

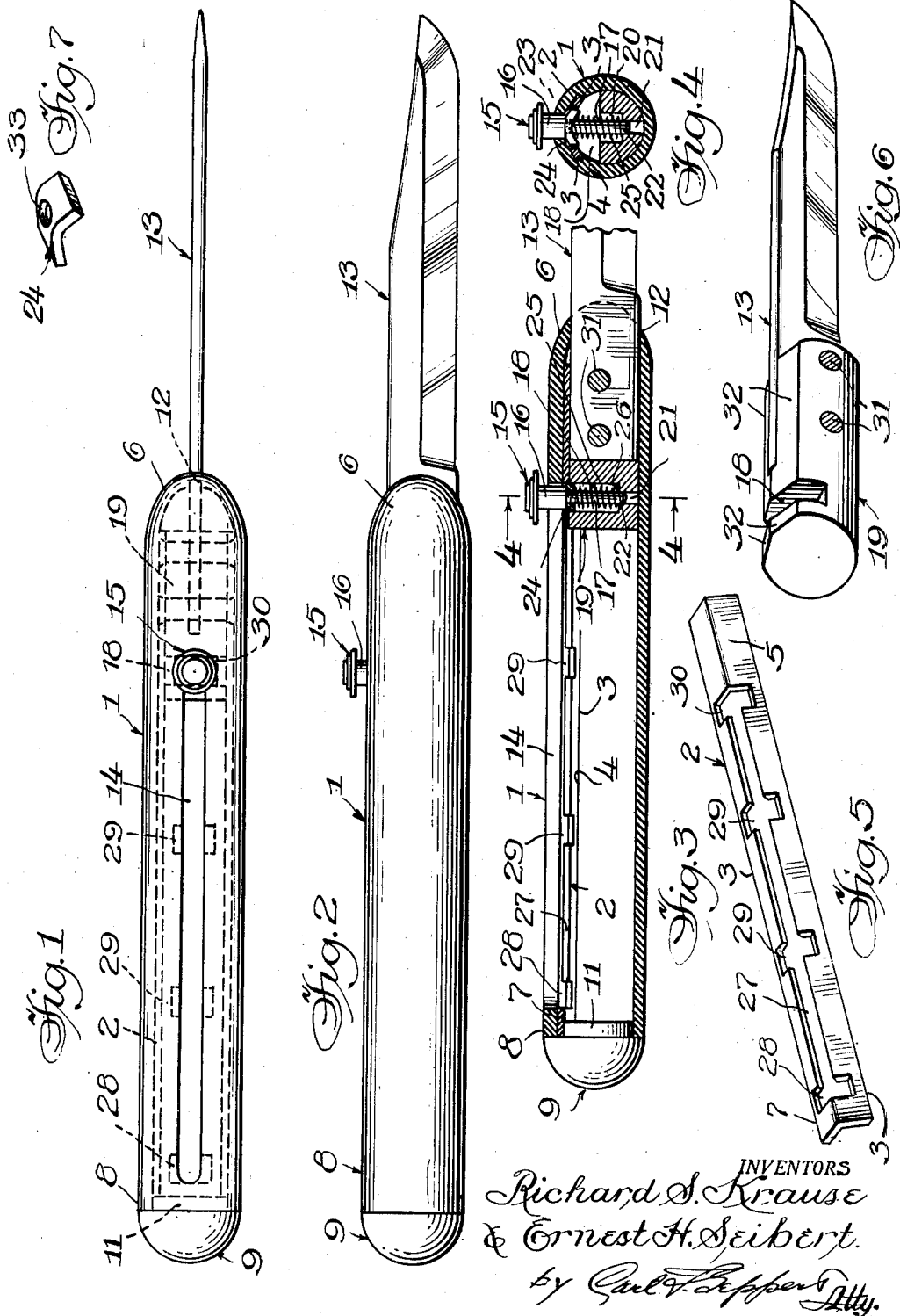
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SLIDING BLADE KNIFE

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SLIDING BLADE KNIFE

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The present invention relates to a knife construction and especially to a novel knife of the sliding blade type and in a novel means and manner of locking and retaining the blade in various positions including fully open, partially open or closed position.

Among the objects of the present invention is the provision of a novel locking mechanism for a sliding blade knife which automatically locks the sliding blade in open or closed or in an intermediate position.

The present invention further comprehends a novel knife assembly including a round or cylindrical handle preferably of a plastic composition, an inverted substantially V-shaped metal liner mounted in the handle in such manner as to prevent relative rotation therebetween, a slidable blade, and a thumb-actuated member for releasing and moving the blade to open or closed position and provided with novel spring-actuated locking means for retaining the blade in a desired locked position.

Another feature of the present invention is the provision of a novel spring-biased button or plunger which when depressed unlocks and permits the blade to be moved longitudinally into or out of the handle, and when the downward pressure on the button or plunger is released the blade automatically locks against unintentional movement when reaching a desired position, either open or closed.

The invention further resides in the construction, combination and arrangement of parts illustrated in the accompanying drawing, and while there is shown therein a preferred embodiment, it is to be understood that the same is susceptible of modification and change, and comprehends other details, arrangements of parts, features and constructions without departing from the spirit of the invention.

In the drawing:

Figure 1 is an enlarged top plan view of the present knife with the blade in fully open position.

Fig. 2 is a view in side elevation of the knife shown in Fig. 1.

Fig. 3 is a view in vertical cross-section through the handle and shank end of the blade and showing a fragment of the blade in open position.

Fig. 4 is a view in vertical cross-section taken in a plane represented by the line 4-4 of Fig. 3.

Fig. 5 is a view in perspective of the liner which is mounted within the handle of the knife.

Fig. 6 is a view in perspective of the blade for the knife.

Fig. 7 is a perspective view of the locking key.

Referring more particularly to the illustrative embodiment shown in the drawing, the novel knife comprises a hollow and substantially cylindrical handle 1 preferably formed of a suit-

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able plastic composition and in which is mounted a partial liner 2 preferably of inverted and approximately V-shape and formed of metal or the like with its longitudinal edges 3, 3 abutting complementary shoulders 4, 4 formed within the handle, and thereby preventing the liner from rotating with respect to the handle. This liner extends for the greater portion of the length of the handle and with its forward end 5 extending to adjacent the forward end 6 of the handle, and with its rear end 7 extending to adjacent the rear or open end 8 of the handle. The rear end 8 of the handle is closed by a closure or end cap 9 having a reduced end or shank 11 seating within the open end 8 of the handle and having its upper surface tapered or formed in a manner to seat beneath the under surface of the liner 2 and thereby prevented from rotating.

The forward end 6 of the handle is rounded and slotted at 12 to permit a knife blade 13 carried by the handle to be extended or retracted, and the handle is also longitudinally slotted at 14 for permitting longitudinal sliding movement of a button or plunger 15. The slot 14 is of uniform width and conformably receives a shank 16 depending from the button or plunger 15, the shank being further reduced at 17 and depending or extending through a transverse slot 18 formed in and extending across the shank 19 of the knife blade 13, through an opening 20 aligned with the slot and into an opening 21 having a diameter approximating that of the end 22 of the shank and forming a guide for vertical or longitudinal movement of this end.

The reduced portion 17 of the shank is threaded for a portion of its length at 23 and secured to a threaded lock key 24 of a contour approximating that of the liner 2 having a width conforming to the width of the transverse slot 18 in the blade shank 19 to prevent rotation of the key in this slot but permitting it to move therein with the shank of the button when the latter is depressed or released. This button or plunger is spring-biased to raised or elevated position by means of a coil spring 25 having one end seating against the underside of the lock key 24 and the other end seating upon and against the shoulder or stop 26 provided at the base of the opening 20.

The liner 2 which is preferably of metal is provided with a longitudinal slot 27 aligned with the longitudinal slot 14 in the handle, and with the slot 27 enlarged at 28, 29 and 30 to provide spaced openings for conformably receiving the lock key 24 and thereby retain the knife blade 13 in closed, partially open or fully open position. In Figs. 1, 2 and 3, the knife blade 13 shown in fully open or extended position with the key 24 spring-pressed into the enlargement 30 and thereby locking the blade in its open po-

sition. To release the knife blade and permit it to be retracted to a partially open position, the button or plunger 15 is depressed against the compressive force of the spring 25, and by moving the button to the left as viewed in Figs. 1, 2 and 3 the blade is returned to its partially open position whereupon release of downward pressure on the button allows the spring to automatically raise and lock the key 24 in the enlargement 29. To close the knife blade, depressing the button or plunger 15 releases the lock key and moving the button to the left (Figs. 1, 2 and 3) withdraws or retracts the knife blade to its closed position, whereupon releasing of the downward pressure on the button or plunger allows the lock key to enter the enlargement 23 and lock the blade in closed position. It will remain in such closed position until it is desired to open the blade, whereupon applying downward pressure to the button releases the blade and it may thereupon be moved to partially open or fully open position by moving the button to the right as viewed in Figs. 1, 2 and 3, and when reaching the desired position and downward pressure on the button is released the locking key automatically moves into either an enlargement 29 or 30, depending upon whether the blade is desired in partially open or fully open position.

The blade 13 is preferably secured to the shank 19 by spaced rivets or the like 31 and the upper surface of the shank is tapered at 32, 32 in conformity with the underside of the liner, whereby the shank and blade are prevented from rotating within the liner 2 and handle 1 but are permitted sliding or longitudinal movement.

In the assembly of the knife, the liner 2 is inserted into the open end 8 of the handle and moved inwardly to the position shown in Figs. 1 and 3, with the elongated slots 14 and 27 in alignment. The knife blade 13 and its shank 19 with the coil spring 25 and lock key 24 located in the transverse slot 18 and opening 20, are then inserted into the open end of the handle and beneath the liner with the blade foremost. The end 22 of the shank 19 of the button or plunger 15 is then inserted through the aligned slots 14 and 27 and enlargement 28, and into the threaded opening 33 in the lock key 24 and then by rotating the button or plunger the threaded portion 23 thereof is threaded into the opening 33 whereupon the button or plunger 15 and lock key 24 are secured together in the manner shown in Figs. 3 and 4. The end cap 9 is then inserted and may be retained in place by any suitable cement, adhesive or the like. Thus although the button or plunger and lock key are not connected directly to the shank 19 of the knife blade 13, due to the positioning of the lock key in the slot 18 and the reduced end 22 of the plunger in the opening 21 in the shank 19, any movement of the button or plunger longitudinally of the liner and handle carries therewith the shank 19 and knife blade 13. As the slot 14 in the handle is substantially narrower than the lock key 24, the latter and its spring 25 cannot become dislodged or lost even though the button is unscrewed and removed and the lock key seats within one of the enlargements or offsets 28, 29 or 30.

From the above description and the disclosure in the drawing, it will be apparent that the present invention comprehends a novel knife assembly and provided with a novel locking means for securely retaining a sliding blade in fixed, operative position.

Having thus disclosed the invention, we claim:

1. A sliding blade knife comprising a tubular handle closed except for a longitudinal slot and a passage at one end for a blade, an inverted substantially V-shaped liner anchored in the handle in the upper interior portion thereof with its opposite longitudinal edges each abutting a complementary shoulder in the interior of the handle to retain the liner against rotation, said liner having a slot along the apex thereof aligned with the slot in the handle and with the slot provided in the liner having spaced enlargements, a sliding blade having a shank provided with a transverse slot and an opening in the shank being disposed within and rounded to conform to the interior of the handle and having its upper surface tapered to conform to the liner, a button having a shank extending through the aligned slots and provided with a reduced end extending into the transverse slot and the opening in the blade shank, and a lock key conforming to the shape of the liner secured to the shank of the button and spring-biased to move the button to elevated position in which the lock key is seated in one of the spaced enlargements and the blade and its shank are locked against longitudinal movement, but when the button is depressed the lock key is moved out of said enlargement into the transverse slot and the blade is movable to another position in which the lock key seats in another enlargement.

2. A sliding blade knife comprising a substantially cylindrical handle having its interior provided with a longitudinally extending recess, a substantially V-shaped liner mounted in the interior of the handle and secured in the recess against displacement, a slidable blade mounted within the handle and liner and having a shank provided with a rounded part conforming to the internal shape of the handle and an angularly contoured portion conforming to the shape of the liner whereby the shank and blade are held against rotation but longitudinally slidable for opening or closing of the blade, a transverse slot provided in the shank, and means for moving the blade into open or closed position and retaining the blade locked in either position, said means including a longitudinally extending slot in the handle and an aligned slot in the liner, spaced offsets in the slot in the liner, a spring-biased plunger having a part projecting through the slots and a button projecting outside the slots for manual operation, said projecting part extending through the slots and into and movable through the transverse slot in the shank of the blade, and a lock key carried on an intermediate portion of the projecting part and conformably received and adapted to automatically seat in one of said offsets as the blade is moved longitudinally to open or closed position.

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