

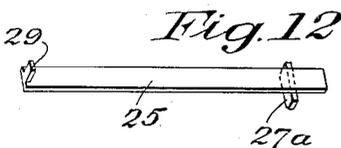
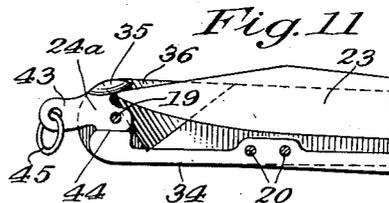
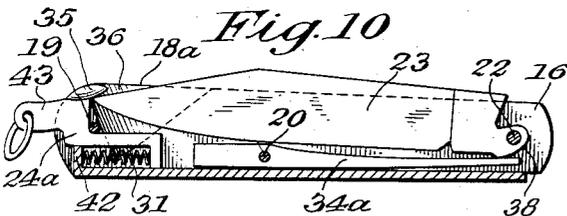
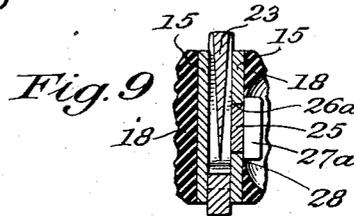
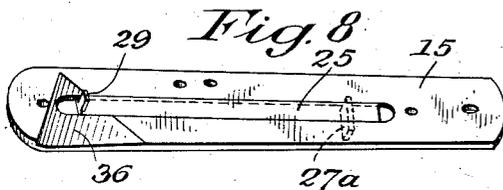
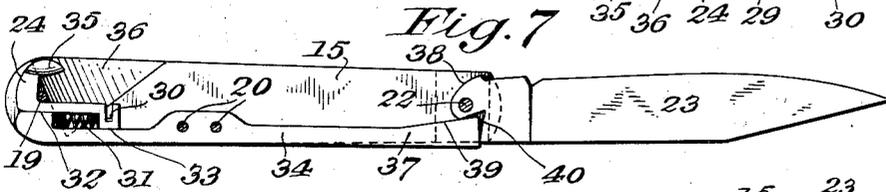
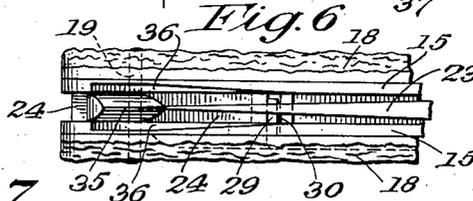
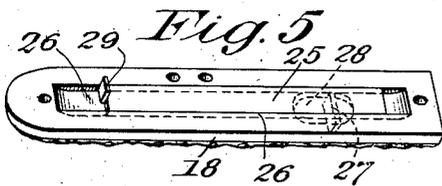
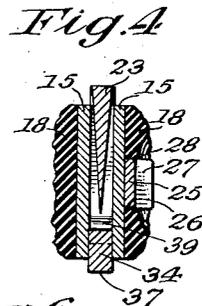
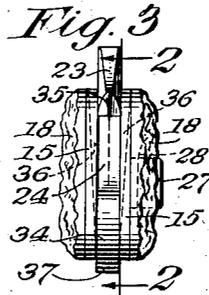
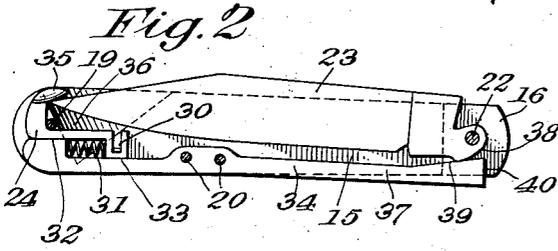
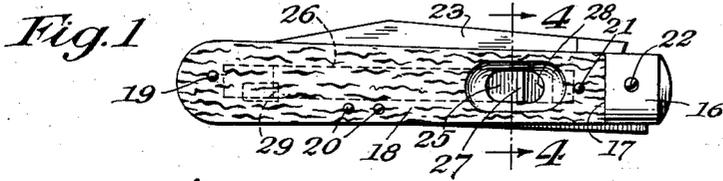
Nov. 9, 1937.

G. SCHRADE

2,098,678

POCKET KNIFE

Filed Jan. 16, 1936



INVENTOR  
George Schrade  
BY  
C. M. News  
ATTORNEY

# UNITED STATES PATENT OFFICE

2,098,678

## POCKET KNIFE

George Schrade, Bridgeport, Conn.

Application January 16, 1936, Serial No. 59,333

6 Claims. (Cl. 30-159)

My present invention relates to pocket knives of the class known as fly-open knives, that is knives having one or more blades which are normally retained in a closed position but which are adapted to open automatically when manually released by the operation of a button or the like.

An object of the invention is to produce a new form of commercial fly-open type of pocket knife which can be readily operated with one hand to open or close the blade, also to design the knife in a way to prevent its accidental releasement while carried in a pocket as has been the case with a number of this type of knives, the blades of which are released by pressing upon a button, rather than by a sliding movement.

A further object is to provide a slidable releasing member, having a thumb piece, that connects with a locking latch, and to design the slide so that it may be mounted either in one of the handle members of the knife or in one of the knife linings.

The invention is further directed toward blade-locking means that is located in the butt end of the handle, and especially to means including a movable latch member that engages the pointed end of the blade in a way to hold the blade in a closed position and which equally and effectively serves to release the blade when the slidable slide is manually operated for that purpose.

While in the accompanying drawing I have shown a pocket knife having but a single blade yet it will be readily understood that the invention can be similarly applied to a two bladed knife by simply duplicating the operating mechanism and wherein the slide and operating button therefor would be mounted in opposite side members of the handle.

In the accompanying drawing I have disclosed the essential features of my invention in a practical form as embodied in commercial types of pocket knives, though slight changes in construction of the details may obviously be made without departing from the spirit and intent of the invention, in this respect the several figures of the accompanying drawing clearly illustrate the structure and component parts thereof on a suitable scale for illustration and wherein similar characters of reference have been used to denote like or corresponding parts throughout the several figures and of which,

Fig. 1 shows the right side view, of a pocket knife embodying my invention, the blade of which is in a closed position.

Fig. 2 shows a longitudinal sectional view as

appears on line 2-2 of Fig. 3, the same being a view of so much of the knife as remains after the lining and handle of the right side has been removed.

Fig. 3 is an enlarged end view of the knife as seen from the left of Fig. 1.

Fig. 4 is a similarly enlarged cross sectional view taken on line 4-4 of Fig. 1.

Fig. 5 is a perspective view of one handle member and its slide as taken from the right side of Fig. 1 and as seen from the inner side of the said member as appears when removed and turned over.

Fig. 6 is an enlarged top plan view of the butt end portion of the knife as shown in Fig. 1.

Fig. 7 is a longitudinal sectional view somewhat like Fig. 2 except that the blade is in an open position.

Fig. 8 shows a perspective view somewhat like Fig. 5 though of one of the lining members instead of a handle member and illustrating the slide as being mounted in a slot of the lining.

Fig. 9 is a cross section somewhat like Fig. 4 though as it would appear if taken through a knife wherein the slide was mounted in the lining, as in Figs. 8 and 9, instead of in the handle.

Figs. 10 and 11 show modifications of the blade-holding latch and its means of operation, and

Fig. 12 shows a detached perspective view of the slide shown in Figs. 8 and 9.

Referring to the drawing, it will be observed that the preferred form of the invention as shown in Figs. 1 to 7 inclusive, includes two somewhat similar metal lining members 15-15 in the form of elongated plates which are of the length of the handle members and each include an enlargement 16 upon their forward end portions forming a shoulder 17 against which the handle members 18-18 are positioned. These linings and handle members when assembled as shown are secured together by rivets 19, 20-20, 21 and 22, the latter also serving as a pivot for the blade 23 while the rivet 19 further serves in part as a guide for the slidable latch 24.

25 indicates an elongated slide, see Figs. 1, 3, and 5, which is relatively long and thin and sized to fit into a pocket 26 of the handle member 18 positioned on the right side of the knife as shown. This slide is provided with a thumb piece 27 on its forward end, see Figs. 1 and 2, that extends outward into an opening 28 of the said handle member to permit it to be engaged by the operator for operation of the slide. The slide carries a lug 28 on its rear end which projects inward and serves to engage a pocket 30

in the slidable latch 24 to move the same backward, against the action of its spring 31 for the releasement of the blade 23. This latch is mounted to slide on the inner surfaces 32 and 33 of the spring back 34 and is further guided in its movements by the before-mentioned rivet 19, as will be seen from Figs. 2 and 7, which rivet serves to not only hold the latch against the spring back 34 but further serves as a stop for the slidable latch and to limit the action of the spring. As will be seen from Figs. 2, 3, and 6, the opposite side portions of the nose 35 of the slidable latch are beveled so that when engaged by the pointed end of the blade, as in closing the blade, the blade will spring sidewise slightly, past the pointed end and snap in under and against its under face thus assuming the position shown in Figs. 2 and 3.

In this respect it will be seen that the opposite inner faces of the lining members 15—15, see Figs. 6 and 8, are cut away as at 36 so as to provide room for the end portion of the blade to swing past the beveled and reduced nose 35 of the latch and swing in under said end portion to engage the underside. The spring back 34 is secured between and to the lining members and handle members by the before-mentioned rivets 20—20 so that the extended end portions of the spring back are more or less free, the longer forwardly extended portion 37 serving as a spring against which the cam 38 of the blade operates. This spring back includes a beveled inner edge portion 39 and a shouldered end portion 40, the former serving as a bearing for the cam shaped end 38 of the tang while the blade is in a closed position, and the end 40 serves as a shoulder against which the back square of the blade rests when the blade is open. The cam 38 formed on the tang end of the blade and with respect to the pivotal pin 22 is such as to spring cut the longer end 37 of the spring back when the blade is closed and to retain a tension upon the blade sufficient to cause it to swing open when its pointed end portion is released by the slidable latch 24. In practice this spring tension upon the tang end of the blade when released is sufficient to throw it clear open as shown in Fig. 7.

The elongated releasing slide 25, as shown in Figs. 1, 3, and 5, is mounted in a recess 25 of one of the handle members with its lug end 29 extending through a slot in the lining to engage the pocket 39 of the slidable latch whereas, if preferred, the said slide may be slidably mounted in a slot 27n of one of the lining members as shown in Figs. 8 and 9, and be supported upon its outside by one of the handle members 18 and upon the inner side by its engagement with the latch 24. The forward end of this slide 25 is provided with a lug 29 as in the preferred form and is also provided with a thumb piece 27a which, as will be noted, is slightly wider than the slot, to overlap the same where it extends into the opening 28 of the handle member 18, and obviously serves to properly guide the slide in the slot at this forward end portion.

In the modification shown in Fig. 10 the invention is shown applied to a pocket knife having a one-piece handle and back 18a, that is a handle bent longitudinally U-shaped, from sheet metal, so that its parallel sides may form both a handle and linings. The construction of the handle, however, is not important so far as my invention is concerned and serves principally in the production of an inexpensive form of knife.

This modification, as will be seen, includes a spring back 34a for the knife blade as in the preferred form, and also includes a slidable latch 24a, a rivet 19, a spring 31, all of which serve to permit the operation of the latch for the engagement and releasement of the blade. The spring 34a, as employed in this modification, is preferably made shorter than that used in the other form and but one rivet, 20 is used to secure it against the shouldered U portion of the handle. A part of the butt end portion of this handle member has a turned-up edge portion 42 which serves in part as a bearing for the slidable latch 24, being located below the rivet 19, while the inner wall of the shouldered portion of the handle serves as a support for the downwardly extended inner end portion of the latch, the spring 31 being positioned between the said end portion of the latch and the shoulder 42 of the handle. The latch in this form is further provided with a short extension 43 which projects out from the butt end which together with an attached ring serves as a means for slidably operating the latch for the releasement of the blade, against the action of its spring 31.

In Fig. 11 I have shown a further modification which may include plate and handle members and also the spring back shown in the preceding views. The latch 24a in this form is pivotally mounted upon the rivet 19 and serves to releasably engage the end of the blade. Its lower edge portion 44 normally lies flat against the flat top edge of the end of the spring 34 which forms a yieldable resistance to the turning of the latch though permits said latch to be swung down against said resistance as for the releasement of the blade. The latch in this form, like that shown in Fig. 10, is provided with a rearwardly extended thumb piece 43 which may be provided with an attached ring 45 if so desired.

BY way of a summary of the operation of the knife it will be understood that the position of the slidable locking latch is obviously normally in a locked position as indicated in the several figures and if the blade is open and it is desired to close the same it is simply swung in against the resistance of its back spring 37, as is the case with most pocket knives and as the point of the blade approaches the latch it engages the beveled side face of the nose which forces the thin end of the blade slightly to one side or the other until it enters the handle far enough to snap in under the nose which obviously locks it. The releasement of the blade may be conveniently effected by one hand only by simply grasping the handle in a way that the thumb or forefinger can engage the thumb piece 27 and shove it backward toward the butt end, and against the action of the spring 31 in a way to slide the latch rearward sufficient to release the blade whereupon the action of the spring 37 against the cammed surface of the pivoted end of the blade will throw the blade full open to the position shown in Fig. 7.

The differences in the means of operation of the form shown in Figs. 10 and 11 from that shown in the preceding views are that the latches in these forms are adapted to be directly engaged by the operator, to impart sliding movement to the one shown in Fig. 10 for the releasement of the blade and a swinging movement to the latch shown in Fig. 11 which likewise serves to release the blade.

Having thus described my invention, what I claim and desire to secure by Letters Patent is: 75

1. A pocket knife including a fly open blade mechanism, comprising a handle and linings, a blade mounted therein and means to throw open the same, a longitudinally movable latch mounted in the butt end of the handle and having its opposite sides beveled to be engaged by the free end portion of the blade, means to prevent lateral movement of the latch, an elongated slide mounted in the handle and having one end connected with the latch and the other provided with an exposed operating lug whereby the slide and latch may be operated longitudinally to release the blade the adjacent inner faces of the butt end portions of the linings next adjacent the latch being cut away to provide additional room for lateral movement of the pointed end of the blade to pass and engage the latch.

2. A knife of the class described including lining members one of which is provided with an elongated slot, a spring back positioned between said linings, a latch mounted for longitudinal slidable movement in the end portion of the handle between said linings and having its opposite side portions tapered for engagement with the blade and its inner end portion extended longitudinally and centrally between the linings and in spaced relation thereto, means to normally hold the latch in a forward position, a blade pivotally mounted between the linings and having its pointed end disposed to engage either of the side portions of the latch, a member mounted in the slot of the linings and having a finger piece projected outward from one end portion and a lug projected inward from the other end portion to engage and slide the latch against the action of its spring to release the blade.

3. A knife of the class described including lining members, a back positioned therebetween one end portion forming a spring and the other end a guide, a longitudinally movable latch mounted in the butt end of the knife between said linings, said latch being supported against lateral movement and having a blade engaging portion for engagement by the pointed end of the blade and being so proportioned as to deflect said end portion of the blade to one side or the other of the knife in a way to pass the same and be engaged and held thereby, a spring positioned between the latch and the back to hold the latch in its normal position, a blade pivotally mounted in the linings and having its pointed end normally disposed to be engaged by said movable latch and adapted to

be sprung sideways to pass and engage the under-side of said latch, and means to operate the latch against the action of the spring to release the blade.

4. A pocket knife including a fly open blade mechanism, comprising a handle and linings, a blade mounted therein and means to throw open the same, a longitudinally movable latch mounted in the butt end of the handle and having a longitudinal knife edged top portion and a beveled side to engage and deflect the blade, means to prevent lateral movement of the latch, an elongated slide mounted in the handle and having one end connected with the latch and the other provided with an exposed operating lug whereby the slide and latch may be operated longitudinally to release the blade the adjacent inner faces of the butt end portions of the linings next adjacent the latch being cut away to provide additional room for lateral movement of the pointed end of the blade to pass and engage the latch.

5. A knife of the class described including lining members, a spring actuated blade hingedly mounted between the lining and adapted to be closed in between the same, a longitudinally movable latch having a thin top edge and a beveled side adapted to be engaged by the free end portion of the blade in a manner to deflect the same to pass by and under the latch to lock the blade, means for supporting the latch against lateral movement and means to operate the latch to release the blade.

6. A knife of the class described including lining members, a back secured between the lining members forming a spring for the blade and a guide for a latch, a movable latch mounted between said lining members and against said guide of the back, a spring between the latch and the back, means to hold the latch in position against the guide, a blade pivotally mounted in the linings and having its free end portion disposed to engage and be locked by the movable latch, a longitudinal movable slide having an exposed finger piece upon one portion and means connecting another portion with the said latch to operate the same against the action of its spring to release the blade, the opposite inner face of the portion of the linings adjacent to the latch being cut away to allow the end portion of the knife blade to freely pass the engaging portion of the latch.

GEORGE SCHRADE.