Jan. 8, 1952 M. KAPLAN 2,582,041

SAFETY RAZOR

Filed April 5, 1948 2 SHEETS—SHEET 1

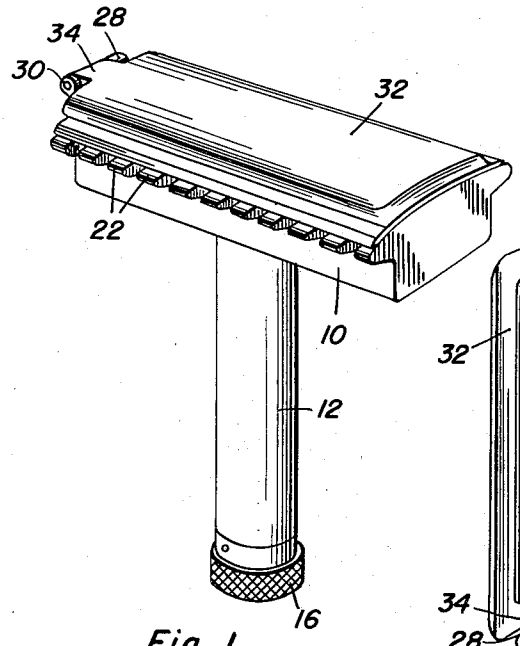


Fig. 1.

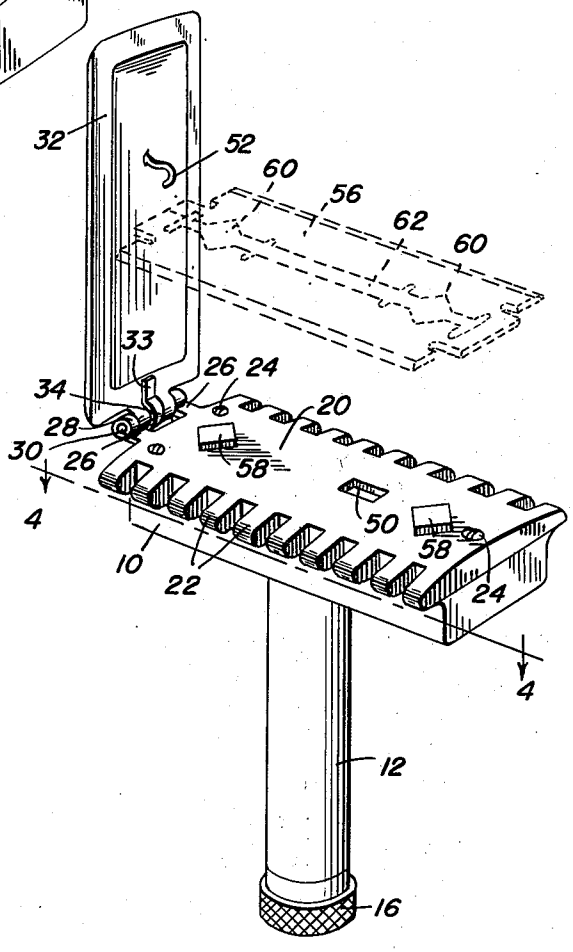


Fig. 2.

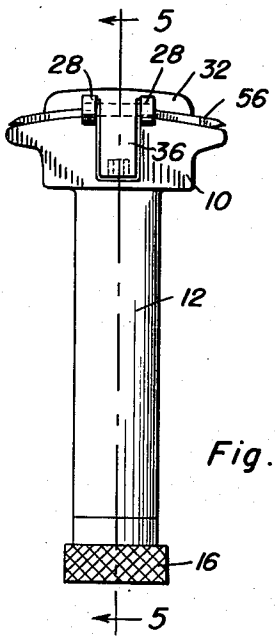


Fig. 3.

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SAFETY RAZOR

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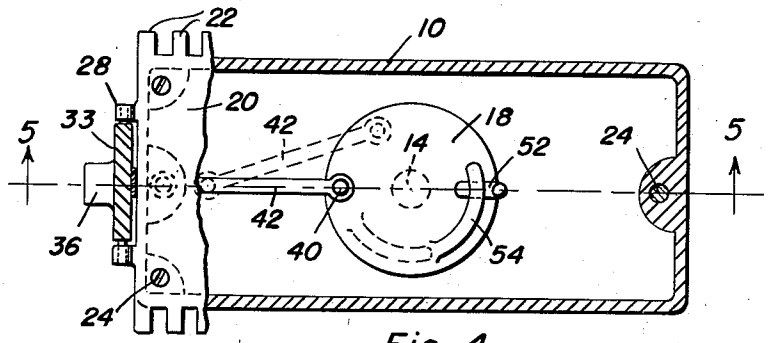


Fig. 4.

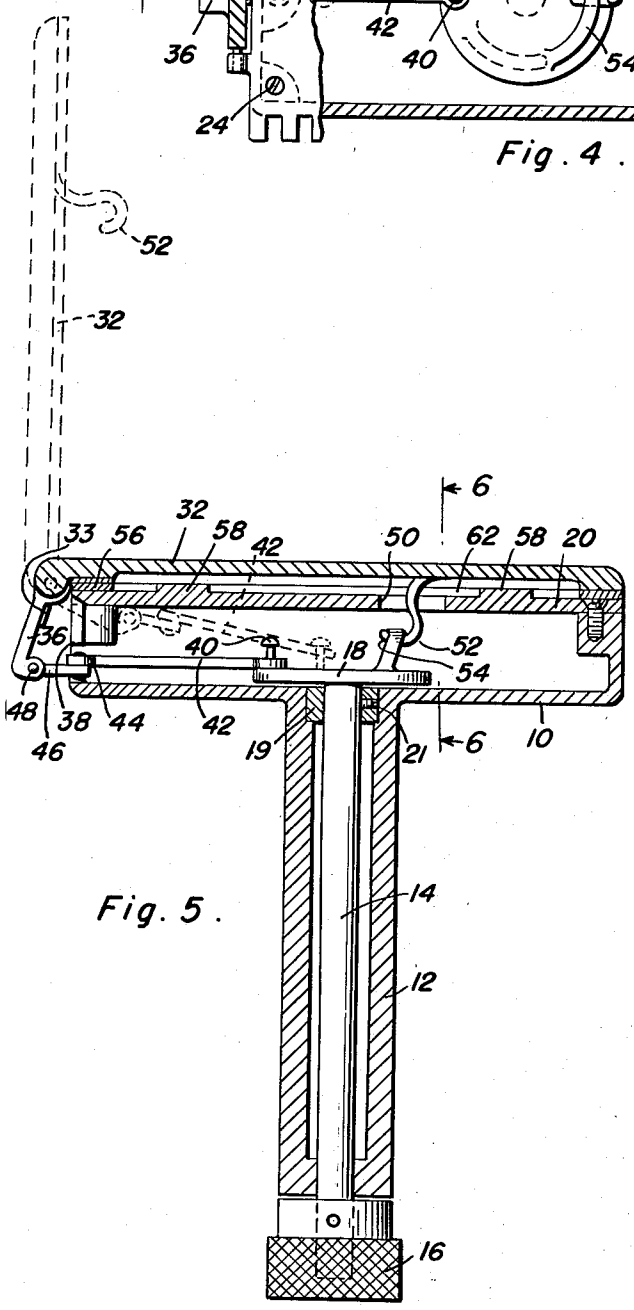


Fig. 5.

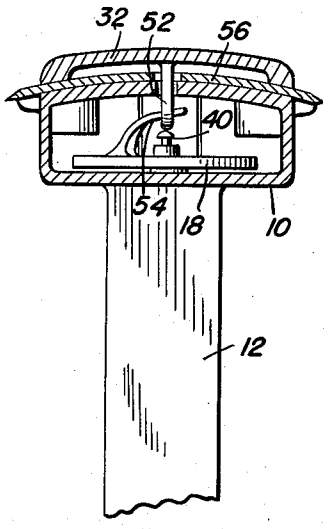


Fig. 6.

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UNITED STATES PATENT OFFICE

2,582,041

SAFETY RAZOR

Max Kaplan, Bronx, N. Y.

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5 Claims. (Cl. 30—59)

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This invention comprises novel and useful improvements in a safety razor and more specifically pertains to a razor wherein the cap and guard are hingedly connected and automatically operable for easy insertion and removal of a safety razor blade therebetween.

The principal object of this invention is to provide a safety razor having an improved mechanism for automatically clamping and releasing a safety razor blade between a cover and a guard.

An important feature of the invention resides in the provision of a safety razor having a hollow head to which is removably secured a guard which constitutes a cover for the chamber within the hollow head, which chamber houses the operating parts of the razor mechanism.

A further feature of the invention resides in the provision of a safety razor construction as set forth in the preceding objects and features, wherein a cap is hingedly mounted upon the head together with cooperating means on the guard and cap for securing, flexing and clamping a safety razor blade therebetween.

A further feature of the invention resides in the provision of an operating rod journaled in the handle of the razor and provided with a plate or disk positioned within the hollow chamber of the hollow head, which plate or disk is operatively connected with the cap for pivotally opening the same and is provided with locking means engageable with a part of the cap for locking the latter upon the head and a guard, all in sequential operation upon rotation of the handle operating rod.

And a final important feature and object of the invention resides in the provision of a safety razor wherein the operating parts thereof shall be fully enclosed and protected against excessive wear and abuse, wherein the cap and locking means are automatically operated in timed relation to each other upon a single rotational movement of the operating rod of the razor, and wherein there is provided a device which is simple of construction, dependable in operation and inexpensive to manufacture.

These, together with various ancillary features and objects of the invention which will later become apparent as the following description proceeds, are attained by this device, a preferred embodiment of which has been illustrated, solely by way of example of setting forth the spirit and principles of the invention, in the accompanying drawings, wherein:

Figure 1 is a perspective view showing the preferred embodiment of the invention;

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Figure 2 is a perspective view of the arrangement of Figure 1, the cap being shown in its open position, and a safety razor blade being indicated in dotted lines to disclose the manner of applying the same between the cap and guard of the razor;

Figure 3 is an end elevational view of the device shown in Figure 1 and taken from the left end thereof;

Figure 4 is a horizontal sectional view taken substantially upon the plane of the section line 4—4 of Figure 2, a part of the guard being broken away to show the interior construction of the mechanism of the hollow head of the razor, and an alternative position of the actuating means of the cap being indicated in dotted lines;

Figure 5 is a vertical longitudinal sectional detail view taken substantially upon the plane of the section line 5—5 of Figure 4, the cap in its open position being indicated in dotted lines therein; and

Figure 6 is a vertical transverse sectional detail view, parts being broken away, taken substantially upon the plane of the section line 6—6 of Figure 5 and indicating the positions of the cap, guard, head and a razor blade clamped therebetween.

Referring now more specifically to the accompanying drawings, wherein like numerals designate similar parts throughout the various views, attention is directed first primarily to Figures 1 and 2 wherein a preferred embodiment of the invention includes a hollow head member 10 which is open at its top, as shown in Figure 5, and which is provided with a preferably integral, tubular handle 12 in which is suitably journaled an operating rod 14 having a detachable finger grip or knurled portion 16 at its outer extremity for manipulation of the rod, and which at its inner extremity and within the confines of the hollow head 10 is provided with a plate in the form of a disk 18. This disk has a collar or sleeve 19 attached thereto or formed thereon and is releasably fastened to the operating rod 14 by a set screw 21. The chamber within the hollow head 10 is provided with a detachable cover which consists of a more or less conventional type of guard 20 whose opposite edges are provided with the usual arrangement of teeth 22, and which guard is of convexed or curved shape as shown clearly in Figure 6. This guard is detachably secured to the head as by removable screws 24, when it is desired to obtain access to the interior of the hollow head 10. The guard may thus be readily removed or replaced, as set forth herein-

after by merely removing the screws 24 after the cap 32 is raised.

At one end thereof, the head 10 is provided with a pair of parallel lugs 26 which terminate in loops 28 for receiving a hinge pin 30 therein, this hinge pin serving to journal and pivotally connect a cap plate 32, as by means of an apertured boss 34, to the head 10. A leaf or coil spring 33 of any suitable type is engaged with arm 36, pin 30 and cap 32 and yieldingly urges the cap to its open position when released by the disk 18 as set forth hereinafter.

The boss 34 is provided with an integral arm 36, see Figures 3 and 5, by means of which the cap may be actuated selectively into its open or closed position as set forth hereinafter.

This arm 36 preferably comprises a narrow strip which overlies a slot 38 formed in an end wall of the head 10 adjacent the lugs 26. Operable through this slot is an actuating means which connects the arm 36 to the plate 18 for operation of the former by the latter. This actuating means consists of a crank pin 40 carried upon the plate 18, and a connecting rod 42 journaled at one end upon the crank pin and at the other end pivoted as at 44 to a link 46 whose other end is journaled as at 48 to the end of the arm 36. It is contemplated that when the operating rod 14 is oscillated in one direction by the thumb or finger grip member 16, the crank pin 40 will cause the connecting rod 42 and the link 46 to pivotally move the arm 36 and thereby oscillate the cap 32 about its hinge, from its open to its closed position, as shown in dotted and full lines, respectively, in Figure 5. The position of the actuating linkage for the open and closed positions is shown respectively in dotted and full lines in Figure 5, also.

The guard 20, as shown best in Figures 2 and 5, is provided with an aperture 50 for the reception and passage of a hook 52 secured to the inner surface of the cap 32. Thus, as the cap is raised or lowered, the hook is withdrawn or returned through the aperture 50 into the interior of the hollow head member 10. A cam member or finger 54 is carried by the disk 18 in a position to engage the hook 52, whereby the cam will overlie the hook and prevent withdrawal of the same, and hence lock and clamp the cap in its closed position. The shape of the cam surface 54 is such that any desired pressure can be exerted upon the hook, whereby the cap can flex and clamp a safety razor blade of any desired construction, such as that indicated by the blade 56, between the guard 20 and the cap 32.

It should be here noted that the guard 20 is provided with a plurality of positioning bosses 58 thereon which are engageable with complementary positioning aperture 60 with which various types of safety razor blades are provided, while the aperture 50 and the hook 52 are likewise positioned to align with the usual longitudinal slot or opening 62 likewise customarily provided in razor blades.

As is well known, different makes of razor blades have different shapes and arrangements of apertures 60 which adapt them to be operable with only selected types of razors, by means of correspondingly designed registering bosses thereon. In this invention various guards may be employed, each of which has its boss arrangement designed to receive various known types of blades, or if preferred, to receive an entirely different type of blade.

The crank pin 40 and the cam 54 will be angularly spaced upon the rotatable disk 18 so as to cause a sequential operation of the actuating means for pivoting the hinged cap, and for causing the engagement or withdrawal of the locking cam 54 from the hook 52.

From the foregoing, it will be readily seen that a single twist of the operating rod 14 is sufficient, after a blade has been placed upon the guard in proper position thereon, to first positively close the cap upon the blades, and thereafter engage the locking cam 54 with the hook 52 to thereby clamp and draw the cap tightly upon the blade, flexing the latter against the convex surface of the guard, to render the razor ready for use. Obviously, the reverse oscillation or rotation of the rod 14 will be sufficient to release and disengage the parts, whereby the blade may be removed.

From the foregoing, the construction, operation and obvious advantages of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art after a consideration of the foregoing specification and accompanying drawings, it is not desired to limit the invention to the exact construction shown and described, but all suitable modification and equivalents may be resorted to falling within the scope of the appended claims.

Having thus disclosed and described the invention, what is claimed as new is as follows:

1. A safety razor consisting of a head having a chamber therein and a tubular handle attached thereto, a razor blade guard detachably mounted upon said head and forming a closure for said chamber, a cap hinged to said head at one end for pivotal movement towards and from said head to releasably clamp a razor blade against said guard, actuating means in said chamber for causing pivotal movement of said cap, an operating rod rotatably journaled in said handle and extending into said chamber, said operating rod being connected with said actuating means, locking means in said chamber responsive to a partial rotation of said control rod for fastening said cap in closed position upon said guard.

2. A safety razor consisting of a head having a chamber therein and a tubular handle attached thereto, a razor blade guard detachably mounted upon said head and forming a closure for said chamber, a cap hinged to said head at one end for pivotal movement towards and from said head to releasably clamp a razor blade against said guard, actuating means in said chamber for causing pivotal movement of said cap, an operating rod rotatably journaled in said handle and extending into said chamber, said operating rod being connected with said actuating means, locking means in said chamber responsive to a partial rotation of said control rod for fastening said cap in closed position upon said guard, said guard having an aperture, said cap having a hook insertable through said aperture into said chamber, said locking means including a rotatable cam releasably engageable with said hook.

3. In a safety razor, a head having a chamber therein, a combined razor guard and closure for said chamber detachably secured to said head, a cap hinged to said head at one end thereof for pivotal movement towards and from said head, a plate in said chamber mounted for oscillatory movement, a linkage connecting said plate to said cap for causing positive pivotal movement of the latter in response to oscillation of said plate, means for oscillating said plate, said guard having an aperture therein, a locking hook on said

cap receivable through said aperture into said chamber, locking means on said plate engageable with said hook to lock said cap to said guard.

4. The combination of claim 3 wherein said locking means comprises a cam extending arcuately of said plate about its axis of rotation.

5. In a safety razor, a head having a chamber therein, a combined razor guard and closure for said chamber detachably secured to said head, a cap hinged to said head at one end thereof for pivotal movement towards and from said head, a plate in said chamber mounted for oscillatory movement, a linkage connecting said plate to said cap for causing positive pivotal movement of the latter in response to oscillation of said plate, means for oscillating said plate, said guard having an aperture therein, a locking hook on said cap

receivable through said aperture into said chamber, locking means on said plate engageable with said hook to lock said cap to said guard, said linkage being attached to said plate at less than 180° from said cam.

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The following references are of record in the file of this patent:

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