July 20, 1954 Z. AUERBACH 2,683,929

INJECTOR RAZOR

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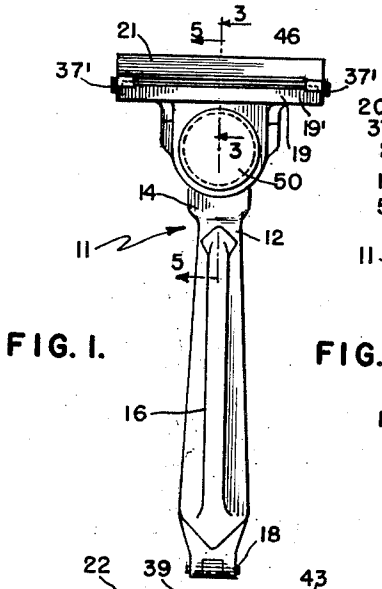


FIG. 1.

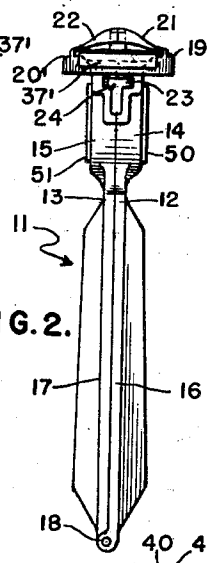


FIG. 2.

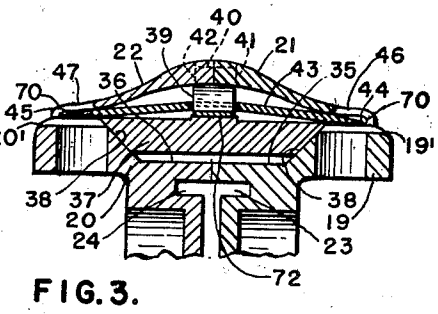


FIG. 3.

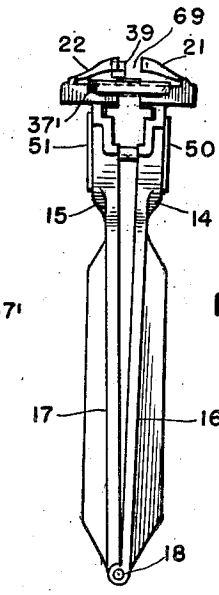


FIG. 4.

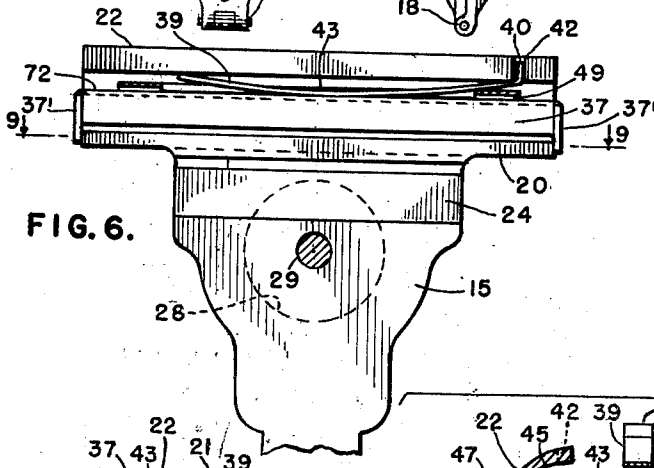


FIG. 6.

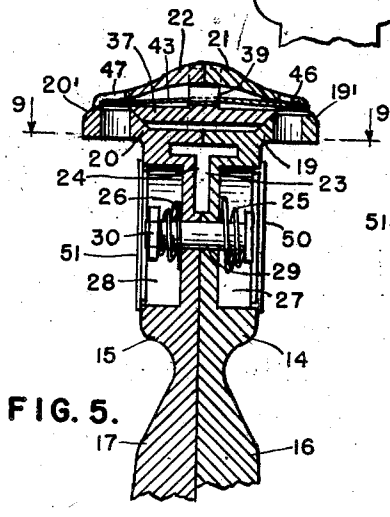


FIG. 5.

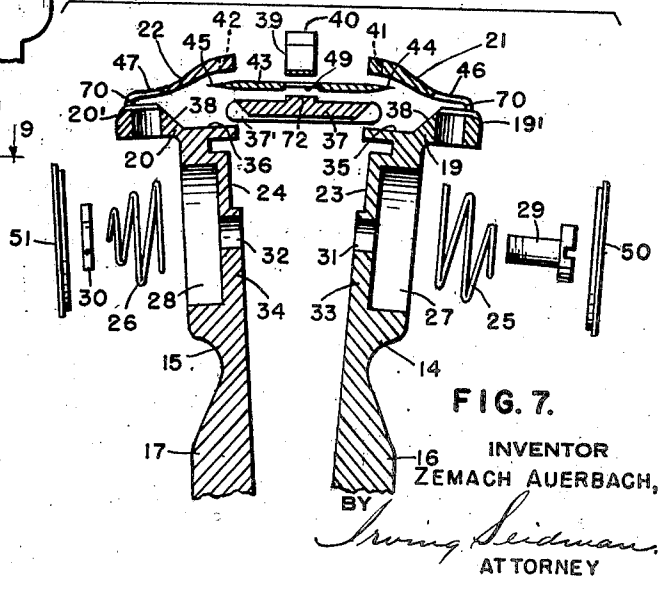


FIG. 7.

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FIG. 8.

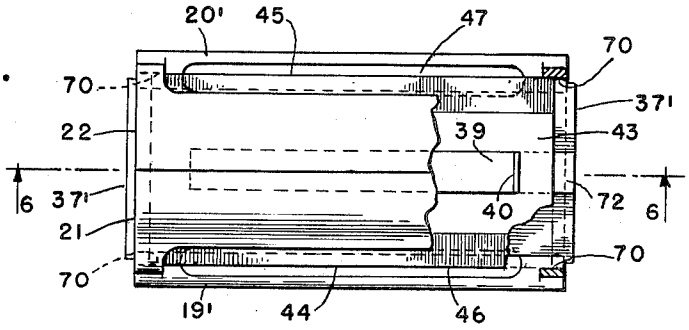


FIG. 9.

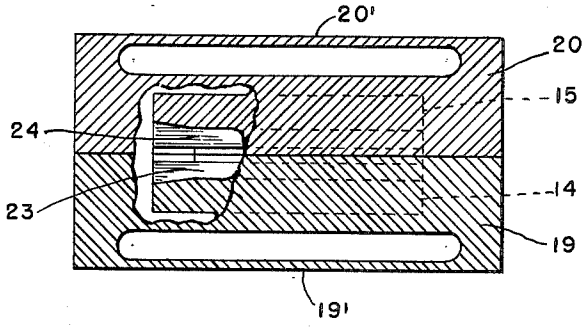


FIG. 10.

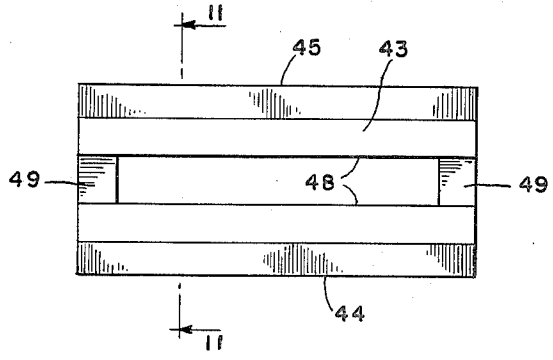
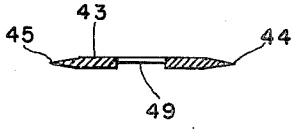


FIG. 11.



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INJECTOR RAZOR

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FIG. 12.

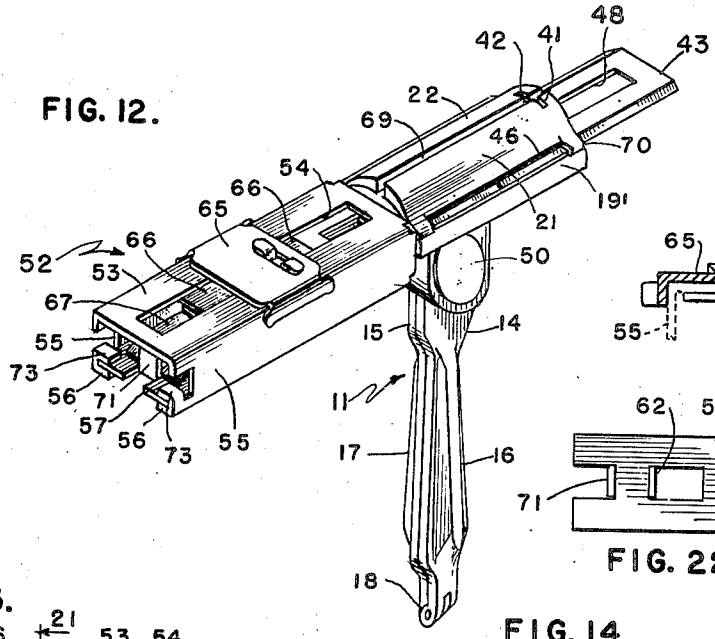


FIG. 21.

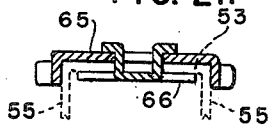


FIG. 22.

FIG. 13.

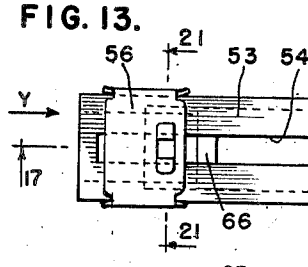


FIG. 14

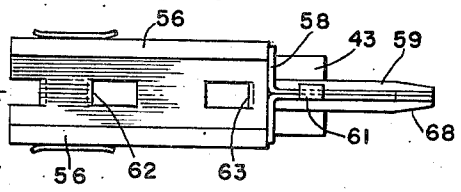


FIG. 15.

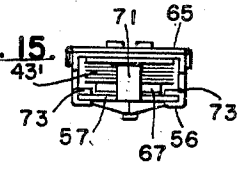


FIG. 16.

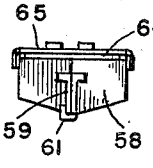
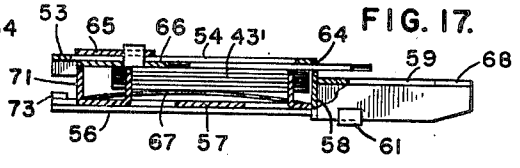


FIG. 17.



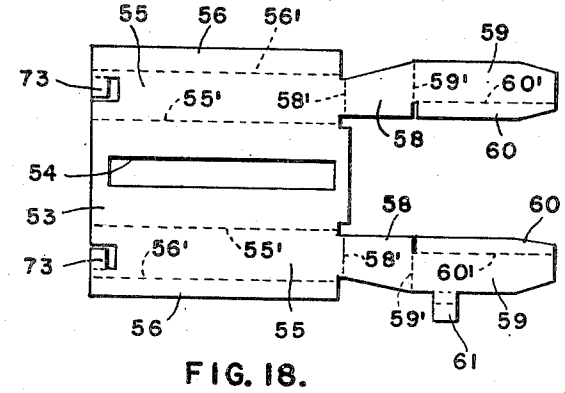


FIG. 18.

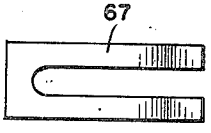


FIG. 19.



FIG. 20.

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Patented July 20, 1954

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UNITED STATES PATENT OFFICE

2,683,929

INJECTOR RAZOR

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Application July 24, 1951, Serial No. 238,344

4 Claims. (Cl. 30—74.1)

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This invention relates to safety razors for double-edged razor blades and magazines for same.

Briefly, an object of my invention is to provide a razor which is inexpensive to manufacture, simple in construction, easy to operate and which will provide the shaver with a better shave.

More particularly, another object of the invention is to provide a blade supporting plate with a central ridge and the razor head with a leaf spring to ensure central alignment of the razor blade within the razor head while a new blade is being injected into the razor.

Another object of the invention is to provide a centrally located pressure on the razor head to provide rigidity to the cutting edges and aid in the alignment of the said cutting edges.

A further object is to supply blades with a central rectangular opening and central end portions reduced in thickness for aligning and flexing the blade within the razor.

A still further object of this invention is the provision of an organization in which the constituent elements are so arranged structurally and functionally as to assure improved results with materials and members which may be manufactured at reasonable cost, may be easily assembled and which will be efficient in operation with minimum wear to the parts.

The best embodiment of the invention has been chosen for illustrative purposes, but this embodiment should be viewed as being illustrative only and not as limiting because obviously the invention is capable of other embodiments having revised details of construction, so long as they fall within the ambit of the appended claims.

The invention itself, however, both as to its organization and its method of operation, will best be understood from the following description of a specific embodiment when read in connection with the accompanying drawings, in which

Fig. 1 is a front elevational view of a razor comprising a split razor head and its split handle.

Fig. 2 is an elevational end view of the razor shown in Fig. 1.

Fig. 3 is a lateral cross sectional view greatly enlarged, with parts broken away, and taken along line 3—3 of Fig. 1.

Fig. 4 is an elevational end view, similar to Fig. 2, but shows complementary head and handle sections moved apart, a position created by the entrance of the tongue of a blade injector when same is inserted in grooved portions of the said split head, the razor blade being omitted from this view.

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Fig. 5 is an enlarged transverse section of the split razor head and part of the split handle and is taken along line 5—5 of Fig. 1.

Fig. 6 is an enlarged longitudinal sectional view of the split razor head taken along line 6—6 of Fig. 8.

Fig. 7 is an enlarged exploded sectional view of the parts shown in Fig. 5.

Fig. 8 is an enlarged top or plan view of the razor head of the razor shown in Figs. 1 and 2 with parts broken away.

Fig. 9 is a sectional plan view taken along line 9—9 of Figs. 5 and 6 with a portion broken away.

Fig. 10 is an enlarged detail showing the bottom of a razor blade used with the razor shown in the previous figures.

Fig. 11 is an enlarged sectional view of the razor blade shown in Fig. 10, and taken along line 11—11 of Fig. 10.

Fig. 12 is a perspective view of the razor with a magazine attached thereto showing a blade being inserted and ejecting the used blade.

Fig. 13 is a top view of the magazine.

Fig. 14 is a bottom view of same.

Fig. 15 is an end view of same looking in the direction indicated by the arrow Y of Fig. 13.

Fig. 16 is an elevational view of the opposite end of the magazine.

Fig. 17 is a longitudinal sectional elevation taken along line 17—17 of Fig. 13.

Fig. 18 shows a blank, indicating the cut out and folding lines to fashion the housing of the magazine.

Fig. 19 is a plan view of a leaf spring used in the magazine.

Fig. 20 is a side elevational view of same.

Fig. 21 is a transverse section, enlarged, of a slider showing its attached pusher element and is taken along line 21—21 of Fig. 13.

Fig. 22 is a plan view of a base member of the magazine.

Referring in detail to the parts (Figs. 1 to 11 inclusive), 11 designates, in general, a razor comprising a pair of complementary split sections 12 and 13 each having a split razor head 14, 15 and split handle sections 16 and 17, respectively. The said complementary split sections 12 and 13 are joined, at the lower ends of the handle sections 16 and 17 by a hinge 18. Instead of the hinge 18, the handle may be fashioned of one piece and bent over at the present hinge portion or joined together by any other well known means. The upper ends of the said split razor head 14, 15 are each formed with a split platform 19, 20 which extends laterally over the outer sides of

the split razor head to form guards 19' and 20' extending slightly beyond the cutting edges of a razor blade.

Extending upwardly from, and integrally formed upon the guards 19' and 20' is a curved split cap 21, 22 which encases a razor blade when same is positioned upon the split platform. Longitudinal grooves 23 and 24 are formed upon the contacting inner sides of the complementary split razor head which when brought together, will form a funnel shaped entrance for the purpose hereinafter explained (Figs. 8 and 6). While the drawing shows this opening to be T-shaped, it may be of many different formations.

To hold the said split razor head and split members together there is provided a pair of spiral springs 25 and 26 which are housed in pockets 27 and 28 formed in each complementary split razor head (Figs. 6, 7 and 8). Engaging through the said springs 25 and 26 is a headed bolt 29 having a nut 30 engageable over the threaded end of the said bolt and is tightened against the said springs 25 and 26, the said bolt 29 engaging through orifices 31 and 32 in the walls 33 and 34 of the said pockets. Below the split cap 21, 22 at a distance therefrom, is a depressed portion 35, 36 in which rests a razor blade supporting plate 37 formed with beveled longitudinal edges 38 coinciding with similar edges in the depressed portions 35—36 (Fig. 3). The said supporting plate 37 is formed at both ends with flanges 37' (Fig. 6) which engage over the ends of the open ends of the said depressed portion 35—36 and hold same in place. Engageable between the said supporting plate 37 and the split cap 21, 22 there is a flat or leaf spring 39 (Figs. 6, 7 and 8) having an angularly bent end 40 (Fig. 6) which fits into slots 41, 42, when the split members are together or in closed position.

A double edged razor blade 43 is adapted to partially rest upon the supporting plate 37 which, due to the compression of the spiral springs 25, 26, bends the razor blade 43 (Fig. 3) to give the proper angle to the cutting edges 44 and 45 which extend through slots 46 and 47 which are formed behind the guards 19' and 20' The razor blades 43 are formed with a central longitudinal cutout 48 and at opposite ends of same are grooves 49, 49 wherein the thickness of the blade is reduced (Figs. 10 and 11) to give greater flexibility to the razor blade and to help align the blade in the razor head. Small, disk-like covers or caps 50 and 51, having flanged rims, are provided and fit snugly into the pockets 27 and 28 and are held in place by snug frictional contact.

Figs. 3 and 5 clearly show the split members as they appear when normally held together by the urge of the springs 25 and 26, and also show a razor blade in position. The T-shaped slot formed by the longitudinal grooves 23 and 24, with its funnel shaped entrance, provides a means for receiving a T-shaped tongue formation upon a magazine which will now be described.

Referring to Figs. 12 to 22, inclusive, in Fig. 12 there is shown, in perspective, the heretofore described razor having a magazine attached thereto.

The said magazine, generally designated by the numeral 52, comprises a housing or casing having a top 53 formed with a longitudinal slot 54, side walls 55 and bottom flanges 56 upon which there rests a bottom plate 57 (Figs. 12, 15, 17 and 22). The housing also has a front wall 58 (Figs. 14, 16 and 17) from which there extends a T-shaped tongue 59. The parts forming the magazine 52, as just described with the exception of the bottom plate 57, are integrally formed and the blank therefor is clearly illustrated in Fig. 18 showing the lines of the various parts to be bent and cut out. To make the magazine, the side walls 55 are formed by bending downwardly along the dotted lines 55'; the flanges 56 by bending inwardly along the dotted lines 56'; the T-portion of the tongue 59 by bending upwardly the flanges 60 along the dotted lines 60', then bending the tongue portions 59 upwardly along the dotted lines 59', then bending the front wall portions 58 inwardly along the dotted lines 58', and finally bending the clip 61 over the bottom edge of the tongue 59, as indicated in Figs. 14, 16 and 17.

The bottom plate 57, the outside of which is shown in Fig. 14 and in section in Fig. 17, has two upright elements 62 and 63 which function as a centering means for stacked razor blades 43' (Figs. 15 and 17). The said upright elements 62 extend upwardly to a point slightly below the bottom of the uppermost razor blade 43 and a slot 64 is formed in the front wall 58 through which the uppermost razor blade may pass as it is ejected from the magazine and injected into the razor. A finger manipulated sliding member 65 (Figs. 12, 13, 17 and 21), adapted to ride upon the top 53, has attached to it a pusher plate 66, the inner end of which engages behind the end of the uppermost razor blade to eject same from the magazine. In Figs. 12, 13, 14 and 15 the position of the slider 66 indicates a razor blade partly expelled from the magazine. A U-shaped or two-fingered leaf spring 67 engages alongside the uprights 62 and 63 and is held within the magazine by upright member and urges the stacked razor blades upwardly as each uppermost razor blade is ejected.

When the injector magazine 52 is attached to the razor head, the T-shaped tongue 59 enters the T-shaped slot in the razor head and after the tapered portions 68 have entered, the wider portion of the tongue 59 forces the split head a slight distance apart as clearly shown at 69 (Figs. 4 and 12), giving the razor blade free and easy access to its seat in the razor head and preventing any contact of the cutting edges with any part of the device and allowing only the extreme ends of the cutting edges of the razor blade to rest against the stops 70 (Figs. 3, 7, 8 and 12).

The bottom plate 57, of the magazine, is formed with an upright member 71 (Figs. 12, 15, 17 and 22) which extends upwardly in the magazine to a point slightly below the bottom of the uppermost razor blade 43, allowing the pusher member 66 to pass over same. The said upright element will prevent the removal of any razor blade from the free end of the magazine. The base plate 57 is securely held in place upon the flanges 56 by turned-in lugs 73 which are formed upon the side walls 55 (Figs. 12, 15 and 18).

In order to insert a new blade into the razor and simultaneously eject a used blade from the razor, the T-shaped tongue projecting from the front wall 58 of the magazine is inserted into the T-shaped opening of the razor whereby the split head 14, 15 is forced apart equally from the longitudinal axis line of the razor and against the pressure of the spiral springs 25, 26 so that the blade supporting plate 37 is held in place in the center of the razor head by the downward pressure of the leaf spring 39, thus loosening the used blade and permitting it to assume a flat position. The sliding member 65 of the magazine is then

moved towards the razor pushing a new blade into the razor head and simultaneously ejecting the used blade. The new blade is positioned within the razor head so that the four corners of the blade abut the four corner stops **70**. It should be noted that the central ridge **72** of the blade supporting plate **37** and the leaf spring **39** guide both the used blade and the new blade while being moved out of and into the razor head, respectively, centrally within the razor head at all times.

When the T-shaped tongue is removed from the razor head, the spiral springs **25**, **26** cause the split parts of the razor to automatically come together, thus creating a pressure upon the four corners of the blade and arcing the blade within the razor head, automatically aligning and positioning the cutting edges in relation to the guards for shaving position and causing the blade to remain in the razor in rigid position.

I claim:

1. A spreadable razor for a double edged rectangular blade, said blade having a central longitudinal opening, said razor consisting of two like halves, each half having a handle portion and a head portion, each head portion having half of an arched cap, a guard, an opening between said guard and said half cap, a stop at the end of each opening for flexing and positioning said blade within the razor head, and a depressed platform, the longitudinal side of which is pitched, spring means for holding said split razor together under constant pressure, a blade supporting and aligning plate within said depressed platform having pitched sides and a central longitudinal ridge of the same width as said opening in said blade for guiding and aligning said blade centrally within said razor, and a leaf spring between said cap and said plate of the same width as said opening in said blade for exerting a downward pressure upon said plate.

2. A spreadable razor for a double edged rectangular blade, said blade having a central longitudinal opening, said razor consisting of two like halves, each half having a handle portion and a head portion, each head portion having half of an arched cap, a guard, an opening between said guard and said half cap, a stop at the end of each opening for flexing and positioning said blade within the razor head, a depressed platform, the longitudinal side of which is pitched, opposed pockets, and aligned orifices within said pockets, said handle portions joined at the lower ends thereof, a pair of spiral springs within said pockets, a bolt engaging through said springs and said orifices and a nut at one end of said bolt for maintaining pressure upon said springs, a blade supporting and aligning plate within said depressed platform having pitched sides and a central longitudinal ridge of the same width as said opening in said blade for guiding and aligning said blade centrally within said razor, a leaf spring between said cap and said plate of the same width as said opening in said blade for exerting a downward pressure upon said plate.

3. The razor in accordance with claim 2 including covers for said pockets.

4. In combination, a spreadable razor for a double edged rectangular blade, said blade having a central longitudinal opening, said razor consisting of two like halves, each half having a handle portion and a head portion, each head portion having half of an arched cap, a guard, an opening between said guard and said half cap, a stop at the end of each opening for flexing and positioning said blade within the razor head, and a depressed platform, the longitudinal side of which is pitched, spring means for holding said split razor together under constant pressure, a blade supporting and aligning plate within said depressed platform having pitched sides and a central longitudinal ridge of the same width as said opening in said blade for guiding and aligning said blade centrally within said razor, a leaf spring between said cap and said plate of the same width as said opening in said blade for exerting a downward pressure upon said plate, said blade having opposed short channels between each end of said blade opening and the short edge of said blade, said channels of the same width as said blade opening, said ridge of said plate resting within said channels of said blade.

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