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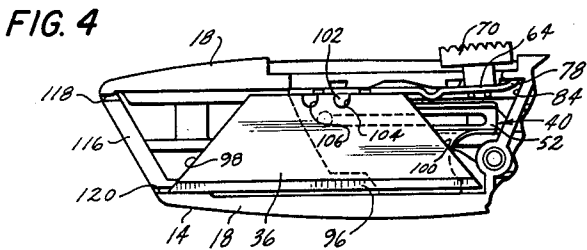
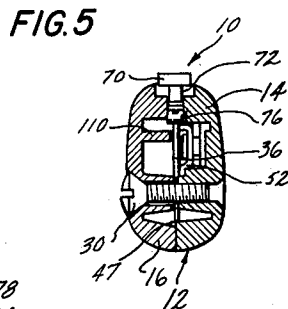
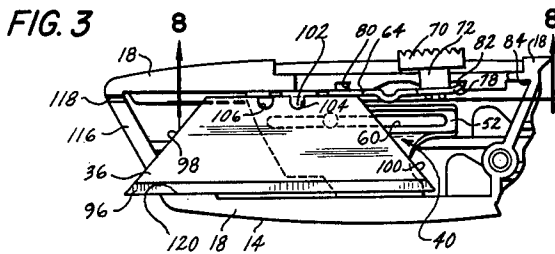
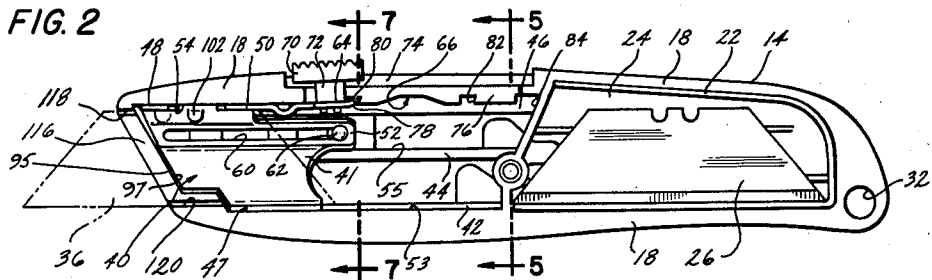
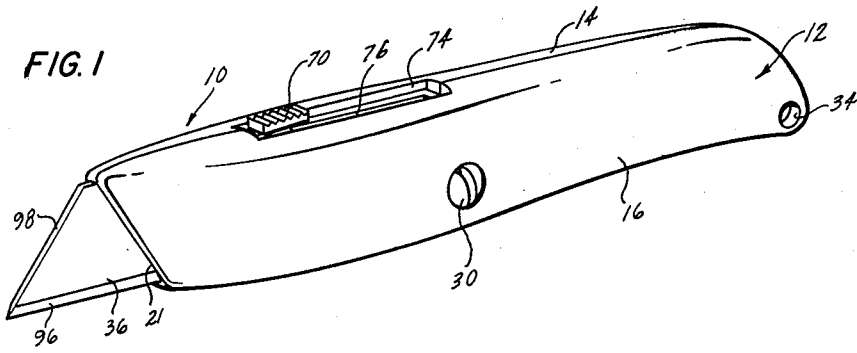
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3,107,426

UTILITY KNIFE

Filed March 22, 1961

2 Sheets-Sheet 1



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FIG. 6

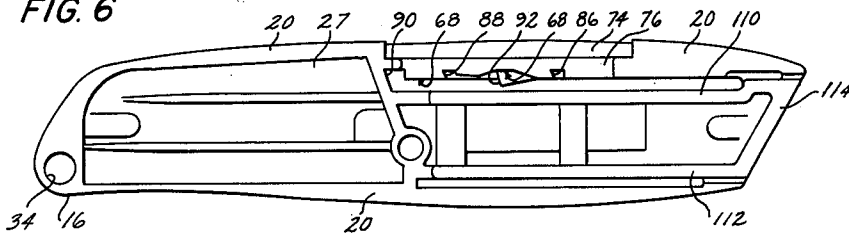


FIG. 7

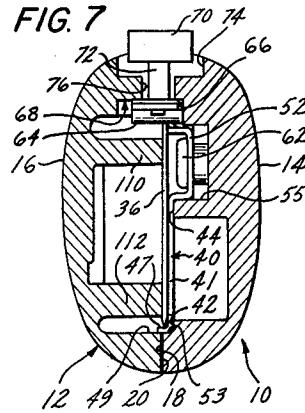
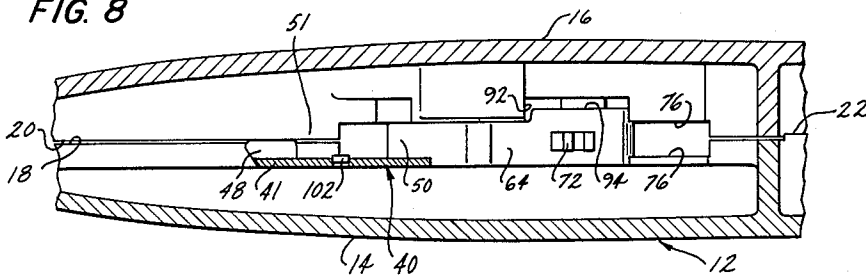


FIG. 8



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3,107,426
UTILITY KNIFE

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6 Claims. (Cl. 30-162)

This invention relates to knives and more particularly to a utility knife in which the knife blade can be slideably moved between a safety position within the knife handle and an extended cutting position.

It is an object of this invention to provide an improved utility knife of the type described in which the knife blade can be readily installed and is thereafter rigidly supported in any adjusted position, and which incorporates an improved blade adjustment means that is easily operated for extending, retracting and locking the knife blade in a selected position.

It is another object of this invention to provide a utility knife of the type described which can be simply and economically constructed, which has a minimum number of parts and which can be easily assembled and operated with safety and reliability.

It is a further object of this invention to provide a utility knife of the type described having a blade that can be economically manufactured and easily sharpened and which can be conveniently mounted within the knife handle for slideably extending either end of the blade from the handle.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the feature of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application which will be indicated in the appended claims.

In the drawings:

FIG. 1 is a perspective view of an embodiment of the utility knife of this invention;

FIG. 2 is a side elevation view of the utility knife of FIG. 1 with half of the knife handle removed and the knife blade shown in phantom in the fully extended position;

FIG. 3 is a portion of the view of FIG. 2 with the blade shown in bold lines in a partially extended position;

FIG. 4 is a portion of the view of FIG. 2 with the blade shown in bold lines in a retracted or safety position;

FIG. 5 is a transverse cross section view taken substantially along the line 5-5 of FIG. 2;

FIG. 6 is a side elevation view of the half of the knife handle removed in FIG. 2;

FIG. 7 is an enlarged transverse cross section view taken substantially along the line 7-7 of FIG. 2; and

FIG. 8 is an enlarged fragmentary section view taken substantially along the line 8-8 of FIG. 3 with the knife blade removed.

Referring to the drawings more in detail, the utility knife of this invention, generally denoted by the numeral 10, has an elongated handle 12 composed of two handle members or halves 14, 16 that have contiguous peripheral faces 18 and 20 lying in a plane extending rearwardly from a blade-receiving slot opening 21. The handle half 14, as shown in FIG. 2, additionally has an outwardly extending flange or ridge 22 that surrounds a recess 24 adapted for storing extra blades 26, and which extends within a similar storage recess 27 in the other handle half 16 (FIG. 6) to prevent relative movement of the handle member when they are assembled and secured by a retaining screw 30. To provide a means for holding the utility knife when it is not in use, the hous-

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ing halves 14, 16 are provided with aligned apertures 32, 34 that can be used to retain the knife upon a hook or the like or for receiving a ring or similar type fastening means.

Referring to FIGS. 2 and 7, the knife blade 36 is supported for reciprocable movement within the handle 12 by a blade carrier 40 having a base portion 41 slideably mounted upon elongated ridges or lands 42, 44 and 46 that are preferably integrally cast with the handle half 14. Additionally, the carrier 40 has integral flanges 47, 48 and 50 extending substantially perpendicular from the base and which are adapted to slidably engage parallel shoulders 53 and 54 formed between the peripheral face 18 and the lands 42 and 46, respectively. These flanges 47, 48 and 50, as seen in FIGS. 7 and 8, also extend within the handle member 16 for sliding engagement with similar parallel shoulders 49, 51 formed thereon adjacent the peripheral face 20. To retain the carrier 40 within the handle member 14, and to additionally assist in controlling the sliding movement of the carrier 40 within the handle, the carrier is provided with an elongated upset outwardly extending portion 52 that is adapted to slidably engage the shoulder 55 formed by the elongated land 44. The upset portion 52 additionally has an elongated slot 60 receiving a pin 62 that is fixed to the handle member 14 and which has an enlarged head to retain the carrier upon the handle member 14.

Extending rearwardly from and forming an integral extension of the carrier flange 50 is an elongated locking tongue 64 that is adapted for flexible movement relative to the flange 50 and which is formed to cause it to resiliently bias or engage the locking cam surfaces or edges 66, 68 on the housing members 14 and 16, respectively. To move the locking tongue 64 away from the cam surfaces 66, 68 and against the resilient bias of the tongue 64, there is provided a button or operating member 70 with a shank 72 both of which are slideably movable within the recesses 74 and 76, respectively, in each handle member 14, 16 and which are fixed to the resilient locking tongue 64 by upsetting the end of the shank 72.

To adjustably lock the knife blade 36 against rearward movement from the fully extended position shown in phantom in FIG. 2, from the partially extended position shown in FIG. 3, and from a safety or retracted position shown in FIG. 4, the locking tongue 64 is provided with an upwardly and outwardly extending end 78 that is engageable with rearwardly tapered surfaces 80, 82 and 84 on the handle member 14 and similar tapered surfaces 86, 88 and 90 on the handle member 16 which form portions of the cam edges 66, 68, respectively. By depressing the button 70, the end 78 of the locking tongue 64 is moved out of engagement with the cam edges 66, 68 and the carrier 40 and its blade 36 can be adjusted by sliding the button 70 within the recess 74 to a desired position. Releasing the button 70 allows re-engagement of the locking tongue end 78 with the cam edges 66, 68.

When the blade is in the intermediate or partially extended position shown in FIG. 3, the carrier 40 and its blade are prevented from being inadvertently moved forwardly or outwardly by an abutment edge 92 on the handle member 16, as the abutment edge 92 is adapted to engage an enlarged portion 94 on the locking tongue 64 when the carrier and blade are in the partially retracted position; however, when the button is depressed, the engagement between the enlarged portion 94 and the edge 92 is released, and the carrier may be slideably positioned as previously described. When in the fully extended position, the carrier is prevented from moving outwardly by an engagement between the forward edge 95 (FIG. 2) of the carrier and a shoulder 97 on the handle member 14.

The blade 36 is shown to be substantially flat with a

lower cutting edge 96 and inwardly tapered ends 98 and 100. The blade 36 is retained upon the carrier 40 by an upset portion or tang 102 on the carrier cooperating with a cutout portion 104 on the blade 36, and by the snug engagement of the upper and lower parallel edges of the blade 36 with the carrier flanges 47, 48 and 50. As the handle members 14, 16 are easily separated, the blade 36 is readily accessible and can be easily removed and replaced by merely lifting it from the carrier. Additionally, the blade 36 is constructed so that it can be conveniently reversed for using the other end of the cutting edge 96, whereupon a second cutout portion 106 is adapted to be engaged by the carrier upset portion or tang 102. Of course, a greater number of blade cutout portions could be provided for increasing the number of positions the blade could be installed upon the carrier, or only a single cutout portion could be used for cooperating with the tang 102 when the blade is in either of its reversed positions.

In order to securely retain the blade 36 and the carrier 40 within the handle, two elongated lands 110 and 112 terminating in a connecting web 114 are provided on the handle member 16, and a similar web 116 is provided on the handle member 14, all of which are adapted to engage the blade surface and thereby laterally support the blade and carrier within the handle 12. Additionally, parallel shoulders 118 and 120 formed on the handle member 14 between the peripheral face 18 and the web 116 are adapted to slidably engage the parallel edges of the blade when it is extended for providing supporting bearing surfaces therefor.

It can be seen, therefore, that the utility knife of this invention has a simple construction which can be economically manufactured using well-known mass production manufacturing processes including casting and stamping and which can be easily assembled and readily adjusted for safely and reliably positioning the blade to a selected position.

As will be apparent to persons skilled in the art, various modifications and adaptations of the structure above described will become readily apparent without departure from the spirit and scope of the invention, the scope of which is defined in the appended claims.

I claim:

1. A knife comprising; an elongated handle having a blade-receiving slot opening at one end thereof, said handle having two elongated members detachably secured and separable along a longitudinal plane extending rearwardly from the slot opening, a carrier reciprocally mounted on one of said elongated members for movement toward and away from said slot opening, said carrier having a base portion extending substantially in a plane parallel to said longitudinal plane and opposed side flanges extending in parallel directions from the base on one side thereof, the one elongated member having opposed elongated parallel extending shoulder slidably engaging said carrier flanges for supporting the carrier for reciprocable movement on the said one elongated member, a blade supported on said carrier base and having parallel edges engaging the said flanges, said opposed parallel flanges being configured to allow assembly of the blade on the carrier laterally of the direction of movement thereof when the two elongated members are separated, means detachably retaining the blade upon the carrier, said carrier having integrally therewith a rearwardly extending elongated tongue adapted for flexible resilient movement in said longitudinal plane, a locking cam surface on the handle defining a plurality of locking abutments that are selectively engageable by the flexible tongue for adjustably retaining the carrier and blade in a selected position, a button fixed to said tongue and adapted for manual engagement for flexibly moving the tongue out of engagement with the cam surface and for slidably reciprocating the carrier within the handle.

2. A knife comprising; an elongated handle having a

blade-receiving slot opening at one end thereof, said handle having two elongated members detachably secured and separable along a longitudinal plane extending rearwardly of the slot opening, a carrier reciprocally mounted on one of said elongated members for movement toward and away from said slot opening, said carrier having a base portion and opposed side flanges extending in parallel directions from the base on one side thereof, the one elongated member having opposed elongated parallel extending shoulders slidably engaging said carrier flanges for supporting the carrier for reciprocable movement on the said one elongated member, said carrier further having an upset portion extending outwardly from the base on the opposite side from the flanges, a carrier retaining element fixed to said one elongated member, an elongated slot in said upset portion slidably receiving said retaining element, said retaining element having an enlarged head engaging the upset portion for retaining the carrier upon the one elongated member, a blade supported on said carrier base and having parallel edges engaging the said flanges, means detachably retaining the blade upon the carrier, said carrier having rearwardly extending therefrom an integral elongated tongue adapted for flexible movement in the said longitudinal plane, a locking cam surface on the handle defining a plurality of locking abutments that are selectively engageable by the flexible tongue for adjustably retaining the carrier and blade in a selected position, an operating member fixed to said tongue and adapted for manual engagement for flexibly moving the tongue out of engagement with the cam surface and for reciprocating the carrier within the handle.

3. A knife comprising; an elongated handle having a blade receiving slot opening at one end thereof, said handle comprising two elongated members detachably secured and separable along a longitudinal plane extending rearwardly from the said slot opening, a carrier reciprocally mounted on one of said elongated members for movement toward and away from said slot opening, said carrier having a base portion and two opposed parallel flanges extending substantially perpendicular from the base on one side thereof, the one elongated member having opposed elongated parallel shoulders slidably engaging said carrier flanges for supporting the carrier for reciprocable movement on the said one elongated member, said carrier further having an upset portion extending from the base on the opposite side from the flanges, a carrier retaining element fixed to said one elongated member and an elongated slot in said upset portion slidably receiving the retaining element, said retaining element having an enlarged head engaging the upset portion for retaining the carrier upon the one elongated member, a substantially flat blade supported on said carrier base and having parallel edges engaging the said flanges, said blade having a cutout portion, said carrier having a tang engaging said cutout portion for retaining the blade upon the carrier, and manually adjustable means for selectively moving and locking the carrier.

4. A knife comprising; an elongated handle having a slot opening at one end thereof, said handle comprising two elongated handle members separable along an elongated plane extending rearwardly of the slot opening, a screw detachably securing said handle members, one of said handle members having a plurality of elongated lands and a pair of parallel opposed elongated shoulders extending rearwardly of said opening, a carrier having a base portion slideably mounted upon said lands and having two opposed parallel flanges extending from one side thereof and slideably engaging the said opposed shoulders, said base portion having an elongated slot, a carrier retaining element fixed to the one handle member and slidably received within the elongated slot, said retaining element having an enlarged end engaging said base portion for retaining the carrier upon said one handle member, said carrier having an upset tang, a substantially flat blade supported on said base portion and hav-

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ing parallel edges engaging the carrier flanges for support thereby, said blade having a cutout portion receiving the upset tang for retaining the blade upon the carrier, said carrier having a rearwardly extending integral tongue having resiliency in the said elongated plane, a locking cam surface on the handle defining a plurality of locking abutments, said tongue having an upwardly turned end resiliently biased into engagement with the cam surface for locking the carrier against movement within the handle, a button fixed to said tongue and adapted for manual actuation for releasing the engagement of the tongue with the cam surface and for moving the carrier within the handle, the other handle member having an abutment adapted for engagement by an enlarged portion on the tongue when the tongue is in engagement with one of said locking abutments for preventing inadvertent movement of the carrier toward the said opening, and an elongated land on said other handle member engaging the surface of the blade opposite the said carrier base portion for laterally retaining the blade on the carrier.

5. A blade holder comprising an elongated handle having a blade-receiving slot opening at one end thereof, said handle having two elongated members detachably secured and separable along a longitudinal plane extending rearwardly of the slot opening, a blade carrier reciprocally mounted on one of said elongated members for movement toward and away from said slot opening, said carrier having a base extending substantially in a plane parallel to said longitudinal plane, said carrier further having an integral longitudinal flange extending substantially perpendicular to the base for engaging the edge of a blade to be mounted on the carrier, said integral flange further providing a resilient elongated portion extending rearwardly to provide a free end forming a resilient catch movable in said longitudinal plane, a locking cam surface on the handle for engaging the catch provided by

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the elongated portion of the flange, said catch being inherently biased into engagement with the cam surface by the resiliency thereof, and an operating member fixed to said elongated portion and adapted for moving the catch out of engagement with the locking cam surface and for moving the carrier within the handle.

6. A knife comprising an elongated handle having a blade-receiving slot opening at one end thereof, said handle having two elongated members detachably secured and separable along a longitudinal plane extending rearwardly of the slot opening, a carrier reciprocally mounted on one of said elongated members for movement toward and away from said slot opening, said carrier having a base extending substantially in a plane parallel to said longitudinal plane, said carrier further having opposed longitudinal side flanges extending in parallel directions from the base on one side thereof, the elongated handle having opposed elongated parallel extending shoulders slidably engaging said carrier flanges for supporting the carrier for reciprocable movement within said handle, a blade supported on said carrier base having parallel edges engaging the carrier flanges, said carrier flanges being configured to allow removal of the blade from the carrier laterally of the direction of movement thereof when the two elongated members are separated, and a manually adjustable operating member adapted for moving the carrier within the handle.

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