Sept. 21, 1926. 1,600,832

C. E. LINDGREN ET AL

SAFETY RAZOR

Original Filed Dec. 17, 1924

Fig. 1.

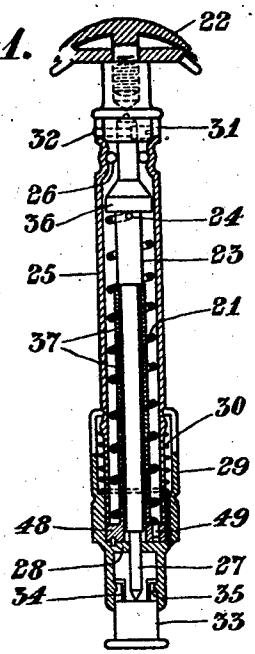


Fig. 2.

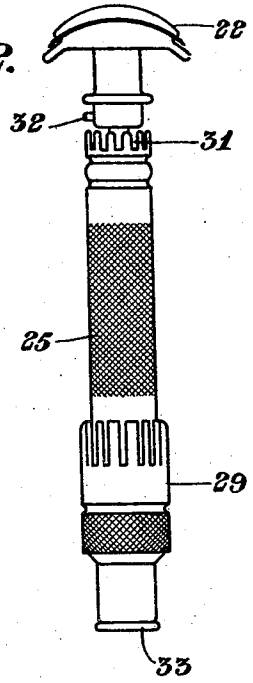


Fig. 3.

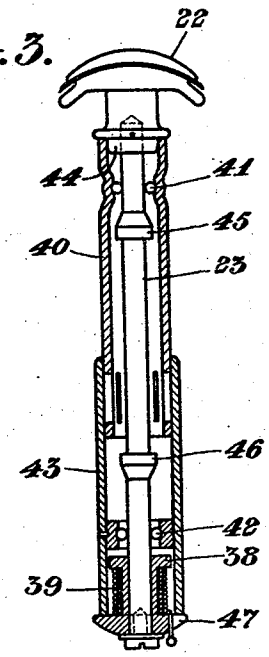
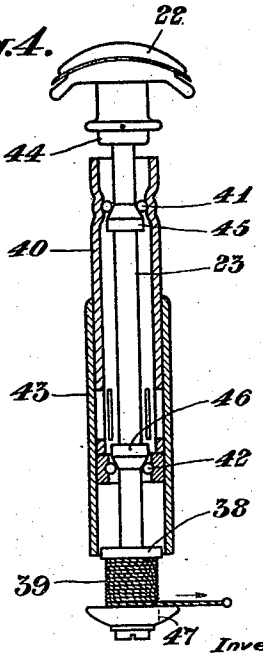


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SAFETY RAZOR.

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The present invention relates to an improvement in safety razors for drying the same after use. It is a well known fact that the usual safety razors are very difficult to clean after use. When the safety razor has been rinsed or washed in water for removing the soap lather from the same, it must be carefully dried in order to prevent the blade and the other parts of the razor from becoming rusty. This entails the risk of cutting one's fingers, however, and it might also easily happen that the towel or the like by means of which the blade is being dried, is cut by the sharp blade and is thus ruined.

Now, the purpose of the improvement which forms the subject of this invention, is to avoid the said inconveniences. For this purpose the improvement consists principally in that the shaft of the razor which carries the razor blade and the protecting plates constituting the razor head for the same, is rotatable in a sleeve or the like, which serves as a handle for the razor, and is connected with a device for putting the said shaft and thus also the blade as well as the protecting plates for the same, in rapid rotation around the axis of said shaft. In this manner the rinsing water remaining on the razor is rapidly thrown off, so that the razor will become dry in a few moments, particularly if it was previously rinsed or washed in hot water. The device for rotating the razor head may be constructed in several different ways. It may consist, for instance, of a spring which is put under tension each time it is to be used, or of a small roller with a string or the like wound thereupon so that by pulling the free end of said string the roller may be caused to rotate rapidly, or of a small disk which may be rotated rapidly, for instance by rolling the same over a table or other suitable surface.

In the accompanying drawing two embodiments of the invention are shown by way of example. Fig. 1 is a longitudinal section through a safety razor arranged according to the invention, and shows the various parts in the positions occupied by the same when the razor is used for the shaving, and Fig. 2 shows the same safety razor viewed from the side and with the parts in the positions occupied by the same when the razor is to be rotated. Figs. 3 and 4 show, both in section, a second embodiment with the parts in different positions.

In the constructional form of the invention illustrated in Figs. 1 and 2, the device for rapidly rotating the razor consists of a comparatively long strong coil spring 21 which is placed around the shaft 23 rigidly secured to the razor head 22, and is secured to said shaft at one end at 24. The shaft 23 is rotatable in a sleeve 25 which forms the handle of the razor, and is longitudinally movable within certain limits in said sleeve 25, by means of a ball bearing 26 at one end of said sleeve and by means of a stud 27 which is journalled in the bottom 28 of a cap 29 which is rotatable on the other end of the sleeve 25 and serves for placing the spring 21 under tension. For this purpose a small coil spring 30 which acts as a pawl, is inserted between the sleeve 25 and the cap 29, which spring allows the cap to be turned on the sleeve in one direction, for placing the spring 21 under tension, but prevents rotation of the cap in the opposite direction. The sleeve 25 is provided in the end directed towards the razor head 22 with a number of axially directed slots 31 which are open at the end of the sleeve, and with which a pin 32 secured to the shaft 23 may engage, in order in this manner to prevent rotation of the shaft in the sleeve, when the apparatus is used for shaving. In order that the shaft shall be able to rotate in the sleeve 25 it must therefore be axially displaced in such manner that the pin 32 disengages said slots 31. For this purpose a sliding push button 33 is provided in the cap 29 against which button the preferably pointed end of the stud 27 bears. In order to prevent said button 33 from dropping out of the cap it is provided with a pair of hooks 34 engaging the inside of a flange 35 in the cap. The displacement of the shaft 23 in an upward direction in Fig. 1 is limited by a conical collar 36 on said shaft which will come to bear against the balls 26 when the shaft is pushed upwards. The shaft 23 is also surrounded by a number of sleeves 37 which prevent the turns of the spring 21 from touching the shaft 23 and thus from braking the rotational and sliding movement of said shaft. Between the lowermost sleeve

and the bottom 28 of the cap 29 a disk 48 is placed which is so connected to the bottom 28 that it is rotated with said cap. Said disk is provided with a hole which is normally engaged by the lowermost bent end 49 of the spring 21, as illustrated in Fig. 1.

The described apparatus operates in the following manner. When the apparatus has been used for shaving, when the various parts shall occupy the relative positions illustrated in Fig. 1, so that the shaft 23 can not rotate in the handle sleeve 25, and after the apparatus has been rinsed, the spring 21 is placed under tension by turning the cap 29 through a few revolutions. The button 33 is then pressed upwards, so that the shaft 23 is displaced upwards in the sleeve 25, while the spring 21 is stretched since owing to the tension of said spring its lowermost end 49 will retain its engagement with the hole in the disk 48. As soon as the pin 32 has in this manner been moved out of engagement with the slot 31, as shown in Fig. 2, the wound spring 21 begins to put the shaft 23 and the razor head 22 attached to the same in rapid rotation around the longitudinal axis of the shaft. When now the tension of the spring 21 decreases, its end 49 will lose engagement with the hole in the disk 48, so that the spring 21 may again contract and retract its end 49 from said hole, so that the razor head 22 may continue the rotation initiated by the spring, until the water on the razor has been thrown off owing to the action of the centrifugal force. It is therefore possible, as a rule, in this manner to dry the razor completely in a few seconds' time. When the shaft 23 is afterwards again pushed into the position shown in Fig. 1, and the cap 29 is turned, the end 49 of the spring will again engage the hole in the disk 48.

In the embodiment illustrated in Figs. 3 and 4 the device for rotating the razor head consists of a small roller 38 secured to the outer end of the shaft 23 of the razor head 22, on which roller a string 39 or the like is wound, the inner end of which is suitably attached to the roller. Also in this case the shaft 23 is rotatably and slidably journalled in a sleeve 40 serving as a handle. Such journalling is in this case effected by means of two ball bearings 41 and 42, one bearing 41 of which is provided in the sleeve 40, and the other bearing 42 in a second sleeve 43 which is slidable on the sleeve 40, said second sleeve 43 also enclosing the roller 38, as shown in Fig. 3. Rotation of the shaft 23 relatively to the sleeve handle 40 when the apparatus is used for shaving, is in this case prevented by the razor being provided with a boss or projection 44 which fits tightly into the sleeve 40 and engages the upper end of the same when the different parts occupy the positions shown in Fig. 3. Two conical collars 45 and 46 are provided on the shaft 23, the collar 45 being adapted to cooperate with the ball bearing 41 in order to limit the upward sliding movement of the shaft 23, and the collar 46 cooperating with the ball bearing 42 for effecting the displacement of the shaft 23 upwards from the position shown in Fig. 3.

When the apparatus has been used for shaving and afterwards been rinsed, the sleeve 43 is slid upwards on the sleeve 40. This displacement of the sleeve 43 first exposes the roller 38. Immediately afterwards the balls 42 engage the collar 46 with the result that on continued displacement upwards of the sleeve 43, the shaft 23 is also displaced upwards, and the projection 44 is thus moved out of engagement with the upper end of the sleeve 40, so that the shaft 23 will be free to turn in the handle. The various parts now occupy the positions shown in Fig. 4. The outer end of the spring 39 which is placed in a slot 47 in the outer end wall of the roller 38, and which is thus easily accessible, is now gripped, and by a strong pull in the string the shaft 23 and the razor attached to the same is rapidly rotated around the longitudinal axis of the shaft 23, so that the water on the razor is rapidly thrown off. When the razor has been dried in this manner, the string 39 is again wound on the roller 38, and the sleeve 43 is pushed downwards so that the parts again come to occupy the positions shown in Fig. 3. The razor is now ready to be replaced in its case.

The embodiments of the invention above described and illustrated in the drawings are only to be regarded as examples, and it will be evident that the same may be modified in several ways in regard to their details without departing from the principle and scope of the invention.

We claim:

1. In a safety razor the combination of a razor head, a shaft carrying said head, a sleeve serving as a handle in which said shaft is rotatably journalled, and a device for rapidly rotating said shaft in said sleeve around the longitudinal axis of the shaft.

2. In a safety razor the combination of a razor head, a shaft carrying said head, a sleeve serving as a handle in which said shaft is rotatably journalled, a cap rotatable on said sleeve, and a coil spring surrounding said shaft and secured at one end to said shaft, the other end of said spring being adapted to be connected to said cap.

3. In a safety razor the combination of a razor head, a shaft carrying said head, a sleeve serving as a handle in which said shaft is rotatably journalled, a cap rotatable on said sleeve, a pawl device between said

cap and said sleeve permitting rotation of said cap on said sleeve in one direction only, and a coil spring surrounding said shaft and secured at one end to said shaft, the other end of said spring being adapted to be connected to said cap.

4. In a safety razor the combination of a razor head, a shaft carrying said head, a sleeve serving as a handle in which said shaft is rotatably journalled and is slidable axially, means for locking said shaft to said sleeve by axial displacement of said shaft in said sleeve, and a device for rapidly rotating said shaft in said sleeve around the longitudinal axis of the shaft.

5. In a safety razor the combination of a razor head, a shaft carrying said head, a sleeve serving as a handle in which said shaft is rotatably journalled and is slidable axially, means for locking said shaft to said sleeve by axial displacement of said shaft in said sleeve, a cap rotatable on said sleeve, and a coil spring surrounding said shaft and secured at one end to said shaft, the other end of said spring being adapted to be connected to said cap.

6. In a safety razor the combination of a razor head, a shaft carrying said head, a sleeve serving as a handle in which said shaft is rotatably journalled and is slidable axially, said sleeve having a slot, a pin on said shaft adapted to be moved into engagement with said slot by axial displacement of said shaft in said sleeve, a cap rotatable on said sleeve, and a coil spring surrounding said shaft and secured at one end to said shaft, the other end of said spring being adapted to be connected to said cap.

7. In a safety razor the combination of a razor head, a shaft carrying said head, a sleeve serving as a handle in which said shaft is rotatably journalled and is slidable axially, said sleeve having a slot, a pin on said shaft adapted to be moved into and out of engagement with said slot by axial displacement of said shaft in said sleeve, a cap rotatable on said sleeve, a pawl device between said cap and said sleeve permitting rotation of said cap on said sleeve in one direction only, and a coil spring surrounding said shaft and secured at one end to said shaft, the other end of said spring being adapted to be connected to said cap.

8. In a safety razor the combination of a razor head, a shaft carrying said head, a sleeve serving as a handle in which said shaft is rotatably journalled, means for locking said shaft to and releasing the same from said sleeve, a cap rotatable on said sleeve, and a coil spring surrounding said shaft and secured at one end to said shaft, the other end of said spring being adapted to be connected to said cap in such manner as to enable said spring to be wound up by rotation of said cap after locking said shaft to said sleeve and to become disconnected from said cap upon said spring unwinding by rotating said shaft when released from said sleeve.

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