R. H. REED.

SAFETY RAZOR.

APPLICATION FILED MAR. 27, 1908.

923,579. Patented June 1, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

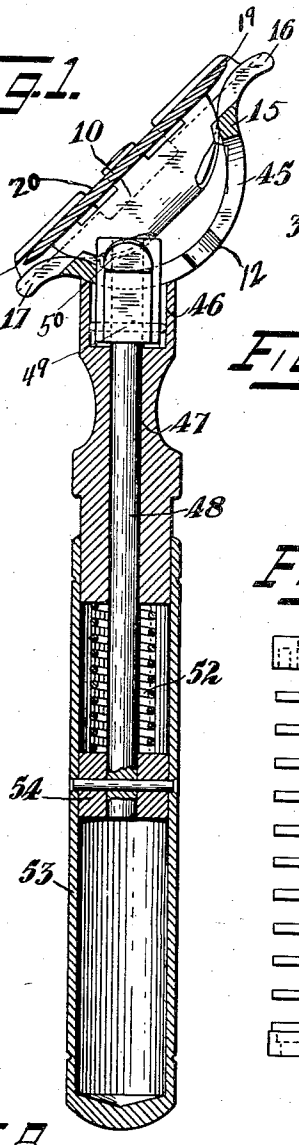



Fig. 4.

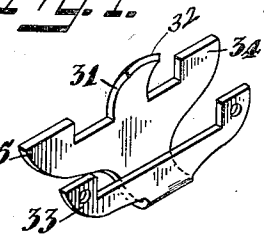



Fig. 5.

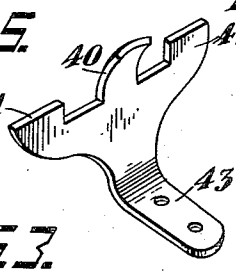



Fig. 2.

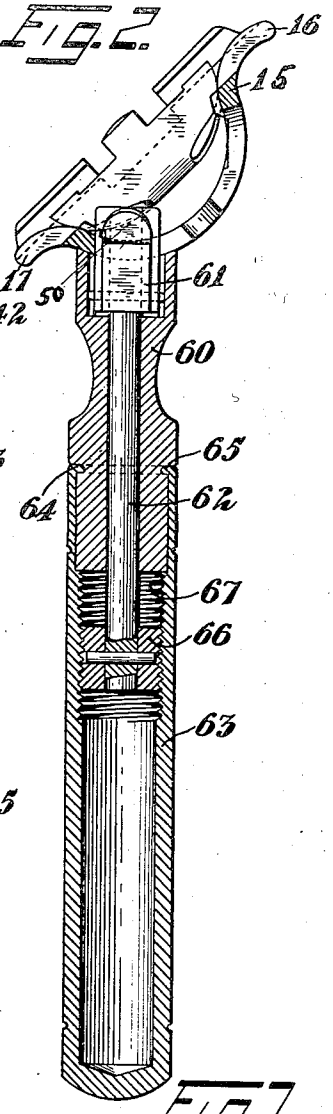



Fig. 3.

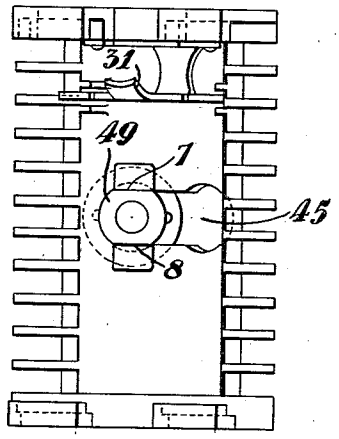



Fig. 8.

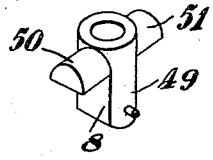



Fig. 6.

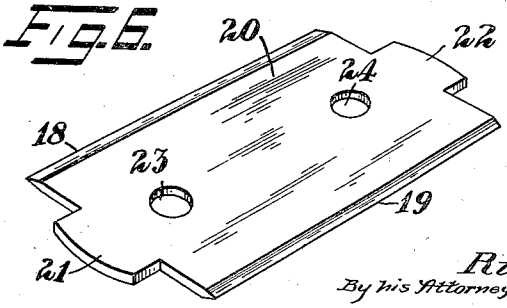
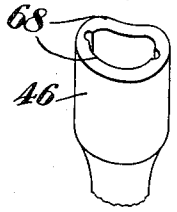



Fig. 7.




Witnesses.

C. C. Tuos.

H. D. Penney

Inventor.

Richard H. Reed.

By his Attorney,

F. H. Richards.

R. H. REED.

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2 SHEETS—SHEET 2.

Fig. 10.

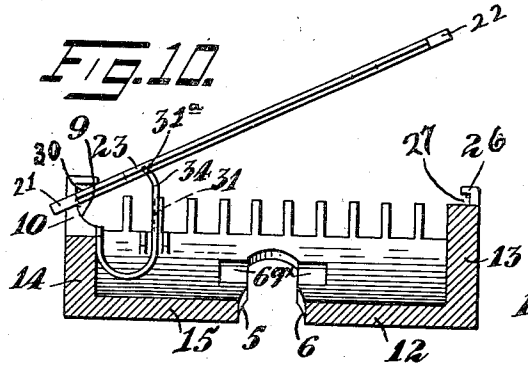



Fig. 9.

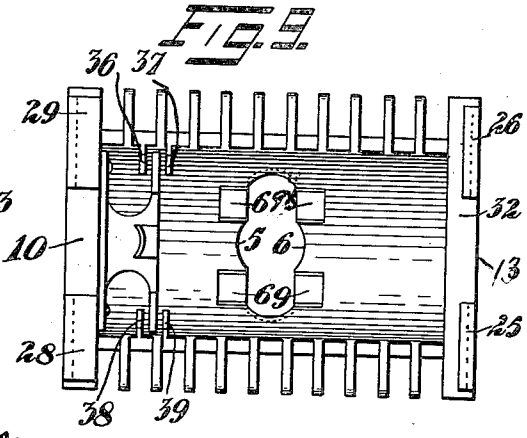



Fig. 11.

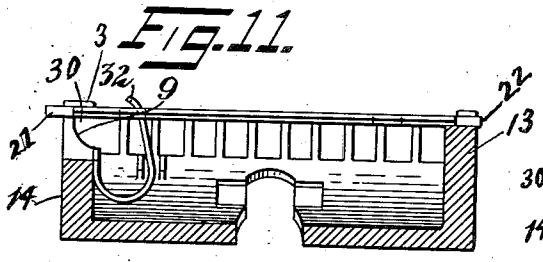



Fig. 14.

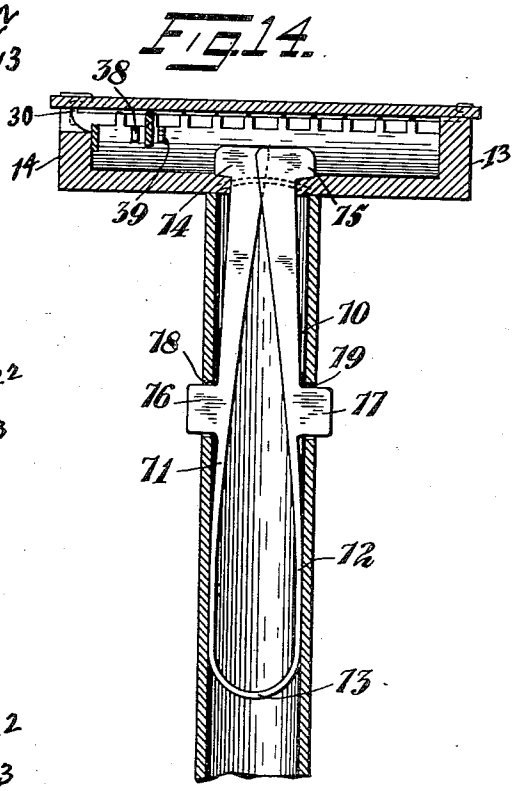



Fig. 12.

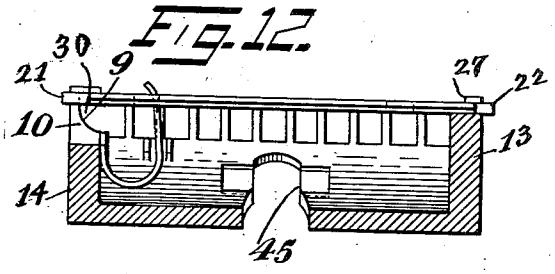
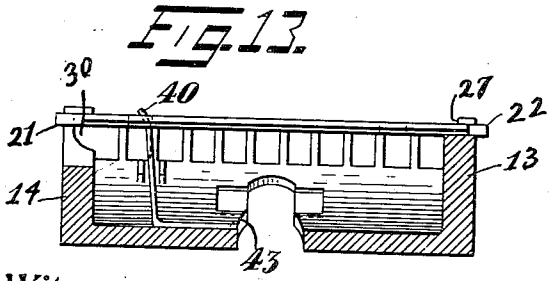



Fig. 13.




Witnesses.

C. C. Tuss.

H. D. Penney

Inventor,

Richard H. Reed,

By his Attorney,

F. A. Richards.

# UNITED STATES PATENT OFFICE.

RICHARD H. REED, OF NEW YORK, N. Y., ASSIGNOR TO THE PATENT OWNERSHIP COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## SAFETY-RAZOR.

No. 923,579. Specification of Letters Patent. Patented June 1, 1909.

Application filed March 27, 1908. Serial No. 423,500.

*To all whom it may concern:*

Be it known that I, RICHARD H. REED, a citizen of the United States, residing in New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Safety-Razors, of which the following is a specification.

This invention relates to safety razors and particularly to the form of razor forming the subject matter of a co-pending application filed by me May 27th, 1907, Serial No. 375,810, and is in the nature of an improvement thereon.

One of the objects of the invention is to provide an improved form of spring that will insure the spring entering the aperture in the blade upon the blade having one end placed in the holder and then swung downward.

Another object is to provide a form of spring that will form a support for one end portion of the blade and which will also serve to secure the blade in proper position.

A further object is to provide a modified form of holder that will facilitate the insertion of the blade and insure its engagement with the spring.

Another object of the invention is to provide an improved form of handle that will be readily detachable, and which will be adjustably secured to the holder to vary its angle relative thereto.

In the accompanying drawings representing embodiments of my invention Figure 1 represents a longitudinal section through the razor. Fig. 2 is a similar view with the blade omitted, showing a modified form of handle. Fig. 3 is an end view of the holder. Fig. 4 shows the spring separately. Fig. 5 shows a modified form of spring. Fig. 6 shows the blade. Fig. 7 shows separately the end portion of the handle sleeve. Fig. 8 shows the end part of the locking member. Fig. 9 is a plan view of the holder as seen perpendicular to the plane of the blade. Fig. 10 is a vertical section through the holder, showing the first step when inserting the blade. Fig. 11 shows a further step when inserting the blade. Fig. 12 shows the blade in its locked position. Fig. 13 is a view similar to Fig. 12 showing the modified form of spring shown in Fig. 5, and Fig. 14 is a longitudinal section showing a modified form of handle.

The holder is shown as comprising a substantially trough-shaped frame 12 having end portions 13 and 14, the curved portion 15 of the frame having guard portions 16 and 17, on opposite sides, that coöperate with the opposite cutting edges 18 and 19 of a blade 20.

The blade 20 is shown provided with lugs 21 and 22 at its respective ends that are symmetrical; and the blade is provided with openings 23 and 24, symmetrically arranged at the respective ends in the medial line of the blade.

The end member 13 as shown is provided with spaced lip portions formed by projections 25 and 26, that are undercut to form recesses at 27; the lip portions being separated a distance equal to the width of lug 22, whereby the latter will snugly fit therebetween with the end portions of the blade on each side lying in the recesses 27, as indicated in Figs. 12 and 13. The other end member 14 has lip portions 28 and 29 spaced equal to the width of the lug 21, and undercut to form recesses at 30 for inserting the end portions of the blade on opposite sides of the lug 21, as shown in Fig. 11.

At one end portion of the holder a spring is provided projecting upward for the purpose of entering one of the apertures, as 23. A spring 31 is shown that will be caused to enter the aperture 23 when the blade is inserted in an oblique position, as indicated in Fig. 10, with the end portions adjacent the lug 21 caused to enter the recesses 30. Then the blade is swung downward until its other end portion adjacent the lug 22 engages the lip portions of the projections 28 and 29. During this movement the spring will be pressed by the user toward the engaged end 14 of the holder, and its tension when released will shift the blade endwise and cause its other end adjacent lug 22 to enter the recess portions 27, the opposite end adjacent lug 21 of the blade being still located in the recess 30, that is of greater depth than the recesses 27.

As so far described, the razor is substantially similar to that set forth in my said application. But to facilitate the insertion of the blade and insure this engagement with the spring, I provide an improved form of spring 31 in which the upper extremity 32 is inclined toward the adjacent end of the holder. Hence, when the blade is inserted

obliquely, as indicated in Fig. 10, the inclined end of the spring will enter the aperture 23; and as the blade swings downward the margin of the aperture 23 will slide on the inclined portion and flex the spring, as indicated in Fig. 11; and the tension of the spring will force the blade endwise to enter the recesses 27. The spring as shown is provided with a base or supporting portion 33 that is curved and suitably secured to the end wall 14 of the holder. But in the present invention the end 14 of the holder at its upper part is not formed similar to the end 13; the recess 30 extending farther into the end member. This end member between the projections 28 and 29 has a cut away portion 10 shown in Figs. 9 to 13 and indicated in Fig. 1 by the broken lines. And instead of supporting the blade at this end on the holder end wall, it is supported on the spring by means of lateral projections 34 and 35, whose top is horizontally alined with the top of the end wall 13 at its middle portion 32. The bottom wall of the recess 30 is preferably cut away or curved, as indicated at 9 in Fig. 10. Upon the blade having one end inserted into the recesses 30, as indicated in Fig. 10, and thereupon swung downward, the inclined end 31ª of the spring will enter the aperture 23 in the blade; and thereupon the blade will engage the projections 34 and 35 of the spring and swing on them as an axis. Upon end thrust on the blade by the thumb or finger, the spring will be flexed, and the continued downward movement of the blade will bring the end 21 of the blade into engagement with the lip portions of the projections 28 and 29, while the other end portion of the blade will be brought to register with the recesses 27 at the other end of the holder. Upon release of the pressure on the blade, the tension of the spring will shift the blade endwise, causing the end portions to enter the recesses 27 until the blade engages the bottom of the recesses, preventing its farther movement. As the recesses 30 are of greater depth than the recesses 27, the blade will still be engaged in the recesses 30 by the lips 28 and 29.

To prevent undue bending of the spring member, its lateral projections 34 and 35 may rest against the curved portion 12 of the holder, as indicated in Figs. 1 and 2. A pair of lugs 36 and 37 may be provided on one side of the holder and a pair of lugs 38 and 39 on the opposite side, to engage the spring projections and prevent shifting of the spring beyond the normal movement caused by the insertion of the blade; as for instance, engagement of the spring by the user when the blade is removed, that would tend to bend the spring out of its proper shape.

A modified form of spring is shown in Fig. 5, comprising a tongue portion 40, having lateral projections 41 and 42, and a base 43 arranged to be secured to the bottom of the holder, as shown in Fig. 13. The operation of this form of spring is the same as the other form described hereinbefore.

In the present invention, the handle has an adjustable connection with the holder to vary the inclination of the blade, and is also readily detachable from the holder. The holder is shown provided with an opening, preferably in the form of a transverse slot 45, located at its middle portion. The handle is shown in Fig. 1 having a sleeve portion 46, that has a reduced bore 47, in which slides the stem 48 of the locking member. The stem is provided with a head 49 secured thereto, shown separately in Fig. 8. This head has lateral projections or lugs 50 and 51. The head can be inserted lengthwise in the slot upon being extended beyond the end of the sleeve 46. Then the handle is turned through ninety degrees, bringing the lugs transversely of the slot, as indicated in Figs. 1 and 2, that will permit the lugs to engage the margins of the slot, inside of the holder. Suitable means are provided for drawing the locking member down toward the handle member, whereby to clamp the holder between the under side of the lugs and the end of the sleeve member, as shown in Figs. 1 and 2. In Fig. 1, this means is shown resilient, as comprising the spring 52 carried in the handle portion 53, that is slidable on the sleeve member 46. The stem 48 is secured to a plug 54 fast to the portion 53. The spring 52 is compressed between the plug 54 and the sleeve 46, that will tend to press the sleeve toward the lugs 50 and 51.

In Fig. 2 is shown a slight modification in which there is a screwing motion moving the end of the sleeve toward and from the lugs 50 and 51, to clamp the handle. In this construction, the sleeve 60 carries a head 61 similar to the head 49 that is secured to a stem 62. The handle portion 63 is rotatable in the sleeve 60 but has an internal flange 64 engaging an annular slot 65 in the sleeve, preventing relative endwise movement of the two members. A nut 66 is locked on the inner end of the stem 62 and engages the internal threaded portion 67 of the portion 63. By this means, when the handle portion 63 is turned relative to the sleeve 60, the head will slide in the sleeve 60. In both of these forms, the end portion of the sleeve is preferably curved as indicated at 68 in Fig. 7, whereby the end of the sleeve will engage the convex or cylindrical outer face of the frame 12, as shown in Figs. 1 and 2. This will tend to prevent turning of the handle, that would shift the lugs to a position to withdraw from the slot. If desired, the margins of this slot may have recesses, as at 69 and 69×, into which the lugs 50 and 51 can project, serving to lock the handle in its limits of adjustment. In order to prevent turning of

the end locking member of the handle in the slot when desired, the head 49 below the projections 50 and 51 may be provided with flat parallel surfaces 7 and 8. The perpendicular distance between these parallel surfaces is equal to the width of the slot 45, but at the middle portion of the slot, it is cut away at 5 and 6 making the opening at the middle part equal to the diameter of the head, to permit insertion of the head when the projections extend lengthwise of the slot. Upon inserting the head and then turning it ninety degrees, the flat surfaces 7 and 8 will aline with the said walls of the slot beyond the middle portion and the handle can be swung to either side. In such shifted positions, the parallel faces 7 and 8 being in close engagement with the side walls of the slot, will obviously prevent the head being turned to bring the projections to position permitting withdrawal. This applies to the form shown in Fig. 1 and also to the modification shown in Fig. 2, the head member being identical in each structure.

In Fig. 14 is shown a modification of the resilient form of handle locking means, comprising a tubular holder 70 having a pair of lugs pressed outwardly by resilient means. This handle is inserted by entering the lugs endwise of the slot, and then turning the handle to cause the lugs to engage the slot margins, that will lock them between the lugs and the end of the tube; the lugs being pressed outwardly by resilient means. In the form shown, a pair of spring arms 71, 72 are integrally connected by a curved portion 73, similar to a pair of tongs. The end portions of the arms have lugs 74 and 75 projecting in opposite directions, and the spring portion 73 will force the lugs outward. Extensions 76 and 77 project through openings 78 and 79 in the tube 70, and form means for pressing the arms to move the lugs inward. The arms are pressed inward and the lugs brought together for their insertion in the slot, and then the arms are released, and the handle is turned through ninety degrees, bringing the lugs transversely of the slot, that will cause the margins of the slot opening in the holder to be clamped between the lugs and the end of the tubular member; the lugs being spaced the proper distance from the tube end, and being preferably slightly inclined on their engaging faces.

The blade set forth in this application but not claimed, is claimed in a co-pending application filed by me on the 30th day of March, 1908, Serial No. 423,998.

Having thus described my invention, I claim:

1. A safety razor, comprising a holder member having a guard portion and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, and a spring member carried by the holder and projecting upwardly engaging the edge of the blade opening to yieldably retain the blade with its end portions engaged by said lips, the spring having a blade supporting portion.

2. A safety razor, comprising a holder member having a guard portion and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, and a spring member carried by the holder and projecting upwardly engaging the edge of the blade opening to yieldably retain the blade with its end portions engaged by said lips, the spring having lateral projections on each side supporting the blade on its lower face.

3. A safety razor, comprising a holder member having a guard portion and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, and a spring member carried by the holder and projecting upwardly engaging the edge of the blade opening to yieldably retain the blade with its end portions engaged by said lips, the spring having its end portion inclined toward the adjacent end of the holder.

4. A safety razor, comprising a holder member having a guard portion and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, and a spring member carried by the holder and projecting upwardly engaging the edge of the blade opening to yieldably retain the blade with its end portions engaged by said lips, the spring having its end portion inclined toward the adjacent end of the holder, and having lateral projections on each side supporting the blade on its lower face.

5. A safety razor, comprising a holder member having a guard portion and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, a spring member carried by the holder and projecting upwardly engaging the edges of the blade opening to yieldably retain the blade with its end portions engaged by said lips, and lugs on the holder to limit the spring movement.

6. A safety razor, comprising a substantially trough-shaped holder member having guard portions and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade

having an opening therein and being engaged by said lip portions at its end portions respectively, a spring member carried by the holder and projecting upwardly engaging the edges of the blade opening to yieldably retain the blade with its end portions engaged by said lips, the spring having lateral projections, and lugs on the holder to limit the movement of the spring.

7. A safety razor, comprising a substantially trough-shaped holder member having guard portions and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, a spring member carried by the holder and projecting upwardly engaging the edges of the blade opening to yieldably retain the blade with its end portions engaged by said lips, the spring having lateral projections on each side supporting the blade on its lower face, the projections being supported by the holder at their ends.

8. A safety razor, comprising a substantially trough-shaped holder member having guard portions and having a rigid supporting member at each end provided with a lip projecting toward the other member, a blade having an opening therein and being engaged by said lip portions at its end portions respectively, a spring member carried by the holder and projecting upwardly engaging the edges of the blade opening to yieldably retain the blade with its end portions engaged by said lips, the spring having lateral projections on each side supporting the blade on its lower face, the projections being supported by the holder at their ends, and lugs on the holder limiting the spring movement.

9. A safety razor comprising a blade having an opening at one end portion and having projecting portions at the middle of each end, a holder having guard portions, the holder having end members each provided with upwardly projecting portions that are undercut to receive the end portion of the blade, a spring member carried by the holder and projecting upwardly engaging the edge of the blade opening to yieldably press the blade against the undercut wall at one end of the holder, the spring having a blade supporting portion engaging the lower face of the blade, the holder at the end adjacent the spring being recessed and offset from the lower face of the blade in its normal position.

10. A safety razor comprising a blade having an opening adjacent one end and having projecting portions at the middle part of each end, a substantially trough-shaped holder having a guard portion, the holder having transverse end members provided with spaced upwardly projecting portions at each end thereof that are undercut to receive the respective end portions of the blade on each side of the blade projections, and a spring member on the holder engaging the blade at its said opening to yieldably press the blade at one end wall against the undercut portion of the holder, the blade having projecting portions at the intermediate part of each end fitting between the said projecting portions of the holder, the spring member having lateral projections engaging the lower face of the blade to support it, the holder being offset below the end portion of the blade at the spring end in normal position permitting the blade to swing on the lateral projections of the spring.

11. A safety razor comprising a blade having an opening adjacent one end and having projecting portions at the middle part of each end, a substantially trough-shaped holder having a guard portion, the holder having transverse end members provided with spaced upwardly projecting portions at each end thereof that are undercut to receive the respective end portions of the blade on each side of the blade projections, and a spring member on the holder engaging the blade at its said opening to yieldably press the blade at one end wall against the undercut portion of the holder, the blade having projecting portions at the intermediate part of each end fitting between the said projecting portions of the holder, the spring member having lateral projections engaging the lower face of the blade to support it, the holder being offset below the end portion of the blade at the spring end in normal position permitting the blade to swing on the lateral projections of the spring, the blade being held with its upper face engaging the under portion of the lip members by the engagement of its lower face with the spring projections.

12. In a safety razor, the combination with a holder having an opening therein, of a handle member having a sleeve at its holder engaging end, and a locking member projecting beyond the sleeve and provided with transverse portions organized to engage the margins of the holder opening to secure the handle in the holder.

13. In a safety razor, the combination with a holder having an opening therein, of a handle member having a sleeve at its holder engaging end, and a locking member projecting beyond the sleeve and provided with transverse portions organized to engage the margins of the holder at the opening to secure the handle in the holder, the holder having retaining portions engaging the locking member.

14. In a safety razor, the combination with a holder having an opening therein, of a handle member having a sleeve at its holder engaging end, and a locking member projecting beyond the sleeve and provided with transverse projections organized to engage

the margins of the holder at the opening to secure the handle in the holder, the locking member being shiftable in the holder, means for retaining such member in locking position, the holder having recesses engaged by the transverse projections to retain them in certain positions.

15. In a safety razor, the combination with a holder having an opening therein, of a handle member having a sleeve at its holder engaging end, and a locking member projecting beyond the sleeve and provided with transverse projections organized to engage the margins of the holder opening to secure the handle in the holder, the locking member being shiftable in the holder, and means for retaining such member in locking position.

16. In a safety razor, the combination with a holder having an opening therein, of a handle member having a sleeve at its holder engaging end, and a locking member projecting beyond the sleeve and provided with transverse portions organized to engage the margins of the holder opening to secure the handle in the holder, the locking member being shiftable in the holder, and resilient means for retaining such member in locking position.

17. In a safety razor, the combination of a holder having a slot therein enlarged at one portion, a handle member having a sleeve at one end, a locking member projecting beyond the sleeve and having transverse projections, the locking member being of a reduced width below the transverse portions to fit closely in the slot beyond the enlarged portion and to prevent turning of the handle member.

18. In a safety razor, the combination of a substantially trough-shaped holder having a transverse slot therein, a handle having a sleeve at one end, a locking member projecting beyond the sleeve and having opposite transverse projections arranged to engage the margins of the holder slot when inserted therein, the sleeve being curved below the transverse projections to engage the convex lower face of the holder upon insertion of the transverse projections and turning thereof to cause the projections to engage the slot margins.

19. In a safety razor, the combination of a holder member having an opening therein, a handle member having a sleeve at one end, a locking member projecting beyond the sleeve and having opposite transverse projections arranged to engage the margins of the holder opening when inserted therein and turned, and means for drawing the locking member and sleeve together to cause the holder margins to be clamped between the projections and the end of the sleeve.

20. In a safety razor, the combination of a holder member having an opening therein, a handle member having a sleeve at one end, a locking member projecting beyond the sleeve and having opposite transverse projections arranged to engage the margins of the holder opening when inserted therein and turned, and resilient means for drawing the locking member and sleeve together to cause the holder margins to be clamped between the transverse projections and the end of the sleeve.

21. In a safety razor, the combination of a holder having a substantially trough-shaped frame containing a transverse opening, a handle member having a sleeve at one end, a locking member projecting beyond the sleeve and having opposite transverse projections, the locking member being shaped relative to the opening whereby it can be inserted therein lengthwise and to engage the margins of the opening when the handle is turned, and a spring member pressing the locking member toward the sleeve end to clamp the margins of the holder opening between the projections and the end of the sleeve, the end of the sleeve being curved to engage the convex face of the holder in the locking position of the handle.

Signed at Nos. 9–15 Murray street, New York, N. Y., this 19th day of March, 1908.

RICHARD H. REED.

Witnesses:

FRED. J. DOLE,

WILLIAM H. REID.