Feb. 18, 1947. S. SIEGEL 2,416,277

POCKET KNIFE

Filed Nov. 2, 1945

Fig. 1

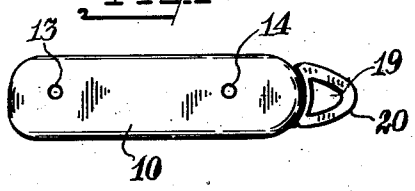


Fig. 2

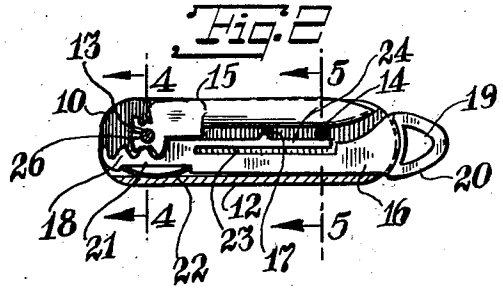


Fig. 3

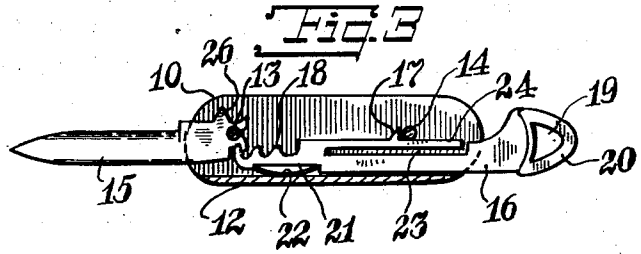


Fig. 4

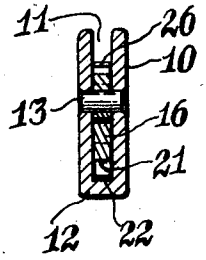
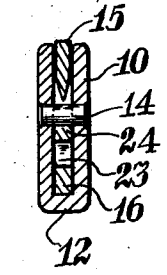


Fig. 5



INVENTOR.
Sam Siegel
BY Roger Williams
ATTORNEY

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POCKET KNIFE

Sam Siegel, Brighton, N. Y., assignor to Jerome J. Adams, New York, N. Y.

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6 Claims. (Cl. 30—158)

1

This invention relates to pocket knives, more especially to a combination knife blade and holder therefor.

It is common practice in this art to provide a sheath for protection of the blade when not in use, in a form so that this same sheath will function alternately as a handle for the blade proper, thus facilitating the holding and the use of the blade, to a very great extent. In the usual form of pocket knife, it is customary for the blade to be pivoted near one extremity thereof, so that rotation of the blade will cause the sharp edge thereof to enter within the handle or sheath, while the unsharpened or thicker edge of the blade remains outside the sheath. Retraction of the blade from the sheath is then accomplished by grasping the exposed edge of the blade and rotating it about the pivoted point thereof. Since a spring device, or the equivalent thereof, is employed to maintain the blade securely in both its open and its sheathed position, and since only a very narrow portion of the blade is available for grasping by the fingers of the user, it is customary to provide a notch or indentation upon one side of the blade, parallel to the back edge and slightly removed therefrom. The finger nail of the user may then enter this notch and can then exert sufficient force to enable the blade to be opened up into a position ready for use.

In a knife of the type just described, it is frequently necessary to exert considerable force, via the finger nail of the user, in order to retract the blade. The finger nail of the user is frequently damaged, and accomplishing the opening of the knife, so as to put it in a condition for use, is a difficult and often annoying operation. If the retaining spring be made weaker, in order to facilitate the opening of the knife, this will lead to the danger that the blade may not remain in the fully opened position, when subjected during use to some relatively slight force which would tend to rotate it about the pivot thereof.

This invention comprises a pocket knife so constructed that it is not necessary to use the finger nail, in order to open the blade into position ready for use, thus avoiding the difficulties and disadvantages just described.

One object of this invention is to provide a pocket knife in which the blade is easily transferred from a protected position within the handle or sheath, to an exposed position, ready for use.

Another object of this invention is to provide a pocket knife in which traction upon an exposed

2

control element will cause the blade to assume the open position, ready for use.

Still another object of this invention is to provide a pocket knife in which use of the finger nails when moving the blade from closed to open position, or vice versa, is not necessary.

Yet another object of this invention is to provide a pocket knife in which the element upon which force is exerted in order to open or close the knife is in the form of a rigid finger-piece extending externally of the knife for a distance sufficiently great to permit an easy grasp thereof by the ends of the fingers of the user, whereby ease of operation is secured.

Another purpose of this invention is to provide a pocket knife in which the blade may be caused to assume a position ready for use, with a minimum of exertion upon the part of the user, while at the same time, the blade, when once in such position ready for use, will not readily be dislodged therefrom except when an intentional closure of the blade is desired.

Other purposes and advantages of the pocket knife of this invention will be apparent to those skilled in the art by a consideration of the hereunto annexed drawings and from the following detailed disclosure thereof.

Reference is now made to the hereunto attached drawings in which:

Fig. 1 is a plan view of the knife in closed position.

Fig. 2 is a view of the knife in closed position, broken away to show the internal members.

Fig. 3 is a view of the knife in open position, broken away to show the internal members.

Fig. 4 is a cross section on the lines 4—4 of Fig. 2.

Fig. 5 is a cross section on the lines 5—5 of Fig. 2.

Referring now especially to Figs. 1 and 2, the combination handle and sheath 10 is provided with a slot 11, more clearly evident in Fig. 4. This slot extends for nearly the entire width of the handle, leaving only a bridging portion 12, uniting the opposite sides of the handle. Transversely of the handle there extend two rivet like members 13 and 14, firmly affixed to the handle proper by any suitable means such as riveting or welding.

Within the handle are located blade 15 and operating member 16. Blade 15 is rotatably mounted upon element 13, which thereby functions as a pivot for the blade. The pivoted end of the blade is provided with a pinion 26. Operating member 16 lies within slot 11 and slides longitudinally therein, the movement thereof to-

ward the right being limited by the engagement of the rivet 14 with a stop member 17, this latter forming a portion of the operating member. At the left end, member 16 is provided with a rack 18 of a suitable shape, located so as to engage pinion 26 of the blade. The sliding of member 16 to the left or right will thus cause rotation of blade 15 about pivot 13. As member 16 is pulled to the right by engagement of the finger tips of the user with a suitable shaped aperture 19, provided in an externally extending portion 20 of the operating member, the rack and pinion action of the arrangement just described, will cause blade 15 to rotate to the left, and assume the position shown in Fig. 3 to which reference is now additionally made.

Operating member 16 has a recessed portion 21 at the rack end thereof. In this recess is arranged a spring 22, engaging the bridging portion 12 of the handle, tending to force the rack and pinion into close frictional engagement with one another and additionally increasing the degree of force needed to operate the rack and pinion, thus reducing the possibility of accidental operation thereof. Operating member 16 is also provided with a slot 23. The portion 24 of this member, lying above slot 23, is in contact with the main body portion of member 16 at one end only, so that rivet 14 which engages the upper surface of portion 24, will tend to force this resilient portion downwardly, thus increasing the friction between the lower edge of member 16 and bridge portion 12 of the handle. Due to the controllable friction exercised both by spring 22 and by portion 24, the amount of force necessarily exerted upon the finger piece portion 20, in order to cause extension or retraction of the blade 15, may be set at a predetermined value.

It is to be noted that the provision of an ample finger-piece, having a large aperture therein, not only permits a greater force to be exerted thereupon with ease, but the aperture also permits the knife to be suspended from a chain or the like, if so desired.

While there have been shown certain embodiments of this invention, other embodiments and modifications thereof will be apparent to those skilled in the art and the scope of this invention is limited only by the hereunto appended claims.

What is claimed is:

1. A pocket knife including a handle provided with a slot extending substantially the entire length of the handle and for the major portion of the width thereof, a blade member pivoted in said slot near one end of the handle and provided with a pinion at the pivoted end thereof, a substantially straight backed and non-resilient operating member slidably mounted in said slot, having a rack at one end, engaging said pinion of said blade member so as to rotate said blade member upon sliding of said operating member, and having a resilient portion near the other end thereof, means for restraining said operating member within said slot, and means for limiting the sliding movement of said operating member, said operating member including a finger-piece portion extending externally of said handle, and

said means for restraining said operating element within said slot including a pin transversely affixed to said handle and frictionally engaging said resilient portion of said operating member, so as effectively to prevent longitudinal sliding motion thereof, until a predetermined degree of force is exerted upon said finger piece.

2. A pocket knife according to claim 1, in which the rack end of said operating member is slightly recessed at a point opposite the rack, and also including a spring member located in the recess and pressing against the bottom of said slot, so as to increase the amount of force needed to operate said rack and pinion.

3. A pocket knife according to claim 1, in which said operating element is provided with a stop member, laterally projecting substantially at right angles to said operating element, whereby longitudinal sliding motion of said operating member is limited in extent in one direction by the engagement of said stop member and said pin affixed to said handle, motion in the other direction being limited by the action of said rack and pinion.

4. A pocket knife of the type wherein a rack sliding within the knife sheath rotates a pinion upon one end of a blade and causes the blade to be alternatively extended or retracted, characterized in that the rack is substantially non-resilient as a whole but is formed with a longitudinal slot near one side thereof, thereby providing said rack with a portion of sufficiently small cross section to be effectively resilient, the resilient portion has a tooth-like member projecting substantially at right angles therefrom, and the sheath has a transverse pin against which said tooth-like member engages laterally, so as to limit the movement of the rack in one direction.

5. A pocket knife comprising a hollow sheath formed with two parallel flat walls and a bridge portion along one edge of each, acting to space apart said walls, a blade pivotally mounted between said walls, near one end of said sheath, a pinion surrounding the pivoted end of said blade, an operating element substantially non-resilient as a whole and slidably mounted between said walls, a rack at one end of said operating element, engaging said pinion, a resilient spring portion at the other end of said operating element, a rivet affixed to said sheath and engaging said spring portion so as to increase the sliding friction of said operating element, a stop member projecting substantially at right angles from said operating element, tangentially engaging with said rivet to limit the sliding of said operating element, and a spring recessed opposite said rack so as to increase the friction between said rack and said pinion.

6. A pocket knife according to claim 5, in which said rivet is of substantially circular cross section, and said stop member has the side thereof which engages said rivet lying in a substantially flat plane, whereby said stop member presses against said rivet substantially wholly longitudinally and requires no lateral movement to be disengaged therefrom.

SAM SIEGEL.