

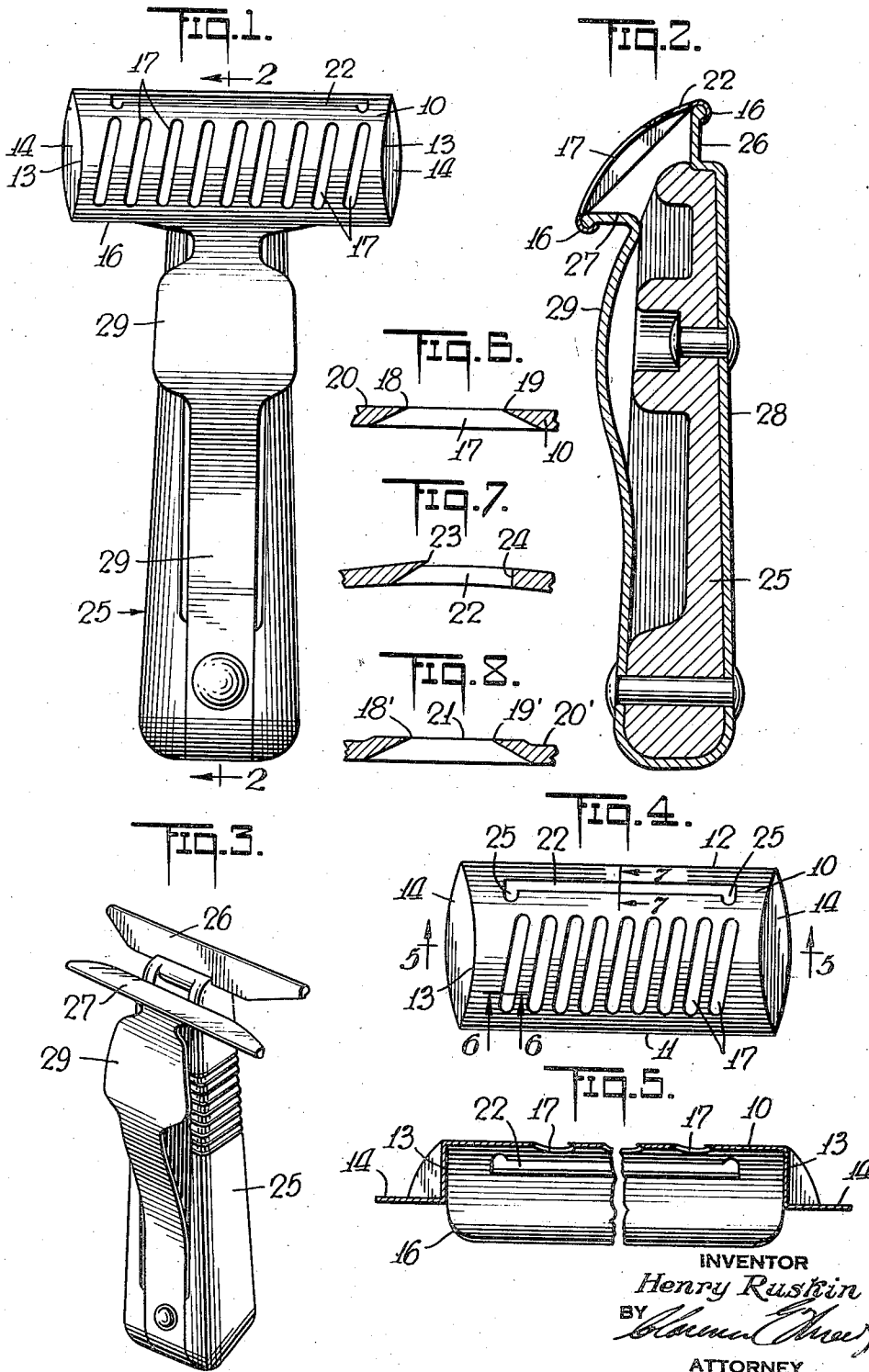
April 20, 1948.

H. RUSKIN

2,439,909

SAFETY RAZOR BLADE

Filed Dec. 12, 1945



## UNITED STATES PATENT OFFICE

2,439,909

## SAFETY RAZOR BLADE

Henry Ruskin, Chicago, Ill., assignor of one-half  
to George E. Hale, Chicago, Ill.

Application December 12, 1945, Serial No. 634,505

6 Claims. (Cl. 30-346)

1

My present invention relates generally to razors, and has particular reference to safety razors and to a new type of safety razor blade.

The conventional and well-known safety razor action has heretofore involved the cooperative employment of at least two elements, one being a blade with a shaving edge thereon, the other being a guard element arranged in predetermined positional relation to the cutting edge so as to minimize the likelihood of a cutting injury. In various ways, the blade and guard elements are held in proper association, usually by forming the guard on a saddle or holder upon or by means of which the blade is adapted to be secured in position. In this conventional type of structure, the blade always remains inherently dangerous per se, regardless of its mode of securement in the razor or whether or not any special loading magazine or the like is provided.

A general object of the present invention is to provide a simplification in safety razor design, whereby fewer parts are required, whereby a more efficient and safer shaving action can be achieved, and whereby the blade element itself is rendered relatively harmless under all circumstances so that it may be handled as a separate unit with a reasonable degree of safety.

This desirable result is achieved without recourse to any extraneous protective mounting, sheath, or magazine, and its successful accomplishment is predicated, in part, upon the discovery that a blade element, if properly designed and constructed in a special manner, can be made to be entirely self-guarding, providing not only a shaving edge but also a permanent guard therefor. The general advantages and economies which stem from this achievement will be obvious not only to those skilled in the art, but to the layman too.

Briefly stated, I accomplish the desired objective by constructing a blade element of the usual blade material and forming in it a special type of slot which has at least one of its edges attenuated to define a cutting edge, the opposite slot edge being so spaced that it serves as a permanent "built-in" safety guard for the cutting edge when the latter is moved in shaving relation along the surface to be shaved. In the drawings, I have shown both slot edges as attenuated to define cutting edges whereby either edge may be used to shave at any movement and the opposite edge act as a safety guard therefor.

It should be borne in mind that the blade of the present invention is entirely self-sufficient so far as shaving capabilities are concerned, and is

2

in this respect wholly comparable to ordinary razor blades, no dependence being placed upon any additional relatively movable element (as in the so-called dry-shaver) whose cooperation effects a shearing or clipping action as distinguished from the true shaving effect produced by the sliding advancement of an attenuated shaving edge over the surface to be shaved.

This shaving capability is imparted to the present blade by constructing it so that the cutting edge lies substantially in the plane of the outer or face-contacting surface of the blade element, or in a plane minutely beyond and parallel to said outer surface.

In the illustrated embodiment of the invention, the blade element is shown as provided with a plurality of slots of the character mentioned, arranged side by side, and each of at least one set of corresponding slot edges forms a cutting edge, whereby the movement of the element over the surface to be shaved will subject the latter to the simultaneous shaving action of a plurality of shaving edges. Whether one or more slots is used, the arrangement of slot or slots with their axes oblique to the shaving direction permits the attainment of an unusually efficient shaving result. With this object in view, the present safety razor may comprise a holder including a handle, with cooperable means being provided on the holder and blade for mounting the latter in a position which is transverse to the handle axis and which disposes the axes of the slots, or the axis of the slot, obliquely to the handle axis.

I have found that features of the invention manifest themselves to best advantage when the slotted blade element is curved to present a convex outer surface, preferably a surface which is cylindrically convex. Such an element lends itself more readily to smooth movements over the irregular contours of a surface to be shaved; and moreover, it is easier to handle and staunch in nature, notwithstanding the fact that it can be composed, basically, of relatively thin sheet material of the kind which is customarily employed for safety razor blades.

While the improved blade of the present invention constitutes in itself a complete shaving implement, and may in fact be used as such, it is preferable that a holder be provided to facilitate its manipulation and use. Such a holder may be of the simplest possible character, and one satisfactory type of holder consists in nothing more than a handle and a pair of resilient clamps. Where the razor is curved, as is preferred, it lends itself readily to a releasable engagement with

3

the clamps on the under or concave surface of the blade. Depending upon the nature of the holder, the blade may be positioned at any desired angularity with respect to the handle, but I have found it to be of advantage to mount the blade in a generally transverse disposition with respect to the handle axis, preferably in a somewhat inclined or oblique disposition which facilitates the application of the outer operative surface of the blade to the area which is to be shaved.

Under certain circumstances, the blade may be provided with slots differing from one another in certain characteristics, thereby affording opportunity for achieving correspondingly-different shaving results. An example of such a special slot designed is hereinafter described.

I achieve the foregoing general objects and advantages, and such other objects and advantages as may hereinafter appear or be pointed out, in the manner illustratively exemplified in the accompanying drawings in which:

Fig. 1 is a front elevational view of a safety razor constructed in accordance with the present invention;

Fig. 2 is a cross-sectional view taken substantially along the line 2—2 of Fig. 1;

Fig. 3 is a perspective view of the holder, shown by itself;

Fig. 4 is a plan view of the blade element, shown by itself;

Fig. 5 is a cross-sectional view taken substantially along line 5—5 of Fig. 4;

Fig. 6 is a greatly enlarged cross-sectional view taken substantially along the line 6—6 of Fig. 4;

Fig. 7 is a greatly enlarged cross-sectional view taken substantially along the line 7—7 of Fig. 4; and

Fig. 8 is a view similar to Fig. 6 illustrating a modification.

Referring first to Figs. 4-6, the blade which I have chosen to illustrate is composed of an element of flat material, such as the surgical steel which is customarily utilized for razor blade purposes. The element may be curved during the course of its manufacture so that a body portion 10 is provided which conforms in contour to a portion of a cylindrical surface, and the element is so shown in the drawings. The original shape of the element is shown as of such a character that the resultant curved body portion has front and rear margins 11 and 12, respectively, which are parallel to the cylinder axis. Laterally the element is provided with flanges 13 which are disposed transversely to the cylinder axis, and the desired rigidity is enhanced by turning the end portions of the flanges 13 outwardly, as indicated at 14, so as to lie in a plane parallel to the cylinder axis. For a purpose presently to be described, the body portion 10 is shown as extended beyond the front and rear margins 11 and 12 to provide inward-turned ends 16 projecting below the level of the plane of the portions 14.

I have illustratively shown the lateral flanges 13 as having a concave shape, and the outer edges of the portions 14 of convex curvature. This construction produces a workmanlike result which imparts the desired degree of rigidity to the blade element, and permits it to be readily handled by grasping the flanges 13 between the fingers. However, it will be understood that these structural details may be varied widely without affecting the basic features of novelty of the present blade element.

In the curved body portion 10 of the blade I have shown a plurality of slots 17 arranged side

4

by side in substantially parallel relationship, each slot being arranged with its axis lying in a plane obliquely intersecting the cylinder axis. Certain phases of my invention are not restricted to the employment of any particular number of slots nor to their oblique arrangement. Under certain circumstances, it may be desirable to provide fewer slots, or even a single slot, but for most practical purposes; a series of slots, as shown is believed preferable.

In Fig. 6 I have illustrated, upon an enlarged scale, the nature of each slot 17. One or both of its opposite longitudinal edges may be attenuated to define a cutting edge, and in the embodiment illustrated in the present drawings, both edges are shown as thus attenuated. For example, upon viewing Fig. 6, it will be observed that the left-hand edge 18 is beveled down to a razor edge, and that the right-hand edge 19 is similarly attenuated. Of primary importance is the fact that each of these cutting edges lies substantially in the plane of the outer or face-contacting surface 20 of the blade element, i. e. the surface which appears uppermost in Fig. 4.

The angle at which each cutting edge is beveled is a matter of choice and experience, and may be, for example, between 16° and 22°. Where the blade material is of a thickness of approximately four to six thousandths of an inch, the overhand of each cutting edge will be approximately twelve to fifteen thousandths of an inch.

The gap between the edges 18 and 19 is so chosen that each edge serves as a permanent safety guard for the opposite edge. I have found that a slot width of between approximately twenty to fifty thousandths of an inch (for example, forty thousandths of an inch) is admirably suited to accomplish the desired result.

At this point it is appropriate to refer to Fig. 3 in which I have shown a slight modification in which each of the cutting edges 18' and 19' lies in a plane 21 which is minutely beyond yet parallel to the plane 20' of the outer surface of the blade element. This construction is of advantage in strengthening and rigidifying the cutting edges, and in facilitating the manufacture of the blade element, especially in grinding the outer surfaces of the cutting edges.

In either case, it will be apparent that the application of the blade to the surface to be shaved, coupled with the usual slight pressure which is exerted during the shaving procedure, will result in subjecting the hairs to the shaving action of one or the other of the cutting edges, depending upon the direction in which the blade is moved. During the shaving action, the opposite edge of the slot serves as a safety guard and minimizes the likelihood of a cutting injury.

My invention contemplates that each of at least one set of slot edges is attenuated. That is, each left-hand edge corresponding to the edge 18 of Fig. 6 may be attenuated; or each right-hand edge corresponding to the edge 19 of Fig. 6 may be attenuated, or both edges of each slot may be ground down as indicated in Fig. 6. Where there are a plurality of such slots, the advancement of the blade in the shaving direction (substantially perpendicular to the margins 11 and 12) will simultaneously bring all of one set or the other of the cutting edges into operation. A highly efficient shaving action is thus achieved. Furthermore, where the slots are inclined, as shown, this shaving action is of unusual effectiveness because of the slight angle at which each cutting

5

edge encounters the hairs which are to be removed.

It will be observed that the slots 17 of Fig. 4 are arranged in a group which is positioned nearer to the margin 11 than to the margin 12. This arrangement permits me to provide a special slot 22 in the body portion of the blade, this separate slot being arranged alongside the innermost set of ends of the inclined slots 17 and having its axis parallel to the cylinder axis. The nature of the separate slot 22 is best disclosed in Fig. 7. It will be observed that one of its edges is attenuated as at 23, and that this edge is the one which lies adjacent to the inclined slots 17. The opposite edge 24 may or may not be attenuated, and is preferably left dull, as shown. It will also be observed (Fig. 4) that the ends of the slot 22 have relatively short transverse extensions 25 which are so arranged that the cutting edge 23 lies between them. This results in permitting the cutting edge 23 to project outwardly by a minute amount as shown most clearly in Fig. 7.

The slot 22 and the cutting edge 23 are intended for the specialized purpose of enabling the user to form a straight shaved edge adjacent to the hairline in front of the ears. Usually one stroke of the razor is sufficient to accomplish this purpose, and in performing this act, the blade shown in Fig. 4 is moved toward the margin 12. During normal operation of the blade for general shaving purposes, it is contemplated that the blade will be moved (on the shaving stroke) toward the margin 11. In this way, since the cutting edge 23 faces away from the slots 17, it is ineffective to cause any injury during normal shaving movements of the blade. However, even if the user chooses to advance the blade in both directions during normal shaving, the convex curvature of the outer surface keeps the cutting edge 23 well away from the region being shaved so that the cutting edges of the slots 17 are the only ones which are effective for shaving purposes.

The slot 22 is illustrative of the special types of slots which may be provided in a single shaving instrumentality of the present character, and while certain advantages are achieved by the particular arrangement shown in the present drawings, it will be understood that the main features of the invention do not require the particular relationships between the slots 17 and 22 shown in the drawings.

From the foregoing, it will be apparent that the blade element is in itself a complete shaving implement. Regardless of how it may be grasped or wielded, the application of the convex surface to the area to be shaved, and the consequent advancement of this surface, will result in a shaving action of efficient yet safe character. However, to facilitate the use of this improved blade element, and to conform to the operation to the one which most users have become accustomed to, I deem it desirable to provide a holder with which the blade element may be associated when it is to be used. This holder is illustrated most clearly in Figs. 1, 2, and 3, and consists essentially of a handle 25 and a pair of resilient relatively movable clamps 26 and 27 thereon. In the preferred embodiment illustrated, the clamp 26 is rigidly secured to the handle 25 and may form part of a single element of metal or the like 28 which extends around the handle as shown most clearly in Fig. 2. The clamp 27 is preferably mounted at the end of a springy portion 29 which may form part of the same band of metal 28, and which is

6

normally urged away from the clamp 26 by virtue of its inherent resilience. The clamping portions 26 and 27 are adapted to fit between the intumed portions 16 of the blade element, and the act of applying and removing the blade, with respect to the holder, involves nothing more than the act of pressing the springy portion 29 toward the handle and then releasing it again.

In the embodiment illustrated, the clamping portions 26 and 27 are so arranged (see Fig. 2) that when the blade element is engaged it lies substantially in a disposition transverse to the handle axis and inclined to the latter at approximately 45°. This particular inclination is not of primary importance, but is a preferred arrangement of parts which makes the razor easier to use.

In handling the present blade, it will be noted that it is at all times reasonably safe since it embodies within itself a safety guard for each cutting edge. It is not inherently dangerous as are all safety razor blades of known type. Nor does its use involve any laborious manipulations or adjustments of a holder or other apparatus. It may be used, washed, and re-used with great facility. Its replacement is a matter of great simplicity.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A razor blade comprising an element of sheet material provided with a slot therein, at least one edge of the slot being attenuated to define a cutting edge, the opposite edge being suitably spaced therefrom to serve as a safety guard therefor, said element being curved to present a cylindrically convex outer surface, said slot being arranged with its axis lying in a plane obliquely intersecting the cylinder axis.

2. A razor blade comprising an element of sheet material curved to present a convex outer surface, said element being provided with a plurality of slots therein arranged side by side, each of at least one set of corresponding slot edges being attenuated to define a cutting edge, the opposite edge of each slot being suitably spaced from the opposed cutting edge to serve as a safety guard therefor, said convexity conforming substantially to the curvature of a cylinder, said slots being arranged with their axes lying in substantially parallel planes obliquely intersecting the cylinder axis.

3. A razor blade comprising an element of sheet material curved to present a cylindrically convex outer surface, said element being provided with a group of inclined slots arranged side by side with their axes lying in substantially parallel planes obliquely intersecting the cylinder axis, said element being also provided with a separate slot arranged alongside one set of ends of said inclined slots and with its axis parallel to the cylinder axis, one edge of said separate slot and each of at least one set of corresponding edges of said inclined slots being attenuated to define a cutting edge, the opposite edge of each

7

slot being suitably spaced from the opposed cutting edge to serve as a safety guard therefor.

4. A razor blade as set forth in claim 3, the attenuated edge of said separate slot being the one adjacent to said inclined slots.

5. A razor blade comprising an element of sheet material curved to conform to a portion of a cylindrical surface, said element having front and rear margins parallel to the cylinder axis and being provided with end flanges disposed in planes transverse to the cylinder axis, said element being provided in the curved region with a slot of at least one edge of which is attenuated to define a cutting edge, the opposite edge of the slot being suitably spaced to serve as a safety guard for said cutting edge.

6. A razor blade as set forth in claim 5, the axis of said slot being inclined to said front margin, whereby application of the blade to the area to be shaved and movement along a direction

8

substantially perpendicular to said front margin will cause said guarded cutting edge to effect a shaving action upon the hair encountered.

HENRY RUSKIN.

# REFERENCES CITED

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

## UNITED STATES PATENTS

Number	Name	Date
423,150	Haines	Mar. 11, 1890
919,735	Lindsay	Apr. 27, 1909
2,020,116	Greenhouse	Nov. 5, 1935

## FOREIGN PATENTS

Number	Country	Date
77,901	Sweden	Oct. 14, 1931
553,354	Great Britain	May 18, 1943
597,100	Germany	May 17, 1934