

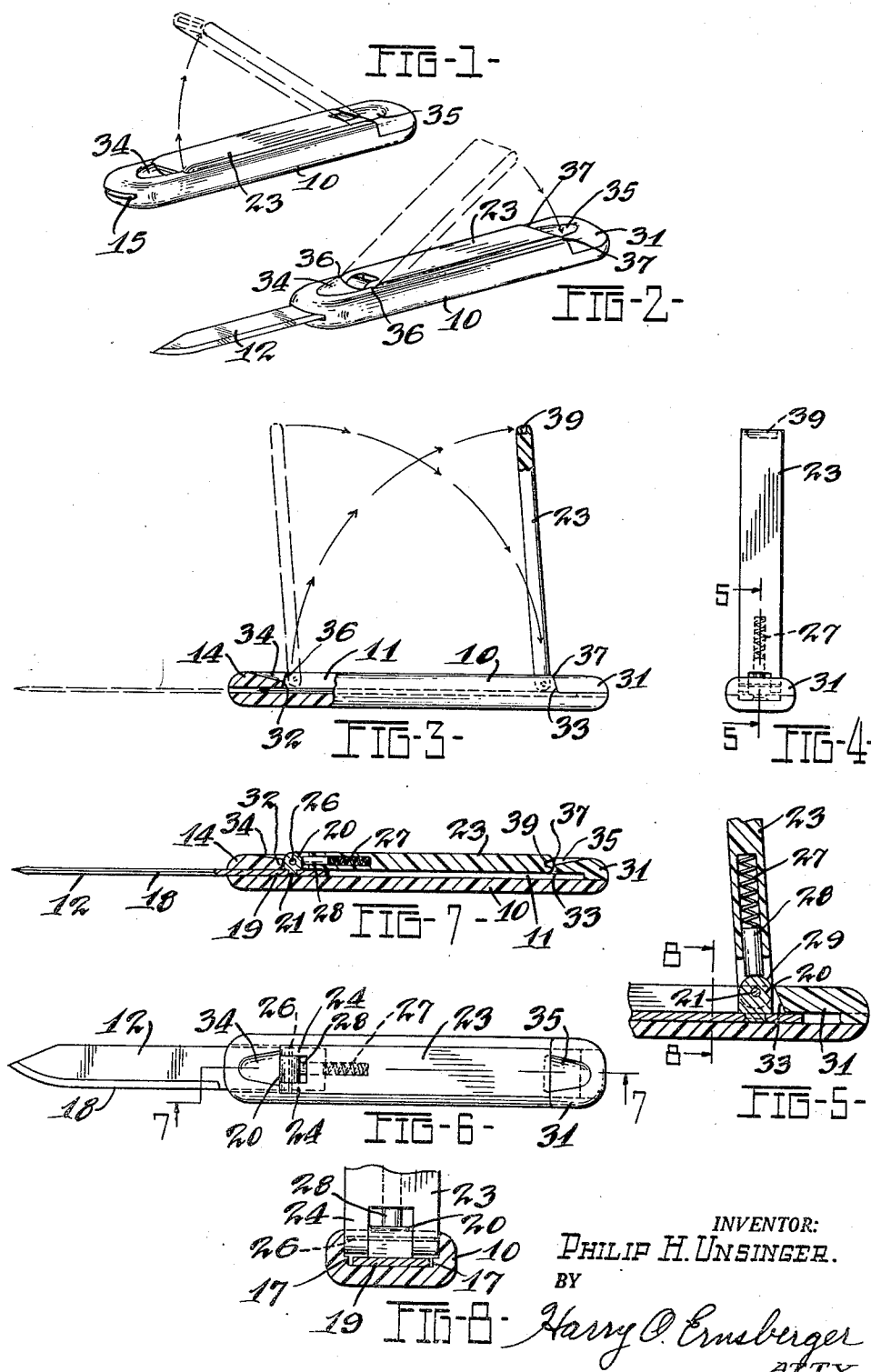
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KNIFE CONSTRUCTION HAVING A SLIDING BLADE

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4 Claims. (Cl. 30—162)

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This invention relates to knife construction and more especially to devices known as pocket knives.

The present invention embraces the provision of a knife and handle construction wherein the knife blade is movable into and out of position-of-use with respect to the handle construction.

An object of the invention resides in the provision of a knife blade and handle construction wherein the blade is slidably retractable into the handle construction.

Another object of the invention resides in the use of a retractable blade knife wherein the blade is pivotally connected to a keeper member co-operating with a handle portion for maintaining the blade in fully open or fully closed position.

Another object of the invention resides in the formation of a handle construction preferably formed of plastic resin and which is provided interiorly with guiding ledges for the slidable blade, the ledges as a supporting and positioning means for the keeper.

Another object of the invention resides in a handle construction for a slidable blade wherein the blade is held in either open or closed position by a keeper, the keeper and handle construction being formed with interengaging configurations for maintaining the keeper in a recess formed in the handle.

Another object of the invention resides in the provision of a handle construction for a slidable blade knife which is molded of plastic resin and in which an end portion is cemented or bonded to the remaining portion of the handle after assembly of the knife blade and keeper.

Still another object of the invention is the provision of a knife construction of the slidable blade type wherein a keeper member is pivotally connected to the knife blade construction and resilient means are provided for establishing a friction factor between the keeper and the knife blade construction.

Further objects and advantages are within the scope of this invention such as relate to the arrangement, operation and function of the related elements of the structure, to various details of construction and to combinations of parts, elements per se, and to economies of manufacture and numerous other features as will be apparent from a consideration of the specification and drawing of a form of the invention, which may be preferred, in which:

Figure 1 is an isometric view illustrating the knife construction of my invention with the knife blade retracted into the handle construction in an out-of-use position;

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Figure 2 is an isometric view showing the knife blade extended to a position-of-use;

Figure 3 is an elevational view of the knife and handle construction, certain portions being broken away for purposes of illustration;

Figure 4 is an end view of the construction shown in Figure 3 with the keeper member illustrated in elevated or open position;

Figure 5 is an enlarged detail sectional view taken substantially on the line 5—5 of Figure 4;

Figure 6 is a plan view of the knife construction of my invention showing the blade in extended position;

Figure 7 is a longitudinal sectional view taken substantially on the line 7—7 of Figure 6;

Figure 8 is a fragmentary detail sectional view taken substantially on the line 8—8 of Figure 5.

While I have shown a preferred form of the invention as embodied in a pocket knife construction, it is to be understood that I contemplate the arrangement of my invention for other forms of knives and cutting instrumentalities.

Referring to the drawings in detail, the knife construction is inclusive of a handle member 10 which is preferably formed of molded plastic resin but may, if desired, be manufactured of other materials. I have found that a plastic resin known as cellulose acetate butyrate may be used for the handle construction although any suitable thermosetting or thermosettable resin may be employed. The handle 10 is provided with a longitudinally extending recess 11 adapted to accommodate a knife blade 12 which is mounted for slidable movement in the recess. One end portion of the handle 10 is provided with an enlarged or bridge portion 14 which with the body portion 10 provides a slot 15 through which the knife blade 12 may be projected to open position. As will be seen in figure 8 each interior wall of the handle 10 adjacent the blade 12 is formed with a ledge portion 17, one purpose of which is to form longitudinal guiding means for the slidable knife blade 12.

The knife blade 12 is of a flat type having a cutting edge 18 and shank portion 19, the latter being provided with an upwardly or laterally extending member or projection 20. As illustrated the projection 20 has a tenon portion 21 which is swaged to secure the same to the shank of the knife blade although the projection may be welded to the blade if desired. A keeper member or bar 23 also formed or molded of plastic resin or the like is provided, one end being provided with furcations 24 which straddle the projection 20 carried by the shank portion of the knife blade. The furcations and projection

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20 are formed with aligned openings to receive a pivot pin 26 whereby the keeper 23 is pivotally connected to the knife blade. The keeper 23 is formed with a longitudinal bore in which is retained an expansive coil spring 27 and a plunger or pin 28, the latter, under the influence of the spring, being urged into frictional engagement with the arcuate upper surface 29 of projection 20. The plunger 28 engaging the projection 20 provides a frictional force so that the keeper will be frictionally retained in any relative position with respect to the blade 12.

The opposite end of the handle 10 is adapted to receive a portion 31 which functions as a closure for the recess 11 formed in the handle and maintains the blade and keeper in assembled relation with the handle. The member 31 may be cemented or bonded to the handle portion 10 after assembly of the knife blade and keeper construction. The portion 14 of the handle 10 and the member 31 are of similar configuration in those portions engageable with the keeper or bar 23. As particularly shown in Figures 3, 5 and 7, the portion 14 and member 31 are formed with canted surfaces 32 and 33. The portion 14 and member 31 are also provided with shallow recesses 34 and 35 to accommodate the fingernail of the knife user for manipulating the keeper bar 23. The canted surfaces 32 and 33 at their point of intersection with the upper surfaces of the handle 10 form keeper retaining edges 36 and 37. The outer end of the keeper is provided with a transverse recess or kerf 39 to accommodate the fingernail of the knife user so that the keeper may be swung upwardly as shown in broken lines in Figures 1 and 2. This is accomplished by the user inserting a fingernail in one of the recesses 34 or 35 depending upon the particular closed position of the keeper 23 and by upward force of the fingernail the keeper 23 will be forced past the locking edges 36 or 37.

In assembling the knife construction, the blade 12 is inserted in the open recess 11 prior to assembly of member 31 with the handle 10. After the knife blade 12 has been inserted in the recess 11 and the keeper 23 moved to the position shown in Figure 7, the member 31 may then be assembled in position with the end thereof in position for engagement with the end of the keeper 23 and cemented or bonded to the handle 10. The bonding may be accomplished by heat or by a coating of cementitious material.

In the use of the knife, assuming that the blade is in an out-of-use position as shown in Figure 1, the user desiring to open the knife places a fingernail in recess 34 in the handle 10, the fingernail projecting into recess 39 of the keeper bar 23. The user then exerts an upward force to disengage the end of the keeper from the canted surface 32 and locking edges 36 swinging the keeper to the position shown in full lines in Figure 3. With the keeper in a vertical or elevated position the user moves the keeper body in a lefthand direction as viewed in Figure 3 so that the keeper occupies the position shown in dotted lines in Figure 3. The keeper is then pivoted about the pin 26 into the recess 11 in the handle to the position shown in Figure 7. As shown in this figure the blade 12 is in fully extended position and is held therein by reason of the keeper 23 engaging the canted surface 33 of member 31. By this means the knife blade is securely held in open position by interlocking engagement of the end of the keeper 23 with member 31. When it is desired to close the knife

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or move the blade to an out-of-use or retracted position, the user places a fingernail in recess 35 in member 31 with the end of the nail projecting into the transverse kerf or groove 39 in the keeper. The user exerts an upward force upon the keeper and the reverse movements of the keeper and blade are effected to slide the blade into the recess 11 in the handle 10. After the blade is moved to completely closed position the keeper 23 is swung into the recess 11 to occupy in the knife handle as shown in Figure 1. The keeper in this position is latched in closed position by the edges 36 so as to prevent inadvertent movement of the knife blade toward open position.

It is apparent that, within the scope of the invention, modifications and different arrangements may be made other than is herein disclosed, and the present disclosure is illustrative merely, the invention comprehending all variations thereof.

What I claim is:

1. A knife construction comprising a molded plastic handle, said handle having a slot therein opening at one end of said handle, a knife blade disposed in said slot and slideable therein, said handle having a recess in a side meeting and opening into said slot and wider than said slot so as to form shoulders with said slot, a keeper pivotally connected to said knife blade at the shank end and adapted to be bottomed against said shoulders and fitting into said recess when the blade is in open or closed position, said keeper having its free end beveled, and inwardly canted surfaces at the ends of said recess for engagement with the beveled end of said keeper to lock said keeper when the blade is in the open or closed position.

2. A knife construction comprising a molded plastic handle, said handle having a slot therein opening at one end of said handle, a knife blade disposed in said slot and slideable therein, said handle having a recess in a side meeting and opening into said slot and wider than said slot so as to form shoulders with said slot, a keeper, a pivot connecting said keeper to said knife blade at the shank end of said blade, said keeper adapted to be bottomed against said shoulders and fitting into said recess when the blade is in open or closed position, said keeper having its free end beveled, inwardly canted surfaces at the ends of said recess for engagement with the beveled end of said keeper to lock said keeper when the blade is in the open or closed position, and resiliently biased means carried by said keeper and acting against said pivot for setting up a component of friction between said keeper and said projection.

3. A knife construction composing a molded plastic handle formed from two pieces of molded plastic fused together, said handle having a slot therein opening at one end of said handle, a knife blade disposed in said slot and slideable therein, said handle having a recess in a side meeting and opening into said slot and wider than said slot so as to form shoulders with said slot, a keeper pivotally connected to said knife blade at the shank end and adapted to be bottomed against said shoulders and fitting into said recess when the blade is in open or closed position, said keeper having its free end beveled, and inwardly canted surfaces at the ends of said recess for engagement with the beveled end of said keeper to lock said keeper when the blade is in the open or closed position.

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4. A knife construction comprising a molded plastic handle, said handle having a slot therein opening at one end of said handle, a knife blade disposed in said slot and slideable therein, said handle having a recess in a side meeting and opening into said slot and wider than said slot so as to form shoulders with said slot, a keeper pivotally connected to said knife blade at the shank end and adapted to be bottomed against said shoulders and fitting into said recess when the blade is in open or closed position, said keeper having its free end beveled, inwardly canted surfaces at the ends of said recess for engagement with the beveled end of said keeper to lock said keeper when the blade is in the open or closed position, said keeper having its free end recessed, and fingernail grooves in said handle at either end of said handle recess to allow for disengaging the keeper from the locked position.

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