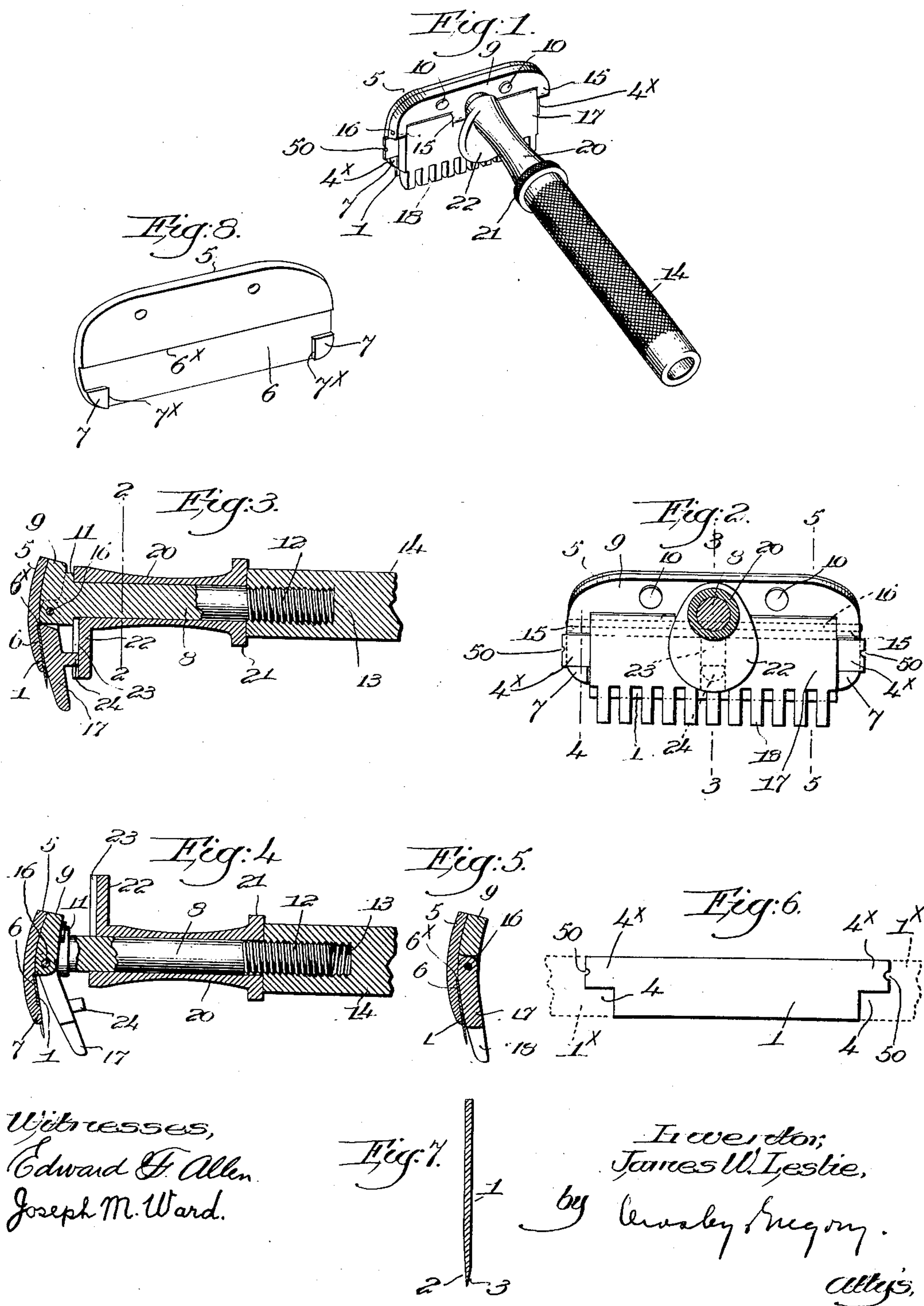


908,470.

J. W. LESLIE.
SAFETY RAZOR.
APPLICATION FILED MAR. 20, 1907.

Patented Jan. 5, 1909.



UNITED STATES PATENT OFFICE.

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SAFETY-RAZOR.

No. 908,470.

Specification of Letters Patent.

Patented Jan. 5, 1909.

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To all whom it may concern:

Be it known that I, JAMES W. LESLIE, a citizen of the United States, and resident of Wakefield, county of Middlesex, State of Massachusetts, have invented an Improvement in Safety-Razors, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention has for its object the production of a novel, simple and efficient safety-razor, my invention comprehending means for holding and clamping in operative position the cutting blade, the apparatus being so constructed and arranged that relatively thin but stout and flat blades may be used. Such blades are readily manufactured, and they have sufficient body and rigidity to take and hold a fine and keen cutting edge, and they can be honed or stropped when necessary by means of suitable apparatus.

In the apparatus herein illustrated as embodying a very practical and efficient form of my invention the blade is laid on the blade-seat, a clamping member is brought into engagement therewith, and by a simple and efficient locking device the clamping member is pressed firmly upon the blade, clamping it in operative position.

The structure is such that the pressure upon the blade may be applied or released by a single movement of the fingers of the user, and I have also made the blade reversible, with the opposite bevels forming its cutting edge, so that a heavy or light cut may be had, according to the will of the user.

The novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a perspective view of a safety-razor embodying one form of my invention, the blade being clamped in position ready for use; Fig. 2 is an enlarged rear elevation of the main part of the apparatus, taken on the line 2—2, Fig. 3, the shank and locking sleeve being in section; Fig. 3 is a longitudinal section through the shank and the blade-holding means, taken on the line 3—3, Fig. 2; Fig. 4 is a view similar to Fig. 3, but showing the clamp open to permit removal or insertion of the blade, the blade-holding por-

tion being taken on the line 4—4, Fig. 2, to show the means for positioning the blade on the blade-seat; Fig. 5 is a section on the line 5—5, Fig. 2; Fig. 6 is a plan view of the blade; Fig. 7 is an enlarged cross sectional detail of the cutting edge of the blade; Fig. 8 is an inner side elevation of the front plate, showing the blade-seat and the blade-positioning means.

The blade 1, Fig. 6, is preferably made of flat and relatively thin steel, but of sufficient thickness and rigidity as to be readily handled and capable of taking and holding a good cutting edge, and in Fig. 7 I have shown the latter as having opposite long and short bevels 2, 3, for a purpose to be referred to. The blades are conveniently cut or stamped from a strip of metal of the requisite width and thickness, the strip being indicated at 1^x by dotted lines Fig. 6. The blades are shaped at their ends to present preferably rectangular notches 4, adjacent the cutting edge, and extensions 4^x adjacent the back of the blade, the latter being imperforate. By making the depth of each notch equal to one-half the width of the blade waste of stock is obviated, when cutting or stamping out the blades, the notches of one blade corresponding to the extensions of the contiguous blade, and vice versa, as will be manifest from an inspection of Fig. 6. The notches 4 coöperate with positioning means on the blade-seat, as will be described, to limit endwise movement of the blade when seated, the ends of the blade presenting a stepped outline as herein shown.

In Fig. 1 I have illustrated in perspective the complete apparatus, assembled and in readiness for use, the holding means for the blade comprising a rigid metallic front-plate 5 provided on its inner face with a transverse shoulder 6⁺ and a flat blade-seat 6, clearly shown in Fig. 8. The outer face of the plate is slightly convexed, as shown in Figs. 3, 4 and 5, to facilitate its passage across the face when shaving. Lugs 7 on the inner face or blade-seat 6 at the ends of the front plate are shaped to present opposite and parallel short shoulders 7^x, at right angles to the long shoulder 6^x, the top edges of the lugs being parallel to such shoulder 6^x, as clearly shown in Fig. 8. When the blade 1 is laid on the seat 6 the lugs 7 enter the notches 4 of the blade, while the shoulder 6^x positions the back of the blade, the shoul-

ders 7* preventing endwise movement of the blade on the blade-seat, the cutting edge of the blade extending below the front plate, Figs. 3 and 4. A cylindrical shank 8 is fixedly attached to the front-plate, and herein I have shown the shank as having a laterally extended head 9, secured to the front plate 5 by suitable fastenings, as rivets 10, see Figs. 1 and 2. An annular shoulder 11 is formed on the shank adjacent the head, and the opposite end of said shank is screw-threaded at 12, to receive the internally threaded end 13 of a handle 14. Preferably the handle is roughened or knurled, as shown in Fig. 1, to afford a firmer grasp for the fingers when the razor is in use. The shank-head 9 is provided with depending ears 15, through which is extended a rod or pintle 16, on which is pivotally mounted or hinged a clamping member 17, herein shown as a rigid plate suitably shaped at its upper edge to accommodate the ears 15. Said clamping member is made comb-like or toothed at its lower edge, at 18, as is common in safety razors, to act as a guard when the blade is drawn across the skin. The clamping member overhangs and is movable toward and from the blade-seat 6 of the front-plate, as will be manifest from Figs. 3 and 4, and when in its operative position the member 17 presses upon the blade 1 and clamps it securely upon its seat.

In Figs. 3, 4 and 5 I have exaggerated the clearance between the cutting edge of the blade and the adjacent portion of the combined clamp and guard 17, in order to make the illustration clear. To avoid interference of the clamp and guard 17 with the positioning lugs 7 the distance between the shoulders 7* is slightly greater than the length of the member 17, so that the latter will engage and press upon the exposed face of the blade when the latter is seated on the blade-seat 6. By such arrangement the blade is securely and immovably clamped on its seat when in use, and at such time the extensions 4* of the blade project beyond the side edges of the front plate, see Figs. 1 and 2, affording a convenient means for grasping the blade to place it on the seat or to remove it therefrom, thereby obviating any danger of cutting the fingers on the sharp cutting edge of the blade. I have provided very simple and efficient locking means to retain the clamping member in operative position, such means being governed by the handle 14. To this end a locking sleeve 20 is mounted on the shank 8, and rotatably and longitudinally movable thereon between the annular shoulder 11 and the end of the handle 14, the outer end of the sleeve having an annular, knurled enlargement 21 thereon. On its inner end the sleeve has an eccentric head 22 provided with a radial groove 23 in its face nearest the shoulder 11, the

groove being adapted to receive a projection 24 on the outer face of the clamping member 17 when the head is downturned, as in Figs. 1, 2 and 3. Supposing the blade is to be removed, the handle 14 is unscrewed sufficiently to permit the locking sleeve to be moved longitudinally on the shank from its position shown in Fig. 3 to that shown in Fig. 4, thereby disengaging the projection 24 from the groove 23. The sleeve 20 is now rotated about half way round, turning the eccentric head 22 up, and the clamping member 17 is swung away from the blade, as shown in Fig. 4, permitting the blade to be lifted off the seat by grasping the extensions 4* between the thumb and one finger of the hand. In applying the blade the operations are reversed, for after the blade is seated the member 17 is swung into clamping position, the sleeve is turned to bring the groove 23 into position to receive the projection 24, and the sleeve is pushed to the left, Fig. 4, to effect such engagement. Now the handle 14 is screwed up against the end of the locking sleeve, and the head of the latter is thereby pressed against the projection 24, forcing the clamping member 17 tightly against the blade and retaining the latter firmly seated. It will be seen that a very slight movement of the handle on the shank is sufficient to release or tighten the locking sleeve, the shoulder 11 acting as a stop to prevent improper forcing of the sleeve into locking position. The knurled enlargement 21 of the sleeve facilitates movement thereof by the fingers, rotatively and longitudinally on the shank, and the engagement of the projection 24 with the groove 23 prevents any rotation of the sleeve when the handle is screwed up.

As all the parts are of metal the apparatus can be readily washed or cleansed by dipping it in water, and the apparatus can be easily dried by wiping on a towel when the clamping member is unlocked and the blade removed. By reversing the blade so that the longer or shorter bevel of its cutting edge is outward the depth of the cut is regulated so that a closer shave, or a lighter one, may be had. The apparatus is light, strong, compact and durable, and it can be packed into a very small compass by unscrewing the handle from the shank, though generally this will be unnecessary. As the blade is imperforate it may be made quite thin while retaining sufficient and proper strength and stiffness for stropping when necessary, and it is as easily cleansed and dried as is the blade of the ordinary and well-known razor. The positioning shoulders 7* receive the blade easily between them, as no snug or close fit is necessary, said shoulders while assisting in positioning the blade serving mainly to limit endwise movement thereof on the blade-seat. The transverse shoulder

6* properly positions the blade with its cutting edge in correct position relatively to the lower edge of the front-plate. I have shown shallow nicks 50 in the ends of the extensions 4* of the blade, said nicks being arranged to hold the blade in a stropping device, the latter, however, forming no part of my present invention.

My invention is not restricted to the precise construction and arrangement herein shown and described, as various changes or modifications may be made by those skilled in the art without departing from the spirit and scope of my invention as comprehended in the claims hereto appended.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a safety-razor, a rigid front-plate having a blade-seat and an attached shank, a back-plate hinged to the front-plate and movable toward and from the blade-seat, to clamp the blade thereon, a removable blade, and means on the shank to lock the back-plate in blade-clamping position.

2. In a safety-razor, a front-plate having an attached shank, a back-plate hinged to the front plate, lugs on one of said plates, a blade having recessed ends to cooperate with the lugs when seated on the plate between said lugs, and means on the shank to lock the plates together with the blade between them.

3. In a safety-razor, transversely and pivotally connected front and back blade-holding plates, one of said plates having a toothed or comb edge, a shank rigidly attached to the other plate, a handle on the shank, a removable blade adapted to be clamped between opposite faces of the plates, and manually rotatable means to positively lock said plates in closed position to clamp the blade between them, said means including a locking sleeve rotatable on the shank and governed by the handle.

4. In a safety-razor, pivotally connected blade-holding plates one of which has a toothed lower edge, a shank rigidly attached to the other plate, a removable imperforate blade adapted to be clamped between the plates, lugs on one of the plates to receive between them and position the blade transversely, and means on the shank to cooperate with the toothed plate and lock it in clamping position upon the blade.

5. In a safety-razor, a plate having a rigidly attached shank and provided with a blade-seat, a removable imperforate blade, a combined guard and clamp permanently connected with and movable relatively to said plate, to cooperate with and retain the blade on the seat, and means rotatable on the shank to lock the said guard and clamp in operative position.

6. In a safety-razor, a plate having a

rigidly attached shank and provided with a blade-seat, a transverse shoulder on said seat to engage the back of and position the blade, a removable blade, a clamping member mounted on said plate and movable toward and from the blade-seat, to cooperate with and retain the blade thereon, and means on the shank to lock the clamping member in operative position.

7. In a safety-razor, a plate having a rigidly attached shank and provided on its inner face with an elongated transverse shoulder and short, opposite shoulders at right angles thereto, to engage the back and ends respectively of a removable blade when seated on the plate, a clamping member to cooperate with and retain a blade on said plate, and means to lock the clamping member in blade-clamping position.

8. In a safety-razor, a plate having a rigidly attached shank, a transverse shoulder on the inner face of the plate to engage the back of a removable blade when seated on the plate, lugs on the latter to receive between them the ends of the blade, a clamping member to engage the blade between said lugs and retain it on the plate, and means to lock the clamping member against the blade.

9. In a safety-razor, a plate having a rigidly attached shank and provided with a blade-seat, a removable imperforate blade, a clamping member movable toward and from the blade-seat and having its lower edge toothed, a handle on the shank, and means governed thereby to lock the clamping member in operative position to retain the blade upon the seat.

10. In a safety-razor, a plate having a rigidly attached shank and provided with a blade-seat, a removable imperforate blade, a clamping member and guard mounted on the plate and movable toward and from the blade-seat, a locking sleeve on the shank, to cooperate with and hold the clamping member against the blade, and a handle screwed onto the shank and governing movement thereon of the locking sleeve.

11. In a safety-razor, a plate having a rigidly attached shank and provided with a blade-seat, a removable blade, a clamping member pivotally mounted on the plate and movable toward and from the blade-seat, a lug on the said member, a locking sleeve movable on the shank and having a head grooved to receive the lug, and a handle screwed onto the shank and adapted to bear against the outer end of the sleeve and maintain its head in locking engagement with the lug of the clamping member.

12. In a safety-razor, a plate having a blade-seat and a rigidly attached shank provided with a threaded end, parallel shoulders on the seat at the ends thereof, a removable blade notched at its ends to enter between the shoulders, a clamping member

hinged to the plate and movable toward and from the blade-seat, to engage the blade between the shoulders and clamp the blade upon the seat, a handle screwed onto the threaded end of the shank, and means on the latter governed by the handle to lock the clamping member upon the blade.

13. In a safety-razor, a plate having a rigidly attached shank and provided with a blade-seat, positioning shoulders on the latter, a removable imperforate blade engaged at its back and ends by the shoulders, a clamping member mounted on and movable relatively to said plate, to clamp the blade on the seat, a locking sleeve rotatable and longitudinally movable on the shank and having an eccentric head to engage and hold the clamping member in operative position, and a handle screwed onto the shank and governing the movement of the sleeve.

14. In a safety-razor, a plate having a rigidly attached shank and provided with a blade-seat, a removable blade, means to engage the back and ends thereof and position it on the seat, means to engage and clamp the blade upon the seat, and a manually controlled locking device for said clamping means, mounted on the shank.

15. In a safety-razor, a plate having a rigidly attached shank and provided with a blade-seat, a removable imperforate blade, means to position it on the seat, means to engage the blade between the positioning means and clamp the blade upon the seat, a locking sleeve for the clamping means, movably mounted on the shank, and means to govern movement of the locking sleeve.

16. In a safety-razor, a plate having a rigidly attached shank and provided with a blade-seat, a removable blade, means to position it on the seat, means pivotally connected with the plate to engage and clamp the blade upon the seat, a locking sleeve for the clamping means, movably mounted on the shank, and a handle screwed onto the

shank and governing movement of the sleeve to lock or unlock the clamping means.

17. In a safety-razor, a front-plate, a shank having a laterally-extended head fixedly secured to the front-plate and provided with depending ears, a clamping member pivotally mounted on and between said ears and movable toward and from the front-plate, to clamp a blade between them, and locking means to retain said clamping member in operative position.

18. In a safety-razor, a front-plate having on one side a blade-seat and a rigidly attached shank extended from the opposite side of said plate, a clamping member pivotally connected with the front-plate, to clamp a blade on the blade-seat, and means to lock the clamping member in operative position.

19. In a safety-razor, a front-plate having on one side a blade-seat, a shank rigidly attached to said plate and extended from its other side, blade-positioning means on the seat, a clamping member connected with the front plate and movable toward and from the blade-seat, to engage a removable blade thereon between the positioning means, and means mounted on the shank to lock the clamping member in position to hold the blade on the seat.

20. In a safety-razor, a front-plate having lugs at its ends to receive between them and position a blade upon the plate, a blade having rectangularly notched ends to accommodate the lugs, the extreme length of the blade being greater than the width of the plate, and means to engage the blade between the lugs and clamp it upon the front-plate.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JAMES W. LESLIE.

Witnesses:

JOHN C. EDWARDS,

ELIZABETH R. MORRISON.