Aug. 10, 1937. C. J. McKENZIE 2,089,283

SAFETY RAZOR

Filed April 19, 1934

Fig. 1.

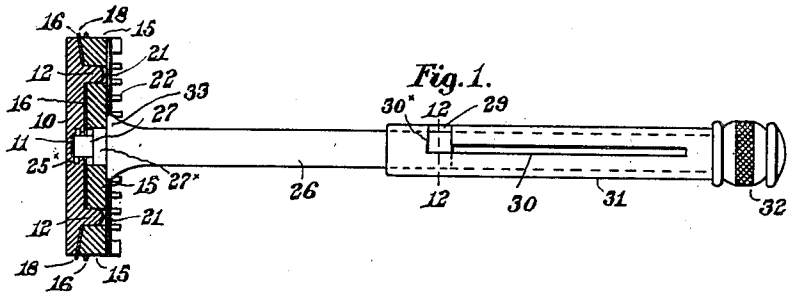


Fig. 2.

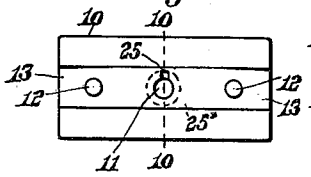


Fig. 3.

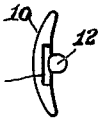


Fig. 4.

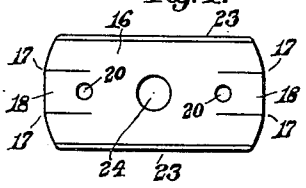


Fig. 5.

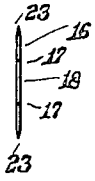


Fig. 6.

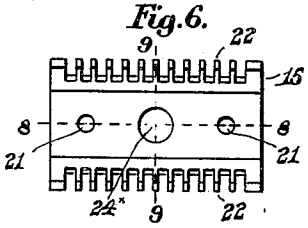


Fig. 12.

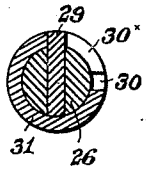


Fig. 7.

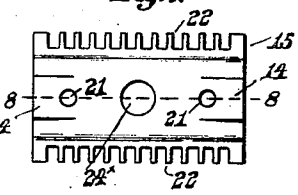


Fig. 8.

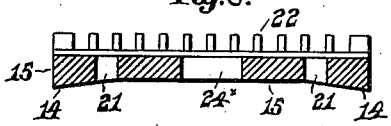


Fig. 9.

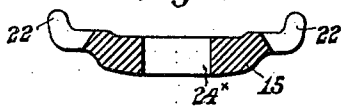


Fig. 11.

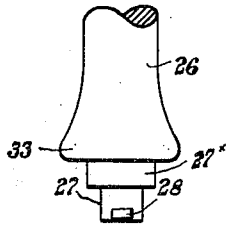


Fig. 10.

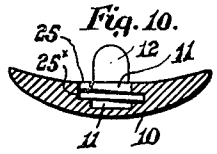
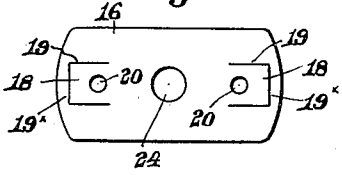


Fig. 13.



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UNITED STATES PATENT OFFICE

2,089,283

SAFETY RAZOR

Clarence J. McKenzie, Winthrop, Mass., assignor of three-tenths to Robert M. Price, Springfield, Mass.

Application April 19, 1934, Serial No. 721,335

17 Claims. (Cl. 30—75)

This invention relates to safety razors and has for its object the production of an article of this character which comprises a holder so constructed that it can be used only with a blade designed especially to fit such holder.

A further object is the provision of novel means for positioning the blade upon its supporting plate.

Another object is the provision of novel means for forcing toward each other the clamping member and the blade-supporting member in order to flex a blade interposed between these members.

Another object is the provision of a telescopic handle and means for locking the parts together when extended.

These objects are attained by the mechanism illustrated in the accompanying drawing.

For the purpose of illustrating the invention, one preferred form thereof is illustrated in the drawing, this form having been found to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized, and the invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described except as required by the scope of the appended claims.

Of the drawing

Figure 1 represents an elevation of a safety razor embodying the principles of the present invention, a portion thereof being shown in section.

Figure 2 represents a plan of the blade-supporting plate.

Figure 3 represents an end elevation of the same.

Figure 4 represents a plan of a razor blade designed for use in said safety razor.

Figure 5 represents an end elevation of the same.

Figure 6 represents a plan of the clamping or guard plate.

Figure 7 represents an inverted plan of the same.

Figure 8 represents a section of the same on line 8, 8 on Figs. 6 and 7, drawn to an enlarged scale.

Figure 9 represents a transverse section of the same on line 9, 9 on Fig. 6.

Figure 10 represents a transverse section of the blade-supporting plate on line 10, 10 on Fig. 2.

Figure 11 represents an elevation of one end of the handle for said safety razor.

Figure 12 represents a transverse section on line 12, 12 on Fig. 1, and

Figure 13 represents a plan of a modified form of blade.

Similar characters indicate like parts throughout the several figures of the drawing.

In the drawing, 10 is a curved blade-supporting plate having centrally disposed therein a socket 11 on opposite sides of which and at equal distances therefrom are blade-registering studs 12 extending from the inner face of said plate.

This plate 10 has at opposite ends thereof depressions 13, the bottoms of which are inclined downwardly towards the ends of said plate.

These depressions 13 are adapted to receive inclined projections 14 formed upon a clamping plate or blade guard 15.

Between the blade-supporting plate 10 and the clamping plate 15 is interposed a thin flexible blade 16 capable of being flexed to a desired curvature between said plates 10 and 15.

This blade 16 preferably has parallel slits 17 formed in the ends thereof producing outwardly extending tongues 18.

The tongues 18, inclined depressions 13 and inclined projections 14 are all of equal width.

A blade 16 may be registered on the plate 10 by the studs 12 and then the clamping plate 15 superimposed on said blade.

When the parts are thus assembled and the clamping plate 15 is forced toward the blade-supporting plate 10, the inclined projections 14 will bend the tongues 18 downwardly into the depressions 13 with the side edges of the tongues 18 abutting the opposite walls of the depressions 13, and at the same time the sides of the projections 14 will abut the walls of said depressions 13.

When this has been done the blade will be positively locked in position with its edges parallel with the edges of the guard plate 15.

Instead of cutting slits 17 into the ends of the blade 16 to form the tongues 18, these tongues 18 may be formed adjacent the ends of the blade 16 by making U-shaped incisions 19 therein as shown in Fig. 13.

In the latter case, the inclined projections 14 should be set in slightly from the ends of the blade-clamping plate 15, so that the outer walls thereof will abut the edges 19x of blade 16 beyond the tongues 18.

In the tongues 18 are formed small openings 20 to receive the registering studs 12 projecting upwardly from the blade-supporting plate 10.

It is of some importance that these openings 20 should be in the tongues 18 and not in some other part of the blade 16 as this would prevent the use of a blade with the tongues 18 dispensed with.

The studs 12 extend upwardly above the face of the plate 10 sufficiently to facilitate the registering of the blade 16 on the plate 10 when the parts of the razor are being assembled.

These studs 12 will register the blade 16 when placed upon the supporting-plate 10 until the clamping plate 15 has been superimposed upon the blade 16 and forced toward the plate 10 in order to flex the blade 16.

The clamping plate 15 is provided with two holes 21 to receive the ends of studs 12 and also has the usual guard teeth 22.

The blade 16 has two longitudinal knife edges 23 as is common with most safety razor blades and is thin enough to flex readily when clamped between the plates 10 and 15.

The blade 16 has centrally disposed therein a cylindrical opening 24.

The socket 11 in the blade support 10 is provided with a bayonet slot 25 formed therein, one portion 25x of this bayonet slot 25 being inclined as shown in Fig. 10.

A handle 26 is provided with a shank 27 which is insertable through the openings 24, 24x, into the socket 11 and has a projection 28 thereon adapted to enter the bayonet slot 25.

When the shank 27 of the handle 26 has been inserted into the bayonet slot 25 a rotation of said handle will force the clamping plate 15 toward the blade-supporting plate 10 and flex the blade 16, at the same time bending down the tongues 18 into the inclined depressions 13 of the plate 10.

The inclined depressions 13, if desired, could be formed in the plate 15 and the projections 14 formed on the blade-supporting plate 10 without affecting the principles of the invention although better results are obtained by forming the depressions in the supporting plate 10.

When a new blade 16 is to be used it is placed upon the plate 10 with the studs 12 extending through the openings 20 in the tongues 18 of said blade, these studs 12 being the only means of registering the blade upon its supporting plate.

The guard plate 15 is then placed upon the blade 16 with the studs 12 disposed in the holes 21 in said guard plate.

The shank 27 of handle 26 is then passed through the opening 24x in the guard plate 15 and through the opening 24 in the blade 16 and is inserted into the socket 11, the projection 28 on the shank coacting with the bayonet slot 25.

The enlarged head 33 of the handle 26 will bear on the upper face of the guard plate 15 and when the handle 26 is turned causing the projection 28 to travel along the inclined portion 25x of said slot 25, the plate 15 will be forced toward the plate 10 causing the blade 16 to be flexed and the projections 14 during this operation will bend the tongues 18 downwardly into the depressions 13.

Owing to the inclination of the portion 25x of the slot 25, the lug 28 on shank 27 of handle 26 coacting with said slot will lock the handle to said plate 10 and prevent accidental displacement therefrom.

Instead of the bayonet slot 25 in the socket 11, said socket 11 may be threaded to receive a threaded shank 27.

The shank 27 is provided with an enlarged cylindrical portion 27x which fits the hole 24x in the guard plate 15.

The handle is made in two parts, the inner part 26 having near its outer end a lug 29 which enters into a bayonet slot 30 formed in an outer tubular member 31 movable endwise of the inner part 26.

When this outer tubular member 31 has been moved outwardly on the inner part 26 until the lug 29 on the latter has reached the end of the bayonet slot 30, a quarter turn of the tubular member 31 will lock the two parts together, the part 30x of said bayonet slot being wedge-shaped, as shown in Fig. 1, thereby permitting the walls thereof to impinge upon the lug 29.

The outer end of the tubular member 31 is provided with a weighted knob 32 of greater diameter than the tubular member 31.

When the handle is extended the full length a greater leverage is secured which makes the razor much easier to operate, the extended handle being of greater length than the width of the hand of the operator.

With such a long handle weighted at its outer end a better balance of the razor is obtained.

It has been found that a better shave is obtained by the use of a razor which has such an extended balanced handle than it has been able to obtain by the ordinary safety razor with a short handle.

The handle 26 has at its inner end an enlarged head 33 closing the opening 24x in guard plate 15 and bearing upon the outer face of said plate 15.

It will be noted that the blade 16 constructed as described cannot be used in blade holders now in common use and must be used only on the holder herein shown and described.

It is also obvious that none of the blades now on the market can be used on the holder embodying the features of the present invention.

As the type of blade herein shown must always be used on the type of holder herein shown, the interests of the manufacturers of said holder will be protected as other manufacturers cannot make for said holder cheap blades of inferior material which if used would create a prejudice against the holder itself.

Naturally manufacturers of a good safety razor holder desire that there should be used therewith only blades of superior quality made by themselves, and by means of the present invention this desired result may be obtained.

It is believed that the operation and many advantages of the invention will be understood without further description.

Having thus described my invention, I claim:

1. A safety razor comprising a blade-supporting member having blade registering projections thereon and provided at opposite ends with inclined depressions, a blade-clamping member having inclined projections fitting said inclined depressions, means for forcing said members together to flex the blade, and a flexible blade having at opposite ends parallel slits forming tongues adapted to be forced into said depressions by said inclined projections, said inclined projections, depressions and tongues being of equal width.

2. A safety razor comprising a blade-supporting member having blade registering studs thereon and provided at opposite ends with inclined depressions, a blade-clamping member having inclined projections fitting said inclined depressions, means for forcing said members together to flex the blade, and a flexible blade having at opposite ends parallel slits forming tongues adapted to be forced into said depressions by said inclined projections, said tongues having openings therein to receive said studs.

3. A safety razor comprising a blade-support-

ing member having blade registering projections thereon and provided at opposite ends with inclined depressions, said member having a centrally disposed socket, a blade-clamping member having inclined projections fitting said inclined depressions, means for forcing said members together to flex the blade, a flexible blade having at opposite ends parallel slits forming tongues adapted to be forced into said depressions by said inclined projections, and a handle having a shank inserted into said socket and secured to said blade-supporting member.

4. A safety razor comprising a blade-supporting member having blade registering projections thereon and provided at opposite ends with inclined depressions, said member having a centrally disposed socket, a blade-clamping member having inclined projections fitting said inclined depressions, a flexible blade having at opposite ends parallel slits forming tongues adapted to be forced into said depressions by said inclined projections, and a handle having a shank insertable into said socket and so connected thereto that by the rotation of said handle said members will be forced together and flex the blade.

5. A safety razor comprising a blade-supporting member having blade registering projections thereon, said member having a centrally disposed socket, a blade-clamping member, and a handle having a shank insertable into said socket and secured therein by a projection on said shank extending into a bayonet slot formed in said socket whereby said members may be forced together by the rotation of said handle.

6. A safety razor comprising a blade-supporting member having blade registering means thereon and provided at opposite ends with inclined depressions, said member having a centrally disposed socket, a blade-clamping member having inclined projections fitting said inclined depressions, a flexible blade having at opposite ends tongues adapted to be forced into said depressions by said inclined projections, and a rotatable handle having a shank insertable into and so connected with said socket that by the rotation of said handle said members may be forced toward each other and flex the blade.

7. A safety razor comprising a blade-supporting member having blade registering means thereon and provided with oppositely disposed inclined depressions, a blade-clamping member having inclined projections to coact with said inclined depressions, means for forcing said members together to flex a blade, and a flexible blade having oppositely disposed tongues adapted to be forced into said depressions by said inclined projections, said inclined projections, depressions and tongues being of equal width.

8. A safety razor blade of the thin flexible type adapted to be clamped between relatively movable members comprising a body portion of substantially rectangular shape and having cutting edges extending longitudinally along two opposite sides thereof, said body portion having spaced slots extending inwardly from each end thereof to define between them two narrow tongue members of a width not substantially greater than one-third of the width of the blade normally occupying the plane of the remainder of the blade and adapted to be flexed out of the plane of the blade by one of said members for effecting positioning of the blade with respect to the other of said members, the blade being centrally apertured and said tongues being apertured.

9. A safety razor blade of the thin flexible type adapted to be clamped between relatively movable members of a holder in a position of transverse curvature for shaving, and comprising a normally flat body portion sharpened at a longitudinal edge and having in the same plane with said body portion normally alined tongues with parallel sides the outer ends of which are adapted to be bent downwardly at slight angle to the body portion of the blade when the blade is clamped between said movable members, said tongues having a length substantially equal to the width thereof and sides which are parallel for their entire length and are adapted to register with parallel side walls of a depression in one of said movable members.

10. A safety razor blade of the thin flexible type adapted to be clamped between relatively movable members of a holder in a position of transverse curvature for shaving, and comprising a normally flat body portion sharpened at a longitudinal edge and having in the same plane with said body portion normally alined tongues having throughout their entire length parallel sides and the outer ends of which are adapted to be bent at slight angle to the body portion of the blade into depressions of equal width in one of said movable members when the blade is clamped between said movable members, said tongues being provided with openings therein so positioned as to receive oppositely disposed blade registering members of the same diameter throughout and said tongues having a length substantially equal to the width thereof.

11. A safety razor blade of the thin flexible type adapted to be clamped between relatively movable members of a holder in a position of transverse curvature for shaving, and comprising a normally flat body portion sharpened at a longitudinal edge and having parallel to said edge spaced slits extending inwardly from the ends of said blade and forming normally alined tongues in the same plane as said body portion and adapted to be bent at slight angle to the body portion of the blade when the blade is clamped between said movable members, said tongues having for their entire length parallel straight sides and a length substantially equal to the width thereof.

12. A safety razor blade of the thin flexible type adapted to be clamped between relatively movable members and comprising a normally flat body portion of substantially rectangular shape and having cutting edges extending longitudinally along two opposite sides thereof, said body portion having spaced parallel slits extending inwardly from each end thereof to define between them two narrow alined tongues in the same plane as said body portion and adapted to be flexed out of the plane of said body portion by flat inclined surfaces on one of said members for effecting positioning of the blade in depressions in the other of said members, said tongues and depressions being of substantially the same width.

13. A safety razor blade of the thin flexible type adapted to be clamped between relatively movable members and comprising a normally flat body portion of substantially rectangular shape and having cutting edges extending longitudinally along two opposite sides thereof, said body portion having spaced parallel slits extending inwardly from each end thereof to define between them two narrow alined tongues in the same plane as said body portion and adapted to be flexed out of the plane of the blade by inclined flat faces of projections on one of said members for effecting positioning of the blade in depres-

sions in the other of said members, said tongues and depressions being of substantially the same width, said body portion being centrally apertured and said tongues being apertured at their inner ends.

14. A safety razor blade of the thin flexible type adapted to be clamped between relatively movable members and comprising a normally flat body portion of substantially rectangular shape and having cutting edges extending longitudinally along two opposite sides thereof, said body portion having spaced parallel slits extending inwardly from each end thereof to define between them two narrow alined tongues in the same plane as said body portion and adapted to be flexed out of the plane of said body portion by one of said members for effecting positioning of the blade in depressions in the other of said members, said tongues and depressions being of substantially the same width, the body of the blade being simultaneously flexed by said members in a different plane.

15. A safety razor blade of the thin flexible type adapted to be clamped between relatively movable members and comprising a normally flat body portion of substantially rectangular shape and having cutting edges extending longitudinally along two opposite sides thereof, said body portion having spaced parallel slits extending inwardly from each end thereof to define between them two narrow alined tongues, in the same plane as said body portion and with parallel straight sides for their entire length, the body of said blade and said tongues being adapted to be flexed simultaneously in different planes by the movement of said members relatively to each other.

16. A safety razor blade of the thin flexible type adapted to be clamped between relatively movable members and comprising a normally flat body portion of substantially rectangular shape and having cutting edges extending longitudinally along two opposite sides thereof, said body portion having formed near opposite ends thereof and in the same plane therewith elongated tongues with parallel sides disconnected at their outer ends from said body portion and adapted to be flexed out of the plane of said body portion by one of said members for positioning of the blade in depressions in the other of said members, said tongues and depressions being of substantially the same width for their entire length, and the body portion of said blade being adapted to be flexed in a different plane by the relative movement of said movable members.

17. A safety razor blade of the thin flexible type adapted to be clamped between relatively movable members and comprising a normally flat body portion of substantially rectangular shape and having cutting edges extending longitudinally along two opposite sides thereof, said body portion having formed near opposite ends thereof and in the same plane therewith elongated tongues with parallel sides disconnected at their outer ends from said body portion and adapted to be flexed out of the plane of said body portion by one of said members for positioning of the blade in depressions in the other of said members, said tongues and depressions being of substantially the same width for their entire length, and the body portion of said blade being adapted to be flexed in a different plane by the relative movement of said movable members.

CLARENCE J. McKENZIE.