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B. W. HANLE

2,260,141

DROP KNIFE

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Fig. 1.

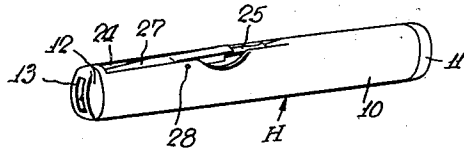


Fig. 2.

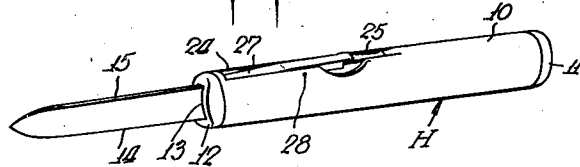


Fig. 3.

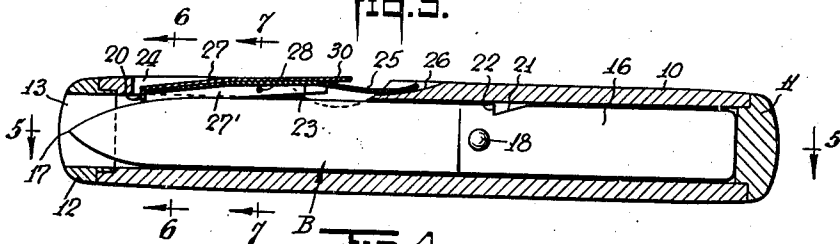


Fig. 4.

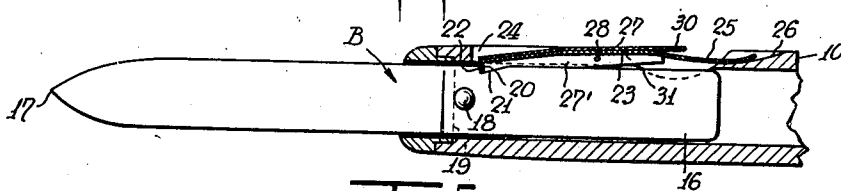


Fig. 5.

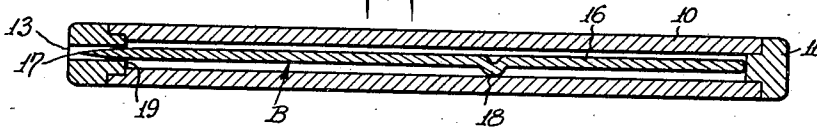


Fig. 6.

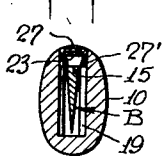
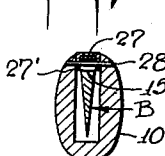


Fig. 7.



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DROP KNIFE

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Application December 5, 1938, Serial No. 243,972

2 Claims. (Cl. 30—163)

An object of the present invention is to provide a drop pen knife of extremely simple and inexpensive construction, devoid of any mechanism or parts apt to jam or bind, and which is yet sturdy and rugged to serve even for relatively heavy duty.

In the accompanying drawing in which is shown one of various possible embodiments of the several features of the invention:

Fig. 1 is a perspective view of the pen knife in closed position,

Fig. 2 is a view similar to Fig. 1 showing the knife in open position,

Fig. 3 is a view in longitudinal cross-section taken on line 3—3 of Fig. 5, and on a larger scale than Fig. 1,

Fig. 4 is a fragmentary view similar to Fig. 3, showing the blade in open position,

Fig. 5 is a view in longitudinal cross-section taken on line 5—5 of Fig. 3, and

Figs. 6 and 7 are views in transverse cross-section taken respectively on lines 6—6 and 7—7 of Fig. 3.

Referring now to the drawing, the knife includes a hollow handle H which may be desirably of vulcanite, "Bakelite," Celluloid or other molded material, although it may be of metal if desired. Desirably, the handle of the casing comprises a flattened tube 10 with a plug 11 fitted and cemented into the rear end thereof, and a generally similar plug 12 similarly fitted and cemented into the front end thereof. Plug 12 has an elongated slot 13 therethrough to permit the movement of the blade B into and out of the handle.

The blade has a conventional cutting edge 14, a thicker back 15 and a shank 16, the end of which rests against the plug 11 when the blade is in closed position, with the point 17 of the blade accommodated within the slotted plug 12. One of the faces of the blade B is provided with a protuberance 18 which may be a rivet head, but is preferably an embossment near the base of the blade proper. That protuberance 18 abuts the shoulder 19 determined by the inner end of plug 12, and prevents the blade from escaping from the handle when it reaches open or exposed position.

Detent means is provided to retain the blade in closed position as in Fig. 3 or in open position as in Fig. 4, as the case may be. This detent comprises a finger 20 mounted on the handle H and protruding into the interior near the forward end thereof. That finger as shown in Fig. 3 is in the path of the blade B, and thus blocks

outward movement thereof. In the position shown in Fig. 4, that finger 20 extends into a notch 21 in the shaft of the blade adjacent the protuberance 18, which notch has an edge 22 perpendicular to the back 15, so that the blade is blocked against returning to closed position from exposed or operative position.

The detent finger 20 may be released at will to permit the blade to drop from protected or from operative position, by the construction now to be described. For this purpose, the detent finger 20 is preferably an integral part of a leaf spring 23 extending longitudinally of the edge of the handle and accommodated in a longitudinal slot 24 therethrough. The rear end 25 of the leaf spring 23 is preferably curved and rests in a corresponding groove 26 in the handle wall. The spring is mounted in a non-resilient carrier 27, preferably of channel stock which straddles the main length of the spring 23 from the detent finger 20 to near the extremity 25 of the spring. The carrier bar substantially fills or closes the slot 24, and is affixed therein by means of a cross-pin 28 under spring 23 and through side pieces 27 of the carrier.

The operation will be immediately apparent, but may be briefly described. The pen knife in the position shown in Figs. 1 and 3 may be carried in the pocket in the usual manner without any danger of the blade escaping, since it is retained within the hollow handle by means of the detent. For use it is merely necessary to exert pressure, say with the forefinger upon the end 30 of the spring carrier 27, thereby to depress the latter into the finger notch 31 in the handle H, causing the carrier 27 to rock about its pivot 28, and to withdraw the detent finger 20 from out of the handle. When the handle is held with the open end thereof extending generally downward, the blade will drop by gravity to the open position shown in Fig. 4, limited by the abutment of the protuberance 18 against the end 19 of plug 12. Upon release of the finger piece 30, the spring 23 will urge the detent 20 into the notch 21 which is now in registry therewith, so that the blade is securely retained in open position, the embossment 18 preventing it from moving outward, and the detent 20 preventing it from moving inward toward the casing.

The handle even though of relatively brittle molded material has nevertheless great strength against breakage in use, for in exerting cutting pressure, the back 15 of the blade reacts against the forward upper edge of the handle as shown in Fig. 4 and the rear edge of the shank against

the lower edge. The pressure in using the knife is thus exerted through the width of the wide face of the handle, where there is great stiffness. To close the knife, it is merely necessary to exert pressure on the finger piece 30, thereby to withdraw detent finger 20. When the blade is held to extend in generally upward direction, it will drop by gravity into the handle, where it will be retained by the spring returned detent finger 20, as shown in Fig. 3.

While the invention is especially applicable to pen knives, it will be understood that it has a wider field of application to other uses as for instance to nail files, toothpicks, button hooks and the like.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

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

1. In a drop pen knife, the combination of a hollow handle having detent means for retaining a blade alternatively in open or in closed position, said detent means comprising a leaf spring extending along a longitudinal slot in the casing, bearing at one end against the wall of the casing and having a detent finger extending into the casing at the opposite end thereof, and carrier means for said spring comprising a channel shaped metal piece straddling the main length of said spring, and accommodated in said longitudinal slot, and a transverse pin hingedly mounting said carrier upon the handle, one end

of said carrier serving as a thumb rest for overcoming the spring and releasing the detent.

2. A drop pen knife comprising a handle, including a hollow flat sleeve having plugs cemented into the opposite ends thereof, one of said plugs being closed, the other having an elongated, longitudinal slot therethrough, a blade within the casing having a shank normally resting at its base end against the closed plug and with the pointed end of said blade accommodated within the slotted plug, said blade having an embossment on one face thereof blocked by the inner edge of the slotted plug for restraining further movement of the blade when it reaches open position, and means locking the blade alternatively in closed or in open position, said means comprising a detent finger to protrude into the handle near the open end thereof and through a narrow side thereof, for coacting with the forward part of the blade to retain it in protected position, said blade having a notch in the edge of its shank for accommodating said detent finger when the blade is in open position, and means for manually displacing said detent to permit gravity movement of the blade to open or closed position, said means comprising a leaf spring extending longitudinally of the handle along a longitudinal slot in a narrow side of said handle, one end of said spring resting on the wall of said handle, and a carrier for said spring comprising a channel-shaped metal piece straddling said spring, substantially closing said longitudinal slot and hinged at an intermediate part thereof to said handle, said carrier extending up to the detent end of said spring and exposing therebeyond the handle engaging end of said spring, the end of said carrier serving as a thumb rest for overcoming said spring and releasing the detent.

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