United States Patent

Keck

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[54] **SAFETY RAZOR WITH BLADE ALIGNING MEANS**

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[52] **U.S. Cl.**.....**30/75,** 30/41.5
[51] **Int. Cl.**.....**B26b 21/18,** B26b 21/40
[58] **Field of Search**.....30/51, 68, 69, 70, 75

[56] **References Cited**

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Assistant Examiner—Gary L. Smith
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[57] **ABSTRACT**

A safety razor of the type in which a flexible blade is clampingly held between a table and a cap, the cap and table being respectively provided at corner points with complementary parts that include cam surfaces, the function of which is to attain a well-defined position of the blade, both longitudinally and transversely and to insure the precise position of its cutting edges to provide improved shaving results. Another feature of the invention resides in the provision of grooves in the cap and table and whereby shaving cream or soap will be dispersed or spread over the face rather than being entirely removed during the shaving operation, thereby providing a lubricant present during secondary strokes of the razor while shaving.

3 Claims, 9 Drawing Figures

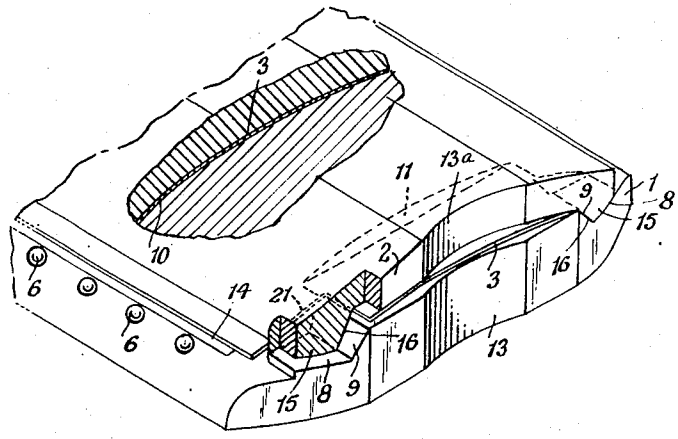


FIG.1.

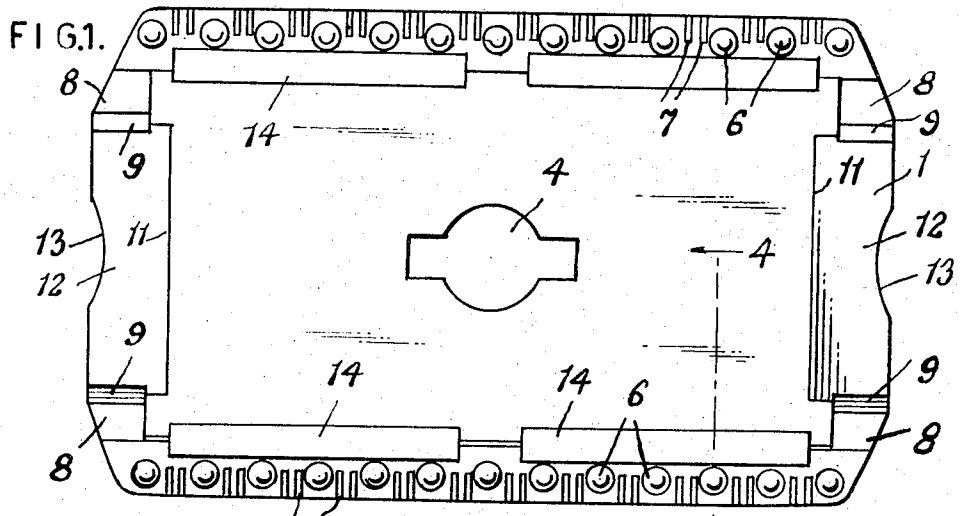


FIG.2.

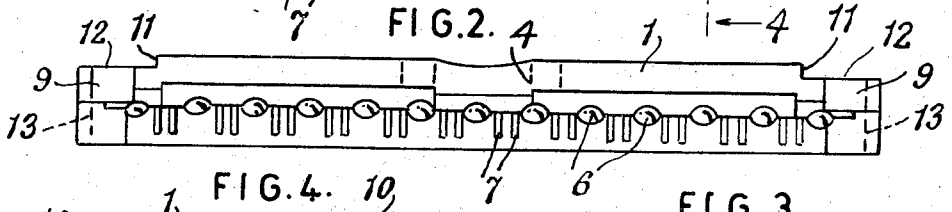


FIG.4.

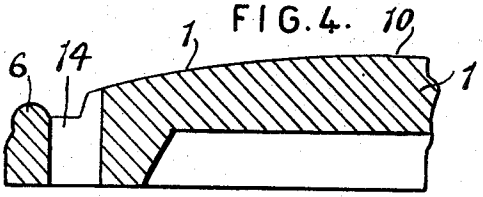


FIG.3.

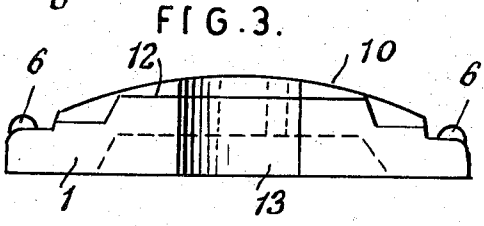
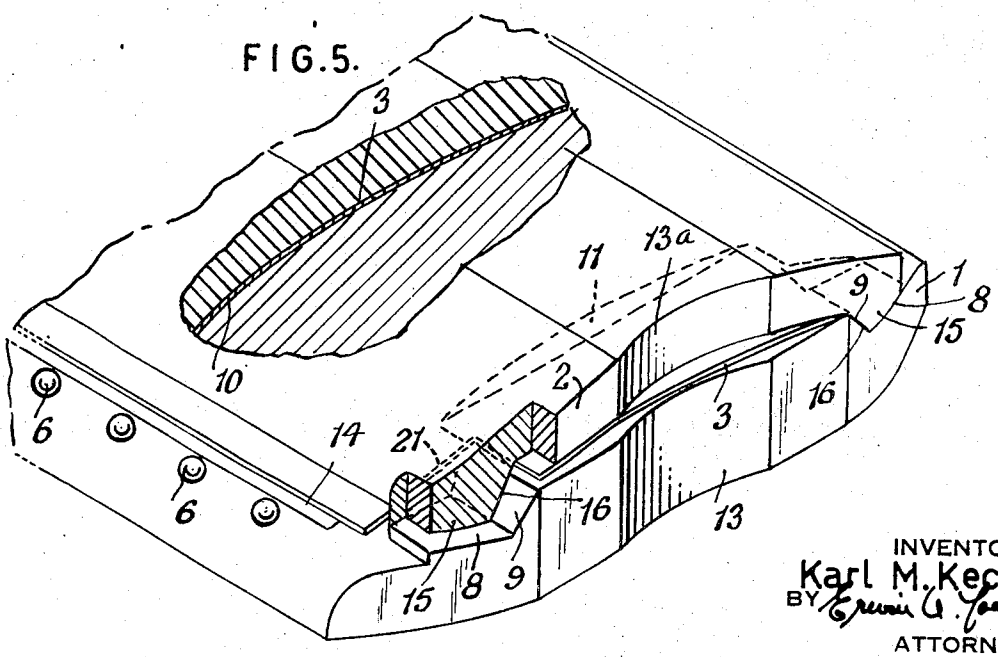


FIG.5.



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FIG.6.

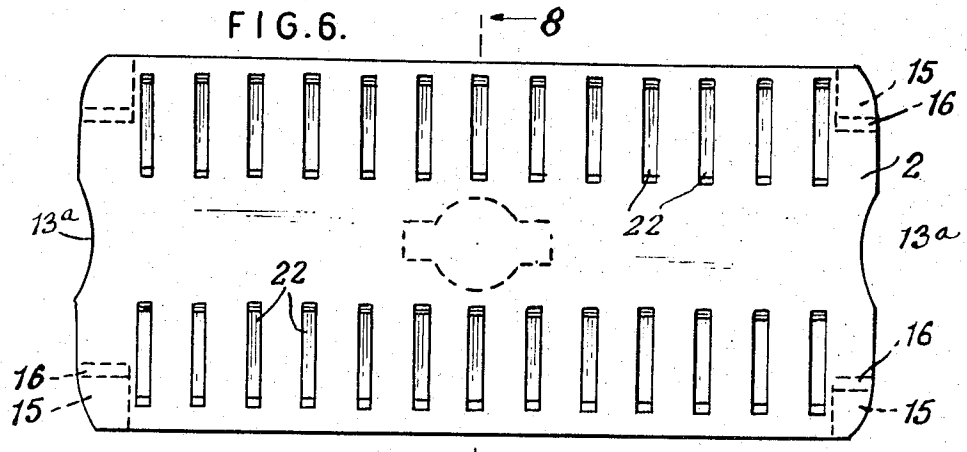


FIG.7.

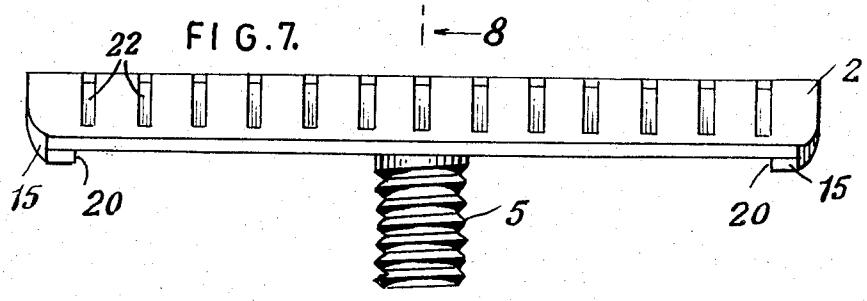


FIG.8.

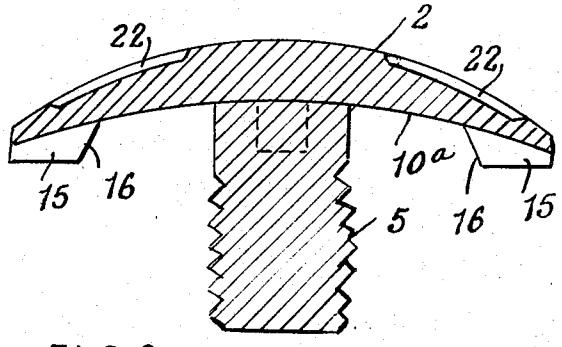
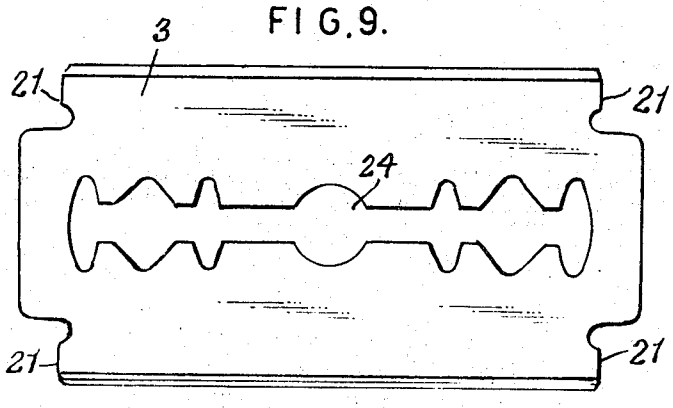


FIG.9.



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SAFETY RAZOR WITH BLADE ALIGNING MEANS

This invention relates to safety razors of the type in which a flexible double-edged blade is clampingly held between a cap and a table or blade support, and it is an object of the invention to provide means to limit the endwise movement of the blade in its holder and to positively position it so that the relationship of the ends of the blade to the cutting edges is such that such edges will be properly located in reference to the end guard members. It is another object of the invention to provide means in a razor of this character for the dispersal of shaving cream or soap, permitting the same to be dispersed or spread over the skin and aiding materially in the shaving operation.

In the accompanying drawings, wherein an illustrative embodiment of the invention is disclosed,

FIG. 1 is a top plan view of the blade-support or table of the razor;

FIG. 2 is a front elevational view of the same;

FIG. 3 is an end view of the table;

FIG. 4 is a sectional view, taken substantially on the line 4—4 of FIG. 1, looking in the direction of the arrows;

FIG. 5 is a perspective view, with some parts fragmentarily shown, of one end of the razor, and with some parts omitted for clarity in illustration;

FIG. 6 is a top plan view of the top or clamping plate of the razor;

FIG. 7 is a front elevational view of the same;

FIG. 8 is a sectional view, taken substantially on the line 8—8 of FIG. 6, looking in the direction of the arrows, and

FIG. 9 shows a type of blade which can be used in the razor.

The razor in the form disclosed, consists of four main parts; namely, the table or blade support shown at 1; the cap 2, the blade 3, and a handle of the conventional form not shown.

The table or blade support shown at 1 has a central aperture 4 through which a threaded stem 5 provided on the cap 2 extends, and which stem receives the conventional internally threaded handle not shown. The blade 3 is apertured or slotted in the usual manner as seen at 24 in FIG. 9 and said stem passes through the opening in the blade.

Extending along each of the longitudinal edges of the table 2 is a plurality of spaced apart rounded protuberances or bead-like elements 6; located in the spaces between said protuberances are shallow grooves.

The grooves shown at 7 are collection or so-called "-scavenger" grooves which, during the shaving operation, tend to spread or disperse a certain amount of the shaving cream or soap over the face, causing the cream or soap to act as a lubricant during the strokes of the razor that follow the first or initial shaving stroke. For this purpose also, spaced apart grooves 22 are provided in the upper face of the cap 2 adjacent to its longitudinal edges.

The rounded protuberances 6 are located in uniformly spaced relation and the advantages of this arrangement are pointed out at length and detail in my pending application for U.S. Pat. Ser. No. 812,637, filed Apr. 2, 1969 and now abandoned.

At the four corner areas of the table 1 are located recesses 8, each of said recesses being defined at one end by an inclined cam surface 9. The upper faces of the depressions indicated at 8 in FIG. 1 project forwardly of the inclined surfaces 9. The surfaces of the parts 8 are disposed at a flat angle to the inclined surfaces 9 as clearly shown in FIG. 5. For the major portion of the length of the upper surface of the table curvature is present as shown at 10 and the under face of the cap 2 is complementarily curved as at 10*a* in FIG. 8, these two curved surfaces co-operating in clamping the blade 3 between them to curve the blade as required and insure a uniform cutting angle and edge exposure for the length of the blade.

At each end of the blade table 1, the top surface is locally relieved as at 12 to allow flexing of the blade 3 with dimensional variations. The depressions 12 terminate at their inner ends at the shoulders 11. At the opposite ends of the table are recesses 13 to enable the ends of the blade to be manually held while loading it into the razor. Similar recesses 13a are formed at the opposite ends of the cap 2. Behind the projections 6 are formed spaced slots 14.

The cap or blade clamping plate 2 is shown in detail in FIGS. 6 to 8 inclusive. The downwardly projecting, centrally located threaded stem 5 passes through the aperture 4 in the table 1 when the cap 2 is fitted on the top of the table 1 with the blade sandwiched between the cap and the table. When the handle is firmly threaded on the stem 5 it will, in the conventional way, clamp the cap against the blade, causing the blade to be curved to conform to the surfaces on the table beneath it. As will be seen in FIG. 8, the underside of the cap 2 is provided with lugs 15 at its four corners, these lugs having inclined cam faces 16, the lugs and cam faces conforming in shape to the recesses 8, the lugs having cam surfaces contacting with the cam surfaces 9 of the table or blade support 1 and said lugs also having lower surfaces contacting with the upper faces of the recesses 8 as clearly shown in FIG. 5.

Hence, when the blade is fitted between the table 1, and the cap 2 and is clampingly held between these parts, the cam surfaces 9 and 16 force the blade to flex and locate it parallel to and centrally positioned with respect to the cap. These surfaces also tend to locate the cap and table with respect to one another. It will also be noted that the side surfaces 20 of the cams 16 (FIG. 7) engage against end parts 21 of the blade 3 and determine the proper lengthwise position of the blade.

From the foregoing, it will be noted that an effective positioning and flexing means for the blade is provided in the described structure. The cam surfaces at the four corners of the table and cap force the blade into properly flexed and aligned position, insuring both lateral and longitudinal location. The relieved areas 12 at the opposite ends of the blade table 1 allow for the flexure of the blades of dimensional variations. The sides of the cams on the cap locate the blade longitudinally and the spaced protuberances along the edges of the table constitute guards to prevent cutting of the skin during the shaving operation and as described in my pending U.S. Pat. application Ser. No. 812,637. The grooves provided in the cap and blade table spread or disperse the shaving cream or soap during the shave and insure a smooth lubricated shaving.

What I claim is:

1. A safety razor comprising, a blade-supporting table, a cap fitted thereover and acting to clamp a blade

between its under surface and the top of the table, the table having relieved areas on its upper surface adjacent to its opposite ends, the table also having inclined cam surfaces at its corners, said cam surfaces defining a face of a depression at each corner, the cap having under portions at each of its corners entering said depressions, said under portions including inclined cam surfaces conforming to those on the table, said under portions on the cap including walls which contact against and portions on the blade to definitely longitudinally position the blade between the table and the cap.

2. A safety razor having a blade-supporting table and a cap fitting thereover to clamp a blade down upon the table, the table having depressions extending only partly through it at its corners, said depressions having inclined surfaces constituting cams and also having upper faces projecting forwardly of said inclined surfaces, the cap having parts at its corners complementary to the depressions, said parts having surfaces contacting against the upper faces of the depressions and also having inclined faces resting against the inclined faces of the depressions.

3. A safety razor according to claim 2, wherein the cam surfaces are inclined and the parts on the cap have inclined surfaces that are complementary to those of the depressions, the upper surfaces of the depressions being disposed at a flat angle to the inclined surfaces of said depressions, and the parts on the cap being lugs having lower surfaces which contact with the upper surfaces of the depressions.

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