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R. E. BROWN

1,810,999

FLY-OPEN KNIFE

Filed Nov. 18, 1930

Fig. 1.

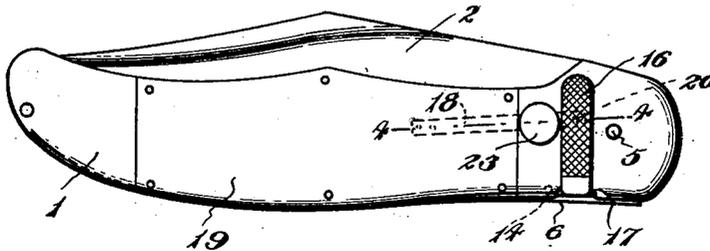


Fig. 2.

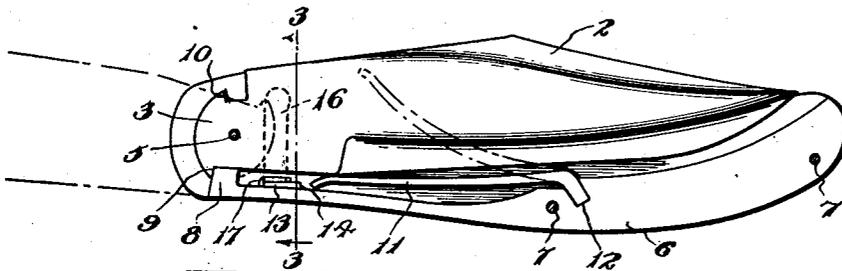


Fig. 3.

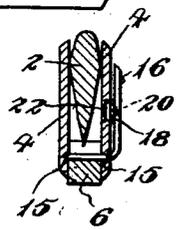


Fig. 4.

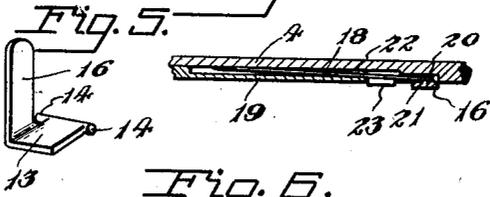


Fig. 5.

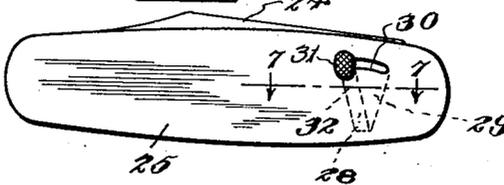


Fig. 6.



Fig. 7.



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FLY-OPEN KNIFE

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This invention relates to cutlery and more particularly to a pocket knife of the fly-open type wherein the blade is releasably secured in either an opened or a closed position and will be moved outwardly to an opened position when released after being closed.

One object of the invention is to provide improved means for releasably securing the blade having actuating means by means of which the securing means may be moved to a releasing position together with means for preventing accidental movement of the actuating means to a releasing position. By this arrangement the actuating means for the blade securing means will be prevented from being accidentally moved out of its normal position and there will be no danger of the blade opening when the knife is in a person's pocket or prematurely moving toward an opened or a closed position when the knife is in use.

Another object of the invention is to so construct the actuating element that a lever forming part of the same will be disposed at one side of the knife handle closely adjacent the outer face thereof and its securing means also located at the side of the knife handle close to the lever, thereby permitting the securing device or latch to be moved to a releasing position by pressure applied by a thumb employed to move the lever when the blade is to be released. Therefore, the latch and the lever may be easily operated by the thumb of one hand and the blade released for opening or closing without using both hands.

Another object of the invention is to provide a fly-open knife having releasing means and a latch which are simple in construction and easy to operate and not liable to break or get out of order.

The invention is illustrated in the accompanying drawings, wherein

Figure 1 is a side elevation of the improved knife,

Fig. 2 is a longitudinal sectional view through the knife,

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2,

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Fig. 1,

Fig. 5 is a perspective view of the releasing element.

Fig. 6 is a side elevation of a modified form of knife, and

Fig. 7 is a view taken at right angles to Fig. 6 showing a portion of the knife in elevation and a portion thereof in section on the line 7—7 of Fig. 6.

The knife has a handle indicated in general by the numeral 1 and a blade 2 having a heel 3 at one end pivotally mounted at one end of the handle between the side walls 4 thereof by a pin 5. While the knife has been shown with one blade, it will be understood that as many blades as desired may be provided. A spring 6 is secured between the side walls 4 by a suitable number of pins 7 and one end portion of this spring is left free and formed with a tooth 8 to engage shoulders 9 and 10 formed upon the heel portion of the blade and securely but releasably hold the blade in either a closed or opened position. An auxiliary spring 11 extends longitudinally in the handle with one end firmly secured in a recess or seat 12 formed in the spring 6 and its other end adapted to be engaged by the heel of the blade when the blade is in the closed position. From an inspection of Figure 2, it will be seen that the spring 11 is forced inwardly and placed under tension when the blade is closed and will serve to swing the blade outwardly to an open position when the free end portion of the spring 6 is moved out of engagement with the shoulder 9. This tooth moves along the arcuate rear end of the heel as the blade opens and by engaging the shoulder 10 will securely hold the blade in an open position until the free end portion of the securing spring is moved to a releasing position.

In order to move the securing spring to a releasing position, there has been provided a releasing element consisting of a plate 13 which extends longitudinally of the handle against the inner face of the free end portion of the securing spring near the tooth 8. Pins 14 project from opposite sides of one end of the plate to engage in sockets 15 formed in the side walls 4, as shown in Figure 3, thereby pivotally mounting the releasing element. The lever 16 having a roughened outer face

extends from one side of the plate 13 through an opening 17 formed in one side wall and this lever extends transversely of the side wall in close proximity to the outer face thereof where it will be out of the way and not liable to catch when the knife is placed in a pocket or in use. By applying pressure against the lever and thrusting it toward the adjacent end of the handle the plate 13 will be swung about the pivot pins 14, thereby forcing the free end portion of the securing spring 6 outwardly and moving the tooth 8 to a releasing position. Therefore, the blade will be released and may be swung to a closed position or if it is already closed the expelling spring 11 will act against the heel of the blade and swing the blade outwardly to an opened position.

There is danger of the lever 16 catching when thrusting the knife into a pocket or withdrawing it and also danger of pressure being accidentally applied to the lever when placing it in a pocket or withdrawing it. This would cause the blade to be released unintentionally with resulting danger of a person being cut, and in order to prevent accidental movement of the lever in a releasing direction, there has been provided a latch consisting of a resilient strip 18 extending longitudinally of the side wall of the knife. This strip extends beneath the facing 19 of the side wall for the major portion of its length with its inner end riveted or otherwise firmly secured against the side wall. The other end portion of the strip extends longitudinally of the bolster across which the lever 16 extends and has its free end formed with a tooth 20 to engage in a seat 21 formed in the inner face of the lever, as shown in Figure 4. It should be noted that the facing and the bolster are recessed, as shown at 22 in Figure 4, thereby forming a pocket through which the spring strip of the latch extends. By this arrangement the latch is braced against transverse movement but is permitted to be depressed in order to move the tooth 21 out of engagement with the lever and permit the lever to be moved in an operative direction. A button 23 is provided upon the spring strip near its free end so that it may be easily braced when the lever is to be released and it should be noted that this button projects outwardly a short distance, as shown in Figure 4, and is located close to the lever so that when a thumb is applied to the button in order to move the latch to a releasing position the thumb will then be in position to engage the lever and swing the lever towards the adjacent end of the handle in order to tilt the plate 13 about the pivot pins 14 and move the tooth 8 out of securing engagement with the heel of the blade. By this arrangement the latch and the lever may be both easily operated by the thumb of the handle in which the knife is held and the blade may be opened or closed when held in one hand.

In Figures 6 and 7, there has been shown a modified construction. In this form of the invention, there has been shown a single blade 24 pivotally mounted in a handle 25 having side walls 26 to which facing strips 27 are applied. These facing strips extend the full length of the handle and it will be understood that the blade has its heel portion constructed the same, as shown in Figure 2, and engaged by a tooth at the free end of a spring corresponding to the spring 6. It will also be understood that an expelling spring, corresponding to the spring 11, is used to move the blade outwardly when released. The releasing element is similar in construction to that previously described and is provided with a lever 28 disposed close to the outer face of the side wall of the handle through which it passes. The facing for the side wall through which the lever passes covers this lever and has its inner face recessed to form a pocket 29 in which the lever is disposed, as shown in Figure 7. There has also been provided a slot 30 which communicates with the pocket 29 and the free end portion of the lever projects outwardly through this slot and terminates in a head 31 to be engaged by a thumb in order to swing the lever towards the adjacent end of the handle and release the blade. The lever is resilient and is of less thickness than the pocket, as shown in Figure 4. Therefore, when pressure is applied to the head 31, the lever may be forced inwardly toward the side wall of the handle and a tooth 32 carried by the lever moved out of a recess or seat 33 into which it normally engages and serves to prevent the lever from being accidentally moved to a releasing position. In this construction the lever serves as its own latch instead of providing a separate latch. It will be understood that if so desired a knife, such as shown in Figures 6 and 7, may be provided with bolsters covering end portions of each side wall and a facing between these bolsters in which case the pocket 29 and slot 30 will be formed in the bolster instead of in the facing.

Having thus described the invention, I claim:

1. A knife comprising a handle defining a pocket open along one side and having side walls and a spring between the side walls, a blade pivoted in the pocket and having shoulders engageable by the spring to releasably secure the blade in opened and closed positions, an actuating element extending longitudinally in said pocket and pivoted between walls of the handle in position to engage the inner face of said spring, a lever for said actuating element disposed transversely of a side wall and movable longitudinally thereof to tilt the actuating element and move the spring out of securing engagement with said blade, and means to releasably secure the lever against movement consisting of a re-

silient strap extending longitudinally of the wall and having one end firmly secured and its other end free and extending back of said lever and having interlocking engagement with the lever, said strap having a push-button projecting outwardly from the side wall whereby the strap may be pressed inwardly to release said lever.

2. A knife comprising a handle defining a pocket open along one side and having side walls and a spring between the side walls extending longitudinally of the pocket with its free end adjacent an end of the pocket, a blade pivoted in the said end of the pocket and having shoulders engageable by the free end of the spring to releasably secure the blade in opened and closed positions, an actuating leaf extending longitudinally in said pocket and having pins at one end engaged in sockets formed in the side walls to pivotally mount the leaf, a lever at one side of said leaf extending through an opening in the adjacent side wall and disposed against the outer face of the side wall and movable longitudinally thereof to rock said leaf and move the spring out of engagement with a shoulder of said blade to release the blade, and a latch to releasably secure said lever against movement.

3. A knife comprising a handle defining a pocket open along one side and having side walls and a spring between the side walls extending longitudinally of the pocket with its free end adjacent an end of the pocket, a blade pivoted in the said end of the pocket and having shoulders engageable by the free end of the spring to releasably secure the blade in opened and closed positions, an actuating leaf extending longitudinally in said pocket and having pins at one end engaged in sockets formed in the side walls to pivotally mount the leaf, a lever at one side of said leaf extending through an opening in the adjacent side wall and disposed against the outer face of the side wall and movable longitudinally thereof to rock said leaf and move the spring out of engagement with a shoulder of said blade to release the blade, and a latch strip extending longitudinally of the wall with one end extending beneath the lever and having a tooth engaging the under face of the lever to releasably secure said lever against movement.

In testimony whereof I affix my signature.

ROBERT E. BROWN. [L. s.]