

April 6, 1926.

1,579,844

R. H. SMITH

SAFETY RAZOR

Filed June 25, 1925

2 Sheets-Sheet 1

Fig. 2.

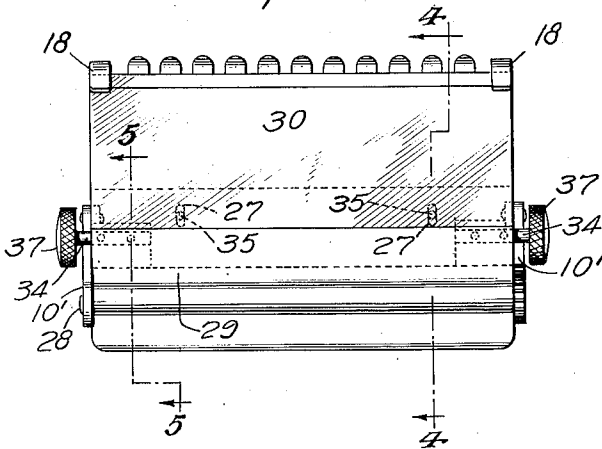


Fig. 1.

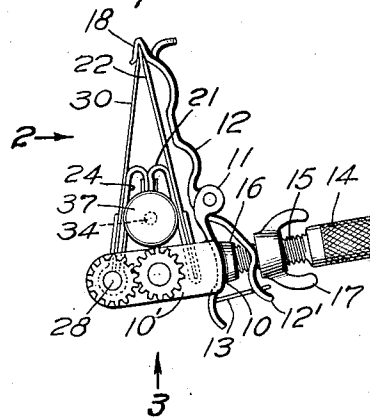


Fig. 8.

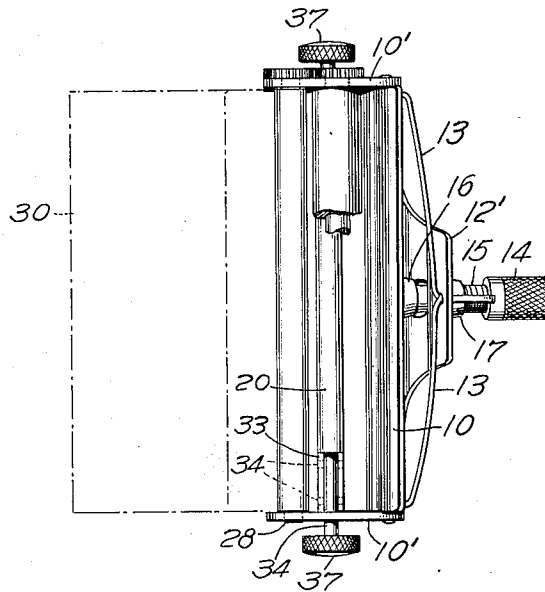
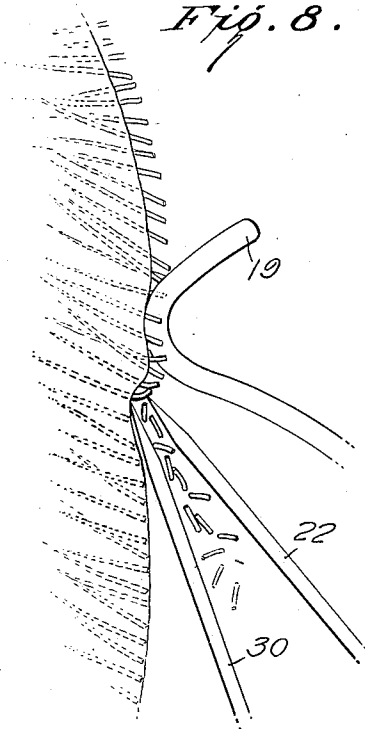


Fig. 3.

Richard H. Smith ^{Inventor}

By *Maw, Cameron, Lewis & Herkner*
Attorney

April 6, 1926.

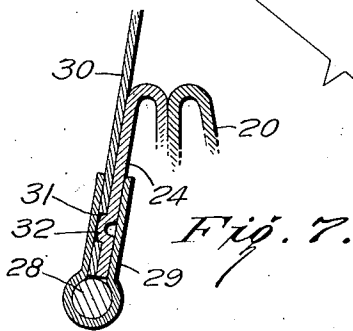
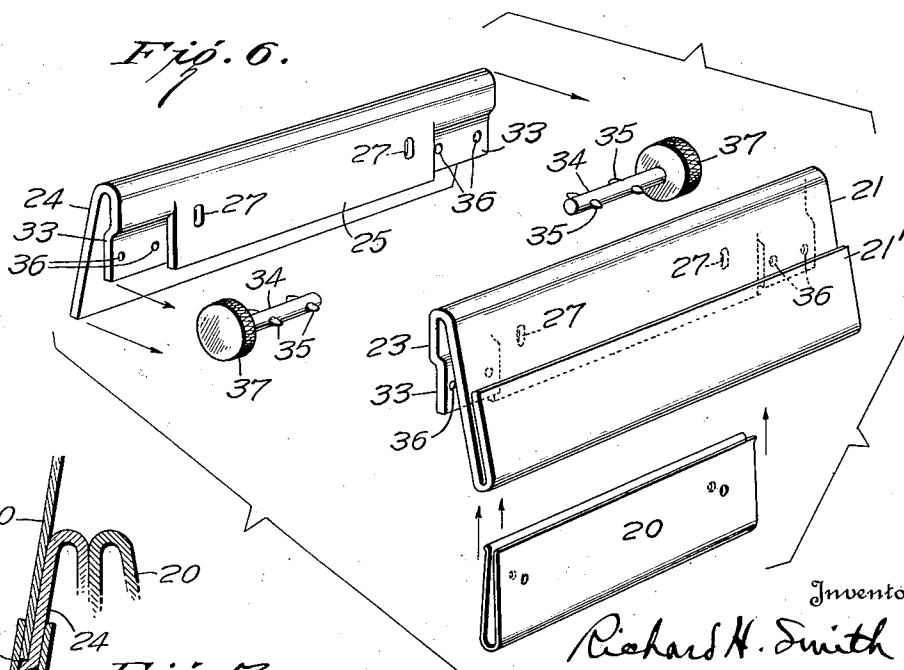
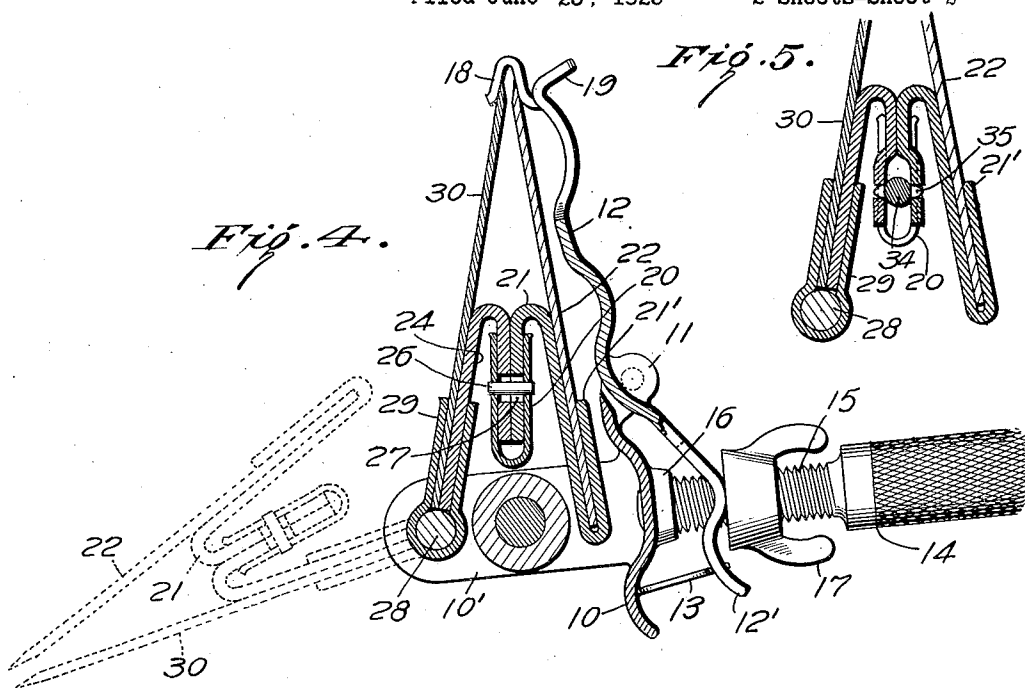
1,579,844

R. H. SMITH

SAFETY RAZOR

Filed June 25, 1925

2 Sheets-Sheet 2



Inventor

Richard H. Smith

By *Mauro, Cameron, Lewis & Kerkam*

Attorney

UNITED STATES PATENT OFFICE.

RICHARD H. SMITH, OF WASHINGTON, DISTRICT OF COLUMBIA.

SAFETY RAZOR.

Application filed June 25, 1925. Serial No. 39,563.

To all whom it may concern:

Be it known that I, RICHARD H. SMITH, a citizen of the United States of America, and a resident of Washington, in the District of Columbia, have invented new and useful Improvements in Safety Razors, which invention is fully set forth in the following specification.

This invention relates to safety razors, and has for its object to produce a razor of this type which shall shave exceedingly close without cutting or irritating the skin of the user. With this object in view, the razor consists of the usual or any suitable frame in which two blades are mounted, one above the other, and converge at a sharp angle toward each other, and with the working edges aligned and very close together, but still leaving a slight space between said edges. By this construction, the upper blade engages the stubble of the beard, bending it sharply forward, and the lower blade cuts the stubble very close to the surface of the skin. In fact, it is believed to cut the stubble slightly below the surface of the skin because of the drawing action which the upper blade has upon the stubble, partly raising it until it is cut off and the stump retracts so as to be somewhat below the surface. By this means a shave may be had so close as to leave the face quite smooth in the evening when the shave has been effected in the morning, and without any irritating effect on the skin.

In order to effect their functions to the highest degree, it is essential to carefully adjust the front or working edges of the blades with relation to each other. The invention, therefore, further consists in so mounting the blades in the framework or support that they may be laterally adjusted with relation to each other, and furthermore to provide means for bringing the working edges of the blades the desired distance apart.

The invention further consists in certain specific elements of construction and combination of parts that will be more specifically hereinafter described and then defined in the claims. The inventive idea is capable of receiving a variety of mechanical expressions, one of which, for the purpose of illustrating the invention is shown in the accompanying drawings, which drawings,

however, are for purposes of illustration only and are not to be taken as defining the limits of the invention, reference being had to the claims for this purpose.

In said drawings:

Fig. 1 is an end elevation of the razor frame, with the blades in operative position;

Fig. 2 is a front view of Fig. 1, taken in the direction of the arrow 2;

Fig. 3 is a bottom view of Fig. 1, taken in the direction of the arrow 3;

Fig. 4 is a cross section on the line 4—4 of Fig. 2;

Fig. 5 is a cross sectional detail taken on the line 5—5 of Fig. 2;

Fig. 6 shows the blade mounting elements in perspective and separated for clearness of illustration;

Fig. 7 is a cross sectional view of a modified detail;

Fig. 8 is a diagrammatic view showing the action of the razor;

Figs. 1 to 3, inclusive, show the razor somewhat enlarged, and Figs. 4 to 8 inclusive are on a still larger scale for the purpose of clearness in illustration.

Referring to the several figures in the drawings, in which like reference numerals indicate like parts throughout the several views, the frame of the razor comprises a metal bar 10 connecting two end plates 10', 10', and provided at each end with upwardly projecting ears 11. Pivoted between the ears 11 is the usual or any suitable safety guard plate 12, the tail piece 12' of which is acted upon by a spring 13 on one side, throwing said tail piece outward. The handle 14 has a screw-threaded shank 15 screwing into a socket 16 in the frame 10, and having a winged nut 17 thereon by means of which the tail 12' of the safety guard 12 may be held with the desired tension against the spring 13.

The safety guard member 12 is provided at each of its ends with a clip portion 18, the same being bent in V-form as will be readily understood from an inspection of Fig. 4, and the said bending being in the reverse direction from the guard lips 19 of the safety guard 12.

All of the parts as hereinbefore described are of the usual and well known construction, and in and of themselves form no part

of the present invention, except as the same are combined with the several features now to be described.

Referring now to Fig. 4, 20 is a piece of spring metal bent into U-shape with its edges normally somewhat closer together than are the opposite surfaces of the metal of the bend, as will be understood by reference to Fig. 6. 21 is a blade holding element having its lower edge 21' bent upward so as to form a pocket within which the blade 22 is mounted and having its other edge 23 bent downwardly, as will be understood from an inspection of Fig. 6. 24 is a piece of sheet metal, whose upper edge portion 25 is bent downward and whose proportions correspond to the downwardly bent portion 23 of the piece 21. These wings or portions 23 and 25 are inserted within the U-shaped spring clip 20 and are of such proportions that when inserted the clip engages the same with a yielding spring action, and two pins 26 (Fig. 4) pass through the walls of the U-shaped piece 20 and through slots 27 in the portions 23, 25, to the end that the latter may be moved up and down, but with the movement limited by the pins 26 and the length of the slots 27.

Extending between the outer ends of the parts 10' of the frame is a shaft or pivot pin 28 (Fig. 4), to which is secured a channel piece 29 which, as here shown, is formed by a piece of sheet-metal embracing the pivot pin 28 tightly so as to turn therewith, leaving an open channel which receives the lower edge of the cutting blade 30 and the outer edge portion of the part 24, the parts being so proportioned that both the blade and the metal strip are together retained therein by frictional engagement only. It will be observed that the frictional engagement between the receiving channel 29 and the blade 30 is over a much less extended surface than is the frictional engagement between said blade 30 and the metal part 24, and the result is that when the part 24 is moved upward or downward it carries the blade 31 with it in said upward or downward movement without the necessity of any other engagement between the parts. While this construction is preferred, a positive engagement between the blade and the part 24 may be provided and such an engagement is illustrated in Fig. 7, wherein the blade is provided with an opening 31 within which a struck-up or bent portion 32 engages. In practice, however, it will be found that the frictional engagement as illustrated in Figs. 4 and 5 is ample to effect the necessary movement of the parts hereinafter to be described.

The angular relation of the pocket on the part 21 for receiving the blade 22 and of the blade-receiving shank 20 for receiving the blade 30 is such that the blades converge along the lines of an acute angle, but such

nevertheless as to leave the edges of the blades, when the same are in open position as illustrated in dotted lines in Fig. 4, somewhat separated.

The downwardly bent portions 23, 25 of the metal plates 22, 24 have at their ends recesses formed preferably by kerfing the metal and bending the same inwardly as illustrated at 33 in Fig. 6, so that when these parts are assembled in the U-shaped clip 20 as shown in Fig. 4, space is left at each end for two exactly similar shafts 34 between the parts 23 and 25. These shafts have means, preferably, and as here shown, in the form of pins 35 projecting on opposite sides of the shaft, which engage in openings 36. The shafts 34 are provided with knurled ends 37 by means of which they can be turned in either direction and thereby simultaneously raising one blade, as for example the blade 30; while lowering the other blade 22. By this means the proper lateral adjustment of the working edges of the two blades may be secured, the movement being limited within the limits of the slots 29 in the respective carriers of said blades. When the spring 13 is compressed, the two plates and all the parts supporting the same may be turned outwardly around the pin 28 from the position shown in full lines in Fig. 4 to that shown in dotted lines, in which position, as before indicated, the working edges of the blades will be somewhat separated, but when the blades are returned to the full line position as shown in Fig. 4 the V-shaped clips 18 carried on the ends of the safety guard serve to bring the two blades always into a fixed relation one with the other, this being due to the V-shaped construction of such end clips.

The stubble of the beard does not project at right angles to the skin, but usually at an angle slightly incined to the skin as illustrated in Fig. 8, and the shaving action should be the reverse of the inclination of the stubble. The safety guard 19 acts somewhat as illustrated in Fig. 8 in pressing the skin, and the upper blade 22 engages the stubble slightly above the surface of the skin, bending it sharply over and tending, is it were, to pull it upward, and the cutting blade 30 following close to the surface of the skin cuts the stubble off, the latter passing with the lather between the two blades. This leaves a smooth skin surface with the hairs cut off a very slight distance below the surface of the skin and yet without any cutting or irritation of the skin.

Inasmuch as the blades 22 and 30 are merely held in their respective supports through frictional engagement, they can be readily removed for sharpening or the substitution of other blades, and when such blades or substituted blades are replaced in position they may be quickly and readily

adjusted so as to bring their working edges into proper relation to each other through a slight manipulation of the adjusting shafts 34 through their serrated handle portions 37.

5 It will be seen that there is thus provided a razor that is simple in construction, readily assembled and disassembled and opened up for cleaning, and operating in a novel and extremely efficient manner.

10 What is claimed is:—

1. In a safety razor, the combination of a plurality of blades, means supporting said blades at an acute angle to each other with their working edges parallel, and means for
15 laterally adjusting said blades to bring said working edges into proper operative relation.

2. In a safety razor, the combination of a plurality of blades, means for supporting
20 said blades at an acute angle to each other with their working edges parallel, means for laterally adjusting said blades within their supports with relation to each other, and means retaining the working edges of the
25 blades in proper spaced relation.

3. In a safety razor, a pair of blades, means supporting said blades at an acute angle to each other, a frame to which said supporting means is pivoted, and means
30 retaining said blades and said pivoted support in operative position in the frame.

4. In a safety razor, the combination of a pivoted guard, a spring bearing on said guard, a pair of pivoted blades, means supporting said blades at an acute angle to each
35 other with their working edges parallel, V-shaped means on said guard and engaging the outer faces of said blades near the ends thereof whereby the blades are retained in
40 proper working relation to each other.

5. In a safety razor, the combination of a pair of blades, a blade support for each blade, a resilient clip engaging said blade supports, means for adjusting said blade

supports in said clip, and a frame on which
45 such blade supports and clip are pivotally mounted.

6. In a safety razor, the combination of a pair of blades, a blade support for each blade, a clip in which said supports are
50 frictionally mounted with the blades at an acute angle to each other, and means for adjusting said blade supports in said clip to bring the working edges of the blades in
55 operative relation.

7. In a safety razor, the combination of a pair of blades, a U-shaped resilient clip, two supports one for each blade frictionally
60 mounted in said clip and supporting the blades at an acute angle to each other, a frame to which one of said clips is pivoted, means for adjusting said supports in said
65 clip with relation to each other, a guard pivoted on said frame, a V-shaped recess at each end of said guard and engaging the outer surfaces of each blade whereby they
70 are retained in proper operative relation, a spring acting on said guard and normally retaining the same in operative position, and means moving said guard against the tension of the spring to release the blades therefrom.

8. In a safety razor, the combination of a stubble engaging blade, and a stubble cutting blade, with means supporting said
75 blades at an acute angle to each other with a lather receiving space therebetween and their edges in narrowly spaced parallel relation.

9. In a safety razor, the combination of a guard, a pair of blades, means supporting
80 said blades, and means for moving said blades laterally with relation to each, whereby the working edges of the blades may be positioned one in advance of the other.
85

In testimony whereof I have signed this specification.

RICHARD H. SMITH.