March 7, 1944. N. TESTI 2,343,343

SAFETY RAZOR

Filed May 26, 1943

Fig. 1

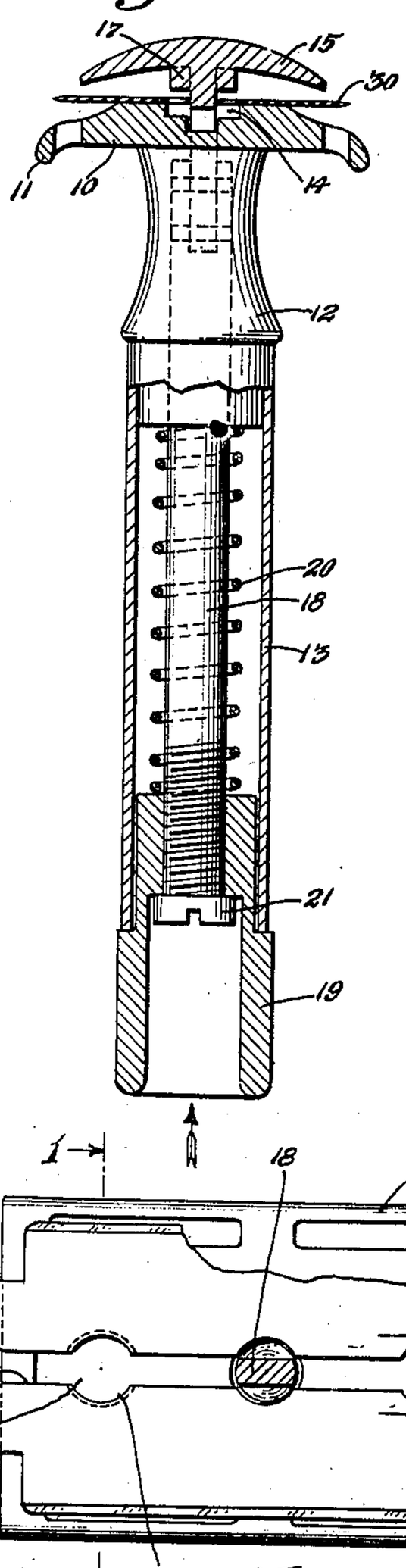



Fig. 2

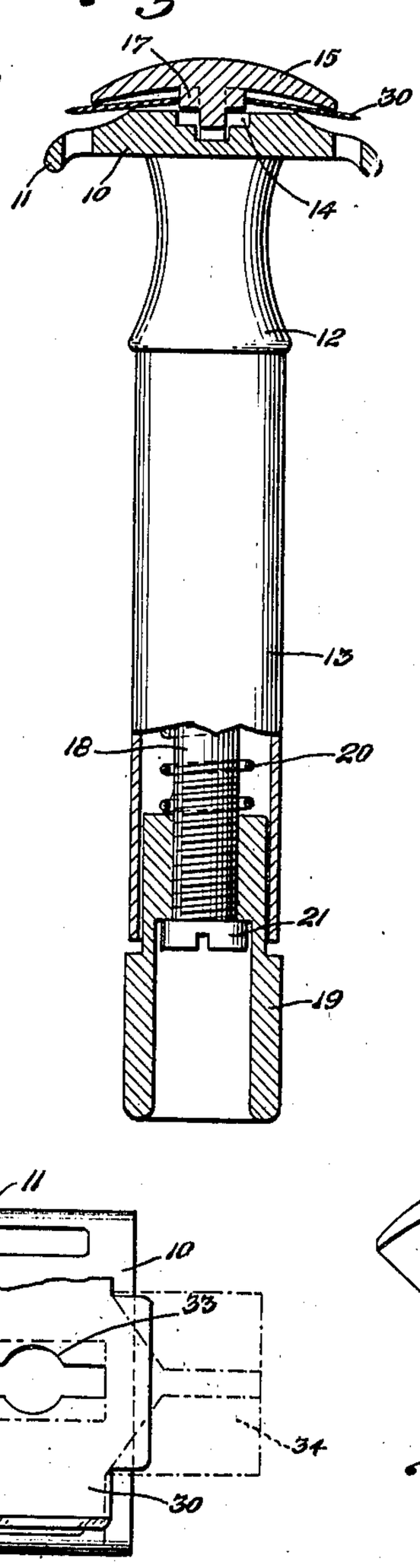
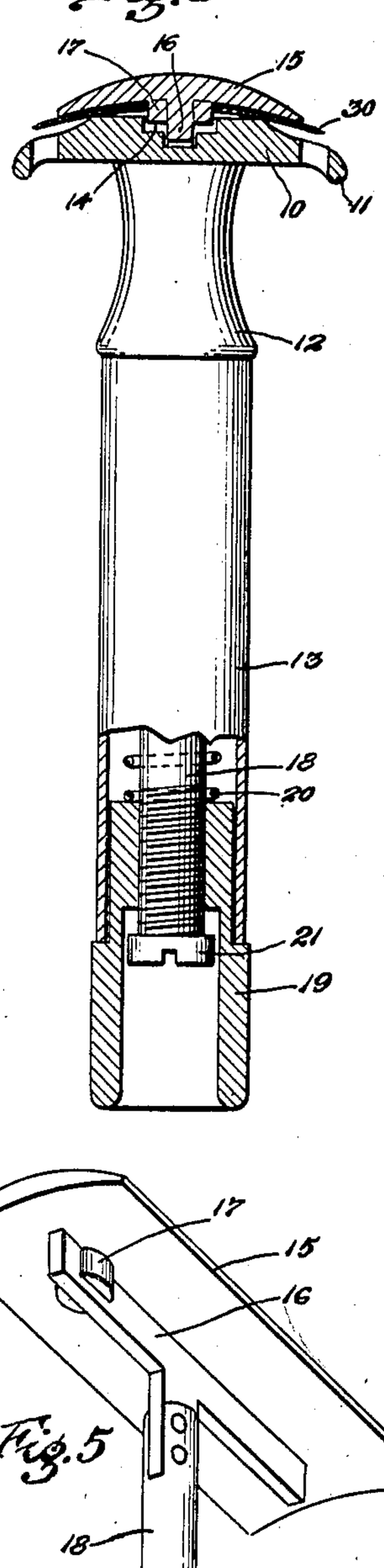



Fig. 3



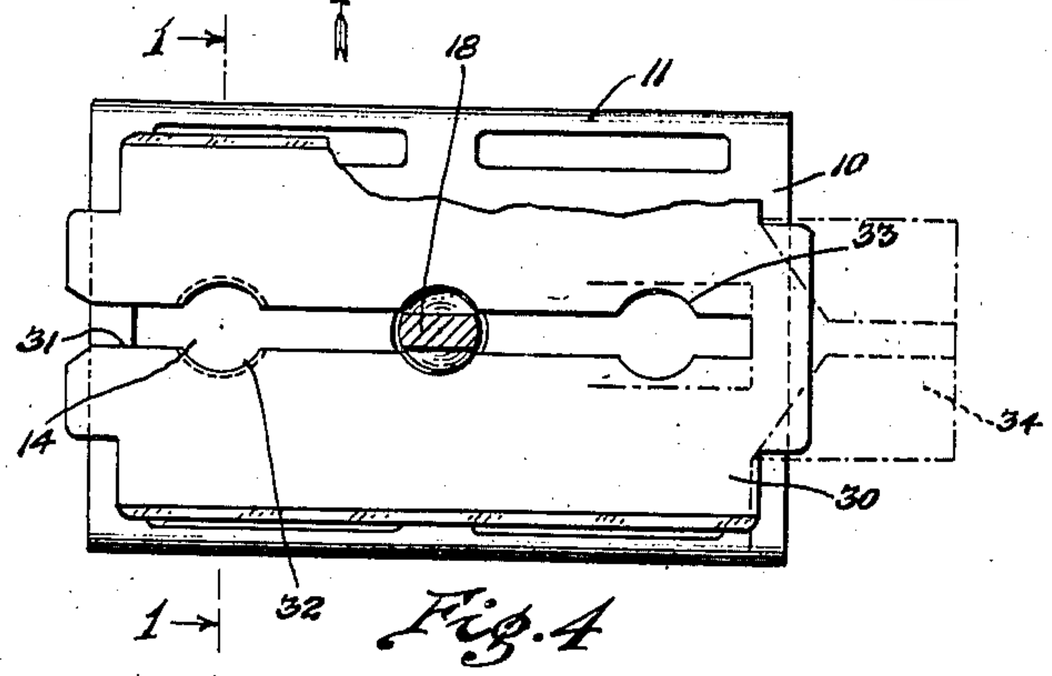




Fig. 4




Fig. 5

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# UNITED STATES PATENT OFFICE

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## SAFETY RAZOR

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10 Claims. (Cl. 30—70)

This invention relates to safety razors of the type in which a thin flexible blade is clamped for shaving between co-operating supporting members and consists in an improved construction whereby a blade having a protective envelope or wrapper may be presented to the razor in its final shaving position and temporarily held to afford the user an opportunity of removing the blade wrapper preparatory to clamping the blade for shaving.

The shaving edge of a thin safety razor blade is brought to such a high degree of fineness that it is extremely delicate and its keenness is likely to be destroyed if the edge is accidentally drawn across any part of the razor or the blade magazine or even the blade wrapper preparatory to shaving. Great care and considerable skill is required ordinarily on the part of the user to extract such a blade from its wrapper and present it safely in its shaving position without damage to its edge. The present invention deals with blades of a type which may be protected at the time of manufacture by being enclosed in a paper wrapper. This wrapper overlaps and safeguards the sharp edge or edges of the razor blade and must be removed to make the edge accessible for shaving. We contemplate a safety razor so organized that the wrapped blade may be delivered directly thereto in its final shaving position and temporarily held as thus positioned while the user has only to strip the wrapper from the blade and withdraw it from the razor, all this being effected without danger and even without the possibility of touching the keen cutting edge of the blade.

The construction of my invention is such that the elements which have been heretofore found regularly in safety razors and with which the public is entirely familiar may be utilized by suitable modification and addition to perform the function of temporarily holding and releasing the blade independently of the clamping movement of the razor parts. To this end an important feature of the invention consists in providing in a safety razor a projecting detent upon one of the blade-clamping members and spring means operating to bow a blade when once located in shaving position into interlocking engagement with such projection, that is to say, the blade may be presented in substantially flat condition, then, as a preliminary step, bowed into engagement with the detent and so held or anchored against longitudinal movement while the user withdraws the blade wrapper. Subsequently, the blade-clamping step is carried out in the usual manner as is also the unclamping step. Convenient means are provided in or adjacent to the handle of the razor for releasing the blade from its bowing stress, thereby allowing it to re-assume its flat condition and disengage the detent so that it is free for removal from the razor.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawing, in which:

Fig. 1 is a view of the razor in side elevation, partly in section, showing a blade as presented;

Fig. 2 is a similar view showing the cap in its position of preliminary engagement;

Fig. 3 is a similar view showing the cap in its fully clamped position;

Fig. 4 is a plan view of the guard with a blade in position thereon, a portion of the blade being shown as broken away; and

Fig. 5 is a view in perspective of the cap as seen from beneath.

The razor selected for illustration is of the "Gillette" type although the invention is not restricted to that or to any other particular type of razor. As herein shown, however, the razor comprises a guard member 10 which is generally rectangular in contour and slotted at each side to define solid downwardly and outwardly extending guard bars 11. The guard has a flat blade-supporting face bounded by parallel fulcrum shoulders and is permanently fixed upon the hollow head 12 of the handle. The latter includes also a barrel or shell 13. The guard has a circular recess 14 in its upper face disposed centrally near its left-hand and as seen in Fig. 4 to receive the detent to be hereinafter described.

Co-operating with the guard is a cap member 15 which is similar in outline to the guard but slightly narrower. It is provided with an inner concave face which, in engaging a blade, tends to flex it transversely or bow it over the fulcrum shoulders of the guard. It has also a longitudinal blade-locating rib 16 which near its left end, as seen in Fig. 5, is provided with a solid cylindrical detent 17. The rib 16 is permanently connected through a short flat shank to the upper end of a spindle 18. The spindle 18 is received within the chamber provided by the barrel 13 of the handle. The end of the barrel 13 is closed by a cylindrical shouldered nut 19 having a threaded connection with the lower end of the spindle 18. A compression spring 20 encircles the spindle 18 bearing against the inner end of the nut 19 and tending at all times to depress it together with the spindle 18 and the cap 15. A limit screw 21

is located in the end of the spindle 20 and fits freely in the bore of the nut 19.

The blade 30 herein shown is a flexible, double-edged blade of the commercial "Gillette" type having its corners recessed to define elongated unsharpened end portions and having a central slot 31 which is open at one end and widens out at spaced intervals into apertures 32 and 33. The blade is presented endwise to the razor, the slot 31 receiving the rib 16 of the cap and when fully in shaving position the detent 17 registers with the aperture 32 of the blade.

The action of the spring 20 upon the inner end of the handle 19 transmitted through the spindle 18 is to hold the cap 15 yieldingly and with moderate pressure against the guard. This may be relieved and the cap lifted to clear the guard by pressing inwardly upon the end of the handle 19 and this the user may effect very conveniently by holding the handle between two fingers and pushing the nut with his thumb until the shoulder of the nut contacts with the end of the barrel 13 as suggested in Fig. 1. When this occurs the cap clears the blade-supporting face of the guard so that a slotted blade 30 may be pushed in endwise, straddling the rib 16 and the shank connecting it to the spindle 18. The blade is stopped in its shaving position when the solid end of the blade encounters the end of the rib 16 and when this occurs, as already intimated, the recess 32 of the blade lies opposite the detent 17.

The user may now release pressure upon the handle 19 and allow the spring 20 to seat the cap 15 upon the blade as suggested in Fig. 2. When this occurs the blade is immediately bowed over the fulcrum shoulders of the guard and into engagement with the detent 17, that is to say, the bowed blade makes interlocking engagement with the detent and is thus anchored against longitudinal movement. While the blade is so held the operator may strip a wrapper from the blade by pulling it off in an endwise direction. Subsequently, the cap 15 may be moved positively downward into clamping engagement with the blade by rotating the nut section 19 of the handle. This is the condition of the razor shown in Fig. 3, the spindle 18 having been drawn down by the amount which the head of the limit screw is separated from the bottom of the bore of the nut 19. The interlocking engagement of the blade and cap is not affected in any way by the clamping operation and the detent 17 enters the recess 14 of the guard with clearance.

At the conclusion of the shaving operation the nut may be rotated reversely, releasing positive pressure on the blade and allowing the spring 20 to maintain only bowing stress therein, again as suggested by Fig. 2. Finally when the operator desires to remove the blade he may again release it by pressing the nut 19 upwardly against the compression of the spring 20, whereupon the blade is freed and may be withdrawn from the razor or permitted to fall by gravity if the razor is held on end.

A portion of the blade wrapper 34 is indicated in dotted lines in Fig. 4 but is omitted in the other figures for the sake of clearness. It will be understood that the blades may be dispensed in paper wrappers shaped to protect the sharp edges of the blade but to clear the slot and apertures of the blade so that the blade-locating rib 16 and detent 17 may function without obstruction.

Having thus disclosed my invention and described in detail one illustrative embodiment thereof, I claim as new and desire to secure by Letters Patent:

1. A safety razor having a blade-supporting member, a cap having a concave face for transversely flexing an apertured blade presented upon said member and a projecting retaining device, a spring for moving said cap into blade-flexing position and thereby bowing the blade into engagement with said retaining device, and screw-threaded means for thereafter clamping the cap upon the blade.

2. A safety razor having a guard shaped to support a flexible and apertured blade thereon in flat condition, a cap having a concave face movable above the guard and a retaining device projecting from said face, spring means for moving the cap and guard together to bow a blade into engagement with said retaining device and thereby anchor it against longitudinal movement, and positive acting means for further moving the cap to clamp the blade.

3. A safety razor having a blade-supporting member shaped to support a flexible and apertured blade in substantially flat position thereon, a co-operating concave blade-shaping member movable with respect to said blade-supporting member and having a projecting detent in its face, spring means for moving said members together to bow a blade into interlocking engagement with said detent, and a handle having connections for seperating said members against the action of said spring means and also connections for positively clamping said members upon the blade.

4. A safety razor having a blade-supporting member shaped to support a flexible and apertured blade in substantially flat position thereon, a co-operating concave blade-shaping member movable with respect to said blade-supporting member and having a projecting detent, a handle having a telescopic section movable longitudinally and rotatably therein, spring means for moving said members to bow a blade into interlocking engagement with said detent releasable by longitudinal movement of said section, and screw-threaded means operated by rotary movement of said handle section for positively clamping the blade.

5. A safety razor comprising a guard with a flat blade-supporting face and parallel fulcrum shoulders, a cap having a concave blade-fixing face, a projecting detent and a threaded shank surrounded by a compression spring, and a handle chambered to receive said shank and provided with a rotary section having screw-threaded connection with the shank, the spring tending at all times to move the cap into blade-flexing relation to the guard and to bow and interposed apertured and flexible blade into interlocking engagement with said detent, the said handle section being longitudinally movable to lift the cap against the action of the spring and rotatable to lower the cap through its connection with the shank.

6. In a safety razor comprising a pair of blade-clamping members and a flexible blade inserted between them, a retaining device on one of said members for engaging the blade when transversely bowed between said members after being moved longitudinally into its shaving position, spring means for moving said members to bow the blade into such engagement with the retaining device, and means for moving said members into clamping engagement with the blade.

7. In a safety razor having co-operating mem-

bers movable relatively to clamp or release a slotted blade introduced between them, means on one of said members to retain a flexible and apertured blade when presented in its shaving position, and a spring for closing said members into light engagement with a blade to bow it into engagement with said retaining means preliminary to final clamping of the blade in its shaving position.

8. In a safety razor, the combination with a razor comprising co-operating blade-flexing members, of an apertured flexible blade, a projecting detent on one of said members, and a spring tending at all times to move said members into flexing relation and thereby to bow the blade into interlocking engagement with said detent.

9. A safety razor comprising two co-operative blade-shaping members spring pressed together and having a rib between them and a detent near one end of the rib, and a flexible blade slotted to embrace the rib and having two spaced detent-receiving apertures whereby it may interlock with the detent in shaving position or in a position partially withdrawn from the razor.

10. A safety razor having co-operating blade-shaping members movable together under spring pressure and shaped to bow a flexible blade interposed between them, means on one member for engaging and holding a bowed blade against endwise movement, and a handle connecting said members and having a section movable to cause limited separation of said members and thereby permit the blade to assume a flat position in which it is released for withdrawal.

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