

[54] **RAZOR HEAD**

[72] Inventors: **Phillip W. King**, Cheshire; **Kenneth A. Van Dyck**, Weston; **James B. Wyatt**, Stamford, all of Conn.

[73] Assignee: **The Gillette Company**, Boston, Mass.

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[52] U.S. Cl. **30/58, 30/60**

[51] Int. Cl. **B26b 21/30, B26b 21/32**

[58] Field of Search **30/58-59, 60, 61; 279/22, 30, 75, 90**

FOREIGN PATENTS OR APPLICATIONS

807,922 10/1936 France.....30/60

Primary Examiner—Andrew R. Juhasz

Assistant Examiner—Gary L. Smith

Attorney—Philip Colman, Oistein J. Bratlie, William M. Anderson and Scott R. Foster

[57] **ABSTRACT**

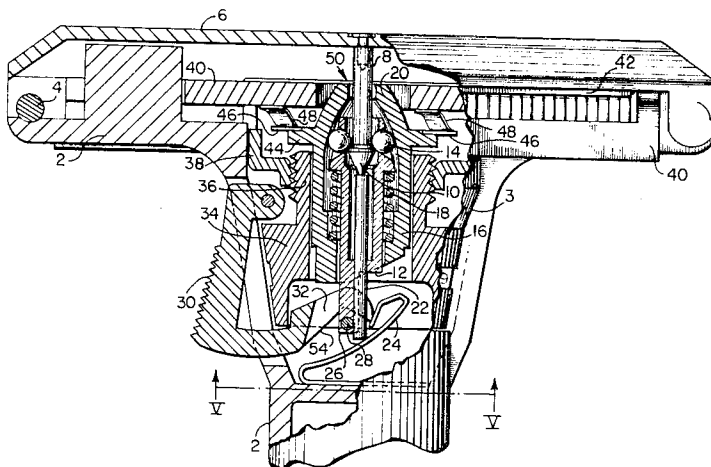
A razor head having a cap portion mounted thereon and adapted to pivot upon one end of the razor head, the cap being held and released by a ball chuck means disposed in the razor head. The ball chuck means includes means for adjusting the position of a razor blade retained by the razor head, relative to the razor head.

[56] **References Cited**

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7 Claims, 8 Drawing Figures



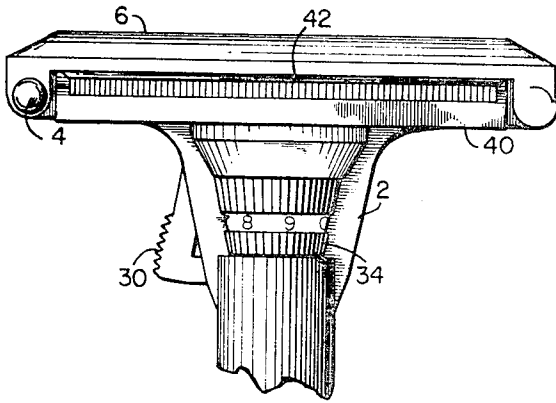


Fig. 1

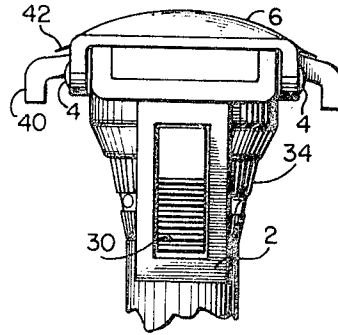


Fig. 2

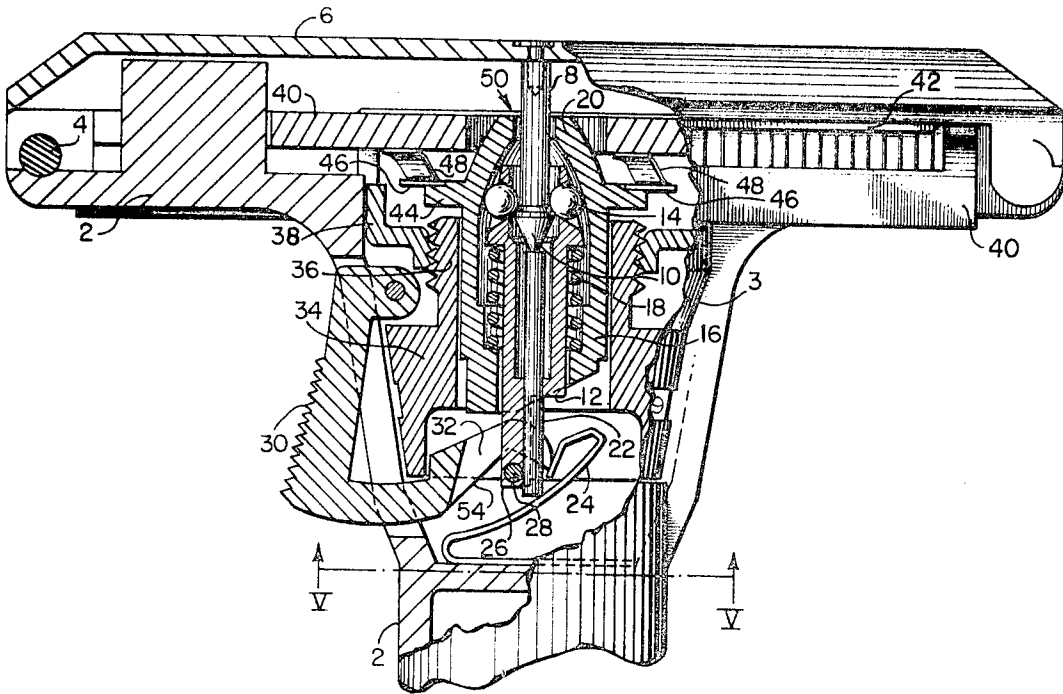


Fig. 3

INVENTORS

Phillip W. King

Kenneth Van Dyck

James B. Wyatt

By

Attorney

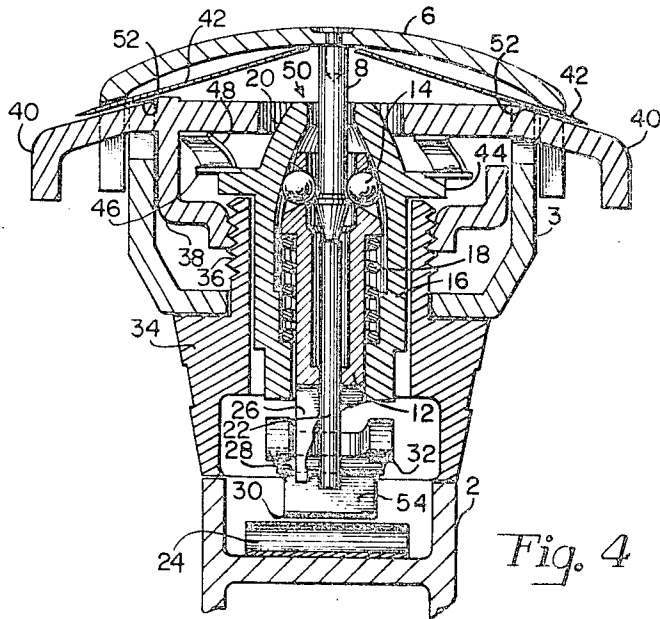


Fig. 4

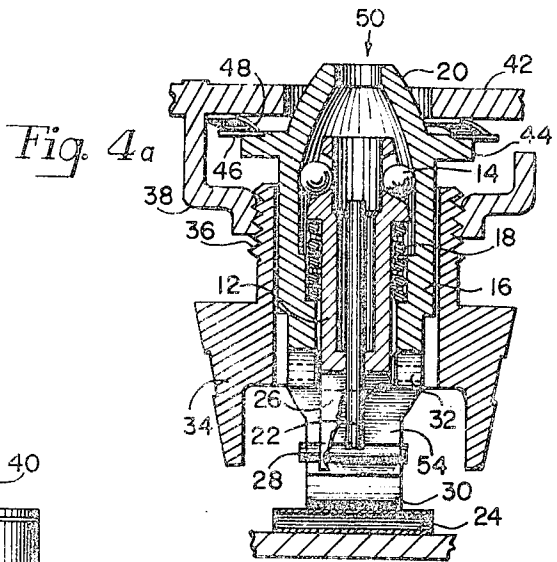


Fig. 4a

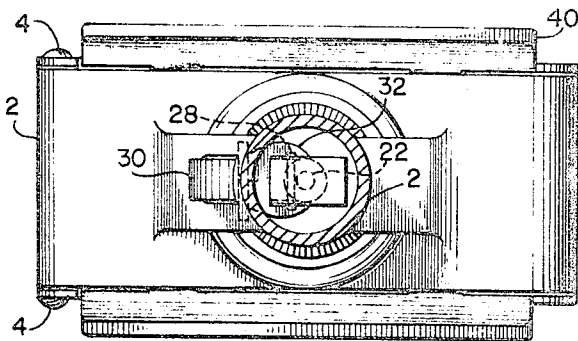


Fig. 5

INVENTORS

Phillip W. King

Kenneth Van Dyck

James B. Wyatt

By

Scott R. Foster
Attorney

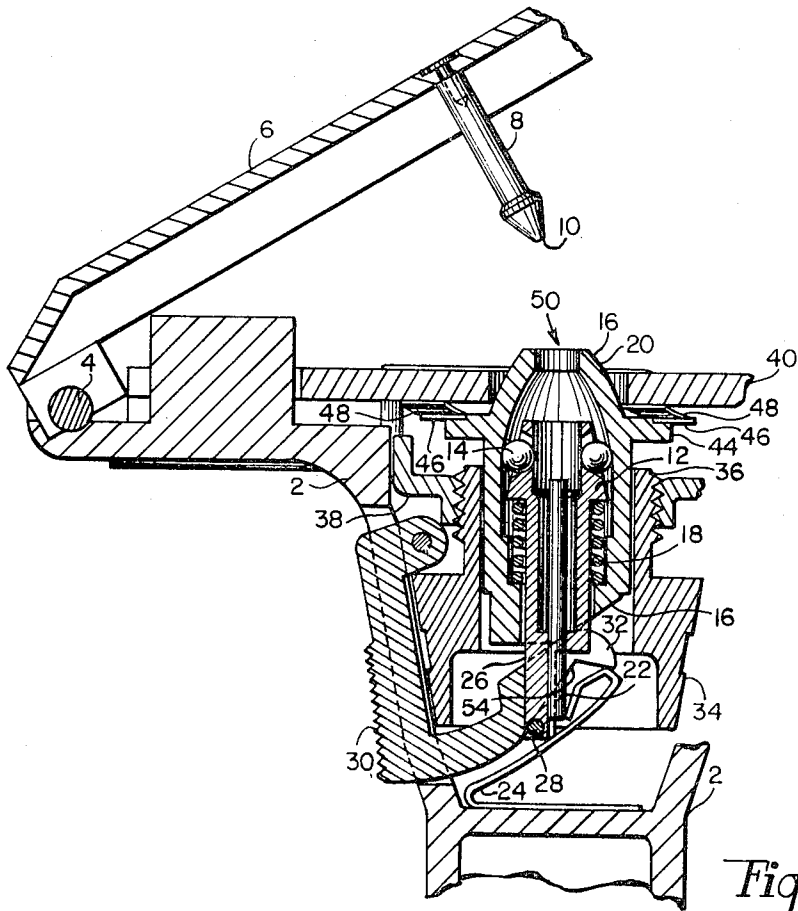


Fig. 6

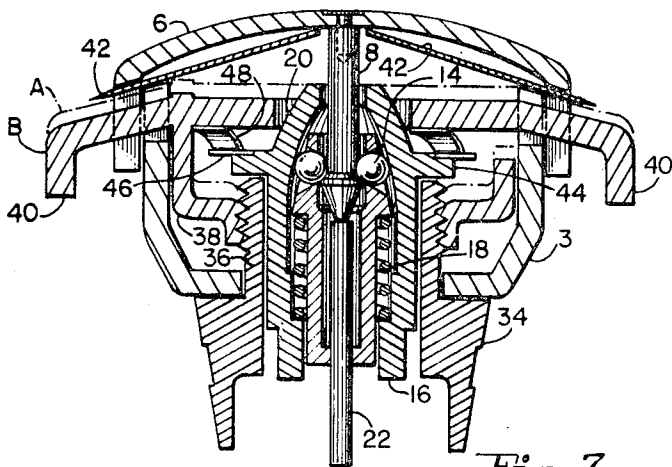


Fig. 7

INVENTORS

Phillip W. King

Kenneth Van Dyck

James B. Wyatt

By

Scott R. Foster
Attorney

RAZOR HEAD

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to razor heads and is directed more particularly to a razor head having a cap portion arranged for pivotal movement upon one end of the razor head.

2. Description of the Prior Art

Several razors well known in the art utilize a razor head having cap portions which are mounted for pivotal movement upon either side of the razor head. Generally, two cap portions are mounted on the razor head and open and close in a clam-shell manner responsive to rotation of a nut member by an operator. Several turns of the nut are usually required in order to move the cap portions from a fully closed position to a fully open position, as to replace a razor blade, and several turns again required to fully close the cap portions upon the razor blade.

SUMMARY OF THE INVENTION

It is an object of the invention to provide a razor head having cap portion means mounted thereon and adapted to be opened and closed by a single quick motion, as opposed to several turns of an opening and closing nut means.

With the above and other objects in view, as will hereinafter appear, a feature of the present invention is the provision of a razor head comprising a frame, a cap portion pivotally mounted upon one end of the frame, ball chuck means disposed in the frame for releasably retaining the cap portion in a position overlying the frame, and actuator means attached to the frame and engageable with the chuck means for disengaging the chuck means and the cap portion.

A further feature of the invention is the provision in such razor head of means for adjusting the position of a razor blade means retained by the razor head, relative to the razor head.

The above and other features of the invention, including various novel details of construction and combinations of parts, will now be more particularly described with reference to the accompanying drawings and pointed out in the claims. It will be understood that the particular device embodying the invention is shown by way of illustration only and not as a limitation of the invention. The principles and features of this invention may be employed in various and numerous embodiments without departing from the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Reference is made to the accompanying drawings in which there is shown an illustrative embodiment of the invention from which its novel features and advantages will be apparent.

FIG. 1 is an elevational side view of one form of razor head illustrative of an embodiment of the invention;

FIG. 2 is an elevational end view of the razor head;

FIG. 3 is an elevational side view, partly broken away, partly in section;

FIG. 4 is an elevational end view, in section;

FIG. 4a is an elevational end view, in section, similar to FIG. 4, but showing operating mechanism in different positions;

FIG. 5 is a sectional view, taken along line V—V of FIG. 3;

FIG. 6 is an elevational sectional view, similar to FIG. 3, but showing the operating mechanism in different positions; and

FIG. 7 is an elevational end view, in section, similar to FIG. 4 but showing operating mechanism in different positions.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1-3, it will be seen that the illustrative razor head comprises a frame 2 supporting a pivot pin 4 on which is mounted a cap portion 6. The cap portion 6 is provided with a cap pin 8 having an enlarged end portion 10. When the cap portion 6 is in the closed position, it overlies the frame 2, as shown in FIG. 3, and the cap pin 8 is received by a carrier 12 mounting ball means 14 engageable with the cap pin 8 to lock the pin 8 in the closed position. The carrier 12 is

slidably disposed in a clutch shell 16, a clutch spring 18 operating to urge the carrier 12, and therefore the ball means 14, upwardly as reviewed in FIG. 3. The upper end of the clutch shell has converging walls 20 which urge the ball means 14 inwardly of the cap pin 8.

Slidably disposed in the carrier 12 and in axial alignment with the pin 8 is a latch pin 22, one end of which is engageable with the end portion 10 of the cap pin 8 and the other end of which is engageable with a latch spring 24 mounted on the frame 2, to yieldably urge the latch pin 22 upwardly.

The carrier 12 includes an extension 26 protruding downwardly, as viewed in the drawings, and having mounted proximate to its free end a carrier pin 28. An actuator 30 is pivotally mounted on the frame 2 and includes a bifurcated hook portion 32 which is engageable with the carrier pin 28, as well as the carrier 12 to effect movement of the carrier upwardly and downwardly, as desired. The latch spring 24 exerts yieldable pressure on the actuator 30, to bias the actuator in the position shown in FIG. 3.

Retained by the frame 2 and a platform 3 (FIG. 4) is an adjustment ferrule 34 rotatable about the clutch shell 16 and having a threaded portion 36 which threadedly engages a guard support collar 38 fixed to a guard 40 (FIGS. 4 and 7). Rotative movement of the ferrule 34 causes movement of the guard 40 to vary the relative positions of the guard 40 and a razor blade 42 disposed between upright portions 52 of the platform 3 and the cap 6.

The clutch shell 16 is provided with an annular flange 44 on which is mounted a washer 46 having leaf spring means 48 thereon. The leaf spring means 48 abuts the underside of the guard 40 and urges the guard upwardly.

Referring to FIGS. 3 and 4, it will be seen that when the cap 6 is in the closed position, the cap pin 8 engages the ball means 14 in a chuck assembly 50 comprising the ball means, the carrier 12, the clutch shell 16 and the clutch spring 18, to maintain the razor cap in the closed position whereby to hold the razor blade 42 between the cap 6 and the upstanding portions 52 of the platform 3.

Pressing the actuator 30 inwardly, as by manual pressure exerted by an operator, causes the chuck assembly 50 to open and release the cap 6 to pivot to an open position. As the actuator 30 moves inwardly of the razor head, the upper surface of the hook portion 32 engages the base of the clutch shell 16, as shown in FIGS. 4a and 6, causing the clutch shell to move upwardly, as viewed in the drawings. The clutch assembly 50, including the ball means 14, the clutch spring 18, the carrier 12 and the latch pin 22 move upwardly with the clutch shell 16. The action of the hook portion 32 of the actuator 30 and the resultant movement of the clutch shell 16 upwardly further compresses the springs 48, biasing the clutch shell 16 downwardly, as viewed in the drawings.

Further inward movement of the actuator 30 causes an actuator cam surface 54 to engage the carrier pin 28 during the upward movement of the carrier pin and reverse the carrier pin motion, thereby separating the carrier 12 motion from the clutch shell 16 motion, causing relative movement between the two. Thus, the ball means 14 in the carrier 12 moves away from the converging wall portion 20 of the clutch shell, permitting the ball means 14 to move outwardly from the cap pin 8. Such outward movement of the ball means 14 releases the cap pin 8 from the retaining action of the ball means 14.

As the cap pin 8 is released by the ball means 14, the latch pin 22 is biased upwardly by the latch spring 24 and exerts a pressure on the cap pin to eject the cap pin from the chuck assembly, which causes the cap 6 to quickly separate from the razor head and pivot to a released position. The latch spring 24 moves under the hook portion 32, as shown in FIG. 6, to hold the actuator in the depressed position. The razor head may then be fitted with a new razor blade 42.

The cap 6 is manually closed by pivoting about the pin 4. As the cap is closed, the cap pin 8 passes into the upper opening of the clutch shell 16, past the ball means 14, and into engagement with the upper end of the latch pin 22. Further closing

movement causes the latch pin 22 to bear against the latch spring 24 to move the latch spring out of engagement with the actuator hook portion 32. When the hook 32 is disengaged, the springs 48 force the clutch shell 16 downwardly against the upper surface of the hook 32, causing the actuator 30 to pivot outwardly. As the clutch shell 16 travels downwardly, the carrier 12 moves upwardly responsive to the clutch spring 18, such movement permitted by the cam surface 54 of the actuator 30. The relative movement between the clutch shell 16 and the carrier 12 causes the ball means 14 to engage the converging walls 20 of the clutch shell 16, thereby forcing the ball means 14 into engagement with the cap pin 8, to retain the cap pin in the clutch assembly.

Further movement of the clutch shell 16 downwardly continues the pivoted outward movement of the actuator, freeing the cam surface 54 from the carrier pin 28 to permit the clutch spring 18 to hold the ball means 14 in the cap pin retaining position. The latch spring 24 contacts an end surface of the actuator hook portion, urging the actuator further outwardly and insuring disengagement of the cam surface 54 from the carrier pin 28. The clutch assembly is accordingly free to move downwardly under the influence of the springs 48 until the cap 6 is seated firmly against the upstanding portions 52 of the platform 3 with the razor blade 42 sandwiched therebetween.

The spring 48 pushes up against the guard 40 and the guard support collar 38 which is restrained by the threaded portion of the adjustment ferrule 34, which is in turn restrained by the underside of the platform 3. The spring 48 pushes down on the ball chuck assembly 50 which pulls down on the cap 6 and operates to clamp the blade 42 to the upper part 52 of the platform 3, thus completing the loading operation.

In the event it is desired to adjust the position of the blade relative to the razor head, the operator need only rotate the ferrule 34 which will cause movement of the guard support collar 38, as for example from the position shown in FIG. 4 to the position shown in FIG. 7. Such movement of the support collar 38 causes like movement of the guard 40 from position A, shown in FIG. 7 to position B, whereby to increase the exposure of the blade 42.

It is to be understood that the present invention is by no

means limited to the particular construction herein disclosed and/or shown in the drawings, but also comprises any modifications or equivalents within the scope of the disclosure.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent of the United States is:

1. Razor head comprising a frame, cap portion means mounted for pivotal movement on said frame, cap pin means extending from said cap portion means and being enlarged at its free end, a clutch shell disposed in said frame, said clutch shell having converging walls at one end thereof, a carrier disposed in said clutch shell and being adapted for reciprocal movement in said shell, ball means carried by said carrier, said ball means being adapted to be urged inwardly against said cap pin means by said converging walls of said shell to prevent removal of said enlarged portion of said cap pin means from said shell, and actuator means attached to said frame and operable to cause relative movement of said carrier and said shell to remove said ball means from said converging walls of said shell to permit outward movement of said ball means from said cap pin means to permit removal of said cap pin means from said clutch shell.

2. The invention according to claim 1 in which said ball chuck assembly includes means for ejecting said cap pin from said assembly upon release of said pin by said assembly.

3. The invention according to claim 1 including means proximate to said chuck means for adjusting the position of a blade retained by said razor head relative to said razor head.

4. The invention according to claim 3 in which said adjusting means includes a ferrule which slidingly receives said chuck means.

5. The invention according to claim 1 in which said carrier is spring biased within said shell.

6. The invention according to claim 1 in which said actuator means comprises cam surfaces engageable with said shell and said carrier and operable to cause movement of said shell and said carrier in opposite directions.

7. The invention according to claim 1 including a latch pin axially movable in said carrier and engageable with said cap pin, said latch pin being spring biased and adapted to urge said cap pin outwardly from said shell.

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