Nov. 10, 1936. W. T. PARKIN 2,060,635

RAZOR WITH SLIDING ACTUATOR PLATE

Filed June 1, 1935

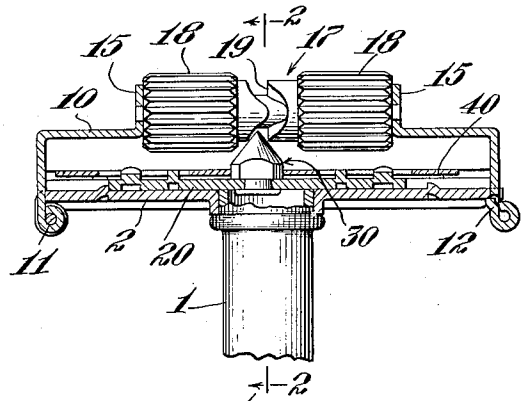


Fig. 1

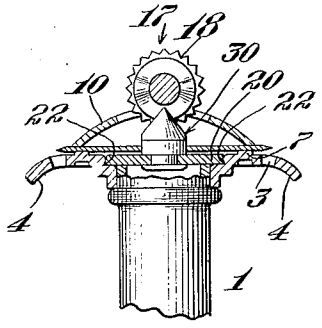


Fig. 2

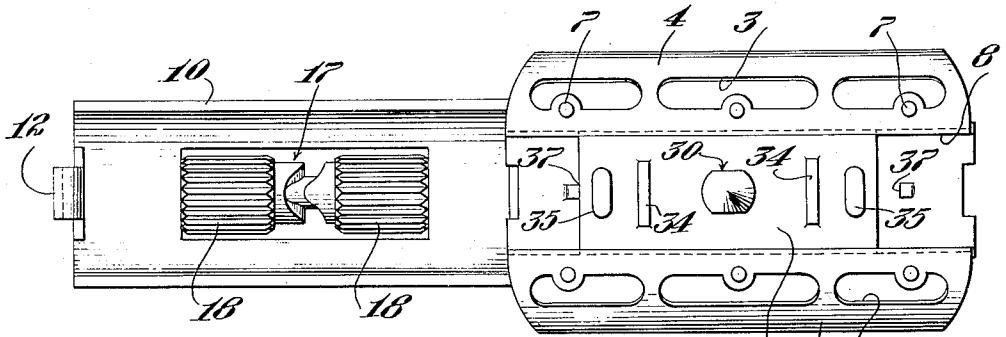


Fig. 3

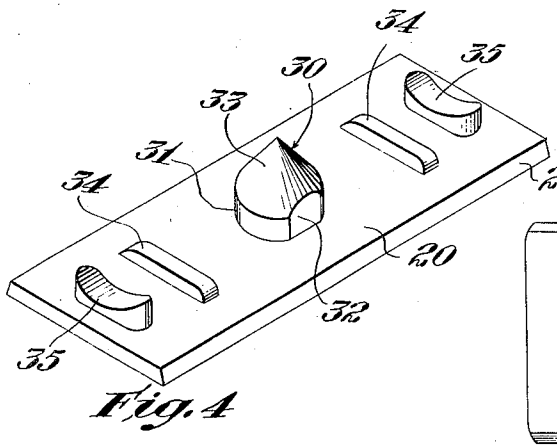


Fig. 4

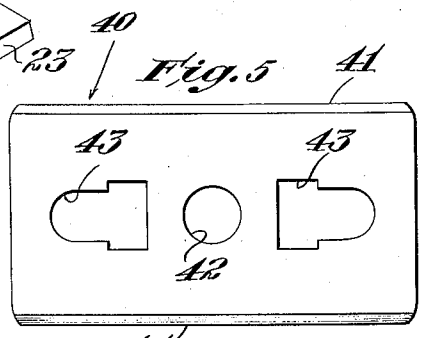


Fig. 5

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Patented Nov. 10, 1936 2,060,635

UNITED STATES PATENT OFFICE

2,060,635

RAZOR WITH SLIDING ACTUATOR PLATE

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Application June 1, 1935, Serial No. 24,507

5 Claims. (Cl. 30—46)

This invention relates to an improved safety razor, and particularly a razor of the type wherein a blade may be reciprocated in a path parallel to its cutting edge. This invention particularly provides an arrangement whereby a driving roller on a blade retainer may be effective in imparting reciprocatory movement to an actuating plate mounted on the guard, a suitable follower extending through an opening in the blade and engaging a cam portion of the driving roller.

To permit and facilitate these desirable results, the support, which may conveniently be formed of sheet metal, is shaped to provide a shallow central groove or recess. Preferably the edges of this recess are then undercut to receive a suitable actuating plate which may have its edges shaped to interfit with the undercut walls of the groove. Thus, for example, these parts may be shaped to afford connections of the dovetail type. Suitable lugs may be struck up in the bottom of the groove to define and limit the ends of the path of the actuating plate. Thus the latter may be properly positioned so that the follower pin will readily engage the driving roller when the retainer is moved to its normal position over the support and so that accidental movement of the actuating plate out of engagement with the support is prevented.

The actuating plate preferably is provided with a follower pin which has a conical end portion adapted readily to engage a central opening in the blade and a cam groove in the driving roller when the retainer is moved to its normal position. At either side of the follower pin portions of the actuating plate may be struck up to provide lugs engageable with suitable openings in a blade, thus to cooperate in holding the blade in proper position parallel to the edges of the support or guard.

In the accompanying drawing

Fig. 1 is a view, partly in central section and partly in elevation, showing the upper portion of a razor constructed in accordance with this invention;

Fig. 2 is a section indicated by line 2—2 of Fig. 1;

Fig. 3 is a top view of the razor with the retainer swung to its open position;

Fig. 4 is an isometric view of the actuating plate; and

Fig. 5 is an enlarged plan view of the blade.

A razor of the type which may incorporate the principles of this invention may include a handle 1 secured to a support or guard plate 2 such as shown in Figs. 1 and 3 of the accompanying drawing. The support 2 is provided with elongate openings 3 which partially separate its body portion from outer rail-like guard portions 4. Adjoining the slots 3, the support is provided with a plurality of small lugs 7 upon which the blade may slide. The body portion of the support between the slots is shaped to provide a shallow groove, designated generally by numeral 8.

A retainer 10 may be connected by a suitable hinge 11 to one end of the support 2. The opposite end of the retainer is provided with a resilient clip 12 which normally engages the lower surface of the end of the support to hold the retainer in position. When the clip 12 is pressed outwardly and upwardly, the clip is disengaged and the retainer may be swung to the open position shown in Fig. 3. The retainer may have integral ears 15 providing openings in which the ends of the driving roller 17 are journaled. The driving roller is provided with suitably roughened end portions 18 and an intermediate cam groove 19.

In accordance with this invention, an actuating plate 20 may be received in the groove 8. For this purpose the side walls of the groove and the corresponding edge portions of the actuating plate are shaped to have a sliding interfitting engagement with each other. Thus, as shown in Fig. 2, the sides of the groove may be slightly undercut, as designated by numerals 22, while, as shown in Fig. 4, the sides 23 of the plate 20 may incline outwardly and downwardly. Thus in effect a dovetailed sliding connection is provided between the plate and the grooved portion of the support.

The plate itself may be provided with a central follower pin 30 which has a generally cylindrical body portion 31 projecting upwardly from the central part of the plate with flattened side portions 32. The upper part 33 of the pin 30 is of conical form, terminating in a definite point. Thus this portion of the pin has the shape of a true cone, i. e., a cone that may be generated by the movement of a straight line with one end held at a point corresponding to the apex of the cone and the opposite end moved about the circumference of a circle. The sheet metal of the plate 20 is struck up to form suitable protuberances on its upper surface so that lugs are provided adjoining its ends. Thus two relatively narrow transverse lugs 34 may be provided, while lugs 35 may be disposed between the lugs 34 and the ends of the plate. The lugs 34, as shown, may have straight transverse edges, while the lugs 35, as viewed from above, are of generally

oval or ovaloid form, the ends of these lugs having a greater height than their intermediate portions.

Adjoining the ends of the plate 20, the metal of the support at the bottom of the groove 8 may be struck up to provide two lugs or protuberances 37 which have straight parallel edges adapted to engage the ends of the plate 20 so that the latter may have a limited path of movement between these lugs. The lugs 37 also prevent endwise movement of the plate 20 and its possible accidental disengagement from the support when the retainer is in its open position.

A razor of this type may include a blade 40 such as is shown in Fig. 5, such a blade having parallel cutting edges 41 and a central circular opening 42 to engage the follower pin 30. At each side of the opening 42 are similar openings 43 shaped to fit over and engage the lugs 34 and 35 upon the corresponding portions of the plate 20.

When a razor of this type is to be used, the retainer is swung to the open position shown in Fig. 3 and the blade 40 is disposed upon the support 2 and the actuating plate 20, the conical end of the pin 30 being initially engaged with the opening 42 so that the blade is readily brought into the proper position upon the plate with the lugs 34 and 35 engaging the openings 43. When the blade is thus positioned, portions thereof adjoining its cutting edges may engage the protuberances 7, as shown in Fig. 2. Thereupon the retainer 10 may be swung to its normal position, shown in Figs. 1 and 2, the conical end of follower pin 30 readily moving into engagement with the cam groove 19 as this movement takes place and the clip 12 snapping into engagement with the support to lock the retainer in place. The razor is then ready for use.

As the razor is moved over the flesh of the user, the roughened portions 18 of the roll 17 cause rotation of the latter so that the cam groove 19 is effective in imparting a reciprocating movement to the follower pin 30 and the plate 20 which slides in the undercut groove 8. Since the protuberances 30, 34 and 35 of the plate engage corresponding openings in the blade, the latter is reciprocated along a path parallel to its cutting edges.

It is evident that this invention permits the provision of an actuator plate of simple form and that the operating mechanism to reciprocate the blade is compactly disposed. Furthermore, the shaping of the follower pin 30 facilitates the engagement of the pin in the cam groove when the retainer is swung to its normal operative position.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. Razor of the class described comprising a sheet metal support, a retainer normally positioned over the support, a driving roller rotatably mounted on the retainer, said roller having a cam portion, the sheet metal of the support being shaped to provide a shallow groove extending between the ends of the support, a planar actuating plate slidably received in the groove, the walls of the groove being undercut and the edges of the plate having a complementary form so that the plate may slide in the groove but may not move vertically out of the same, said plate having a follower portion to extend through an opening in a blade disposed between the support and retainer, said follower portion operatively engaging the cam portion of the roller so that the plate and blade are reciprocated when the roller is rotated.

2. Razor of the class described comprising a sheet metal support, a retainer normally positioned over the support, a driving roller rotatably mounted on the retainer, said roller having a cam portion, the sheet metal of the support being shaped to provide a shallow groove extending between the ends of the support, a planar actuating plate slidably received in the groove, the walls of the groove being undercut and the edges of the plate having a complementary form so that the plate may slide in the groove but may not move vertically out of the same, said plate having a follower portion to extend through an opening in a blade disposed between the support and retainer, said follower portion operatively engaging the cam portion of the roller so that the plate and blade are reciprocated when the roller is rotated, said plate being formed of sheet metal, integral portions of which are indented to provide upstanding protuberances symmetrically disposed at opposite sides of said follower portion to engage openings in the blade.

3. Razor of the class described comprising a sheet metal support, a retainer normally positioned over the support, a driving roller rotatably mounted on the retainer, said roller having a cam portion, the sheet metal of the support being shaped to provide a shallow groove extending between the ends of the support, a planar actuating plate slidably received in the groove, the walls of the groove being undercut and the edges of the plate having a complementary form so that the plate may slide in the groove but may not move vertically out of the same, said plate having a follower portion to extend through an opening in a blade disposed between the support and retainer, said follower portion operatively engaging the cam portion of the roller so that the plate and blade are reciprocated when the roller is rotated, the sheet metal of the support being struck-up to provide protuberances in the bottom of the groove to limit the path of the plate.

4. Razor of the class described comprising a sheet metal support, a retainer normally positioned over the support, a driving roller rotatably mounted on the retainer, said roller having a cam portion, the sheet metal of the support being shaped to provide a shallow groove extending between the ends of the support, a planar actuating plate slidably received in the groove, the walls of the groove being undercut and the edges of the plate having a complementary form so that the plate may slide in the groove but may not move vertically out of the same, said plate having a follower portion to extend through an opening in a blade disposed between the support and retainer, said follower portion operatively engaging the cam portion of the roller so that the plate and blade are reciprocated when the roller is rotated, said follower portion being in the form of a pin having a generally cylindrical lower part to engage the opening in the blade and having a conical upper portion engaging the cam portion of the roller.

5. Razor of the class described comprising a sheet metal support, a retainer normally positioned over the support, a driving roller rotatably mounted on the retainer, said roller having a cam portion, the sheet metal of the support being shaped to provide a shallow groove extending

between the ends of the support, a planar actuating plate slidably received in the groove, the walls of the groove being undercut and the edges of the plate having a complementary form so that the plate may slide in the groove but may not move vertically out of the same, said plate having a follower portion to extend through an opening in a blade disposed between the support and retainer, said follower portion operatively engaging the cam portion of the roller so that the plate and blade are reciprocated when the roller is rotated, said follower portion being in the form of a pin having a generally cylindrical lower part to engage the opening in the blade and having a conical upper portion engaging the cam portion of the roller, the sheet metal of the support being struck-up to provide protuberances in the bottom of the groove to limit the path of the plate.

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