Dec. 8, 1942. J. L. SCHRADE 2,304,601

POCKET KNIFE

Filed Aug. 13, 1942

Fig. 1.

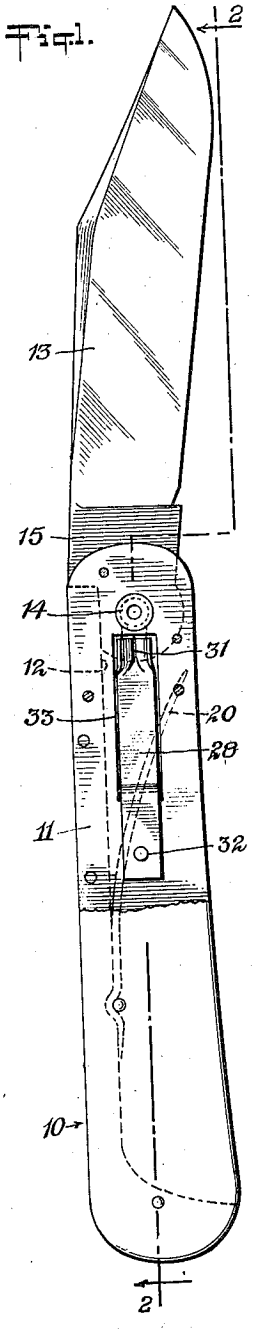


Fig. 2.

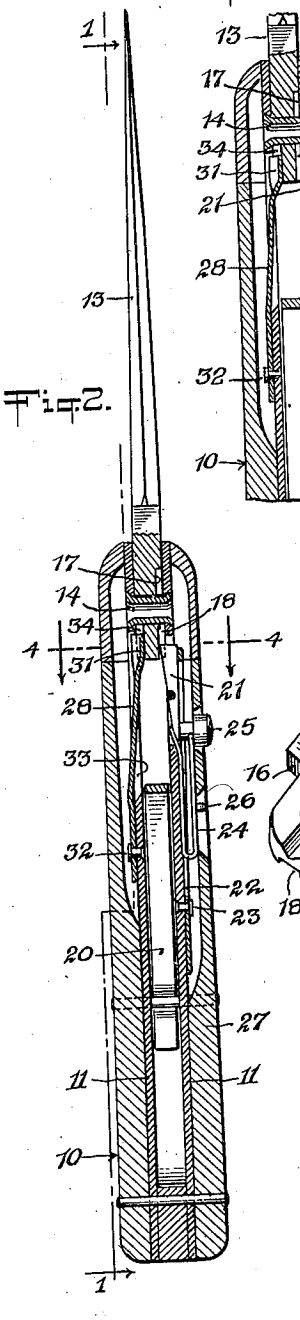


Fig. 3.

Fig. 4.

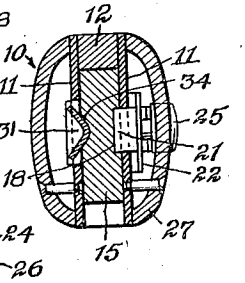


Fig. 5.

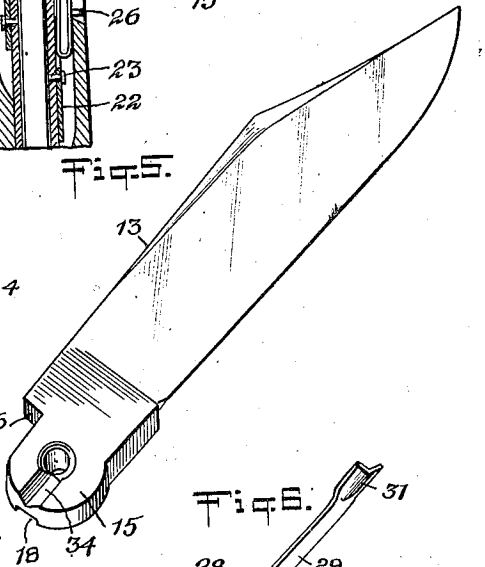
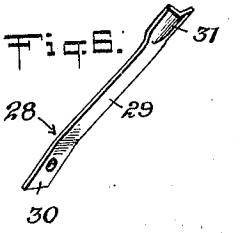


Fig. 6.



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UNITED STATES PATENT OFFICE

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POCKETKNIFE

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5 Claims. (Cl. 30—159)

This invention relates to pocket knives of the types known as safety push-button and fly-open knives. In such knives a blade is automatically moved to open position by a spring when the blade is released by a locking means, and the blade is locked in both its open and closed position.

More particularly, the invention relates to a device embodied by a knife of the indicated character which checks the movement of a blade in such a manner as to enable the locking means to function for the purpose of locking the blade in the fully open position.

An object of the invention is the provision of a device of the character mentioned which will frictionally resist movement of the blade as it reaches the limit of its opening movement, to prevent it from flying out of registry with the locking part whose function it is to automatically engage the notched tang of the blade to lock the blade in the fully open position regardless of the position in which the knife is held when the blade is released.

A further object of the invention is the provision in a pocket knife of a device which not only acts to retard or check the opening movement of a blade so that it will be locked in a fully open position, but which acts in the nature of a detent itself to aid in locking the blade in the fully open position, and which is releasable by the mere act of moving the blade out of its open position into its locked closed position.

The nature of the invention and its distinguishing features and advantages will appear when the following specification is read in conjunction with the accompanying drawing, in which—

Fig. 1 is a side view and part section of a pocket knife selected to illustrate the device of the present invention shown applied thereto, the blade being shown open, and the section being taken on the line 1—1 of Fig. 2;

Fig. 2 is a section taken on the line 2—2 of Fig 1 and illustrating the means and the manner in which the blade is locked in the fully open position;

Fig. 3 is a fragmentary section illustrating the safety slide of the locking means withdrawn from the locking part or catch in order that the blade may be unlocked and then be moved from the open to the closed position;

Fig. 4 is an enlarged section taken on the line 4—4 of Fig. 2;

Fig. 5 is a perspective view of the knife blade detached; and

Fig. 6 is a perspective view of the spring of the checking device.

Referring now, more particularly, to the several views of the drawing, it will be apparent that the pocket knife includes a handle 10 embodying a frame composed of plates 11 arranged in spaced parallel relation to each other, together with a back 12 secured between the plates 11. In the present instance, a single large blade 13 is pivotally connected between the plates 11 by a hollow rivet 14 at one end of the blade. The tang 15 of the blade 13 has a back-square 16 which is engageable with the adjacent end of the back 12 serving as a stop to limit the movement of the blade 13 to a fully open position, as shown in Fig. 1. The tang 15 has recesses or notches 17 and 18, respectively, in one side thereof which are disposed radially with respect to the pivot 14. The notch 17 serves for locking the blade 13 in the fully closed position, whereas the notch 18 serves for locking the blade in the fully open position.

A leaf spring 20, secured between the plates 11, acts on the tang 15 to throw the blade 13 when released from its closed position, to the open position. A locking means serves to lock the blade 13 in the closed and open position. This means consists of a pivoted locking part or catch 21, a flat spring 22 secured to one of the plates 11, as at 23, said spring 22 acting on the catch 21 to force it into a locking position. A safety slide 24, associated with the spring 22, acts on the tail of the catch 21 to prevent the catch from being moved to an unlocking position. The slide 24 may be withdrawn to a position out of engagement with the tail of the catch 21 so that the catch may be moved to the unlocking position. The catch 21 has a button 25 for manipulating the catch, and the slide 24 has a lug 26 for manipulating the slide. The button 25 and lug 26 are exposed through openings, respectively, in the cover 27 on the plate 11 which carries the locking means hereinabove described.

The device of the present invention, for checking and stopping the movement of the blade in order to assure the locking of the blade in the fully open position by the locking means, will now be described.

The device includes a spring 28 developed from a single piece of spring steel which is stamped, bent and formed to provide a main portion 29, an attaching portion 30 slightly offset with respect to the portion 29, and a projection 31 on the other end of the portion 29, said projection being substantially V-shaped in cross section,

and extending laterally, as shown most clearly in Fig. 6. The spring 28 is attached to the remaining frame plate 11, and this is accomplished by the provision of a hole in the portion 30 which receives a rivet 32 also extending through said plate 11 to securely hold the spring 28 in place. The plate 11 which carries the spring 28 has a slot 33 therein which accommodates the spring 28 so that it may cooperate with the tang 15 of the blade. The tang 15 has a notch 34 therein, and this notch is cam-faced in order to properly cooperate with the projection 31 for the purpose of retaining the blade in the fully open position with the notch 18 in registry with the catch 21 enabling the latter to automatically enter the notch 18 to lock the blade 13 in the fully open position.

The spring 28 and notch 34 constitute means in the nature of a snap action detent. The spring 28 causes the portion 31 to exert pressure on the tang 15 in the opening movement of the blade 13, and hence checks the movement of the blade as it approaches the limit of its opening movement. This prevents rebound of the blade 13 when back-square 16 strikes the end of the back 12. This will enable the catch 21 to be forced into the notch 18 in the tang by the spring 22, thereby locking the blade 13 in the fully open position. In accomplishing this result, the projection 31 of the spring 28 enters the notch 34 and, therefore, itself aids in retaining the blade 13 in the open position. The slide 24 being in the retracted position enables pressure to be exerted on the button 25 to disengage the catch 21 from the notch 18, whereupon the blade 13 may be swung into its closed position. The catch 21, under the action of the spring 22, enters the notch 17 to hold the blade 13 locked in its closed position. By manipulating the lug 26, the safety slide 24 may be engaged with the catch 21 to prevent movement of the catch and unlocking of the blade, whether in the open or closed position.

From the foregoing it will be apparent that there has been described a simple, practical and effective device for attaining the aforesaid objects of the invention.

I claim:

1. A pocket knife of the type whose blade is automatically moved to open position when released and locked in both its open and closed position, having detent means to check and stop the movement of the blade in a manner to assure locking of the blade in the fully open position by the locking means.

2. A pocket knife as defined in claim 1, wherein said means acts directly on the blade.

3. A pocket knife as defined in claim 1, wherein the tang of the blade has a notch therein and said means has a portion which acts on said tang as the blade moves into its open position and enters said notch when the blade has reached the fully open position.

4. A pocket knife as defined in claim 1, wherein said means consists of a leaf spring having a lateral projection, and the tang of the blade has a cam-faced notch therein, said projection under the influence of the spring acting on said tang as the blade moves into its open position and entering said notch when the blade has reached the fully open position, said projection being cammed out of said notch upon movement of the blade out of the open position after the blade has been released by said locking means.

5. In a pocket knife, a spring opening blade, and a snap action detent consisting of a spring secured at one end and its other end having a substantially V-shape projection, and cam-faced means on said blade which coacts with said projection to govern the movement of the blade.

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