R. H. REED.

SAFETY RAZOR.

APPLICATION FILED JUNE 22, 1908.

929,015. **Patented July 27, 1909.**

Fig. 1.

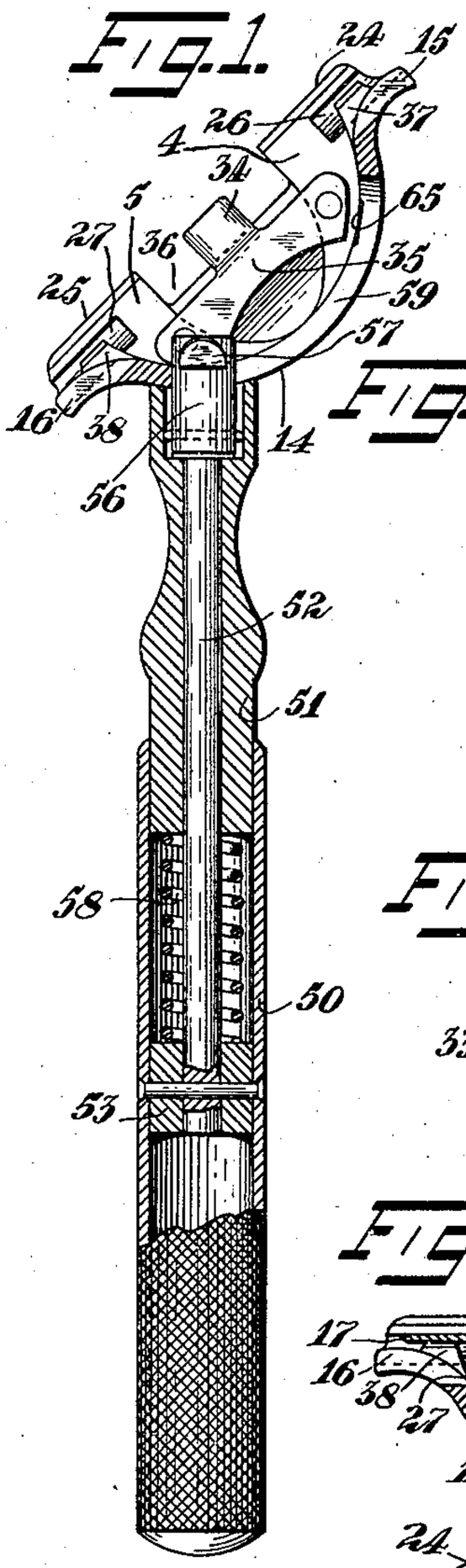


Fig. 2.

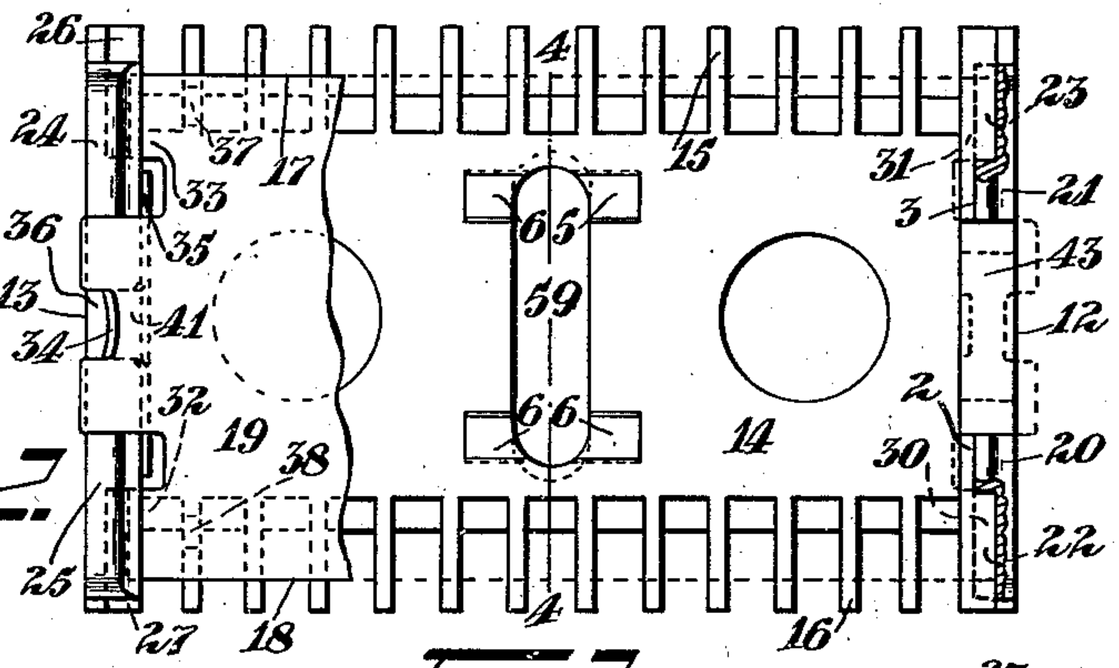


Fig. 3.

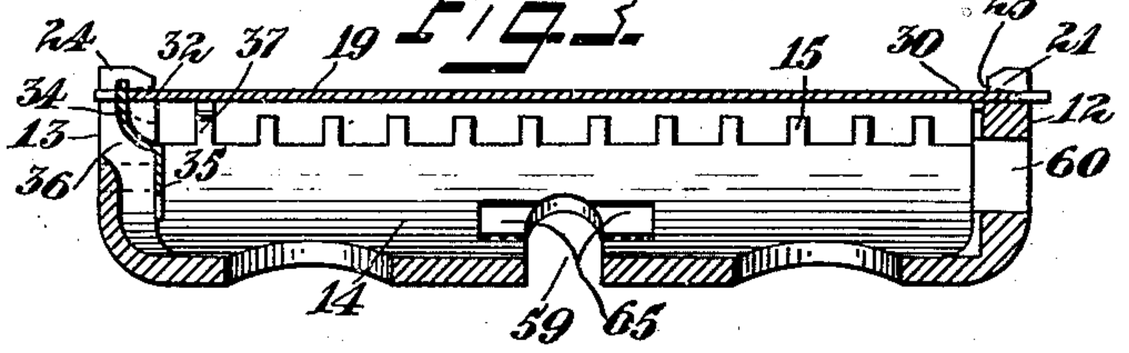


Fig. 8.

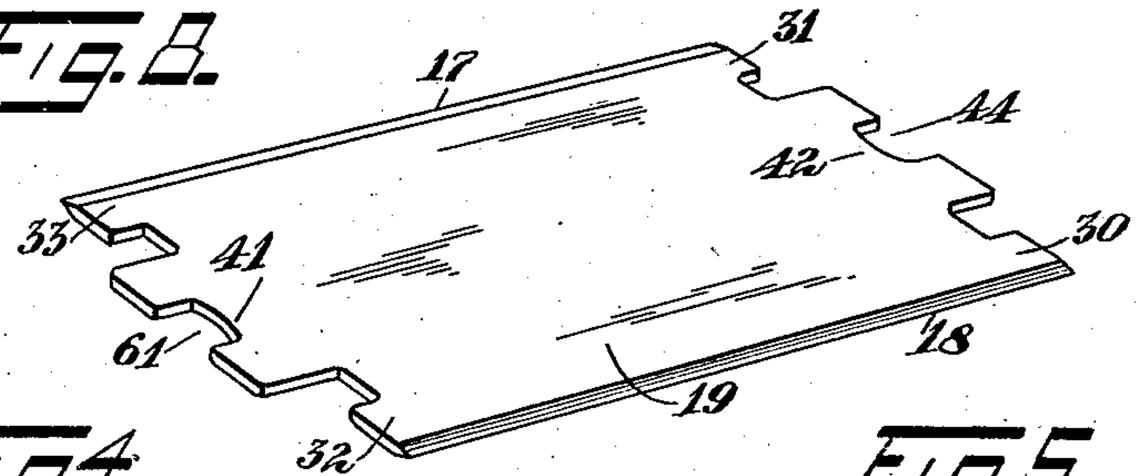


Fig. 4.

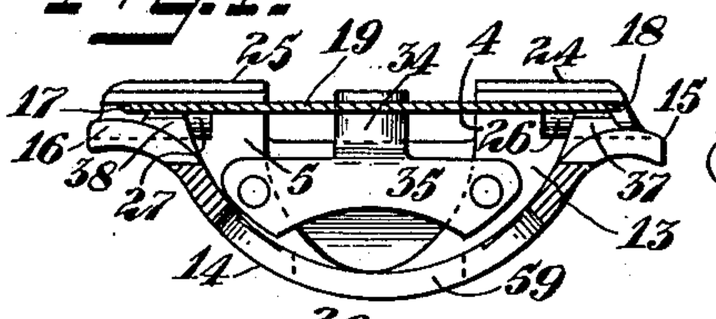


Fig. 5.

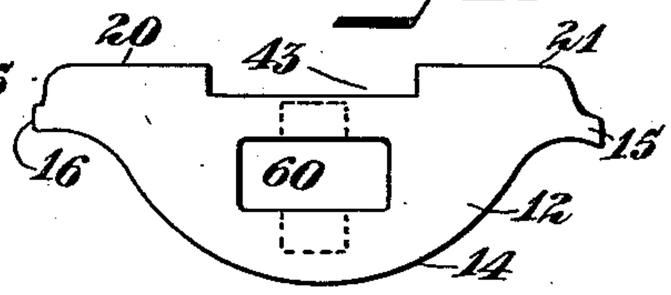


Fig. 6.

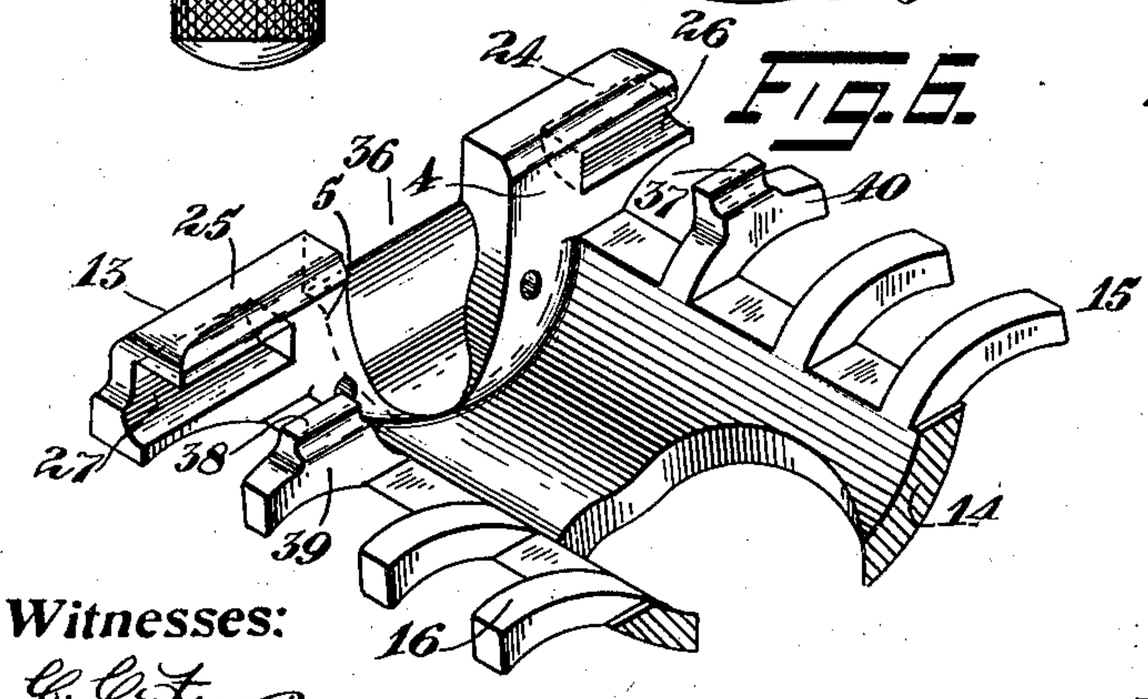
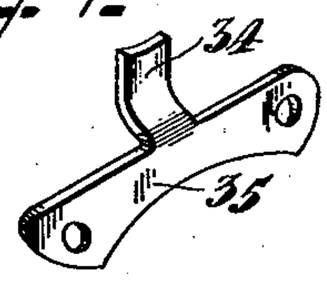


Fig. 7.



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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. 929,015. Specification of Letters Patent. Patented July 27, 1909.

Application filed June 22, 1908. Serial No. 439,816.

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 particularly to the form of safety razor forming subject matter of a co-pending application filed by me March 27th, 1908, Serial No. 423,500 and is in the nature of an improvement thereon.

One of the objects of the invention is to provide an improved form of retaining members for the blade, that will effectually resist bending or breakage of the exposed parts.

Another object of the invention is to provide means for supporting the blade on its under face at one end thereof, separate from the end member of the holder and also separate from the spring member.

A further object is to provide a spring at the inner part of the end member of the holder, which will engage the end portion of the blade and press it into the socket at the other end of the holder.

Another object of the invention is to provide an improved form of removable blade.

In the accompanying drawings representing embodiments of my invention, Figure 1 is a longitudinal section of the razor. Fig. 2 is a plan view of the holder with the handle removed. Fig. 3 is a longitudinal vertical section of the holder. Fig. 4 is a transverse vertical section on the line 4—4 indicated in Fig. 2. Fig. 5 shows the end of the holder opposite to that shown in Fig. 4. Fig. 6 is a fragmentary perspective view of the holder member, without the spring or blade. Fig. 7 shows the spring member detached; and Fig. 8 shows the blade.

The holder is shown comprising a substantially trough-shaped member having end portions 12 and 13, and a curved bottom portion 14, that may be integral therewith. The portion 14 is provided with guard portions 15 and 16 on opposite sides, that coöperate with the cutting edges 17 and 18 of a blade 19.

The end members on their inner faces near the top are provided with recesses or sockets, into which project the end portions of the blade, which recesses are preferably closed at one end, the outer end being open in the construction shown. The end member 12 is shown provided with spaced projections 20 and 21 that are recessed to form sockets 22 and 23. These sockets have one end closed by walls 2 and 3 respectively at their inner ends to materially strengthen the top wall of the socket and prevent its being bent or broken. The other end 13 has upwardly projecting portions 24 and 25, provided with sockets 26 and 27, that are also closed at their inner ends by walls 4 and 5 respectively, for the same reasons. The sockets 26 and 27 are formed deeper than are the sockets 22 and 23. The blade 19 has lugs 30 and 31 at one end, and lugs 32 and 33 at the other end, situated at the corners of the blade. The distance apart of the ends of the lugs 30 and 32, also that of the lugs 31 and 33, is less than the distance apart of the end walls of the opposed sockets on each side into which the respective lugs enter. The lugs 32 and 33 are first caused to enter the sockets 26 and 27 with the blade inclined; then the other end of the blade is swung downward until the lugs 30 and 31 register with the sockets 22 and 23 respectively, whereupon endwise movement of the blade will cause the latter lugs to enter their sockets. These latter sockets are of such depth as to prevent the lugs at the other end coming out of their sockets upon the lugs 30 and 31 being moved in their sockets until they engage their end walls.

A spring is provided for causing the described endwise movement of the blade when the lugs 30 and 31 are brought to register with their respective sockets. The spring is located between the projections 24 and 25 of the holder end 13, and engages the end portion of the blade. A spring 34 is shown, having a cross piece 35 bridging the space 36 at the end of the holder, and suitably secured to the holder as by rivets. The spring is preferably bent outward and upward and engages the end of the blade.

Means are provided for supporting the blade at the spring-engaging end, that are separate from the socket portions, and separate from the spring member. The supporting means constitute a part of the holder member, and is shown as formed by lugs

37 and 38 on the opposite guard portions 39 and 40. The sockets 26 and 27 extend downward; or, in other words, are cut away beneath the lower face of the blade lugs 32 and 33. This will permit the blade to swing on the lugs 37 and 38 with a practically free downward movement, and will greatly facilitate the entrance of these lugs into their sockets 26 and 27 in the insertion of the blade.

The blade is provided with intermediate projections 41 and 42 at its respective ends, projecting into the spaces 36 and 43 at the ends of the holder, between the said projections 20—21, and 24—25. These projections serve as holders or thumb pieces, to grasp the blade for the insertion and removal thereof. The ends of the blade are made identical, so that the blade is reversible endwise, and the blade is also reversible, to have either face uppermost in the holder. The spring is shown as engaging either one of recesses 61 or 44, in the respective projections 41 and 42 of the blade, and engaging the end wall of such recess.

The razor is provided with a removable handle, similar to that set forth in my said application. The handle is shown as comprising a tube 50, in one end of which slides a sleeve 51. Sleeve 51 is slidable on the stem 52, and has its lower end secured in a collar 53 fast in the tube 50. The stem 52 carries a head 56 having transverse arms 57, and a spring 58 in the tube presses the sleeve 51 outward, toward the arms 57 of the head. The holder is shown provided with a transverse slot 59, into which the head 56 is inserted with the arms registering with the slot, the sleeve 51 having been previously pressed away from the head. Then the handle is turned through 90 degrees, and the sleeve released, when the spring will cause the holder to be clamped between the transverse arms 57 and the end of the sleeve 51. The handle can also be clamped to one end of the holder; the end 12 being shown provided with a slot 60, at which portion the handle can be clamped in the same manner.

In the act of inserting the blade, either end is brought to the holder end 13, and the intermediate projection 41, or 42, is caused to enter the recess 36, and engage the spring 34; and the lugs 32 and 33 directed into the sockets 26 and 27, the blade being inclined, with the other end raised somewhat. The blade is then swung downwardly and at the same time pressed against the spring to flex it, when the lugs 32 and 33 will enter the sockets 26 and 27. This movement is continued until the blade is brought down on the holder, with the intermediate projection 43 of the blade between the projections 20 and 21 at the end of the holder. The lugs 32 and 33 will enter their sockets 26 and 27 far enough to permit the lugs 30 and 31 at the other end of the blade to move down past the projecting portions of the holder 20 and 21, until these lugs register with the respective sockets 22 and 23. In this position the blade at one end will rest on the lugs 37 and 38. Or, in the act of first inserting the end of the blade, its end may be guided into the sockets 26 and 27 by swinging on these lugs 37 and 38. The other end of the blade is then brought down onto the holder with its lugs registering, and upon the pressure on the blade flexing the spring being relieved, the spring will force the blade endwise, causing the lugs 30 and 31 to pass into the sockets 22 and 23 to engage the end walls thereof. This will shift the lugs 32 and 33 a short distance outwardly in their sockets, but not far enough to be released, on account of the greater depth of such sockets. The operation of removing the blade is substantially the reverse. Pressure is applied on the end of the blade at the end 12 of the holder, to flex the spring and move the lugs at the other end to the bottom of their sockets; which will move the lugs 30 and 31 out of their retaining sockets, permitting the blade at this end to be elevated; and then the blade is withdrawn from the sockets at the spring engaging end. The blade being identical at the two ends, it is obvious that either end can be inserted first into the holder.

It will thus be seen that the new form of blade herein set forth comprises a plate 19 of sufficient rigidity and of proper temper to give the necessary strength to operate practically when supported at the end portions only and unsupported therebetween.

By this improved construction it will be seen that the overhanging portions at the top of the slots 26 and 27, also 20 and 21, are supported at their inner portions by the side portions of the end member, that will prevent the top wall of the socket being readily bent downward or broken. It will be further seen that the spring member has its tongue 34 located in alinement with the opposite portions of the end member and therefore is to a large extent protected thereby and will not be easily engaged by an object to be bent or broken. In order to properly operate with such a construction of holder, it is necessary that the blade have its end members provided with the projections 30—31, and 32—33. It is further required that the intermediate projecting parts 41 and 42 extend into the space at each end of the holder to form proper handles or thumb pieces for grasping the blade to insert and remove it. And the recesses 61 and 44 are required for receiving the spring member 34, according to which end is inserted in this end of the holder. These latter

recesses thereby form an intermediate pair of lugs that together constitute the grasping portions for the blade. While this intermediate pair of lugs is not necessary for positioning the blade in the holder, nor do they perform any necessary function to retain the blade in position, it will be seen that they are required to properly manipulate the blade for its insertion and removal. And it will be understood that these intermediate projections extend beyond the end projections, because the latter terminate in the sockets in the end members, while the intermediate projections must extend beyond the end member to form a means for grasping the blade. Since the spring 34 is located in alinement with the socket portions of the end member, the bottom wall of the recesses 44 and 61 will be substantially in alinement with the extremities of the end pair of lugs.

Having thus described my invention, I claim:

1. A safety razor, comprising a holder having recessed end members providing opposed sockets, a blade extending into such sockets, the end walls of the sockets being spaced a greater distance apart than the length of the blade at its socket engaging portions to permit endwise movement of the blade in the sockets for insertion and removal of the blade, the holder at one end having blade supporting portions separate from the end members and engaging the lower face of the blade, and a spring carried by the holder and engaging one end of the blade to yieldably press the blade against the socket wall at one end of the holder.

2. A safety razor, comprising a holder having recessed end members providing opposed sockets, a blade extending into such sockets, the end walls of the sockets being spaced a greater distance apart than the length of the blade at its socket engaging portions to permit endwise movement of the blade in the sockets for insertion and removal of the blade, the holder at one end having blade supporting portions separate from the end members and engaging the lower face of the blade, a spring carried by the holder and engaging one end of the blade to yieldably press the blade against the socket wall at one end of the holder, the socket at the spring carrying end being cut away below the blade permitting the blade to swing on the said supporting portion.

3. A safety razor comprising a holder having guard portions and having recessed end members providing opposed sockets, a blade extending into such sockets, the end walls of the sockets being spaced a greater distance apart than the length of the blade at its socket engaging portions to permit endwise movement of the blade in the sockets for its insertion and removal, the guard portions at one end of the holder having lugs engaging the lower face of the blade to support it, and a spring member carried by the holder at one end portion and engaging the end of the blade to press it against the socket wall at the other end of the holder.

4. A safety razor comprising a holder having guard portions and having recessed end members providing opposed sockets, a blade extending into such sockets, the end walls of the sockets being spaced a greater distance apart than the length of the blade at its socket engaging portions to permit endwise movement of the blade in the sockets for its insertion and removal, the guard portions at one end of the holder having lugs engaging the lower face of the blade to support it, and a spring member carried by the holder at one end portion and engaging the end of the blade to press it against the socket wall at the other end of the holder, the socket at the spring carrying end being cut away under the lower face of the blade permitting the blade to swing on the lugs.

5. A safety razor comprising a blade having a projection at each of its ends, a holder having guard portions, the holder having transverse end members provided with spaced upwardly projecting portions at each end thereof that are recessed to receive the respective end portions of the blade on each side of the blade projections, the holder having at one end part blade-supporting portions engaging the lower face of the blade, the holder being offset below the end portions of the blade at the said blade supporting end permitting the blade to swing on the said supporting portions, and a spring engaging one end portion of the blade at said latter end of the holder to press the blade at one end wall against the undercut portion of the holder.

6. A safety razor comprising a blade having end projections, a holder having guard portions, the holder having transverse end members provided with spaced upwardly projecting portions at each end thereof that are recessed to receive the respective end portions of the blade on each side of the blade projections, the holder having at one end part blade-supporting portions engaging the lower face of the blade, the holder being cut away below the end portion of the blade at the said blade supporting end permitting the blade to swing on the said supporting portions, and a spring at the said latter holder end projecting between the recessed end portions and engaging the end of the blade to press the blade at its opposite end against the undercut wall of the holder.

7. A safety razor comprising a blade having a projection at each end, a holder having guard portions, the holder having transverse end members provided with spaced upwardly projecting portions at each end there-

of that are recessed to receive the respective end portions of the blade on each side of the blade projections, the guard portions having at one end of the holder blade-supporting lugs engaging the lower face of the blade, the holder being offset below the end portion of the blade at the said blade supporting end permitting the blade to swing on the said supporting portions, and a spring engaging one end portion of the blade at said latter end of the holder to press the blade at one end wall against the socket portions of the holder.

8. A safety razor comprising a blade having a projection at each end, a holder having guard portions, the holder having transverse end members provided with spaced upwardly projecting portions at each end thereof that are recessed to receive the respective end portions of the blade on each side of the blade projections, the guard portions having at one end of the holder blade supporting lugs engaging the lower face of the blade, the holder being cut away below the end portion of the blade at the said blade supporting end permitting the blade to swing on the said supporting portions, and a spring at the said latter holder end projecting between the recessed end portions and engaging the end of the blade to press the blade at its opposite end against the undercut wall of the holder.

9. A safety razor comprising a blade, a holder having guard portions, the holder having end members each provided with upwardly projecting portions that are recessed to form sockets, closed at one end, to receive the end portions of the blade, and a spring carried by the holder and engaging the blade to press the blade against the recessed portion at one end thereof.

10. A safety razor comprising a blade, a holder having guard portions, the holder having end members each provided with upwardly projecting portions that are recessed to form sockets, closed at the inner ends, to receive the end portions of the blade, the blade having a projecting portion at each end on both sides thereof engaged by the socket portions of the holder, and a spring carried by the holder and engaging the blade to press the blade against the recessed portion at one end thereof.

11. A safety razor comprising a blade having projecting portions at each end on both sides thereof, a holder having guard portions, the holder having end members each provided with spaced upwardly projecting portions at each end that are recessed to form sockets, closed at the inner ends, to receive the projecting end portions of the blade, and a spring carried by the holder and engaging the blade to press it against the recessed portion at one end of the holder.

12. A safety razor comprising a blade having end projecting portions at each end on both sides thereof, a holder having guard portions, the holder having end members each provided with spaced upwardly projecting portions at each end that are recessed to form sockets, closed at the inner ends, to receive the said projecting end portions of the blade, and a spring carried by the holder and engaging the blade to press it against the recessed portion at one end of the holder, the blade also having intermediate projections extending between the spaced projecting portions of the holder.

13. A safety razor comprising a blade having end projecting portions at each end on both sides thereof, a holder having guard portions, the holder having end members each provided with spaced upwardly projecting portions at each end that are recessed to form sockets, closed at the inner ends, to receive the said projecting end portions of the blade, and a spring carried by the holder and engaging the blade to press it against the recessed portion at one end of the holder, the blade also having intermediate projections extending between the spaced projecting portions of the holder, the latter projections being recessed to receive the spring.

14. A safety razor comprising a blade having projecting portions at each end on both sides thereof, a holder having guard portions, the holder having end members each provided with spaced upwardly projecting portions at each end that are recessed to form sockets, closed at the inner ends, to receive the projecting end portions of the blade, a spring carried by the holder and engaging the blade to press it against the recessed portion at one end of the holder, the holder having blade supporting portions near one end thereof engaging the under face of the blade, the socket portions at the latter end of the holder being cut away below the blade to permit the blade to swing on said supporting portions.

15. A safety razor comprising a blade having projecting portions at each end on both sides thereof, a holder having guard portions, the holder having end members each provided with spaced upwardly projecting portions at each end that are recessed to form sockets, closed at the inner ends, to receive the projecting end portions of the blade, and a spring carried by the holder and engaging the blade to press it against the recessed portion at one end of the holder, the guard portions adjacent one end of the holder having lugs engaging the under face of the blade, the socket portions at the latter end of the holder being cut away below the blade permitting a blade to swing on said lugs.

16. A safety razor comprising a blade having projecting portions at each end on both sides thereof, a holder having guard por-

tions, the holder having end members each provided with spaced upwardly projecting portions at each end that are recessed to form sockets, closed at the inner ends, to receive the projecting end portions of the blade, a spring carried by the holder and engaging the blade to press it against the recessed portions at one end of the holder, the holder having blade supporting portions near one end thereof engaging the under face of the blade, the socket portions at the latter end of the holder being cut away below the blade to permit the blade to swing on said supporting portions, the spring being secured to the inner portion of the holder and projecting between the spaced socket portions to engage the end of the blade.

17. A safety razor comprising a blade having projecting portions at each end on both sides thereof, a holder having guard portions, the holder having end members each provided with spaced upwardly projecting portions at each end that are recessed to form sockets, closed at the inner ends, to receive the projecting end portions of the blade, a spring carried by the holder and engaging the blade to press it against the recessed portions at one end of the holder, the holder having blade supporting portions at one end of the holder, the holder having blade supporting portions near one end of the holder engaging the end face of the blade, the socket portions at the latter end thereof being cut away below the blade to permit the blade to swing on said supporting portions, the spring being secured to the inner portion of the holder and projecting between the spaced socket portions to engage the end of the blade, the blade having its end portions recessed at the middle into which the spring extends.

18. A safety razor comprising a blade having projecting portions at each end on both sides thereof, a holder having guard portions, the holder having end members each provided with spaced upwardly projecting portions at each end that are recessed to form sockets, closed at the inner ends, to receive the projecting end portions of the blade, a spring carried by the holder and engaging the blade to press it against the recessed portions at one end of the holder, the holder having blade-supporting portions near one end of the holder engaging the end face of the blade, the socket portions at the latter end thereof being cut away below the blade to permit the blade to swing on said supporting portions, the spring member being secured to the inner portion of the holder and projecting between the spaced socket portions to engage the end of the blade, the blade also having intermediate lugs extending between the spaced projecting portions at each end of the holder.

19. A safety razor comprising a blade having at each end projecting portions on both sides thereof, a holder having guard portions, the holder having end members each provided with spaced upwardly projecting portions at each end that are recessed to form sockets, closed at the inner ends, to receive the projecting end portions of the blade, a spring carried by the holder and engaging the blade to press it against the recessed portions at one end of the holder, the holder having blade supporting portions near one end of the holder engaging the end face of the blade, the socket portions at the latter end thereof being cut away below the blade to permit the blade to swing on said supporting portions, the spring being secured to the inner portion of the holder and projecting between the spaced socket portions to engage the ends of the blade, the blade having its end portions recessed at the middle into which the spring extends.

20. A blade having duplicate ends and a pair of cutting edges, each end comprising a pair of projections, and intermediate this pair of projections and spaced therefrom another pair of projections spaced apart and of greater length than the first pair of projections.

21. A blade having duplicate ends and a pair of cutting edges, each end comprising a pair of projections, intermediate this pair of projections and spaced therefrom another pair of projections spaced apart and of greater length than the first pair of projections, the space or recess between the intermediate pair of projections having its inner wall terminating at a point located in substantial alinement with the outer termini of the outer pair of projections.

22. A blade having duplicate ends and a pair of cutting edges, each end comprising a pair of projections, intermediate this pair of projections and spaced therefrom another pair of projections spaced apart and of greater length than the first pair of projections, the space or recess between the intermediate pair of projections having its inner wall terminating at a point located in substantial alinement with the outer termini of the outer pair of projections, the outer side faces of the intermediate projections adapted to act as positioning stops or faces on one part of the holder and the inner side faces of the outer pair of projections also adapted to act as stops for the blade on another part of the holder.

23. A blade having duplicate ends and a pair of cutting edges, each end comprising a pair of projections, intermediate this pair of projections and spaced therefrom another pair of projections spaced apart and of greater length than the first pair of projections, the space or recess between the intermediate pair of projections having its inner wall terminating at a point located in sub-

stantial alinement with the outer termini of the outer pair of projections, the outer side faces of the intermediate projections adapted to act as positioning stops or faces on one part of the holder and the inner side faces of the outer pair of projections also adapted to act as stops for the blade on another part of the holder, the underside of the projecting lugs or projections constituting bearing surfaces coöperating with tables or flat portions of the holder forming the bottom of the recesses into which the outer lugs project.

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