

March 28, 1950

J. A. RIEGER

2,502,062

SAFETY RAZOR AND BLADE FOR USE THEREWITH

Filed Nov. 5, 1945

2 Sheets-Sheet 1

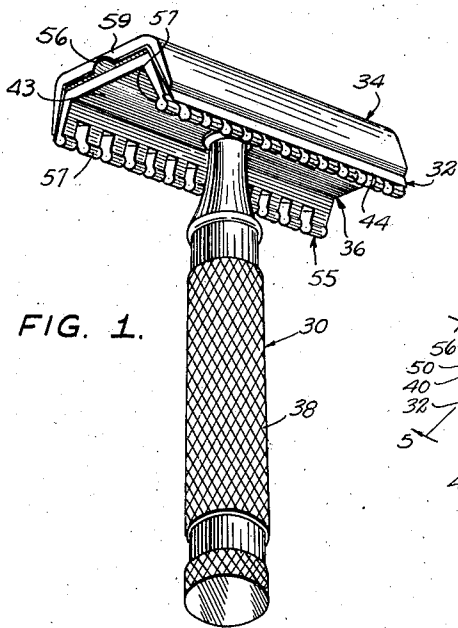


FIG. 1.

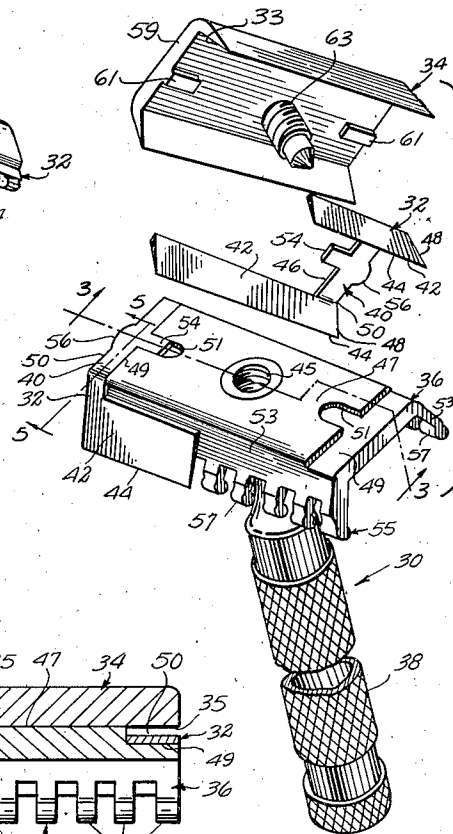


FIG. 2.

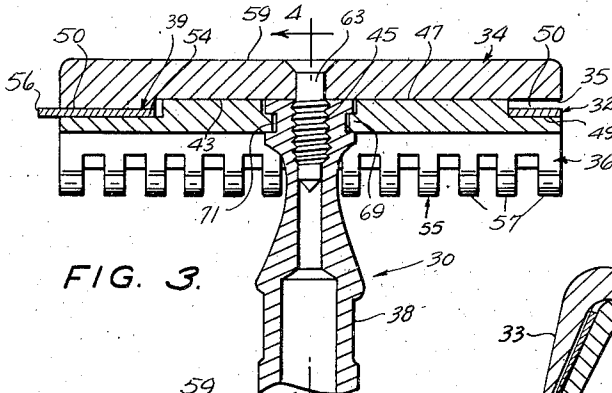


FIG. 3.

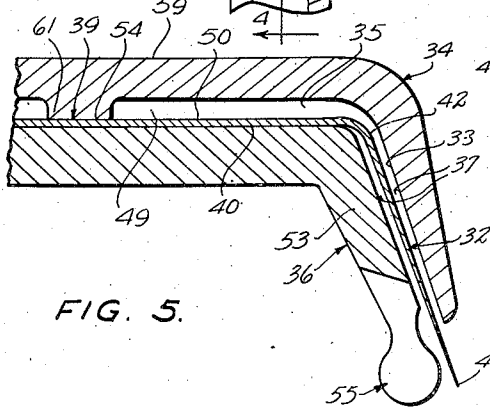


FIG. 5.

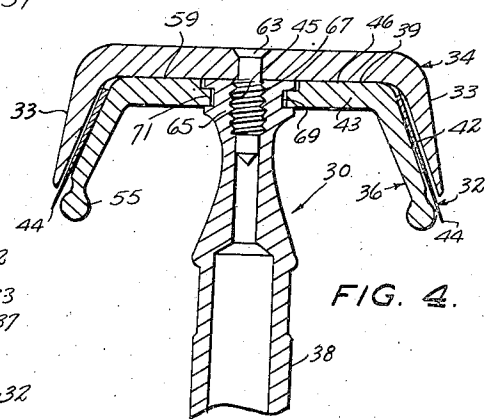


FIG. 4.

INVENTOR
JOHN A. RIEGER,

BY
McMorrow, Rerman & Davidson
ATTORNEY

UNITED STATES PATENT OFFICE

2,502,062

SAFETY RAZOR AND BLADE FOR USE THEREWITH

John A. Rieger, Waterford, Conn.

Application November 5, 1945, Serial No. 626,872

7 Claims. (Cl. 30-70)

1

My invention relates to a safety razor, and safety razor blades for use therewith.

An object of my invention is to provide a safety razor which is effective to operate at a barber's angle, namely, the angle at which a barber or user normally holds a straight razor when applying it to the face.

Another object of my invention is to provide a safety razor which is applied to the skin in a most efficient manner and at an angle which will normally not cut the skin of the party being shaved.

A further object of my invention is to provide a safety razor which, as it is drawn over the face, will not cut the beard when applied with too great pressure against the skin, but which, when applied with the proper-light pressure will cut the beard.

A still further object of my invention is to provide a safety razor which may be stored, when not in use, in a vertical position, thereby permitting the ends of the blades to stick up into the air without contacting any object tending to chip or mar the edges thereof, as is the case of standard safety razors where they have to be laid on their sides.

A still further object of my invention is to provide a safety razor in which the blade retains its correct position between the guard and head members for shaving when the razor is applied with the proper-light pressure but withdraws behind the guard member when the razor is applied with too much pressure.

A still further object of my invention is to provide a safety razor blade which may be readily fabricated so that in use it may be applied at a barber's angle and with the barber's touch.

These and such other objects of my invention as may hereinafter appear will be best understood from a description of the accompanying drawings, which illustrate an embodiment thereof.

In the drawings,

Fig. 1 is a perspective view of an automatic safety razor constructed in accordance with my invention.

Fig. 2 is a partially exploded perspective view thereof.

Fig. 3 is a longitudinal sectional view taken along the broken line 3-3 of Fig. 2 but showing the razor completely assembled.

Fig. 4 is a transverse sectional view taken along the line 4-4 of Fig. 3.

Fig. 5 is a fragmentary transverse vertical sec-

2

tional view taken along the line 5-5 of Fig. 2 of a completely assembled razor.

Fig. 6 is a schematic view showing a user's face lathered for shaving in perspective and my improved razor in section applied to said face with one cutting edge thereof applied to said face with the correct pressure for shaving.

Fig. 7 is a schematic view similar to Fig. 6 with the razor applied to the face with too much pressure, illustrating how the side wall of the blade rises upwards behind the guard means to inhibit cutting the user and the beard.

Fig. 8 is an end elevation of my improved razor with the head resting on the table and handle standing upright.

Fig. 9 is a side elevation of the razor in the position assumed in Fig. 8.

In the drawings, wherein like characters of reference indicate like parts throughout, 30 generally indicates a safety razor constructed in accordance with my invention, such razor comprising a razor blade 32, shown particularly in Figure 2, a head member 34, and a guard member adapted to clamp the razor blade 32 between them, a handle 38 being attached to said members when they are clamped together.

The safety razor according to this invention includes a razor blade 32 having a cutting edge resiliently mounted in said razor so arranged and constructed that when the razor is applied by the handle in use to the user's face the razor will only cut the beard when applied at an angle approximating a barber's angle so-called, which is that at which a straight razor is normally applied in use either by the shaver himself or by a barber, and which cutting edge will only cut the beard without cutting the user when the barber's touch is applied. These results are accomplished when a razor blade 32 constructed in accordance with my invention is employed, suitably resiliently mounted within the composite razor 30.

As shown in Figure 2, the razor blade 32 is fabricated from a piece of thin resilient metal and has at least a theoretical flat top wall 40 and flat side walls 42 terminating in cutting edges 44 projecting downwardly along each side edge of the top wall 40 preferably at an angle approximating the angle at which a straight razor contacts the face, in other words at an angle more closely approaching the vertical than the angle at which prior safety razors have cut. In the prior art the cutting edge has been applied to the face at an angle approximating 90 degrees whereas razors constructed in accordance with

my invention apply the cutting edge at an angle less than 45 degrees preferably substantially less. Said top wall 40 has a center portion thereof cut away to provide the open center portion 46 extending substantially to the side walls 42 and to adjacent the ends 48 thereof forming at said ends flat resilient strips 50 joining said side walls 42 together. In my preferred embodiment of razor, said strips 50 are provided with flat pivot lugs 54 projecting inwardly centrally thereof. Said strips may also be provided with the flat finger grips 56 projecting outwardly centrally thereof. It is apparent that with this construction I have provided a safety razor blade 32 which may be laid on any support so that the cutting edges 44 thereof project upwardly away from the surface of said support. It is also apparent that the side walls 42 form means whereby the safety razor may be readily grasped between the fingers of a hand and lifted by the hand the desired distance. The finger grips 56 provide means for gripping the razor blade for the ready attachment thereof to and detachment from the razor 30.

I have constructed my improved safety razor 30 so that it may hold my improved safety razor blade in a manner to apply a cutting edge 44 of said blade to the user's face at the barber's angle, namely at substantially the angle at which said side walls 42 are bent downwardly from the top wall 40 of said safety razor blade and with an action inherent from the construction of the blade 32 itself so that the razor 30 will only cut the beard when applied at the barber's angle and will only cut the beard without cutting the user when the barber's touch is applied. As the strips 50 are resilient, it is obvious that they provide means to resiliently mount the blade in said razor but that when the blade is drawn against the face with too much pressure, as shown in Fig. 7, the cutting edge 44 recedes to a non-cutting position behind the guard means or head member 34 to prevent cutting the skin 130 of the face 132 of the user and returns to its lower beard cutting position, as shown in Fig. 6, when the excess pressure is removed therefrom and the razor applied at the right pressure.

I therefore may provide a safety razor comprising a head member 34 and a guard member 36 secured together into a unit and having a manipulating handle 38, said members 34 and 36 having spaced top walls forming a clearance space 35 between them and spaced side walls forming between them a blade holding channel 37 projecting downwardly from at least one side thereof at the angle hithertofore described approximating the angle at which a straight razor contacts the face and a thin metallic safety razor blade 32 having a flat side wall 42 normally projecting downwardly to a beard cutting position in said blade holding channel beyond the end thereof. As shown in Fig. 6, said blade has a top wall 40 comprising the resilient portions 50 preferably at each end thereof projecting inwardly in the clearance space 35 formed between the top walls of the guard and head members 34 and 36 and means 39 on said guard and head members to clamp said inwardly projecting portions or strips 50 of the top wall of said blade between said members whereby as the razor blade edge is drawn in use against the face 132 with too much pressure, as shown in Fig. 7, the cutting edge 44 of the blade may withdraw upwardly in the downwardly projecting channel 37 between said guard and head members, as shown

in Fig. 7, with the resilient portions of the top wall pivoting upwardly as at 41, as shown in Fig. 7, in said clearance space 35 so that the cutting edge 44 of the blade side wall recedes behind the lower edge of the head member to the position shown in Fig. 7, preventing cutting the user's skin 130. This resilient mounting however permits the cutting edge 44 to return to its beard cutting position shown in Fig. 6, with said edge 44 projecting beyond the lower end of said guard means 34 when said excess pressure is removed therefrom.

My improved safety razor is provided with the usual guard member 36 having the flat top wall 43 having a central hole 45 therein. Said flat top wall 43 has an upper surface 47 having its ends rabbeted as at 49 for substantially the width of said blade strips 50 to a substantial depth, a multiplicity of times deeper than the thickness of the blade strips 50 to provide a clearance space 35 for the upward pivoting of the outer ends 41 of the blade strips 50 therein, said rabbets preferably having clamping keyways 51 projecting inwardly centrally thereof for receiving the blade strip clamping lugs 54 therein. As the razor blade top wall 40 is entirely cut away with the exception of said end strips 50, the top wall 47 of said guard member 36 provides the aligning means for said razor blade 32 with the strips 50 thereof resting in said rabbets 49 and the side walls 42 of said razor blades abutting the side walls 53 of said guard member 36. Said side walls 53 are of less depth than that of the blade side walls 42 and project downwardly at substantially the same angle and may, if desired, as is common in the art, terminate in the serrated comb edges 55 comprising the plurality of spaced teeth or projections 57.

As is usual in safety razors, I provide a head member 34 also having a flat top wall 59 of substantially the size of said guard member top wall 47 abutting said guard member top wall when attached through the central cut away portion 46 of said blade, and also having side walls 33 of less depth than those of the blade projecting downwardly at substantially the same angle. The inner surface of said top wall is provided with the means 39 in the form of a narrow clamping and aligning key 61 projecting inwardly from each end centrally thereof to clamp said blade strips 50 and blade strip pivot lugs 54 in said guard member keyways 51 and retain said blade 32 and head member 34 in aligned position on said guard member. The head member 34 has a central threaded stud 63 projecting downwardly centrally thereof adapted to be inserted through the hole 45 in said guard member. The usual handle 38 has an upper end 65 abutting the lower surface of said guard member top wall around said hole 45 and a center threaded socket 67 containing said threaded head member stud 63 for threadedly clamping said parts together on relative rotation of said members. If desired, as shown, the handle 38 may be permanently revolvably attached to the guard member 36 by providing an inwardly projecting annular lip 69 on the guard member adapted to loosely fit in the cooperating groove 71 on the upper end of the handle for relative rotation of said members.

In operation, the razor is assembled in the manner shown in Fig. 2 by laying the blade 32 on top of the guard member 36 with the top wall 47 projecting upwardly through the cut away portion 46 thereof and with the aligning lugs 54 fitting within the keyways 51 to correctly align

5

the razor blade on the guard member. The head member 34 is then inserted over the blade 32 and guard member 36 so that the stud 63 thereof projects within the socket 67. The handle 38 is then rotated drawing the threaded stud 63 within its socket 67 and clamping the keys 61 against the lugs 54 within the keyways 51, thus clamping the razor blade between the head and guard members firmly along a center medial line so that the strips 50 will be free to resiliently pivot in the clearance spaces 35 and the side walls 42 will be free to move vertically in the channels 37. Thus if an edge 44 of the razor blade is drawn in use against the face with too much pressure the side wall 42 of the blade will withdraw upwardly in the space 37 between the guard member and head member side walls with the ends 41 of the blade strips 50 pivoting upwardly in said clearance space 35 so that the cutting edge 44 of the blade side wall 42 recedes in said channel 37 to a position preventing cutting the skin and beard of the user as shown in Fig. 7, with said cutting edge 44 returning to its lower cutting position shown in Fig. 6 when said excess pressure is removed therefrom to a position cutting the hairs 134 of the beard in the manner shown in Fig. 6. New razor blades 32 may be replaced in the razor 30 as desired and the razor may be disassembled as often as desired for cleaning the blade. While I have shown a razor having two cutting edges, it is obvious that one of said edges may be omitted if desired.

I have shown in Figs. 8 and 9 a novel advantage of my improved razor arising from the fact that the razor has a flat top wall 59 so that the entire razor may be laid in a vertical position on a support resting on said flat top wall 59 as a base. It is apparent that when in this position the cutting edges 44 project upwardly and not downwardly against the support as is common in other types of safety razors and for this reason are much more protected from harm and abutting the surface of the support or other objects thereon. In addition, the safety razor takes up much less space on its support, whether it comprises a wash basin surface or otherwise when not in use than former types. In addition, the cutting edge 44 of the razor blade never rests flat on a surface so that it may become dulled in rubbing over the surface or against other objects mounted thereon. The finger grips 55 in addition provide means for readily mounting and removing the razor blade 32 on the razor 30.

It is apparent that I have also provided a razor blade which may be rapidly manufactured.

It is apparent that I provide a novel type of safety razor blade, safety razor for use therewith, with the advantages described above.

It is understood that my invention is not limited to the specific embodiment shown and that various deviations thereof may be made therefrom without departing from the spirit and scope of the appended claims.

What I claim is:

1. A safety razor blade comprising a thin resilient metallic member having a flat top wall and relatively short flat side walls terminating in cutting edges and projecting downwardly at an angle along each side edge of said top wall, said top wall having the center portion thereof cut away to substantially the side edges thereof and to adjacent the ends thereof forming at said ends flat resilient strips joining the ends of said side walls together.

2. A safety razor blade comprising a thin re-

6

silient metallic member having a flat top wall and relatively short flat side walls terminating in cutting edges and projecting downwardly along each side edge of said top wall at an angle, said top wall having the center portion thereof cut away to substantially the side edges thereof and to adjacent the ends thereof forming at said ends flat resilient strips joining the ends of said side walls together, said strips having flat pivot lugs projecting inwardly centrally thereof.

3. A safety razor, comprising a safety razor blade comprising a thin resilient metallic member having a flat top wall and relatively short flat side walls terminating in cutting edges and projecting downwardly along each side edge of said top wall at an angle, said top wall having the center portion thereof cut away to substantially the side edges thereof and to adjacent the ends thereof forming at said ends flat resilient strips joining the ends of said side walls together, said strips having flat pivot lugs projecting inwardly centrally thereof and flat finger grips projecting outwardly centrally thereof, a guard member having a flat top wall having a central hole therein and having an upper surface having its ends recessed for substantially the width of said blade strips to a substantial depth a multiplicity of times deeper than the thickness of the blade strips to provide a clearance space for the upward pivoting of the outer ends of the blade strips therein, clamping keyways on said guard member projecting inwardly centrally thereof for receiving the blade strip pivot lugs therein, and side walls on said guard member of less depth than that of the blade side walls projecting downwardly at substantially the same angle and terminating in serrated comb edges, a head member having a flat top wall of substantially the size of said guard member top wall abutting said guard member top wall through the central cut away portion of said blade having side walls of less depth than those of the blade projecting downwardly at substantially the same angle, said top wall having narrow clamping and aligning keys projecting inwardly from each end centrally thereof to clamp said blade strip pivot lugs in said guard member keyways and to retain said blade and head in aligned position on said guard member and a threaded stud projecting downwardly centrally thereof and a handle having an upper end abutting the lower surface of said guard member top wall around said hole and a center threaded socket containing said threaded head member stud for clamping said parts together on relative rotation.

4. A safety razor comprising head and guard members secured together into a unit having abutting top walls one of the top walls of said members being recessed to provide a clearance space between them and spaced side walls forming between them a blade holding channel projecting downwardly from one side thereof at an angle and a thin resilient metallic safety razor blade having a flat side wall normally projecting downwardly in said blade holding channel beyond the end thereof and having a top wall comprising a resilient portion projecting inwardly in the clearance space formed between the top walls of the guard and head members and means in said guard and head members to clamp said inwardly projecting resilient portions of the top wall of said blade between said members and a manipulating handle for said unit.

5. A safety razor, comprising a safety razor blade comprising a thin resilient metallic member

having a flat top wall and relatively short flat side walls terminating in cutting edges and projecting downwardly along each side edge of said top wall at an angle, said top wall having the center portion thereof cut away to substantially the side edges thereof and to adjacent the ends thereof forming at said ends flat resilient strips joining the ends of said side walls together, a guard member having a flat top wall having an upper surface having its ends recessed a distance substantially the width of said blade strips to a substantial depth, a multiplicity of times deeper than the thickness of the blade strips to provide a clearance space for the upward pivoting of the outer ends of the blade strips therein, and side walls on said guard member of less depth than that of the blade side walls projecting downwardly at substantially the same angle, a head member having a flat top wall of substantially the size of said guard member top wall abutting said guard member top wall through the central cut away portion of said blade having side walls of less depth than those of the blade projecting downwardly at substantially the same angle, means for clamping said guard member, blade strips and head member together only along a cross median line and a handle for said thus assembled members.

6. A safety razor comprising a safety razor blade comprising a thin resilient metallic member having a flat top wall and relatively short flat side walls terminating in cutting edges and projecting downwardly along each side edge of said top wall at an angle, said top wall having the center portion thereof cut away to substantially the side edges thereof and to adjacent the ends thereof forming at said ends flat resilient strips joining the ends of said side walls together, said strips having flat pivot lugs projecting inwardly centrally thereof, a guard member having a flat top wall having an upper surface having its ends recessed for a distance substantially the width of said blade strips to a substantial depth a multiplicity of times deeper than the thickness of the blade strips to provide a clearance space for the upward pivoting of the outer ends of the blade strips therein, clamping keyways on said guard member projecting inwardly centrally thereof for receiving the blade strip pivot lugs therein, and side walls on said guard member of less depth than that of the blade side walls projecting downwardly at substantially the same angle, a head member having a flat top wall of substantially the size of said guard member top wall abutting said guard member top wall through the central cut away portion of said blade having side walls of less depth than those of the blade projecting downwardly at substantially the same angle, said top wall having narrow clamping and aligning keys projecting inwardly centrally thereof to clamp said blade strip pivot lugs in said guard member keyways and to retain said blade and head in aligned position on said guard member and means for clamping said guard, blade and

head members together along said cross median line and a handle for said thus assembled members.

7. A safety razor, comprising a safety razor blade comprising a thin resilient metallic member having a flat top wall and relatively short flat side walls terminating in cutting edges and projecting downwardly along each side edge of said top wall at an angle, said top wall having the center portion thereof cut away to substantially the side edges thereof and to adjacent the ends thereof forming at said ends flat resilient strips joining the ends of said side walls together, said strips having flat pivot lugs projecting inwardly centrally thereof, a guard member having a flat top wall having an upper surface having a central hole therein and its ends recessed for a distance substantially the width of said blade strips to a substantial depth a multiplicity of times deeper than the thickness of the blade strips to provide a clearance space for the upward pivoting of the outer ends of the blade strips therein, clamping keyways on said guard member projecting inwardly centrally thereof for receiving the blade strip pivot lugs therein, and side walls on said guard member of less depth than that of the blade side walls projecting downwardly at substantially the same angle, a head member having a flat top wall of substantially the size of said guard member top wall abutting said guard member top wall through the central cut away portion of said blade having side walls of less depth than those of the blade projecting downwardly at substantially the same angle, said top wall having narrow clamping and aligning keys projecting inwardly centrally thereof to clamp said blade strip pivot lugs in said guard member keyways and to retain said blade and head in aligned position on said guard member and a threaded stud projecting downwardly centrally thereof and a handle having an upper end abutting the lower surface of said guard member top wall around said hole and a center threaded socket containing said threaded head member stud for clamping said parts together.

JOHN A. RIEGER.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,238,069	Tela	Aug. 21, 1917
1,320,407	Thompson	Aug. 25, 1931
1,832,834	Schumacher	Nov. 17, 1931
1,888,159	Campbell	Nov. 15, 1932
1,916,416	Connolly	July 4, 1933
2,033,589	Ragan	Mar. 10, 1936
2,056,408	Ohmer	Oct. 6, 1936
2,149,176	Matheny	Feb. 28, 1939
2,413,863	Connolly	Jan. 7, 1947