Feb. 13, 1934. C. C. BRADBURY 1,947,244

SAFETY RAZOR

Filed May 27, 1932

Fig. 1.

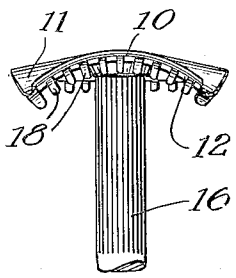


Fig. 2.

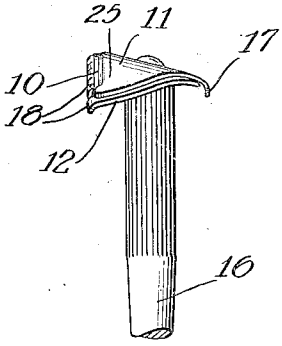
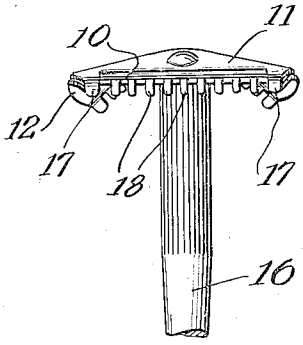


Fig. 3.



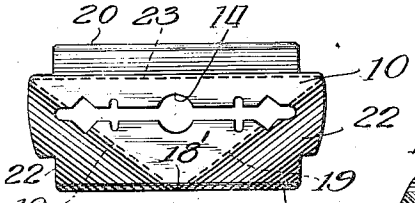
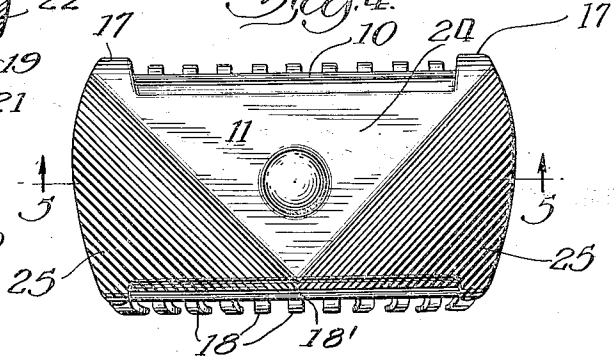


Fig. 7.

Fig. 4.



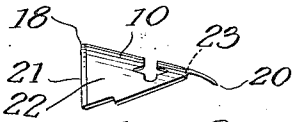


Fig. 8.

Fig. 5.

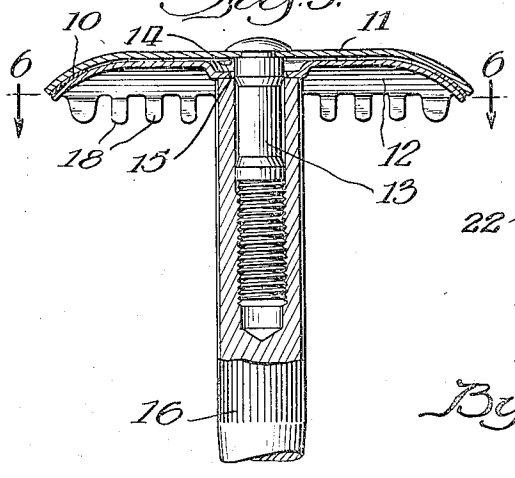
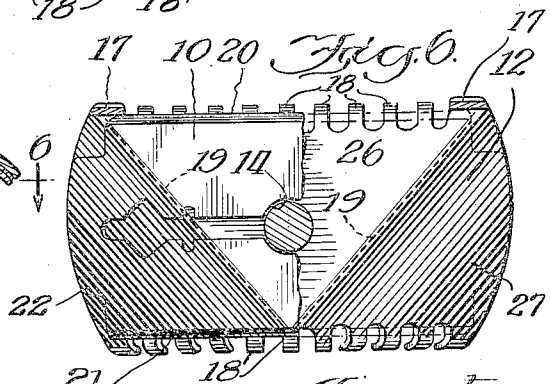


Fig. 6.



Inventor:
Clifford C. Bradbury
By Williams, Bradbury,
McCabe & Hinkle. Attys

Patented Feb. 13, 1934 1,947,244

UNITED STATES PATENT OFFICE

1,947,244

SAFETY RAZOR

Clifford C. Bradbury, Glencoe, Ill., assignor, by mesne assignments, of one-third to Louis J. Gordon, Chicago, Ill.

Application May 27, 1932. Serial No. 613,844

3 Claims. (Cl. 30—12)

This invention relates to safety razors.

One of the objects of the invention is to provide an improved safety razor.

A further object of the invention is to provide a safety razor which provides a curved cutting edge adapted for use in shaving the axilla and a straight cutting edge adapted for general normal use such as the removal of hair from comparatively flat portions of the body, such as the face and legs.

A further object of the invention is to provide a safety razor which is adapted to bend one cutting edge of the blade into arcuate form while preserving the other edge substantially straight.

A further object of the invention is to provide a razor of this type in which the straight edge is unaffected by strains in the blade caused by the curving which provides the arcuate edge.

A further object of the invention is to provide a razor of this type which will curve a wafer blade in this manner without fracturing the blade.

A further object of the invention is to provide improved means for aligning the blade and coacting elements.

Other objects, advantages and capabilities of the invention will readily appear from the following description of a preferred embodiment thereof, taken in conjunction with the accompanying drawing, in which

Figure 1 is a front view of a razor embodying my invention;

Fig 2 is a side view thereof;

Fig 3 is a rear view of the razor;

Fig. 4 is a top plan view;

Fig. 5 is a cross-sectional view taken on the line 5—5 of Fig. 4;

Fig. 6 is a sectional plan view, the section being taken on the line 6—6 of Fig. 5;

Fig. 7 is a plan view of a blade showing diagrammatically a further manner of flexing the blade; and

Fig. 8 is an end view thereof.

Referring to the accompanying drawing, the reference numeral 10 designates the blade which is of the wafer type and may, for example, be any known commercial double edged wafer blade. The blade is held between the clamping plate 11 and the guard plate 12. The clamping plate 11 carries a screw threaded pin 13 which extends through an opening 14 in the blade and an opening 15 in the guard plate. The razor is assembled for use by screwing the handle 16 onto the pin 13, which has been passed through the openings 14 and 15 in the blade 10 and guard plate 12. By screwing the handle 16 home the blade 10 is deformed in a manner which will hereinafter be more particularly described.

Suitable means may be provided to facilitate the correct relation between the blade clamping plate 11, the blade 10 and guard plate 12. These means preferably comprise lugs 17, one of these lugs being provided at each end of the straight edge of the clamping plate 11. The lugs 17 extend downwardly beyond the adjacent edge of the razor blade 10 and are turned downwardly into a position substantially parallel to the handle 16. As will be seen in Fig. 6, the lugs 17 engage the blade 10 at the ends of the straight cutting edge and also engage the ends of the straight edge of the guard plate 12. The downturned ends of the lug 17 are preferably in alignment with the teeth 18 provided along the straight edge of the guard plate 12.

In assembling the razor for use, the blade is presented to the pin 13 so as to pass the same through the opening 14 in the blade. The blade is moved along the pin 13 so as to bring the ends of one cutting edge into contact with the inner sides of the lugs 17. The guard plate 12 is then presented to the pin 13 so as to pass the latter through the opening 15. The guard plate is then passed along the pin 13 so as to bring the extremities of its straight edge into contact with the lugs 17 and bring the straight edges of the clamping plate, blade and guard plate into alignment. These elements are then tightened up by screwing the handle 16 home upon the pin 13. During this operation the clamping plate 11 flexes the blade 10 so as to provide the curved or arcuate cutting edge. The shape of the clamping plate 11 and guard plate 12 will now be described.

Efforts to produce a safety razor of this type, that is, one having a wafer blade in which it is desired to bend only one edge into arcuate form leaving the other edge straight, have failed because flexures were attempted which are quite impossible for the brittle wafer blade to stand. I have discovered that it is necessary to have a substantially flat portion of the blade extending in the form of a triangle from a point on the curved edge and diverging forwardly from this point to a longitudinal base, which may or may not coincide with the other edge of the blade. In the embodiments of the invention illustrated, the point referred to on the curved edge of the blade is at the center of that edge and is designated by the reference numeral 18'. The delimitations of the flat surface are indicated by the dotted lines 19, and in the embodiment shown in

Figs. 1 to 6, inclusive, the base coincides with the straight edge 20. The curved form of the edge 21 is provided by the flexure of the triangular portions 22 of the blade which are defined by the lines 19, the ends of the blade and the edge 21. It will readily be apparent that these triangular portions 22 may be flexed and deformed without any stresses upon the flat portion of the blade already described, it being understood that these deformed portions 22 of the blade are tangential to said flat portion. It will also be understood that the flat portion of the blade protects the straight edge 20 from any deformation resulting from internal strains adjacent that edge. That is, any strains which would cause the extreme cutting edge of the straight edge 20 to cock one way over the other out of the central plane of the blade, are effectively prevented.

It will be understood that the flexure of the blade is not limited to the exact form shown in Fig. 6. Thus the point 18', that is, the apex of the flat portion of the blade, need not be at the center of the curved edge 21. Further, as shown in Figs. 7 and 8, the lines 19, that is, the delimiting lines of the flat surface, need not run towards the ends of the straight edge 20 but may run into the ends of the blade. In Fig. 7 they are shown connected by a base line 23. The flat surface defined by the lines 19 and the base 23 may continue between the portion of the blade between the base 23 and the straight cutting edge 20. Since, however, this portion of the blade is shielded by the flat triangular portion of the blade from strains resulting from the flexure of the deformed portions 22, it may be given any transverse flexure desired, this flexure being uniform along the straight cutting edge. This manner of flexing the blade will readily be understood from Figs. 7 and 8.

From this discussion of the blade the form of the clamping plate 11 and the guard plate 12 will readily be understood and need not be further described. In the preferred embodiment the clamping plate comprises a flat portion 24 and curved triangular portions 25 corresponding to the flat portion of the blade and its curved portions 22. The corresponding flat portion and triangular portions of the guard plate 12 are designated 26 and 27, respectively. In the embodiment shown in Figs. 7 and 8, the clamping plate 11 and guard plate 12 are provided with complementary surfaces for producing the transverse flexing of the blade along its straight edge 20.

Although the invention has been disclosed in connection with the specific details of preferred embodiments thereof, said details are not intended to be limitative of the invention except in so far as set forth in the accompanying claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A safety razor, comprising a wafer blade, a clamping plate, a guard plate, and means securing said plates together, said plates comprising a flat triangular portion extending along one cutting edge of the blade and having an apex on the other cutting edge of the blade and said plates comprising correspondingly curved portions on each side of said flat portion, whereby the last said cutting edge is curved.

2. A safety razor, comprising a wafer blade, a clamping plate, a guard plate, and means securing said plates together, said plates being similarly formed so as to hold the blade therebetween, said plates comprising a flat portion which extends along one cutting edge and to an apex located adjacent the opposite cutting edge, and the plates comprising separate curved portions on either side of the flat portion so as to curve said opposite edge.

3. A safety razor, comprising a wafer blade, a clamping plate, a guard plate, and means securing said plates together, said plates comprising correspondingly formed separate curled portions curving one cutting edge, corresponding portions holding the other cutting edge straight, said plates engaging the blade along the periphery of a plane triangle, said plates being formed within the triangle to permit the enclosed triangular portion to lie in a plane.

CLIFFORD C. BRADBURY.