Sept. 10, 1929. A. SCHMIDT 1,728,008

SAFETY RAZOR

Original Filed Oct. 8, 1927 2 Sheets-Sheet 1

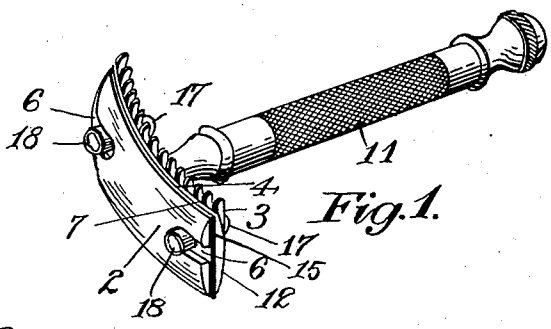


Fig.1.

Fig.2.

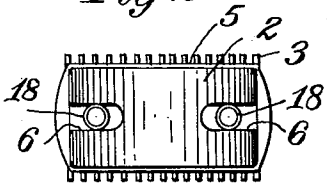


Fig.3.

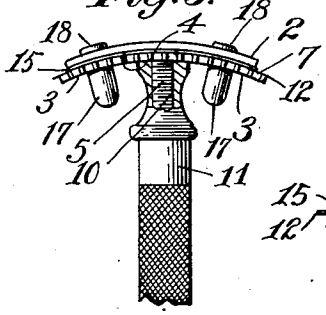


Fig.4.

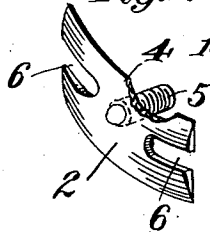


Fig.5.

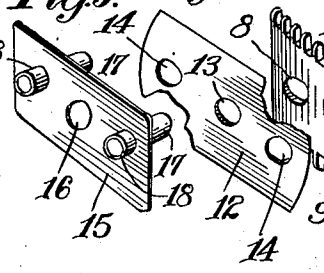
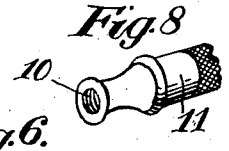


Fig.6.

Fig.7.

Fig.8



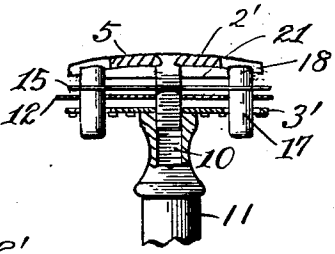


Fig.10.

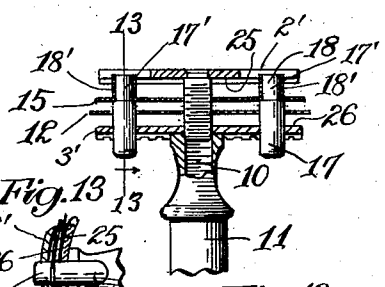


Fig.13

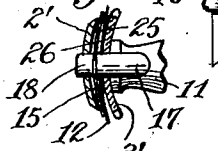


Fig.12.

Fig.9.

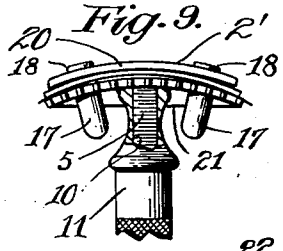


Fig.11

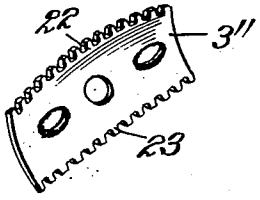
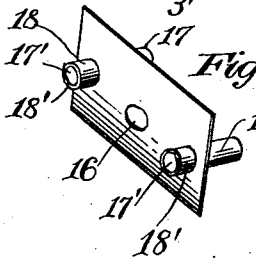


Fig.14.



Inventor

Arthur Schmidt

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SAFETY RAZOR

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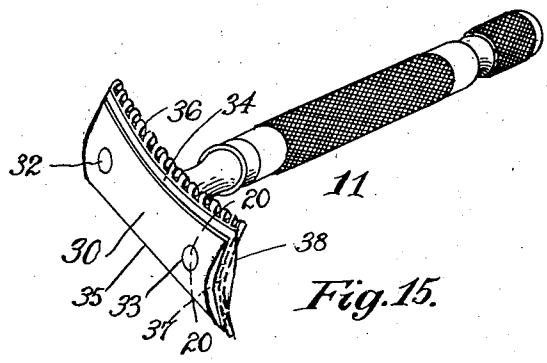
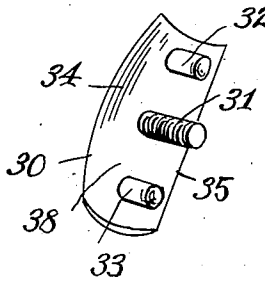


Fig. 15.

Fig. 16.



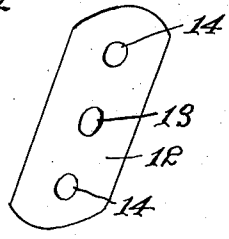


Fig. 17.

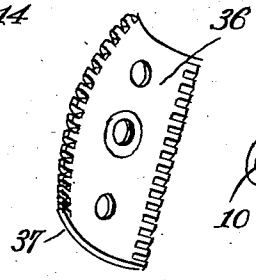


Fig. 18.

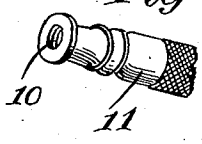
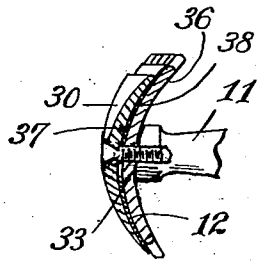


Fig. 19.

Fig. 20.



INVENTOR

Arthur Schmidt.

Patented Sept. 10, 1929. 1,728,008

UNITED STATES PATENT OFFICE.

ARTHUR SCHMIDT, OF NEW YORK, N. Y.

SAFETY RAZOR.

Application filed October 8, 1927, Serial No. 224,897. Renewed June 7, 1929.

This invention relates to safety razors of all types, wherein the razor blade and supporting plates are held in alignment with a flexible guide plate with a pin projecting from each lengthwise portion and from both surfaces, said pins on the flexible guide plate serving as an aligning member to hold the razor blade and the supporting plates which may be loosely or rigidly attached to the handle of the razor and held in position with the pins on one surface of this guide plate, while the other supporting plate being the outer one is located on the pins of the other surface of this guide plate; this outer supporting plate having a central threaded stud that extends toward the handle which is provided with a threaded bore to receive this stud, and by this means the parts aforesaid are drawn together with the flexible guide plate, into firm contact with each other, to flex the blade so as to harmonize with the fixed curvature of these supporting plates, which may have any desired shape, such as a straight, and a curved side, or two straight edges, or both edges curved, as the case may be.

It is a further object of the invention to provide a tension between the handle and the threaded stud of the supporting plate, to enable the handle to retain an adjusted position, whereby the blade may be brought to any degree of tightness between these supporting members to effect a close shave, or varying cuts, depending on this adjustment, this tension being produced by the power applied to the threaded parts due to the springing of both the razor blade and the flexible guide plate to the curved form between the supporting plates.

It is a further object to provide a razor of this type that is simple in construction, easily assembled, or disassembled, the parts being principally of stamping, can be produced at a low cost.

Other objects will appear in the following description, and pointed out in the accompanying drawings.

In the drawings showing embodiments of my invention:

Fig. 1 is a perspective view of a razor showing the blade supported between two longitudinal curved supporting plates holding the blade with both its cutting edges in a curved position.

Fig. 2 is a front end view.

Fig. 3 is a plan view thereof.

Figs. 4 to 8 inclusive are perspective detail views of the component parts to make up the razor.

Fig. 9 is a plan view partly in section showing the blade held between the supporting plates to hold the blade at one side to a straight cutting edge and at the other to a curved cutting edge.

Fig. 10 is a longitudinal sectional view similar to Fig. 9 but showing the parts loosely engaging the handle.

Fig. 11 is a detail of the rear guard supporting plate as used in Fig. 10 showing one of its edges curved and the other straight.

Fig. 12 is a plan view partly in section with the parts loosely engaging the handle; in this form the blade is drawn to a curved position from side to side to form straight cutting edges on both sides of the razor.

Fig. 13 is a cross section on line 13—13 of Fig. 12.

Fig. 14 is a detail of one of the parts.

Fig. 15 is a modification.

Figs. 16, 17, 18 and 19 are detail views.

Fig. 20 is a cross section on line 20—20 of Fig. 15.

This invention comprises essentially a pair of supporting plates provided with curved or straight edges, between which the flexible razor blade is clamped, and a flexible guide plate with pins projecting from each lengthwise portion to serve as aligning members to centralize these parts with one another as they are drawn together by a central threaded bore of the handle. In the form shown in Figs. 1 to 8 inclusive, a double sided longitudinally curved razor is shown provided with supporting plates 2 and 3, the plate 2 as seen in Fig. 4 is curved from end to end and flat on its inner face 4 conforming in shape to the inner wall of a cylinder. A threaded stud 5 is centrally fixed thereto as by riveting to prevent its rotation, and at each end of this plate 2 an elongated perforation 6 is provided. The inner supporting plate 3 is likewise curved,

the inner face 7 having approximately the same curvature as the wall 4 of the plate 2, when these parts are brought face to face. This plate also has elongated perforations 8, and a central opening 9 through which the threaded stud may pass freely to connect with the threaded bore 10 of a handle 11. This plate is wider than the plate 2 and the sides provided with the usual safety notched edges. The razor blade 12 being of conventional type but flexible, is perforated in a similar manner, with a central hole 13, and elongated holes 14. Means is provided to prevent the rotation of one part on the other, and also to align these parts to obtain perfect relation one with the other; this means being preferably in the form of a flexible plate 15, having a central hole 16, and the pins 17 and 18 projecting from each lengthwise portion and surfaces of the plate. The pins 18 at the front coact with the slots 6 of plate 2, and the pins 17 for perforations 14 of the blade 12 and the holes 8 of the plate 3. It will be obvious when the parts are drawn together by the handle and threaded stud 5, that the parts are aligned, and the flexible guide plate and razor blade will assume its curved position between the supporting plates 2 and 3, as indicated in Fig. 3, and the elongated perforations of the several parts will permit of the longitudinal curvature of this flexible guide plate and the pins 17 and 18 assume the radial positions shown in this figure.

The tension on the threaded stud and handle due to the flexing of the blade 12 and the flexible guide plate 15 as these parts are drawn together is great enough to retain the handle, taut enough to bring the parts to nearly a close contact with each other, or fully up tight, as may be desired. This is done to enable the user to shave closer, or regulate the blade to a slight distance away from the tight contact of the parts, and reduce the close cut of the blade, as will be readily understood. In this curved form of razor, the slight separation of the parts is found in practice to affect the center portion of the blade at the cutting edges in this curved form of razor, more than the end portions thereof, and by carefully guiding the razor at the desired cutting angle thus cut is fully under control of the user.

In Figs. 9, 10 and 11 the supporting plate 2 is bent to form a curved edge at one side as 20 and a straight edge at the opposite side as 21, and is of such thickness to retain this form when clamped up tight with its companion members. The flexible guide plate 15 and the blade 12 are the same as in Figs. 5 and 6, flexible. The supporting plate 3 as shown in Fig. 10 is also bent to match with the plate 2 as shown in Fig. 11 in which the plate 3 has the curved notched edges 22 and the straight notched edge 23 as shown in Fig. 9 when clamped between the handle and outer supporting plate 2, so that all parts when brought together produce a razor having a straight cutting edge at one side, and a curved cutting edge at the other; providing a handy razor adapted for various shaped surfaces requiring to be shaved.

In Figs. 12, 13 and 14 the blade is flexed into curved position curved from side to side as indicated in Fig. 13, this view being a section on line 13—13 of Fig. 12, but showing the parts drawn together to nearly a tight contact between the supporting plates, while in Fig. 12 the parts are shown separated.

When the parts are drawn tightly together by the handle and threaded stud 5, the blade will lie close against the inner side to side curved surfaces 25 and 26 of the supporting plates, resulting in two straight oppositely disposed cutting edges, and when in this position is set for close shaving, by regulating the handle as before described. In the previous forms by unscrewing the handle partly from the stud 5, the blade will spring away from the guard 3 as shown in Fig. 13 (shown somewhat exaggerated), to the extent required, and by this means regulate the cut.

In this case the flexible guide plate 15 will flex from side to side of its length and have the same effect as in the other forms before referred to, to add a greater binding action on the threaded parts of the handle and stud to retain the parts for this adjusted position after regulating the cut.

From the foregoing it will be seen that the flexible guide plate 15 performs two functions, the oppositely disposed pins align the parts to hold them in their relative position, and the flexibility of the plate will permit the pins to assume the angle required when clamped between the various shapes of the inner surfaces of the supporting plates.

The pins 17 and 18 are preferably held to the plate by forming the pins with a reduced portion passing through the holes in the plate, and a sleeve of proper length on the reverse side of the plate fitting over these reduced ends of the pins and riveted over to be permanently fixed thereto. This is clearly shown in Fig. 12 in which the sleeves are indicated at 18′ and the reduced portion of the pins at 17′.

It is presumed to be novel to provide a razor with a curved and a straight edge by flexing the same blade between supporting members of such fixed curvature to produce at one side, a curved cutting edge and at the other a straight cutting edge. To do this the flexible guide plate may be used as in Fig. 9 but I do not limit my invention to this construction since the flexible guide plate with the pins may be omitted, and the pins be formed or affixed to either of the supporting plates, and draw the blade into this curved relation to produce a combination curved and straight cutting blade.

In Figs. 15 to 20 inclusive I have shown this construction, with the handle 11 and front supporting plate 30 with the threaded stud 31 and the guide pins 32 and 33 attached, see Fig. 16. This plate 30 shows one side curved as at 34, and its opposite side straight as at 35, and the inner supporting plate 36 with the wall 37 thereof to conform approximately to the inner wall 38 of the plate 30.

It will be seen I have provided a razor of all types whereby the blade can be flexed into any desired form to produce a straight and a curved cutting edge by the same blade at one clamped portion, or curved lengthwise of the blade to produce, two curved cutting edges or two straight cutting edges by flexing the blade, and by the addition of the flexible guide plate hold the parts in their proper relation and produce a tension on the threaded stud of the supporting plate, by flexing this flexible guide plate and the plate to hold these parts in any required position after regulating the cut of the razor blade by springing the blade to and away from the supporting plate having the notched edges.

A further advantage of the flexible members is obtained by the straightening to their normal flat condition which enables the parts to be easily removed when releasing the handle, for cleaning the parts.

I claim:

1. In a safety razor, a flexible razor blade having a central perforation and an elongated perforation at each lengthwise portion, a pair of supporting plates longitudinally curved from end to end, one of said supporting plates having a central threaded stud and an elongated perforation at each lengthwise portion, the other supporting plate having a central perforation and an elongated perforation at each lengthwise portion and having the opposite longitudinal edges notched, a flexible guide plate having a central perforation and a pin in each lengthwise portion projecting from both surfaces, said pins on one surface of the flexible plate being arranged to pass through the elongated perforations of the razor blade and notched supporting plate and the pins on the other surface passing through the elongated perforations of the plate arranged with the threaded stud and the threaded stud of said latter plate passing through the central perforation of the flexible guide plate, the razor blade and the notched edge supporting plate, and a handle having a threaded bore to receive the threaded stud to draw the plates together and curve the flexible plate and razor blade into the shape of and firm contact with the longitudinally curved supporting plates.

2. In a safety razor, a flexible razor blade having a central perforation and an elongated perforation at each lengthwise portion, a pair of supporting plates curved from side to side, one of said supporting plates having a central threaded stud at the center and a perforation at each lengthwise portion, and the other supporting plate having a central perforation and a perforation at each lengthwise portion and the opposite longitudinal edges notched, a flexible guide plate having a central perforation and a pin in each lengthwise portion projecting from both surfaces, said pins on one surface of the flexible plate being arranged to pass through the elongated perforations of the razor blade and of the notched edge supporting plate and the pins on the opposite surface passing through the perforations of the threaded stud carrying plate, with the threaded stud of said latter plate passing through the central perforation of the flexible guide plate, razor blade and notched edge supporting plate and a handle having a threaded bore to receive the said stud to draw the plates together and curve the flexible plate and razor blade into the shape of and firm contact with the curved supporting plates.

3. In a safety razor, a flexible razor blade having a central perforation and an elongated perforation at each lengthwise portion, a pair of supporting plates, one side of each supporting plate being curved sideways and the other sides of the two supporting plates being curved sideways and lengthwise, one of said supporting plates having a central threaded stud and an elongated perforation at each lengthwise portion, and the other supporting plate having a central perforation and an elongated perforation at each lengthwise portion and having the opposite longitudinal edges notched, a flexible guide plate having a central perforation and having a pin projected from both surfaces at each lengthwise portion, said pins on one surface of the flexible plate passing through the elongated perforations of the razor blade and of the notched supporting plate, and the pins on the other surface passing through the elongated perforations of the threaded stud carrying supporting plate, and the threaded stud passing through the central perforation of the flexible guide plate, the razor blade and the notchy edged supporting plate, and a handle having a threaded bore to receive the threaded stud to draw the plates together and curve the flexible plate and razor blade into the shape of and firm contact with the sideways and lengthwise curved supporting plates.

4. In a safety razor, a flexible razor blade having a central perforation and an elongated perforation at each lengthwise portion, a pair of supporting plates, one side of each supporting plate being curved sideways and the other side of the two supporting plates curved sideways and lengthwise, one of said supporting plates having a threaded stud at its center and a pin at each lengthwise por-

tion, and the other supporting plate having a central perforation and a perforation at each lengthwise portion and the opposite longitudinal edges notched, the pins at the lengthwise portion of the threaded stud carrying plate passing through the perforation of the razor blade and of the notched edge supporting plate, and a handle having a threaded bore to receive the threaded stud to draw the parts together and curve the flexible razor blade into the shape of and firm contact with the supporting plates.

5. In a safety razor, a flexible guide plate having a central perforation, and having a pin projected from each lengthwise portion and surfaces.

6. In a safety razor, a flexible guide plate arranged with pins projecting from both surfaces.

7. In a safety razor, a flexible guide plate, having a perforation and pins fixed in the plate projecting from both surfaces.

ARTHUR SCHMIDT.