

UNITED STATES PATENT OFFICE

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POCKETKNIFE

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This invention relates to pocket knives of the class employing a press-button fly-open blade of the general type shown in Patent No. 845,130, wherein the blades are held closed against the tension of a spring and are adapted to be thrown open by the action of the same spring, when the blade locking means is released by the operation of a push button.

An objection to these types of knives, as now commercially manufactured is that the blade of such knives will not fly open in a manner to be caught and locked in an open position, and as a result the blade rebounds and loosely hangs in intermediate positions, making the operation very unsatisfactory, since the operator never knows in just what position the blade is going to rest, when so operated.

It is therefore the object of my present invention to improve upon this class of knives in several respects, first of which is to provide in connection with the fly spring, a brake to operate upon the annular edge of the tang portion of the blade in a way to prevent the blade from rebounding in its opening operation, when released by the holding means; further to design the tang and spring so that the brake becomes effective at or about the time the blade is thrown to a right angle position to the handle, where friction is applied, breaking the rapid movement of the blade and causing it to slowly approach and assume its clear open and lock position.

Another feature of the knife is to provide friction adjacent the pivotal end of a blade whereby the blade will not only remain in a closed position but likewise in an open or any intermediate position to which it might be placed. This form of friction is particularly useful in connection with a nail file blade as is commonly used today in knives of this type.

With these and other objects in view, the invention resides and consists in the construction and novel combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size and

minor details of construction within the scope of the claims may be resorted to without departure from the spirit, or sacrificing any of the advantages of the invention.

Similar characters of reference denote like or corresponding parts throughout the several figures of the accompanying drawings forming a part of this specification and upon which

Fig. 1 shows a plan view of a simple form of press-button fly-open blade knife, having one blade in an open position;

Fig. 2 is a side elevation of the same knife with the handle and lining removed from one side;

Fig. 3 is a similar side elevation of a knife with lining and handle removed and blades in closed position;

Fig. 4 is a detail side elevation of one end portion of the knife, with handle removed from the front side;

Fig. 5 is an edge view of knife shown in Fig. 1, with one blade in open position;

Fig. 6 is a side elevational view of knife with lining and handle removed from one side and having one blade in open position disposed at right angles to handle; and

Fig. 7 is an enlarged longitudinal sectional view of the right end portion of knife as seen in Figs. 2, 3 and 5, better to show the friction plate for pivotal end of blade.

Referring in detail to the characters of reference marked upon the drawings, 9 represents the lining which may be formed of brass or other suitable sheet metal and the back which is positioned between the two opposed longitudinal edge portions of the lining and secured by rivets 11. 12 represents the handle members which are secured to and cover the outer faces of the linings 9 by means of rivets 13, 14 and 15 that preferably extend through both handle and lining members.

A shoulder bushing 16 is secured in one or both end portions of the lining to form a pivot for the fly-open blade or blades and by reason of the opening therethrough may also serve to accommodate the rivet 13 before mentioned. This shoulder bushing is of such a construction as to hold the linings in spaced relation sufficient to insure a free swinging movement of the blade and in a way to pre-

vent the heading of the rivets from drawing the two lining members in against the side of the tang end of the blade as would otherwise be the case were the shoulder bushing not employed.

The lock feature of the fly-open blade may be similar to that employed in several patented forms of fly-open knives, for the purpose of illustration, however I have shown a structure somewhat like that illustrated in the above mentioned patent, and wherein the side of the tang portion is provided with an elongated recess 17 that extends on both sides of the pivotal sleeve 16. This slot is adapted to be engaged by the inner side of the free end portion of a lever 18 pivotally supported on a pin 19 secured in bearings 20 on the side of one of the linings. Upon the other end portion of this lever 18 is mounted a push-button 21 that projects forward through a hole 22 in the handle and is normally exposed beyond the surface of the handle in a way to be engaged and pressed against the action of the spring 23 secured to the lining at 24.

This spring not only normally tends to hold the button exposed but also to hold the free end of the lever 18 in engagement with one or the other end portions of the recess for the purpose of locking the blade in either an open or closed position.

25 represents the fly and brake spring, which as shown may be provided with a shallow loop 26 designed to fit into a pocket 27 of the back 10 and be secured thereto by means of rivet 14 positioned adjacent the back. Where two fly-open blades are employed as shown in Fig. 6, this spring extends from end to end, for engagement with the tangs of the two blades, whereas if the knife includes but one fly-open blade the spring may be shorter and be extended to engage the raised circular edge of the tang of that blade only, as shown in Figs. 2 and 3. This spring serves the double purpose of throwing the blade out when released and secondly in engaging the cam edge of the tang portion to brake the movement of the blade after it has been swung out a desired distance. It will also be noted that the spring is so shaped and proportioned as to rest upon the tang when the blade is open, and to further close the pocket between the spring and the back in a manner to prevent dirt from entering.

The tang of the blade in my improved form of knife is materially different from that heretofore used on blades of this type, in that its two longitudinal edge portions are substantially straight and that a curved low portion or pocket 28 is formed between one of said straight edge portions and the circular end of the tang, upon the cutting edge side of the knife to allow the free movement of the blade for a partial swing of the same upon its pivot and to thereupon engage the remaining higher surface in a way to provide fric-

tion sufficient to reduce the speed, but allowing it to travel to a full open position where it promptly becomes locked, by the same locking device heretofore described for locking it in a closed position. The extent of this braking operation is determined by the length and tension of the spring which not only throws the blade open but acts as a brake as above described to retard its speed and prevent a rebound if it strikes the end of the spring.

It will also be noted that the normal position of the end of the spring, when in position shown in Fig. 6, is slightly to one side of an imaginary line extended from one pivotal rivet 13 to the rivet 14, so as to, at all times, provide the desired friction upon the raised edge of the tang of the blade, even should the end of the spring become slightly worn. By this means the blade will not be thrown violently against the back, causing it to rebound, and fail to lock, as is now the case with most of the fly-open blade type of knives now upon the market.

As shown, I prefer to employ a nail file blade 23 in connection with a fly-open blade type of knife of this sort and to mount the same as shown in Figs. 2, 3, 5 and 7 upon the rivet 15. The tang end of this file blade which is pivoted upon the rivet 15 is mounted between the two linings 9-9 and has its tang or pivotal end in operative engagement with the face of one of said linings.

A concave friction plate 30 having a hole therethrough to receive the rivet 15 is positioned under tension upon said rivet between the tang of the file blade and one of the lining members in a way to yieldably bear against the pivotal end of said blade and produce friction sufficient to hold the file blade in any adjusted position. This friction plate is preferably elongated slightly and provided with a shoulder 31 to engage the end of the back so as to insure proper positioning of the plate and prevent it from turning. The plate is preferably concave or dished, as shown, crosswise of its length, better to provide the friction desired.

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

1. In a press-button, fly-open knife, the combination of a lining and a back, a blade having a back, a cutting edge, substantially parallel straight edge portions, and a circular tang end pivoted in the lining and including a curved pocket therein adjacent the straight edge on the cutting edge side of the blade having a relatively higher circular edge portion adjacent said pocket, a spring secured to the lining and back and positioned to normally lie flat against one of said straight edge portions of the tang under tension in a manner to throw the blade open when released, the free end of said spring adapted to pass freely through the curved pocket of

the tang during the preliminary opening movement of the blade and to frictionally engage the remaining higher circular edge portion of the blade after the blade has been thrown half way open, and press-button releasable locking means for the blade.

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2. In a pocket-knife, the combination with a handle portion including a lining and back, a pivotal stud, a blade hingedly supported thereon within the lining, and an elongated friction plate mounted on the stud and having a shouldered edge portion to engage the end portion of the back and retain the plate in position, the said plate being bowed crosswise of its length and at its point of attachment to the stud.

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Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 28 day of Feb., A. D. 1930.

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GEORGE M. SCHRADE.

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