partial end elevation of the razor;

Fig. 6 is a view of the parts forming the central post of the razor holder and the blade clamping nut mounted thereon;

Fig. 7 is a sectional plan taken on the line 7—7 of Fig. 3;

Fig. 8 is an elevation of the razor adjusted for one condition of use;

Fig. 9 is a similar view showing the razor adjusted for another condition of use;

Fig. 10 is a view illustrating the use of the razor in a third adjustment; and

Fig. 11 is a view taken similarly to Fig. 10, but with the razor in still another adjustment.

In the drawings: A represents the double edged razor blade which so far as certain features of my invention are concerned, may be either flexible or rigid, but preferably is of such thickness, as indicated in the drawing, as to be comparatively rigid rather than flexible. The razor blade is formed with a central slot A′ through which loosely passes the flattened stud B′, riveted or otherwise permanently attached to, and projecting from the front plate B of the razor. The front plate B may well be made out of metal stamped into shape and is formed with a flat upper side against which one flat side of the razor blade rests in the assembled condition of the razor. The stud B′ passes through a central aperture formed in the back plate or guard member C of the razor and in the assembled condition of the razor the parts are clamped together by means of a nut D, the threads of which engage threads formed for the purpose on the edges of the flattened stud B′.

At each of its opposite side edges the guard plate or member C is formed with a set of comb teeth C^2. These teeth are beveled away from the plane of the razor blade in the usual manner and are inclined at an acute angle to the cutting edge. As shown, the two sets of comb teeth are oppositely inclined to the center line of the razor.

In the preferred construction illustrated the nut D is swiveled on a central post rigidly secured to the back plate C and formed of three parts, E, E′ and E². The part E is a cup shaped member expanded at its rim to rigidly secure the part in a central aperture formed in the member C. The diameter of the body of the cup shaped member E is slightly less than the width of the stud B′, and the member is slotted at E³, as shown best in Fig. 7, to permit the threaded edges of the stud B′ to project into contact with the threads of the clamping nut D. The post member E′ forms a spacer separating the ball head of the member E² from the part E of the central post. The member E² comprises a stem E⁴ passing through the spacing member E′ and through a central aperture in the otherwise closed end of the member E, and forming a rivet by means of which the three parts, E, E′ and E² of the central post are rigidly secured together. The enlarged lower end of the spacing member E′ forms a flange engaging the adjacent end of the clamping nut D and preventing axial displacement of the latter.

The central post rising from the back plate C is connected to the handle F by a ball and socket joint permitting a practically universal adjustment of the handle F relative to the razor holder. As shown, the handle comprises a socket member F′ having an inturned lip F² forming a spherical seat for the ball portion of the member E², the internal diameter of this lip being appreciably less than the diameter of the ball. At its other end the member F is internally threaded to receive the tubular body of the handle. The edge F³ of the inserted end of the handle body coöperates with the lip F² to form clamping edges engaging the ball portion of the post member E² at opposite sides of the center of the ball to thereby rigidly secure the handle to the holder. The socket member F′ is formed with one or more, and preferably as shown, two axial slots F⁴ which are diametrically opposed to one another and into either of which the neck of the central post formed by the spacing member E′ may extend, as shown in Figs. 1, 2 and 3.

The blade A is accurately centered and alined with respect to the holder and particularly the comb teeth thereof, by means of springs G secured as by rivets G³ to the upper side of the back plate C adjacent the center of the latter, and extending beyond the ends of the latter where they are downturned. The down-turned end of each spring is formed with a teat or projection G′ which passes through and snugly engages the side walls of a notch A² formed in the corresponding end of the razor blade and are received in notches or recesses B² formed in the front plate B of the blade holder. Each spring is formed with shoulders G² which engage the upper side of the blade at each side of the corresponding notch A².

In adjusting the razor for use, the clamping nut D is adjusted to hold the blade at the proper distance from the guard plate C, the parts being loosened up more for a close shave than for one less close. In any operative adjustment of the nut D the blade is held snugly against its seat on the front plate B by the shoulders G² of the springs G, and the latter through the engagement of their projections G′ with the side walls of the notches A² hold the blade so that its cutting edges are at the proper distance from the side edges of the latter. To set the handle F at the proper angle the body of the latter is rotated to loosen the ball and socket connection between the handle and the holder and the handle may then be moved into the desired position relative to the holder, after which the ball and socket joint is again tightened up by rotating the body of the handle about its own axis thus again to rigidly connect the handle to the holder. When the neck of the central post is entered in one of the slots F⁴, the handle F may extend in any direction in a plane at right angles to the central post and may be swung transversely to this plane through an arc of 180°, or a trifle more. A practically universal adjustment of the handle relative to the holder may thus be secured.

The most satisfactory adjustment of the handle angularly about the central post and with respect to the plane of the blade varies greatly with different users, however, and I consider it a distinct advantage of my razor that it may be quickly adjusted as needed to accommodate the physical characteristics, habits or whims of any user.

For what may be called the normal use by a right handed user the blade will be adjusted generally as shown in Fig. 9 in shaving the right side of his face, and will be adjusted generally as shown in Fig. 8 for the use of the same user in shaving the left side of his face. Adjusted and used in this manner it will be apparent that an effective angling cutting stroke may be secured in each case, and that in each case also, the inclination of the corresponding comb teeth C² to the cutting edge in use tends to draw the beard being cut into the sharp notches between the front sides of the comb teeth and the cutting edge of the razor blade. Some users prefer, however, to have the handle extending in a direction generally parallel to the cutting edges and to operate with a draw stroke in the general direction of the arrow shown in Fig. 10 for which the active comb teeth should extend as shown in Fig. 10,

while another user with the same handle adjustment will prefer to operate with a cutting stroke as indicated by the arrow in Fig. 11, in which case the comb teeth should be inclined as shown in the last mentioned figure.

While in accordance with the provisions of the statutes I have illustrated and described the best form of my invention now known to me, it will be apparent to those skilled in the art that changes can be made in the form of my invention without departing from its spirit, and that some features of my invention can be used without a corresponding use of other features of the invention.

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

1. In a safety razor the combination of a blade holder comprising a front plate formed with a central stud, a guard member comprising a body portion and a central post projecting from said body portion and apertured to receive said stud, a handle adjustably secured to the outer end of said post, and means mounted on said post between said handle and body portion for engaging said stud and locking said plate and guard member together.

2. In a safety razor the combination of a blade holder comprising a front plate formed with a flattened central stud having screw thread segments formed on its edges, a guard member comprising a body portion and a central post projecting from said body portion and chambered and apertured at its base to receive said stud and to expose the threaded edges thereof, a handle adjustably secured to the outer end of said post, a clamping nut swiveled on said post between said handle and body portion, and adapted to screw on to said stud.

3. In a safety razor, the combination of a blade centrally slotted adjacent its ends and a holder consisting of a front plate and a guard member between which the blade is secured, spring means secured to said guard member and comprising a spring end at each end of the holder extending transversely to the plane of the blade and formed with a central projection passing through the adjacent blade slot and having shoulders at the sides of said projection engaging the side of the blade.

4. In a safety razor the combination of a blade centrally slotted adjacent its ends and a holder consisting of a front plate and a guard member between which the blade is secured, a pair of bent springs secured to the guard member each having a portion one adjacent one end and the other adjacent the opposite end of the holder which extends transversely to the blade and comprises a central projection passing through the adjacent blade slot and shoulders at the sides of said projection engaging the side of the blade.

HARRY B. HARTMAN.