No. 812,601. PATENTED FEB. 13, 1906.

G. SCHRADE.

POCKET KNIFE.

APPLICATION FILED JAN. 7, 1905.

Fig. 1.

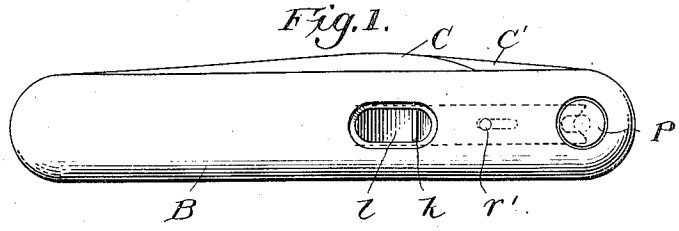

Fig. 2.

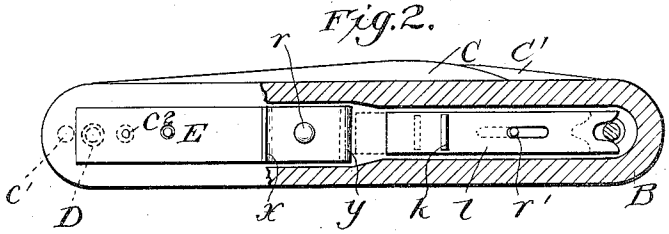

Fig. 3.

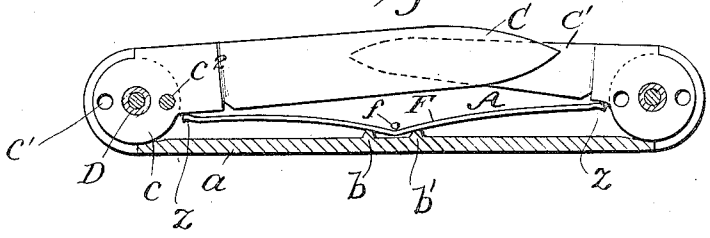

Fig. 4.

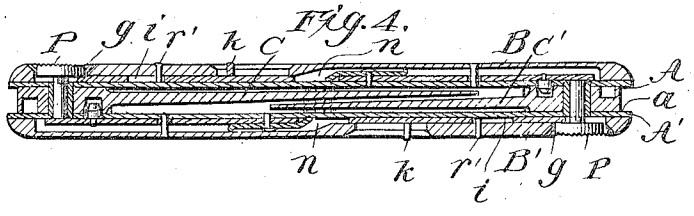

Fig. 5.

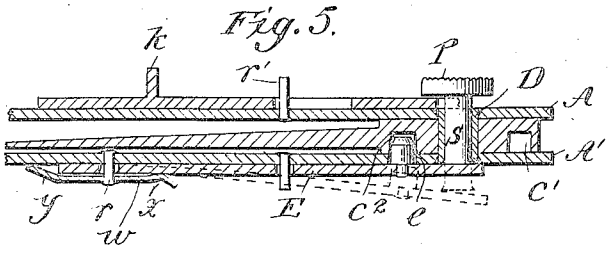

Fig. 6.

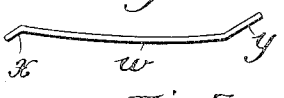

Fig. 7.

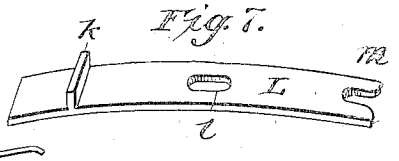

Fig. 8.

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UNITED STATES PATENT OFFICE.

GEORGE SCHRADE, OF WALDEN, NEW YORK.

POCKET-KNIFE.

No. 812,601. Specification of Letters Patent. Patented Feb. 13, 1906.

Application filed January 7, 1905. Serial No. 239,992.

To all whom it may concern:

Be it known that I, GEORGE SCHRADE, a citizen of the United States, residing at Walden, in the county of Orange and State of New York, have made certain new and useful Improvements in Pocket-Knives, of which the following is a specification.

My invention relates to pocket-knives in which provision is made for the automatic opening of the blade when released and for locking the blade both when open and when closed.

The particular construction of knife for which my improvements are designed is described in Letters Patent of the United States No. 470,605, granted to me on the 8th day of March, 1892; and my present improvements comprise novel devices for insuring the better operation of the automatic spring and locking mechanism.

In the drawings, Figure 1 is a side elevation showing my new safety locking-slide in position. Fig. 2 is a view of the knife in side elevation, the mounting being removed to show the spring carrying the locking and releasing pin and my improved washer for securing the said spring. Fig. 3 is a longitudinal sectional view taken in the plane in which the blade swings. Fig. 4 is a transverse longitudinal section. Fig. 5 is a sectional view showing the push-button in its relation with the holding-pin and the safety-slide. Fig. 6 is a detached enlarged edge view of the covering plate or washer used to secure the spring carrying the locking-pin. Fig. 7 is a detached enlarged view of the safety-slide. Fig. 8 is an enlarged sectional view of the blade-spring.

The linings or sides of the casing are represented by A and A′, and its back is designated at *a*. The sides are secured to the back and to each other by rivets which pass through them. The sides are usually formed of thin sheets of brass and the back of iron. The mountings or covers B and B′ may be of pearl, bone, wood, or any other suitable material. They are riveted or otherwise secured to the linings.

The blades are represented by C C′ and have shanks *c c*. The blades are pivotally secured in position between the sides of the casing by a hollow pivot D, riveted to the sides and passing through a hole in the shank. Through the hollow pivot D passes the stem *s* of a push-button P. The shank *c* of each blade is provided with recesses c' and c^2, located upon opposite sides of the pivot D and adapted to receive a stud *e*, the recess c' to hold the blade open and the other, c^2, to hold it closed. The recesses c' and c^2 are here shown as circular, which shape I prefer; but it is obvious that they may be oval or any desired shape in cross-section.

The device for releasing and holding the knife-blades consists of a plate or bar spring E, secured at one of its ends to the lining of the casing, as hereinafter described, and provided near its opposite end with a stud *e*, adapted to project through the lining of the casing and into one or the other of the recesses c' or c^2 when the blade is closed or open. The spring E lies on the lining, and its free end projects past the hollow pivot D, so that it forms a rest for the stem *s* of the push-button P. The stem *s* is slightly headed to prevent its dropping out of the hollow rivet D.

The covering plate or washer *w* covers the end of the plate-spring E. The rivet *r* passes through the washer, the spring, and the lining A′ of the knife, riveting the washer to the lining, and thereby securing the spring in position. The covering plate or washer *w* extends past the end of the spring E and is bent down at its end, so it will not press on the spring E, but rest on the lining at *y*. I make this washer or plate slightly bowed in its length, as will be seen in Fig. 6, by which construction the washer touches the spring E at the end, where it is turned slightly upward, (shown at *x*,) while at the other end it rests on the lining at *y*. The hole in the spring through which the rivet *r* passes is made somewhat larger in circumference than the rivet or oblong. The object of this construction is to relieve the spring E from the rigidity which would result from its being riveted to the lining in the usual way. By my improved construction a certain amount of lateral play is allowed the spring E, which secures the perfect operation of the stud *e* in conjunction with the holes c' and c^2 of the blade-shank. After careful experiments I have found this improved construction insures the proper working of the stud *e* in combination with the holes in the shank of the knife-blade. I preferably form the studs *e e* conical, so they will fit snugly in the holes. When the spring E is rigidly riveted to the lining of the knife, the end pressed down by the push-button describes a circle and causes the stud *e* to bind in the holes c' and c^2.

The actuating-spring F is arranged to

throw the blades when released from a closed to an open position. On the inner face of the back *a* are formed two projections *b* and *b'*, on which the actuating-spring will rest when secured in position by the rivet *f*. The free ends of the spring F bear against the under sides of the shanks *c c*, respectively, of the blade and are slightly turned downward at *z* in order to more fully ride on the shank. The spring F is slightly bent at the center and firmly held in position by the rivet *f*, passing through the linings A A'. Where the knife-back is of sufficient depth, the projections *b b'* may be decreased in height or entirely done away with by forming a hollow in the back *a*, as shown in Fig. 8. By this improved construction I avoid weakening the spring F, which occurs when it is bent into circular form at the center for the reception of the rivet.

The mounting B is recessed at *g* to allow room for the push-button to move in. The face of the push-button should be flush with the outer surface of the knife-cover when the knife-blade is locked and housed in the casing. Heretofore the face of the push-button has been smooth, and in consequence the thumb-nail in practice would slip over it without releasing the blade. In order to obviate this difficulty, I provide the face of the push-button with transverse cuts or corrugations in which the thumb-nail will engage. When pressed upon by the finger, the stem *s* of the push-button will throw the end of the spring E away from the side of the lining, and thereby withdraw the stud *e* from the recess in the shank of the blade.

L is the slide of the safety-lock and lies in a recess *n*, made in the cover B to receive it. I prefer to make the slide L bowed a little, as shown in Fig. 7, so it will press on the lining and the cover B sufficiently to hold it in position. The rivet *r'*, which fastens the lining to the covering, passes through the oblong hole *i* in the slide. The end of the slide L next to the push-button is formed into a fork *m*, so a prong will pass each side of the shank *s* and under the push-button P, performing the services of a detent.

The finger-piece *k* is formed on the slide L and projects through the hole *l*, cut in the cover B.

When the slide L is pushed forward so the prongs of the fork *m* embrace the shank of the push-button, it prevents the push-button being pressed down to release and open the blade if the knife is closed.

When it is desired, the lock may be used to lock the blade open.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a pocket-knife provided with automatic blade-opening mechanism operated by a push-button, a safety locking device comprising a forked detent housed between the lining and covering of the knife and adapted to embrace the shank of the push-button under its head, substantially as shown and described.

2. In a pocket-knife, the blades of which are automatically opened, substantially as described, a sliding plate housed between the lining and cover and adapted to engage the push-button and prevent its operation, substantially as shown and described.

3. In a pocket-knife, the blades of which are automatically opened, substantially as described, by a spring carrying a stud adapted to socket in holes in the shank of the blade, means for securing said stud-carrying spring to lining of the knife, comprising a washer formed to rest at end on the lining, and at the other end on the spring and a rivet securing said washer to the lining, said rivet passing through a hole in the spring greater in diameter than the rivet, substantially as shown and described.

4. In a pocket-knife, the blade of which is automatically opened, substantially as described, a spring carrying a stud adapted to socket in holes in the shank of the blade, means for securing said stud-carrying spring to the lining of the knife, whereby the spring is allowed a lateral play substantially as shown and described.

5. In a pocket-knife, the blades of which are automatically opened, substantially as described, a blade-opening spring secured at the center by a rivet and resting on contiguous projections formed on the interior of the knife-back.

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Witnesses:
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