June 30, 1942. J. R. REYBURN 2,288,301

RAZOR

Filed Oct. 31, 1940

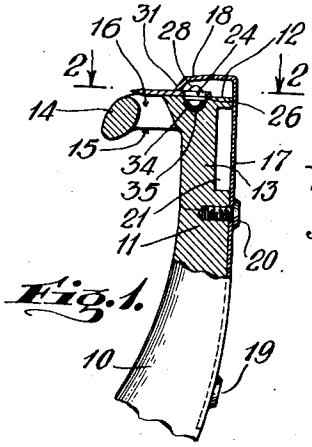


Fig. 1.

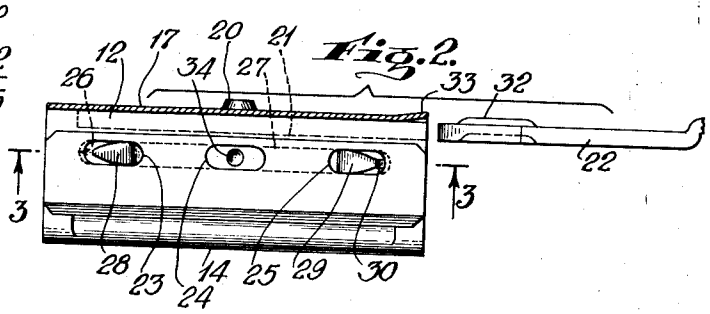


Fig. 2.

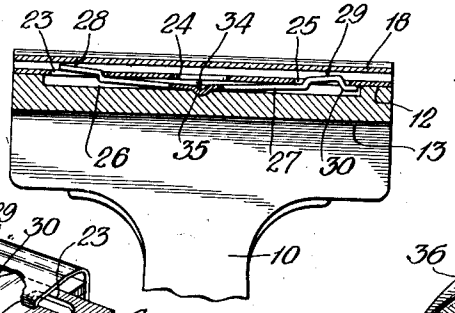


Fig. 3.

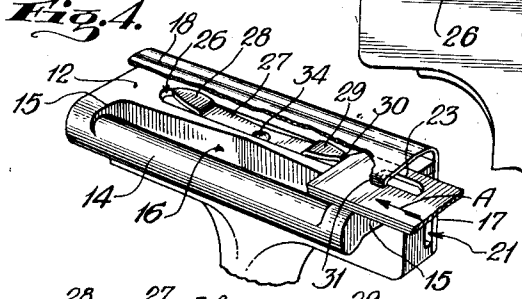


Fig. 4.

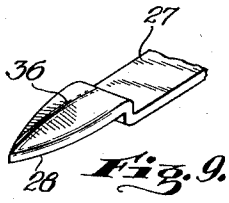


Fig. 9.

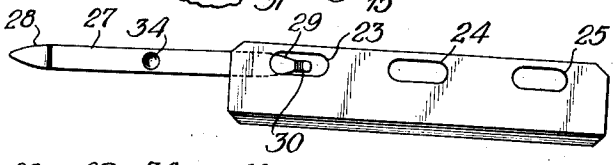


Fig. 5.

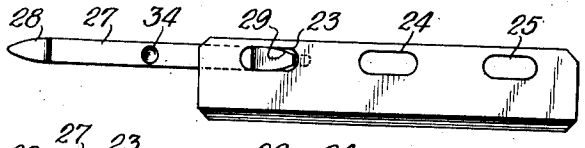


Fig. 6.

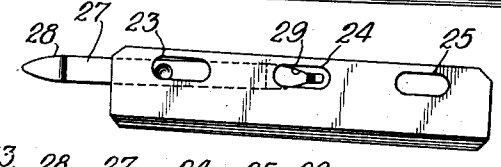


Fig. 7.

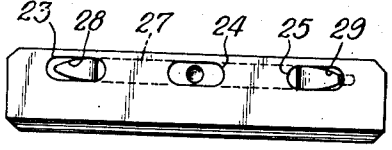


Fig. 8.

INVENTOR
JOHN R. REYBURN
BY
John H. Billiard
ATTORNEY

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# UNITED STATES PATENT OFFICE

2,288,301

## RAZOR

John R. Reyburn, Fairfield, Conn., assignor to Magazine Repeating Razor Company, New York, N. Y., a corporation of New Jersey

Application October 31, 1940, Serial No. 363,633

5 Claims. (Cl. 30—75)

The invention relates to razors of the so-called "safety" type, in which a blade is inserted by projecting it endwise into a blade receiving channel. Such razors include safety razors in connection with which there is employed a magazine for containing a plurality of blades and including means for aligning the ejection orifice of the magazine with the blade retaining channel of the razor and injecting a blade into shaving position, and at the same time driving out a blade (if any) already present in the channel.

The main object is to provide means for automatically lining up the edges of the blades uniformly with relation to the guard with which such razors are supplied.

Referring to the drawing,

Fig. 1 is a view in vertical section in the median transverse plane of the razor;

Fig. 2 is a view on the line 2—2 of Fig. 1 but with the blade exposed and also including a top plan view of a key for relieving the blade from the pressure of the clamping plate;

Fig. 3 is a view on the line 3—3 of Fig. 2;

Fig. 4 is an isometric view of the shaving head with the parts broken away to expose the locating members;

Figs. 5, 6, 7, and 8 are progressive views illustrating the introduction of a blade and how it is located in position;

Fig. 9 is an enlarged detail view of an aligning tongue for locating the blade.

The razor comprises a conventional handle 10 (shown only in part) tapering to a shank portion 11, on which is mounted the shaving head. The shaving head comprises a blade platform 12 somewhat wider than the blade that is to be used in the razor and which extends laterally from the plate 13, which in turn is connected preferably rigidly with the shank 11. The plate 13, together with the shank, constitutes a support for the working parts. The blade platform 12 terminates in a guard 14 which is supported from the blade platform by the arms 15, 15 which structurally and functionally are a part of the blade platform. In so supporting the guard on the arms an oblong slot 16 is provided through which soap and other debris may pass while the implement is being used for shaving purposes.

Included in the shaving head is a blade clamping plate composed of a rear portion 17 and a top blade clamping portion 18. This plate is attached to the back of the shaving head by suitable means, such as screws 19 and 20, the latter screw entering the shank portion. The plate is preferably of spring material, such as hard brass or steel, and its point of attachment (by means of the screw 20) is so located that it constitutes virtually a pivotal axis, so that pressure exerted on the inner side of the rear portion 17 tends to cause the edge 31 of the portion 18 to swing through approximately an arc about it. The rear face of the blade platform supporting plate 13 is provided with a channel 21 which is of a vertical height such that it may receive a key 22 with a sliding fit in its vertical plane. The rear portion 17 of the clamping plate forms a closure for the channel 21 so that, when the key 22 is inserted in the channel, the key although slidable in the channel preferably takes a definite alignment vertically. This vertical alignment is of more importance when the key constitutes the aligning finger of an injector magazine as will be hereinafter referred to. On the other hand, the depth of the channel as measured by the distance from its bottom surface to the inner surface of the rear portion 17 is a little less than the thickness of the key for reasons that will later appear.

The blade to be used in the razor (illustrated in Figs. 5–8) is of a conventional type but with the additional feature that it is provided with elongated apertures, at least two being preferable and three being desirable, indicated respectively by the numerals 23, 24, and 25. These apertures are preferably of uniform width on their minor axes and are preferably of approximately the same length (although not necessarily so), and their sides are preferably (although not necessarily) straight. Also they are definitely and uniformly located with respect to the cutting edges of all blades that are to be used in the razor.

It will now be pointed out how the apertures of the blades may be utilized in definitely and uniformly locating the cutting edges with respect to the guard 14. The blade platform is provided with a groove or channel 26 extending for a substantial portion of the length of the latter and in this groove is seated a member 27 of spring material (see Figs. 3 and 4) slightly flexed upwardly on each side of its middle area, one end terminating in an upwardly projecting aligning tongue 28 and the other projecting in an aligning tongue 29 similar to aligning tongue 28 but, in addition, terminating in a downwardly turned tip portion 30. The aligning tongues are both normally projected by the resilience of the material of the member 27 above the surface of the blade platform.

In explaining the operation of the device it will be assumed that blades are to be introduced into the head by inserting them endwise between

the edge 31 of the clamping plate and the blade platform, the insertion taking place at the right hand end of the shaving head as viewed in, for example, Fig. 4, where a blade is shown in the initial progress toward its final location, the blade moving in the direction of the arrow "A". As the blade continues to move (in the direction of the arrow as stated) it encounters the turned-down tip 30 of the aligning tongue 29, and as it further continues rides over the turned-down portion and the aligning tongue 29, forcing them down into the channel 26 until the highest point is flush with the surface of the blade channel. As the aperture 23 comes into registry with the aligning tongue 29, the latter springs upwardly and enters the aperture. At this point attention should be called to the fact that the aligning tongue 29 is tapered (in plan view) in the direction of the entrant end of the blade channel as above designated and that the aligning tongue is of a proper width at the base of the taper or at some cross section along the taper to come to a close fit in the aperture. At this stage, therefore, the line of travel of the advancing end of the blade is fixed and the blade is "straightened out" so that it tends to travel on a true straight line parallel with the guard. In other words, any misalignment of the aperture 23 with respect to the aligning tongue is corrected when the spring tongue enters the aperture as has been explained. This condition is shown in Fig. 6.

As the movement of the blade continues, the aligning tongue 29 is again forced down into the groove 26 as the aperture 23 leaves it, and then the aperture 24 engages with the aligning tongue 29 in the same way as did the aperture 23. In Fig. 7 the aligning tongue is shown just before it springs upwardly into the aperture 24. When this happens any misalignment of the blade that exists at this time is corrected when the aligning tongue enters the aperture.

As the motion of the blade continues further, the aligning tongue 29 is again forced into the groove 26 and with still further motion the aperture 25 engages with the aligning tongue 29, as in the case of the previous apertures, and simultaneously the aligning tongue 28 enters the aperture 23. It is preferable, as above stated, that all of the apertures be of uniform transverse dimensions and likewise the two aligning tongues. However, the necessary construction is such that both aligning tongues, after they have entered their respective apertures 23 and 25, shall be wide enough at the bases or on some cross section of the taper so that they will contact and engage both edges of the apertures and thus definitely locate the blade edge immovably transversely of the head with respect to the guard.

It is not necessary in the practical application of the invention that the force exerted by the aligning tongues 28 and 29 shall be sufficient to shift the blade from a position of misalignment to one of alignment against the resistance exerted by the pressure of the clamping top portion 18.

In order to lift the blade clamping plate clear of the blade or, if preferred, to merely relieve the pressure sufficiently to allow a blade as it passes into the blade retaining channel to shift under actuation by the aligning tongues, the key is so constructed that, when inserted in the channel, it forces the back plate 17 slightly to the rear. This result may be effected by means of the elongated nub 32, and for easy entrance the rear plate is caused to flare slightly as shown at 33. The effect of inserting the key is therefore to cause the blade clamping plate, as a whole, to virtually pivot at the point 20 and thus lift the clamping edge 31 clear of the blade or to relieve its pressure thereon as may be desired. As to the latter point it is usually preferable that there be some degree of friction of the clamping edge on the blade in order that the aligning tongues may function properly and also in order that the position of the blade longitudinally of itself may be actively determined.

It will be obvious that, when it is desired to eject a blade from the shaving head, it is merely necessary to cause it to continue its travel in the same direction as before whereby the blade apertures will pass over the aligning tongues in the manner already referred to in connection with the description of the introduction of a blade into shaving position.

Some form of anchorage for the member 27 is obviously necessary, and it may be accomplished by striking out a nub 34, which is seated in a small cavity 35 in the bottom of the groove 26.

Fig. 9 illustrates in detail a special shape for the aligning tongue 28 which is designed to act with greater certainty in causing shifting of the blade as it travels through the blade channel. In this figure the aligning tongue is formed with a longitudinal ridge 36 inclining on each side toward the edge of the tongue.

A razor of the type in connection with which the invention is associated is advantageously used in connection with a magazine injector, such, for example, as is shown and described in United States patents to Rodrigues No. 1,969,945, Kuhnl No. 2,043,046, and Hilliard No. 2,072,636. These devices are so well known that it is unnecessary to describe them in detail, so it will simply be stated that they comprise a box-like receptacle for containing a plurality of blades by means of a reciprocably mounted plunger may be ejected one by one from an orifice in the end of the receptacle. The key 22 may be considered to be an aligning finger for such a magazine, the purpose being to align the orifice of the receptacle so that it registers with the blade retaining passage of the razor whereby a blade leaving the orifice enters the blade retaining channel unobstructed. It may be remarked, although it is undoubtedly apparent, that the integral construction of the member 27 with the aligning tongues is merely for manufacturing convenience and that, so far as function is concerned, the aligning tongues could be separately mounted so long as they are provided with spring means to normally raise them above the surface of the platform.

I have described above certain embodiments of my invention, but I wish it to be understood that this is illustrative and not limitative of my invention and that I reserve the right to make various changes in form, construction, and arrangement of parts falling within the spirit and scope of my invention, as set forth in the claims.

I claim:

1. A safety razor comprising a blade platform, a resiliently mounted blade aligning member normally projecting above the surface of the platform and adapted to enter an aperture in a blade and definitely locate the blade on the platform, the said aligning member having a portion sloping upwardly and in the longitudinal direction

in which a blade travels when driven endwise along the platform.

2. A safety razor comprising a blade platform provided with a groove running longitudinally thereof, an aligning member resiliently mounted in said groove and normally projecting above the surface of the platform and adapted to enter an aperture in a blade and definitely locate the blade on the platform, the said aligning member sloping upwardly from the platform in the longitudinal direction in which a blade travels when driven endwise along the platform.

3. A safety razor comprising a blade platform, one or more resiliently mounted aligning tongues normally projecting above the surface of the platform and adapted to enter apertures in a blade and definitely locate the blade on the platform, the said aligning tongues sloping upwardly from the platform in the direction in which a blade travels when driven endwise along the platform.

4. A safety razor comprising a blade platform provided with a groove running longitudinally thereof, an aligning member resiliently mounted in said groove and normally projecting above the surface of the platform and adapted to enter an aperture in a blade, the said aligning member sloping upwardly from the platform and in the longitudinal direction in which a blade travels when driven endwise along the platform, and a blade provided with an aperture positioned and adapted to receive the aligning member when the blade is in shaving position.

5. A safety razor comprising a blade platform and an apertured blade therefor, one or more resiliently mounted aligning tongues normally projecting above the surface of the platform and adapted to enter the aperture in the blade, said aligning tongues sloping uwardly from the platform in the direction in which a blade travels when driven endwise along the platform, the width of the said tongues being at least as great as the width of the apertures.

JOHN R. REYBURN.