

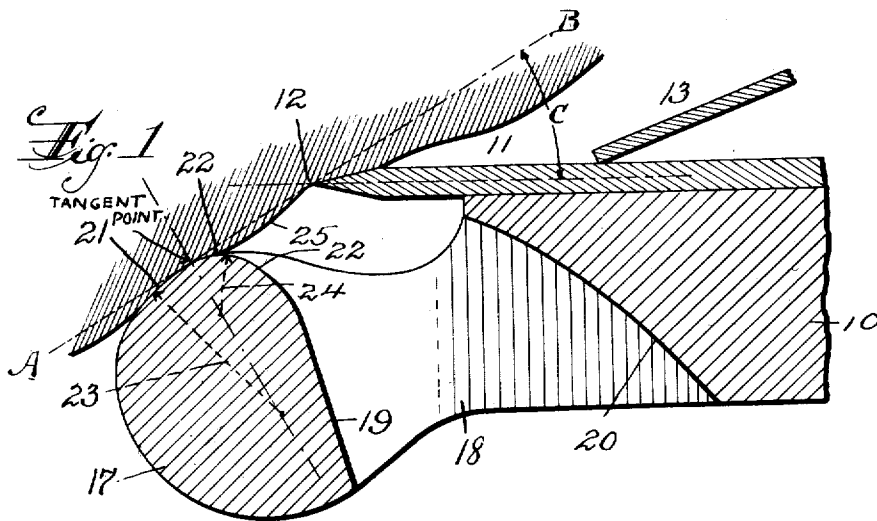
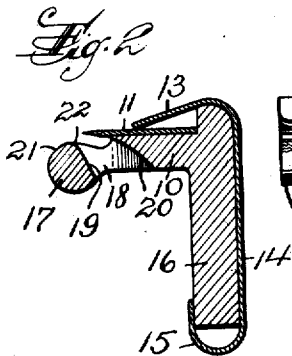
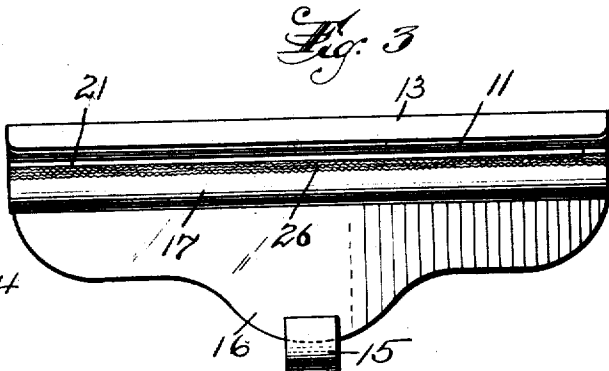
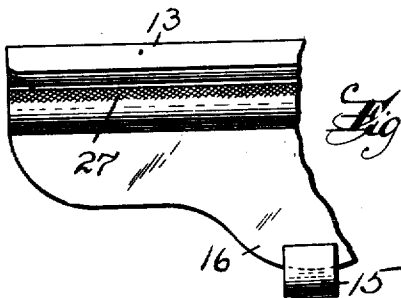
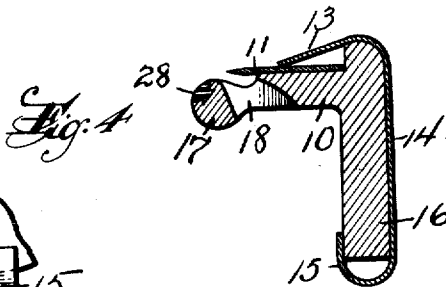
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RAZOR

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UNITED STATES PATENT OFFICE

2,048,565

RAZOR

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2 Claims. (Cl. 30-83)

This invention relates to an improved safety razor and is directed to an improved form of guard and its relation to the shaving head of the blade.

5 The object of the invention is to construct a guard that causes a formation of the skin surface which presents the hair squarely to the cutting edge of the blade. The skin is deformed by the pressure plus the movement of the guard
10 across the skin to an extent that causes a reformation of the skin at the point where the blade contacts with the skin.

Another feature of the invention is the provision of a guard with a certain degree of drag or friction which causes the proper passage or what might be termed "flow" of skin from the guard to the cutting edge of the blade.

A razor made according to my invention has been used and a comfortable and close shave
20 has been secured without stretching the skin by any means in advance or in rear of the razor itself.

Safety razors as heretofore made have provided a guard for the sole purpose of preventing cutting of the skin if the razor is used with care. The surface of the guard in the former razors, where it engages the skin, has been a smooth circular bar or set of curved teeth with which a close shave could only be secured by stretching the skin so as to bring the shafts of hair out of the skin. The stretching of the skin was accomplished by either using the hand not engaged in holding the razor or by facial contortions. This general stretching of the skin leaves little or no resiliency in the portion of the skin as it approaches the blade so that the taut skin is easily abraded and the hair cut through jaggedly.

The present invention is a new departure from the old form of safety razor in that the razor guard itself presents the section of the skin being shaved to the blade edge with the shaft of the hair extending out of the skin as far as it will go when the edge of the blade sliding over the lather lubricated skin comes in contact with the hair. In other words the action of the bar may be likened to taking the portion of the skin immediately ahead of the blade edge between the fingers and gently but firmly pressing it into a slightly convex form naturally projecting the shaft of the hair out of the cuticle as far as its roots will permit.

The invention is illustrated in the accompanying drawing in which Figure 1 is an enlarged
50 section showing the part of the razor which com-

prises the guard and the blade and also indicating the normal flow of the skin surface across the guard and the edge of the blade. Figure 2 is a cross-section, on a reduced scale, of the whole shaving head. Figure 3 is a front view of shaving head illustrated in Figure 2. Figure 4 is a fragmentary front view showing a modified form of surface roughening on the guard. Figure 5 is a cross-section showing a guard equipped with an inserted strip which provides
10 the skin engaging part of the guard.

The razor selected for illustrating my invention is of the type that supports a blade flat on a blade platform 10. The blade is shown at 11 and it projects beyond the blade platform 15 and is provided with a cutting edge 12.

The blade may be secured on the blade platform 10 by any suitable form of face plate but I show a face plate 13 formed of metal with a slight resiliency and including a rear plate 14
20 and a return bend 15. The blade platform is mounted on a supporting plate 16. The face plate member can be installed by sliding it longitudinally on the shaving head which comprises the blade platform 10 and the supporting plate 25 16. This makes it possible to use face plates of various lengths and angles. The face plate acts to limit the tilting the razor on the skin to prevent the scraping incidental to the use of the blade at an obtuse angle to the skin. 30

The improved guard is shown at 17 and it is in the form of a bar supported by the bars 18, preferably at the ends of the bar. The guard has a rear face 19 which is nearly perpendicular to the plane of the blade. This is in conjunction with a cut-away portion 20 at the bottom of the blade platform 10 and at the front, all this allowing plenty of space for lather and hair to clear the under side of the blade. The under-cut portion 20 is preferably concave and is also of advantage in cleaning when the shaving head is reversed and placed under a tap. Water then passes into the space between the guard and blade platform and cleans the shaving head and also the under side of that part of the blade
45 11 that projects beyond the blade platform 10. The guard bar is placed slightly below and slightly in advance of the edge 12 of the razor. It is placed in such position that a line A-B which is tangent to the effective part of the guard and bisects the cutting edge of the blade is at an approximate angle of 30° to 32° in its relation to the plane of the blade at its cutting edge. The angle is shown at C in Figure 1. 50

The guard bar has a leading surface 21 and a 55

trailing surface 22. The leading surface is curved and has a relatively large radius 23 which in a razor of normal size is approximately .070 inch and over. This leading surface merges into the trailing surface 22 which latter has a relatively shorter radius 24 past the tangent point. This radius is about .025 inch and under. The distance separating the juncture of the leading surface with the trailing surface, and the cutting edge 12 of the blade is best defined by describing it as one that causes an arc 25 to rise a distance equal to one-sixth the distance of the arc from tangent point on the guard to the cutting edge of the blade, when the razor is at rest and under normal shaving pressure. The arc flattens out somewhat when the razor is moved in shaving. These relationships and proportions are microscopic and have been arrived at after exhaustive tests and also in shaving operations. If excess pressure is placed upon the leading surface the trailing surface acts as a limitation to further deformation of the skin. With the dimensions above in mind the distance from the "tangent point" on the guard and the cutting edge is substantially .065 inch.

The guard has the surface which engages the skin so marked as to retard the progress of skin over the leading surface and causes a slight accumulation of skin ahead of it releasing a uniformly curved inflow of skin between the guard and the blade edge as the guard is passed over the face. This is not a stretching but a delayed release of the skin. One form of such roughening is shown by the sinuous lines or small grooves 26 shown in Figure 3. Another form is shown in Figure 4 by the knurling 27.

Still another modification is shown in Figure 5 in which I illustrate the longitudinally insertible strip 28 which may be dovetailed into the guard. The skin engaging surface is as described above but the "drag" on the skin may be caused by qualities in the material of which the strip 28 is made. Rubber or other material to cause a slight suction may be used in lieu of the grooved or recessed metal guard.

While a toothed guard may be used instead of a bar in which case the form and proportions described above would apply to the teeth assuming a corrected line to average the change in line

caused by the depression of the individual teeth. The bar is preferred as the release of skin is uniform all the way across the width of the guard. The roughening of the surface of the guard or the use of suction pulling material is desirable as it simulates the feeling of the finger, the leading surface of the guard making it unnecessary and even undesirable to stretch a large area of skin either in advance or in rear of the razor, the stretching and releasing being confined to the immediate area between the guard and blade edge which area is to be shaved.

The razor performs best and most comfortably after the face has been lathered by simply passing it over the skin without any stretching thus giving a close and uniformly comfortable shave without abrasion, using only the hand that propels the razor.

The parts are so arranged that the flow of skin across the guard and from its release point on the guard, which is the point of deformation of the skin, to the edge of the blade is in a path to present the hair squarely to the cutting edge of the blade.

This invention is applicable to various forms of razors but I have illustrated it applied to a razor using a flat blade on a flat blade platform.

I claim:—

1. In a safety razor, a guard having a skin-engaging surface formed of a leading surface and a trailing surface, the latter surface having a relatively small radius, the said skin-engaging surface being slightly roughened to pull slightly on the skin when the razor is passed across the skin, the trailing surface being disposed so that it compensates for excess pressure of the guard on the skin.

2. A safety razor comprising a means for holding a blade, a sharpened blade in said means, a guard in advance of and below the blade edge and having a curved skin-engaging surface, the leading part of said surface having a radius approximately equal to the distance between the blade edge and the point of said surface tangent to a line passing across the blade edge, the skin engaging surface having a curved trailing surface with a radius much smaller than the radius of the leading surface and tangent to said line.

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