

Aug. 18, 1925.

1,550,178

G. A. LOGAN

SAFETY RAZOR

Filed Feb. 16, 1923

Fig. 1.

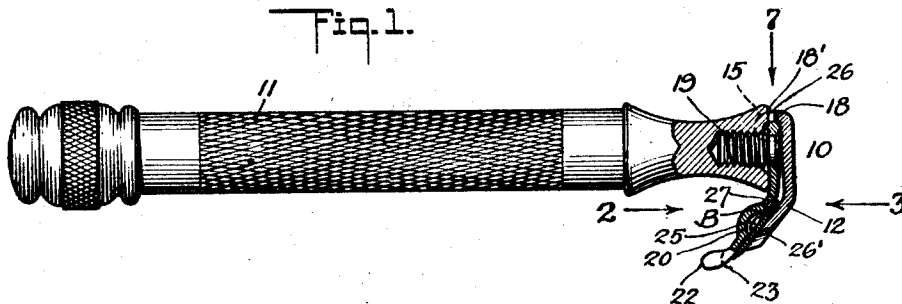


Fig. 2.

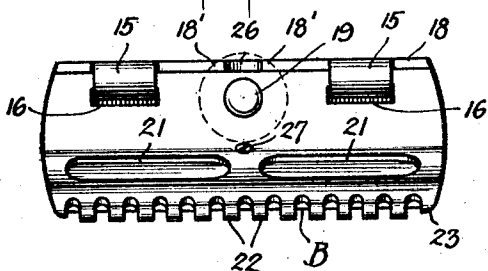


Fig. 3.

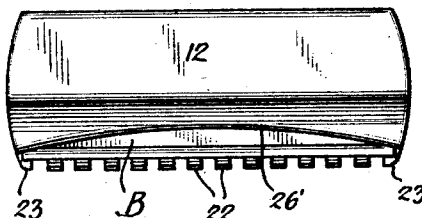


Fig. 4.

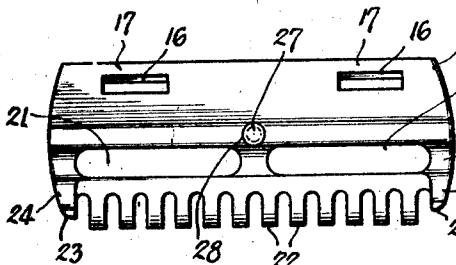


Fig. 5.

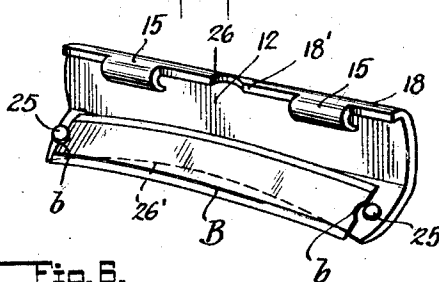


Fig. 6.

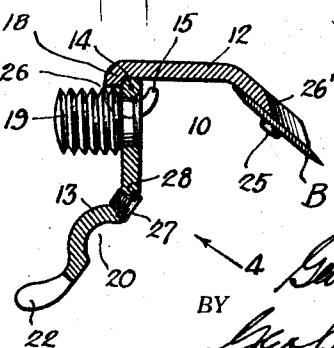
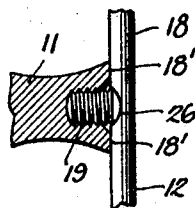


Fig. 7.



INVENTOR

BY

G. A. Logan
G. H. Seeler
ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE A. LOGAN, OF NEW YORK, N. Y.

SAFETY RAZOR.

Application filed February 16, 1923. Serial No. 619,376.

To all whom it may concern:

Be it known that I, GEORGE A. LOGAN, a citizen of the United States, residing at New York city, borough of Manhattan, 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 cutlery and has particular reference to safety razors.

Among the objects of the invention is to provide a safety razor having advantages and features among which may be noted the following: minimum number of parts for simplicity and cheapness of construction and the facility and effectiveness in maintaining the device clean and sanitary; facility of manipulation not only for shaving operation but also for the interchange of blades; a peculiar and novel construction of blade made of narrow ribbon steel and so adapted for easy endwise flexure and with peculiar means for attachment and detachment; peculiar and novel attachment means for establishing once and for all, with respect to each individual user, the proper adjustment or relation between the blade and the guard means independently of the locking means for the head, and the provision of a novel design of head or assemblage of blade holding plates, with reference to ample clearances for the passage of the shavings, lather, and rinse water, as well as other features of advantage and construction herein-after more fully set forth and claimed.

Another object of the invention is to provide a razor frame or head which includes an upper or outer plate having special facilities for the attachment thereto and the holding of a razor blade independent of any other part of the frame or head, and while I illustrate one preferred form of means for so holding the blade it will be understood that other specific means for accomplishing the same result may be resorted to.

With the foregoing and other objects in view the invention consists in the arrangement and combination of parts hereinafter described and claimed, and while the invention is not restricted to the exact details of construction disclosed or suggested herein, still for the purpose of illustrating a practical embodiment thereof reference is had to the accompanying drawings, in which like reference characters designate the same parts in the several views, and in which—

Figure 1 is a partial side elevation and partial central section of my improved razor in operative or assembled position.

Fig. 2 is an inside elevation of the head, the handle being removed, as would be seen from the arrow 2, Fig. 1.

Fig. 3 is an outside elevation of the same as would be seen from the arrow 3, Fig. 1.

Fig. 4 is an inside face view of the inner plate as would be seen from the direction of the arrow 4 in Fig. 6.

Fig. 5 is an inside perspective view of the outer plate and indicating the flexibility of the blade as when being inserted into place.

Fig. 8 is an enlarged transverse central section of the head with the plates separated and indicating especially the adjustment screw.

Fig. 7 is an enlarged detail of the handle locking means as would be seen from the arrow 7, Fig. 1, the handle being in section.

Referring now more specifically to the drawings I show my improved razor as comprising two main parts,—a head or blade holding member 10 and a handle 11, the latter acting in co-operation with the head to lock the blade in place in the head.

The head consists of two plates 12 and 13, which may be referred to hereinafter as the outer and the inner plates respectively. The plates are movably related to each other for the purpose of cleansing, replacement of blades, or the like, and while I do not wish to be limited unnecessarily to any particular means for connecting or interlocking the plates to each other, I indicate that they are permanently hinged for relative swinging movement through about 90° around the axis 14. The plate 12 is provided with hinge lugs 15 which extend through slots 16 in the plate 13 and bent around the portions 17 of the plate adjacent to the slots. The plate 12 includes also a lip or flange 18 which embraces one side of the axis edge of the other plate. The lower part of the plate 12, remote from the hinge, is bent inward at an obtuse angle to the upper part so that it will lie in operative position at an oblique angle to the handle whose axis is perpendicular to said upper or hinge portion. This angle is most convenient for the practice of the device, because the handle is extended approximately in the direction of movement of the instrument over the face.

The plate 13, like the plate 12, has two parts which in general may be described as

being arranged at an obtuse angle to each other, corresponding somewhat closely to the shape of the plate 12. The upper portion of the plate 13, except as indicated above, is flat and imperforate, and extending from the inner side of the central portion thereof is a threaded stud 19, the axis of which is nearly but not exactly perpendicular to the adjacent flat portion of the plate. The lower portion of the plate in general is approximately parallel to the lower portion of the plate 12 but is provided with a channel 20 extending lengthwise of the plate and parallel to the angle between the two main portions thereof so that there is a further clearance space for the passage of the shavings or rinsing water from one end of the plate to the other. Additional clearances are provided by means of slots 21 formed along said plate and communicating with the channel. Along the extreme edge of the lower portion of the plate 13 are formed a series of guard fingers 22, serving their usual purpose. At each end of the series of guard fingers 22 is arranged a guard lug 23 and adjacent to each of these lugs is a facet 24 upon which the corner or point of the blade B rests. The plane of the facets 24 is offset somewhat from the plane of the guard fingers, and accordingly the face of the blade adjacent to the fingers is thereby held spaced from the guard fingers to give free clearance for the passage of the shavings to and through the channel 20 and slots 21.

The blade B is made of narrow ribbon or strip steel or its equivalent, having parallel edges, either or both of which may be sharpened, and at each end the blade is provided with a notch *b*. In the practice of this device the blade lies flat against the inner surface of the lower portion of the plate 12 and is held in such position by suitable means, such for instance as an under cut lug 25 carried by each end portion of said lower portion of the plate. The lower edge of the plate 12 is cut away or upward at its center as shown at 26', Fig. 3, whereby the operator while holding the open head in one hand may easily grasp the middle portion of the blade between the thumb and finger of his other hand and while so grasping the blade he may easily insert it into place or remove it from its place as suggested in Fig. 5. To insert a blade the notched portion of one end of the blade is slipped beneath its lug 25 and then by flexing the blade lengthwise the operator may easily slip the other notched end beneath its lug 25. By this means the blade is reliably held in place in connection with the plate 12 even though the head may be open as in Fig. 6 for cleansing and drying purposes.

When the two plates are brought toward each other in the closing of the head the con-

vex or lower face of the inner plate 13 comes toward or against the blade where it may be locked by any suitable means, preferably rigidly locked as by means of the handle 11 which when screwed tightly upon the lug 19 will bear directly against the lip or flange 18 on opposite sides of a notch 26 formed therein. The socket end of the handle in this action may be regarded as rigid with the inner plate 13, and so the contact between the end of the handle and the points 18' of the lip 18 on opposite sides of the lug 19 tends to swing the plate 12 in a clockwise direction in Fig. 1 around the axis 14, thereby causing the lower portions of both plates to approach each other to a predetermined position or degree of closeness, the closest approach of the blade to the plate 13 being determined by the facets 24 aforesaid. The handle is thus connected tightly to the head in practice and hence no uncertainty of operation or looseness of the parts is experienced. The notch 26, in addition to providing the two spaced bearing points 18', affords clearance for the stud 19 in the opening of the head. See Figs. 2 and 6.

While the construction thus far described is well adapted for the use of most men, it is desirable to provide a means to limit variably the degree of closeness toward which the two free edge portions of the plates may approach each other, and yet enable the locking action of the handle on stud 19 to be always positive and tight. To this end I provide on one of the plates an adjustable stop, such as a screw 27 movable toward or from the other plate. This stop member is shown as having threaded engagement in the central portion of the plate 13 below the angle between the upper and lower parts of said plate, the axis of the screw being approximately perpendicular to the lower half of the plate and also the blade against which the unslotted end of the screw is adapted to impinge when the two plates 12 and 13 are forced toward each other by the action of the handle. If one man desires more space between the plates than another he will adjust the screw 27 toward the plate 12. The screw is made preferably with a relatively tight thread, and hence when it is once adjusted to meet the demands of one individual it will not require subsequent adjustment for his use. For the use of another man who may desire or require less space between the edge of the blade and the guard fingers, he will adjust the screw in the opposite direction or toward the handle. The screw is manipulated by the use of a pocket knife or the like applied to its inner end. The contact or head end of the screw 27 is preferably enlarged to afford a broad contact with the blade, thus affording at all times a rigid support against the inner surface of the

blade between its ends, resisting any tendency for pressure against the outer surface of the blade to flex its middle portion toward the guard plate to obstruct the passage way before mentioned or disturb the desired individual adjustment. This enlarged head may project more or less into a pit or recess 28 according to the adjustment of the screw.

10 I claim:

1. In a razor, a pair of plates for embracing the opposite sides of a blade, means including one of said plates and lugs upon the other plate for holding the blade flat against said other plate throughout its length, adjusting means connected with one of the plates and adapted to project toward the other plate and to hold the plates separated at variable distances, clamping means for the plates for holding them rigid in all positions of adjustment, and a handle to which said clamping means is connected, substantially as described.

2. In a razor, a pair of plates, one of the plates of the pair having holding means for a blade independent of the other plate, an adjusting screw passing through said other plate and projecting toward the plate holding the blade to hold the plates separated at variable distances, clamping means for the plates, and a handle to which said clamping means is connected and through which the clamping means is made effective, substantially as set forth.

3. In a razor, a pair of obtuse angled plates connected together, holding means for a blade arranged on one of the plates of the pair, the edge of the other plate being extended beyond the corresponding edge of the blade holding plate and having guard teeth thereon, an adjusting screw passing through the guard plate and engaging the blade for determining variably the distance apart of the plates and the space between the edge of the blade and the guard teeth, clamping means for said plates, and a handle to which said clamping means is connected and through which the clamping means is made effective at all adjustments of the screw, substantially as set forth.

4. In a razor, a pair of plates connected together, one of the plates of the pair having holding means for a blade and the other plate having a recess in its side adjacent to the first mentioned plate, and an adjusting screw passing through said last named plate having a head extending into said recess and which engages the blade and holds the two plates separated at variable distances, clamping means for the plates, and a handle to which said clamping means is connected, substantially as set forth.

5. In a razor, a head comprising two members having interlocking engagement, one of the head members having means to

receive a blade and hold it in place on said plate in any position of the plate independent of the other plate, the other head member having a rigid stud, and a handle detachably connected to the stud and serving when tightened to cause the two head members to clamp toward each other, embracing the blade.

6. In a safety razor, an inner plate having a rigid threaded stud, an outer plate hinged to the first mentioned plate adapted for swinging movement at its free edge portion toward or from the free edge portion of the inner plate around a transverse axis adjacent to said stud, one of the plates having means for holding a blade independent of the other plate, and a tightening member co-operating with said stud and serving by an outward thrust on the outer plate to cause the two plates to approach each other at their free edge portions, embracing the blade when tightened.

7. Mechanism as set forth in claim 6 in which the tightening member co-operating with the stud reacts against the outer plate causing the latter to move as a lever of the first class.

8. In a safety razor, the combination of two plates connected along one edge for relative movement through an arc of a circle, the inner plate having a rigid stud extending therefrom adjacent to the hinge line while the other plate has a lip extending partially around the hinge line of the inner plate, means to receive and hold a blade between the two portions of the plates remote from the hinge line, and means co-operating with said stud and reacting against said lip to cause the two plates to approach each other forcibly adjacent to the blade.

9. Mechanism as set forth in claim 8 in which means is provided auxiliary to the clamping means to limit positively the extent of movement of the plates toward each other.

10. Mechanism as set forth in claim 8 in which the inner plate is provided along its free edge with guard fingers and being formed just above said fingers with a longitudinal groove for the free passage of the shavings.

11. Mechanism as set forth in claim 8 in which the inner plate is provided adjacent to its free edge with an inwardly curved portion forming a channel parallel to the edge of the blade, the channel being provided with open spaces along its bottom for the free passage of the shavings.

12. In a safety razor, the combination with a blade flexible longitudinally, of a holder for the blade having means for interlocking engagement with the ends of the blade as a result of said longitudinal flexure, whereby the blade may be held in fixed

relation to the holder independently of all other holding means.

13. In a safety razor, the combination with a rigid holder having a flat surface and an under cut lug at each end of said surface, the under cut of each lug being on the side thereof toward the opposite lug, of a blade flexible longitudinally and having a notch in each end, said notches being engageable with and beneath said lugs as a result of longitudinal flexure of the blade during assemblage, the blade after being inserted beneath the lugs lying flat against said surface.

14. In a razor, a head comprising inner and outer plates movable toward and from each other, means carried by the outer plate for securing thereto and flatly there against a blade independent of the inner plate, and means coacting with the two plates to bind them close together at variable intervals between them and with the blade in operative position between them.

15. A razor frame including an upper plate adaptable through holding means which are an integral part of the upper plate to hold a blade fixedly and flatly against said plate and yet detachable therefrom, whereby the razor may be cleansed and wiped while the blade is so held.

16. In a razor, a head comprising inner and outer plates movable toward and from each other, the front portion of the outer plate having headed lugs near its ends for securing to the plate a blade and holding it firmly by frictional contact of the blade with the sides and the overlapping heads of the lugs, the heads of the lugs extending in the direction of the length of the blade, and means coacting with the two

plates to bind them in close operative position to each other and with the blade between them.

17. A razor frame including an upper plate having headed lugs integral therewith and adapted independently of the other holding means to engage a blade and hold it fixedly and yet detachably thereto.

18. In a razor, a head comprising inner and outer plates, the outer plate having headed lugs on its inner surface for securely holding a blade in proper operative position at all times whether the plates are locked together or separated, and means to lock the plates in operative relation to each other.

19. In a safety razor, the combination of two plates movable toward and from each other and adapted to retain a blade between them, the inner plate having a channel adjacent to the edge of the blade for free passage of shavings between said edge and the inner plate, and means carried by the inner plate to engage the inner surface of the blade between its ends to stiffen such portion of the blade.

20. A razor as set forth in claim 19 in which the means carried by the inner plate is adjustable in a direction perpendicular thereto for varying the space between the blade and said inner plate.

21. A razor as set forth in claim 19 in which the means carried by the inner plate to engage the blade is a screw adjustable perpendicularly to the inner plate and coacts with the blade to stiffen it in all positions of adjustment of the razor.

In testimony whereof I affix my signature.

GEORGE A. LOGAN.