April 3, 1934. W. G. McADOO 1,953,248

SAFETY RAZOR

Filed Nov. 25, 1931

Fig. 1.

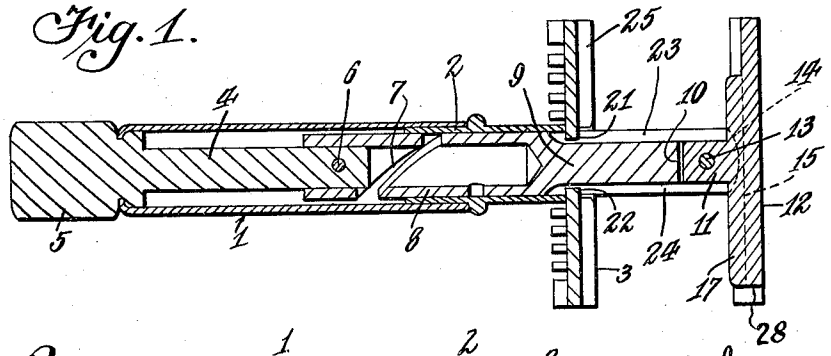
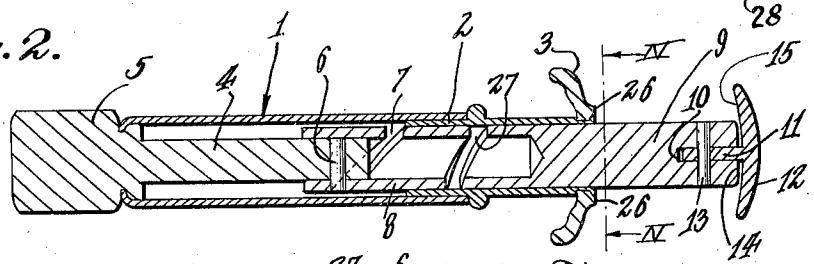


Fig. 2.



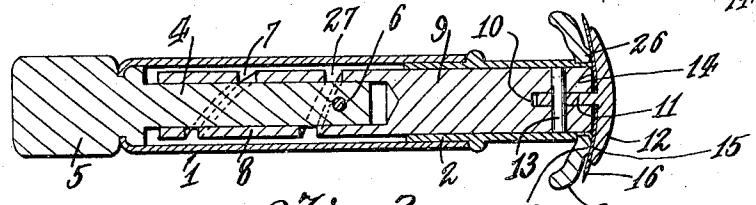


Fig. 3.

Fig. 4.

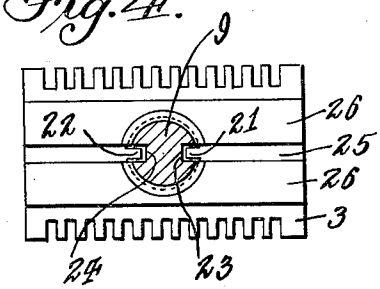


Fig. 5.

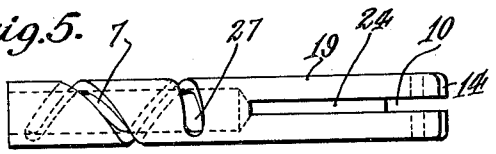
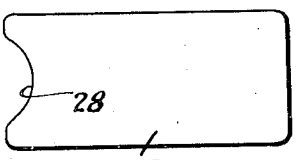


Fig. 7.



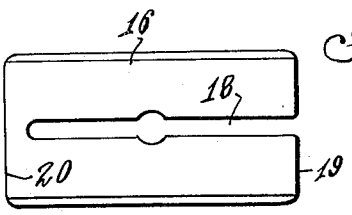


Fig. 6.

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SAFETY RAZOR

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Application November 25, 1931, Serial No. 577,198

8 Claims. (Cl. 30—12)

My invention relates to safety razors, and has particular reference to a razor construction in which the razor may be opened to permit removal of the blade, but in which all parts except the blade are retained in assembled condition at all times.

Safety razors of the type employing movable parts have been constructed of substantially three parts, namely, a handle, a face guard, and a face plate attachable to the handle to hold the blade between the face plate and the guard. However, in substantially all of the prior constructions it has been necessary to remove the face plate from the handle in order to remove the blade, which requires considerable manipulation of the parts and consumes an unnecessarily great amount of time in handling the razor, as great care must be exercised to avoid injury from the sharp blade.

It is, therefore, an object of my invention to provide a razor construction in which the handle, guard and face plate are assembled in a permanent assembly, but in which the guard and face plate may be moved in spaced relation to permit removal of the blade.

Another object of my invention is to provide a razor construction in which the extension of the guard and face plate may be accomplished readily, but in which the guard and face plate are held in locked relation when clamped upon the blade.

Another object of the invention is to provide a razor construction in which a removable blade may be inserted in or removed from the razor, while the guard and face plate are in spaced relation, and in which the blade is held in position upon the face plate independent of the clamping of the face plate to the guard. This operation is done with the free hand, while the other grasps the handle of the razor, thus insuring absolute safety.

Another object of the invention is to provide a razor construction in which the blade may be secured to the face plate, while the face plate and guard are in spaced relation and in which the blade will be maintained upon the face plate by flexing of the blade.

Another object of the invention is to provide in a razor construction, a face plate having a segment cut away from one end, in order to facilitate the insertion or removal of the blade, thus insuring safety and indicating the closed end of the blade.

Other objects and advantages will be apparent from a study of the following specifications, read in connection with the accompanying drawing, wherein

Figure 1 is a vertical sectional view taken through a razor construction in accordance with my invention, and showing the face plate and guard in spaced relation;

Fig. 2 is a lateral cross sectional view of a razor constructed in accordance with my invention;

Fig. 3 is a sectional view, similar to Fig. 2, but showing the parts in contracted position;

Fig. 4 is a detail, horizontal sectional view, taken along line IV—IV, of Fig. 2;

Fig. 5 is a detail view, showing the construction of the telescopic stem which may be employed in connection with the razor shown in Figs. 1, 2 and 3;

Fig. 6 is a detail view illustrating a blade which may be employed in connection with my razor; and

Fig. 7 is a detail view, illustrating the finger space cut away from the face plate.

Referring to the drawing, I have illustrated a razor as comprising a handle 1 comprising a tubular member into one end of which is inserted a tubular nipple 2, upon the outer end of which is secured a face guard 3. In the lowermost end of the tubular handle 1, I have illustrated a shaft 4 terminating at its outer end in a thumb piece 5 and having a laterally extending pin 6 secured near its inner end to engage a slot 7 formed in a tubular section 8 of a slide 9, so that rotation of the thumb piece 5, relative to the handle 1, will cause the extension of the slide 9, or rotation in the opposite direction will cause the retraction of the slide 9 back into the handle 1.

The outer end of the slide 9 is illustrated as being provided with a slot 10 into which projects a tongue 11 formed integral with an arcuate face plate 12, the connection between the face plate and the slide being effected by a pin 13 which extends laterally through both the slide and the tongue 11.

The outer end of the slide 9 is illustrated as being rounded off, as is indicated at 14, so that the bifurcated end of the slide projects to within a very small distance of the inner surface 15 of the face plate 12. This space should be just a little in excess of that required for the thickness of a blade 16 which may be inserted between the curved end 14 of the slide 9 and the inner surface 15 of the face plate.

By referring particularly to Fig. 1, it will be observed that the inner surface 15 of the face plate 12 is provided with a rearwardly extending key 17, this key extending a considerable dis-

tance along the major axis of the face plate 12.

By referring particularly to Fig. 6, it will be observed that the blade 16 is illustrated as having a slot 18 extending from one of its ends 19 to within a short distance of its opposite end 20, the width of the slot 18 being substantially the width of the key 17 so that the blade 16 may be readily slipped along the inner surface of the face plate 12 with the key engaging the slot 18 so that when the blade is in position, as is illustrated in Fig. 3, the blade will be flexed by the engagement of the inner surface 15 of the face plate 12 and the outer end 14 of the slide 9. Thus the blade is retained upon the face plate by the mere engagement therewith of the slide and the face plate, and when in this position the blade is correctly positioned in the razor to be clamped between the face plate and the guard ready for use.

By referring particularly to Figs. 1 and 4, it will be observed that while the slide 9 is arranged to have a telescopic movement relative to the handle and to the face guard, relative rotational movement of these parts is effectively prevented by means of a pair of lugs 21 and 22 formed upon the face guard 3 which extend inwardly of the tubular nipple 2 to engage respectively in a pair of slots 23 and 24 formed in the longitudinal walls of the slide 9.

Thus while the slide 9 may be moved inwardly and outwardly, relative to the handle 1, the face plate 12 is at all times aligned with the face guard 3 so that the mere contraction of the slide and handle places the face plate and its guard in the correct positions ready for use. A slot 25 is illustrated as extending along the major axis of the face guard 3 to receive and guide the key 17 when the face plate and the guard are drawn together, so that the relation between the face guard 3, the blade 16, and the face plate 12, will be automatically fixed by the contraction of the slide 9 to clamp the blade between upstanding shoulders 26 on the guard 3 and the inner surface of the face plate 12. Thus, though the blade is provided with a relatively long slot extending therethrough, the blade is clamped between the guard and face plate to prevent the material flexing of the two portions of the blade when the razor is in use.

It will therefore be observed that the handle 1 may be readily grasped in the hand, the thumb piece 5 rotated by the other hand to extend the face guard, and the face plate, to permit either the removal of or the insertion of the blade 16; then the reverse rotation of the thumb piece 5 will draw the face plate and face guard together into their correctly assembled relation.

During all of this time it has been unecessary to remove the hand which grasped the handle for any other manipulation of the parts of the razor, and while the guard and face plate have been extended to permit ready removal and attachment of the blade, these parts have remained not only permanently assembled, but in permanently fixed relations to each other.

Since it is desirable that the extension movement and the contraction movement should be as rapid as possible, the slot 7 is arranged in the form of a helix or screw of relatively high pitch. However, when the slide is contracted, it is desirable that the slide be relatively locked to the handle, and for this reason I have illustrated the extreme inner end 27 of the helical slot 7 as being of much reduced pitch so that while the initial contracting movement is very rapid, the last portions of this movement will be slow and when the face plate and guard are in clamping relation, the low pitch of the slot at this point will constitute a substantial lock, preventing inadvertent extension of the slide.

To facilitate the insertion or removal of a blade I have provided a thumb space 28 in one end of the face plate. This thumb space also indicates the closed end of the blade, when removing same.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not wish to be limited to the details shown herein, except as defined in the appended claims.

I claim:

1. In a safety razor construction, a face guard and a face plate between which a blade is clamped, a handle rigidly secured to said guard, a slide secured to said face plate and telescopically assembled with said handle, the inner surface of the face plate being concave and the end of said slide being so spaced with respect to the concave surface of the face plate as to require flexing of a blade before insertion between said slide and said face plate.

2. In a safety razor construction, a face guard and a face plate between which a blade is clamped, a handle rigidly secured to said guard, a slide secured to said face plate and telescopically assembled with said handle, the inner surface of the face plate and the end of said slide being so spaced as to require flexing of a blade upon insertion between said slide and said face plate, a blade having a slot extending longitudinally from one end thereof, and a key formed upon the inner surface of said face plate for guiding said blade into position between said face plate and said slide.

3. In a safety razor construction, a face guard and a face plate between which a blade is clamped, a handle rigidly secured to said guard, a slide telescopically assembled with said handle for telescopic movement relative to said handle, means pivotally securing said face plate to the upper end of said slide with the inner surface of the face plate and the outer end of said slide in spaced relation requiring flexing of a blade when inserted between said face plate and said slide.

4. In a safety razor construction, a face guard and a face plate between which a blade is clamped, a handle rigidly secured to said guard, a slide telescopically assembled with said handle for telescopic movement relative to said handle, means pivotally securing said face plate to the upper end of said slide with the inner surface of the face plate and the outer end of said slide in spaced relation requiring flexing of a blade when inserted between said face plate and said slide, a key formed upon the inner surface of said face plate to guide said blade and to hold the same with its longitudinal axis parallel to the longitudinal axis of said face plate.

5. In a safety razor construction, a face guard and a face plate between which a blade is clamped, a handle rigidly secured to said guard, a slide telescopically assembled with said handle for telescopic movement relative to said handle, means pivotally securing said face plate to the upper end of said slide with the inner surface of the face plate and the outer end of said slide in spaced relation requiring flexing of a blade when inserted between said face plate and said slide, a key formed upon the inner surface of said face plate to guide said blade and to hold the same with its longitudinal axis parallel to the longitudinal axis of said face plate, and a slot formed

in the outer surface of said face guard for receiving and guiding said key when said slide is moved into said handle.

6. In a safety razor construction, a handle, a face guard secured to said handle, a slide telescopically assembled in said handle for telescopic movement relative thereto, a face plate secured to the outer end of said slide, a helical slot formed upon said slide, a thumb piece rotatably secured to said handle and having a pin engaging said slot for moving said slide relative to said handle and thereby opening or closing the razor, said helical slot varying in pitch from a low pitch at the end in engagement with the pin when the razor is closed to a high pitch at the end in engagement with the pin when the razor is open, whereby the razor is opened or closed rapidly in response to simple rotation of the thumb piece in one direction only, and yet is closed with substantial force.

7. In a safety razor construction, a handle, a face guard secured to said handle, a slide telescopically assembled in said handle for telescopic movement relative thereto, means preventing relative rotary movement between said handle and said slide, a face plate secured to the outer end of said slide, a helical slot formed upon said slide, a thumb piece rotatably secured to said handle and having a pin engaging said slot for moving said slide relative to said handle and thereby opening or closing the razor, said helical slot varying in pitch from a low pitch at the end in engagement with the pin when the razor is closed to a high pitch at the end in engagement with the pin when the razor is open, whereby the razor is opened or closed rapidly in response to simple rotation of the thumb piece in one direction only, and yet is closed with substantial force.

8. In a safety razor construction, a handle, a face guard secured to said handle, a slide telescopically assembled in said handle for telescopic movement relative thereto, means preventing relative rotary movement between said handle and said slide, a face plate secured to the outer end of said slide, a helical slot formed upon said slide and terminating within the boundaries of said slide, and a thumb piece rotatably secured to said handle and having a pin engaging said slot for moving said slide relative to said handle.

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