

Feb. 24, 1959

M. D. BENEDICT, JR., ET AL

2,874,462

OFFICE KNIFE

Filed Nov. 23, 1955

2 Sheets-Sheet 1

Fig. 1

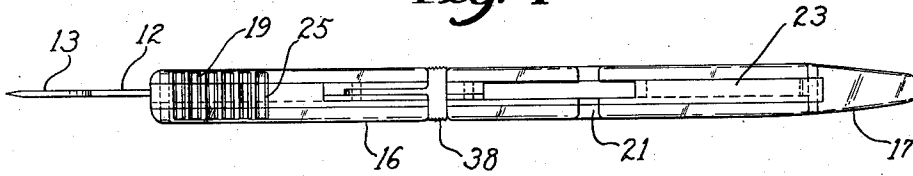


Fig. 2

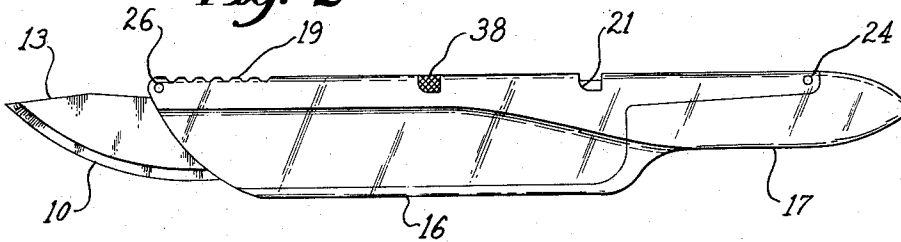


Fig. 3

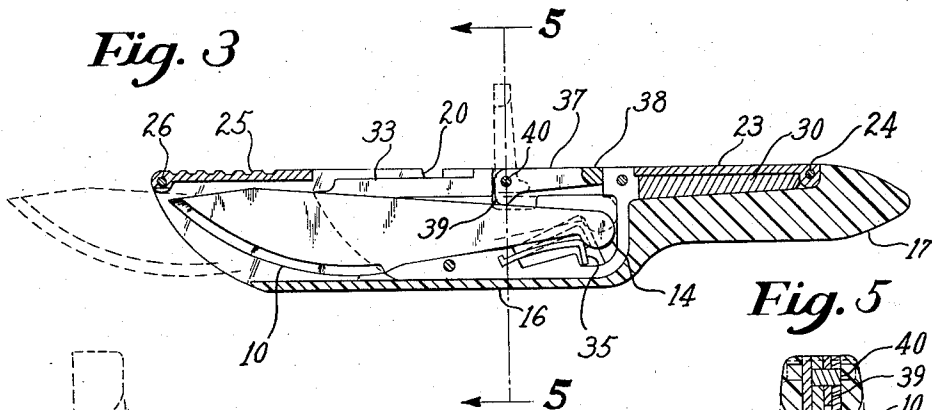


Fig. 5

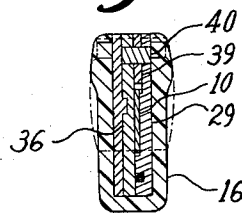
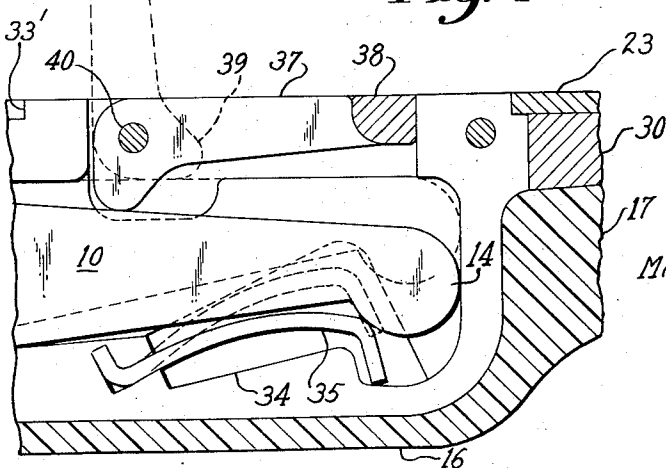


Fig. 4



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11/10/59

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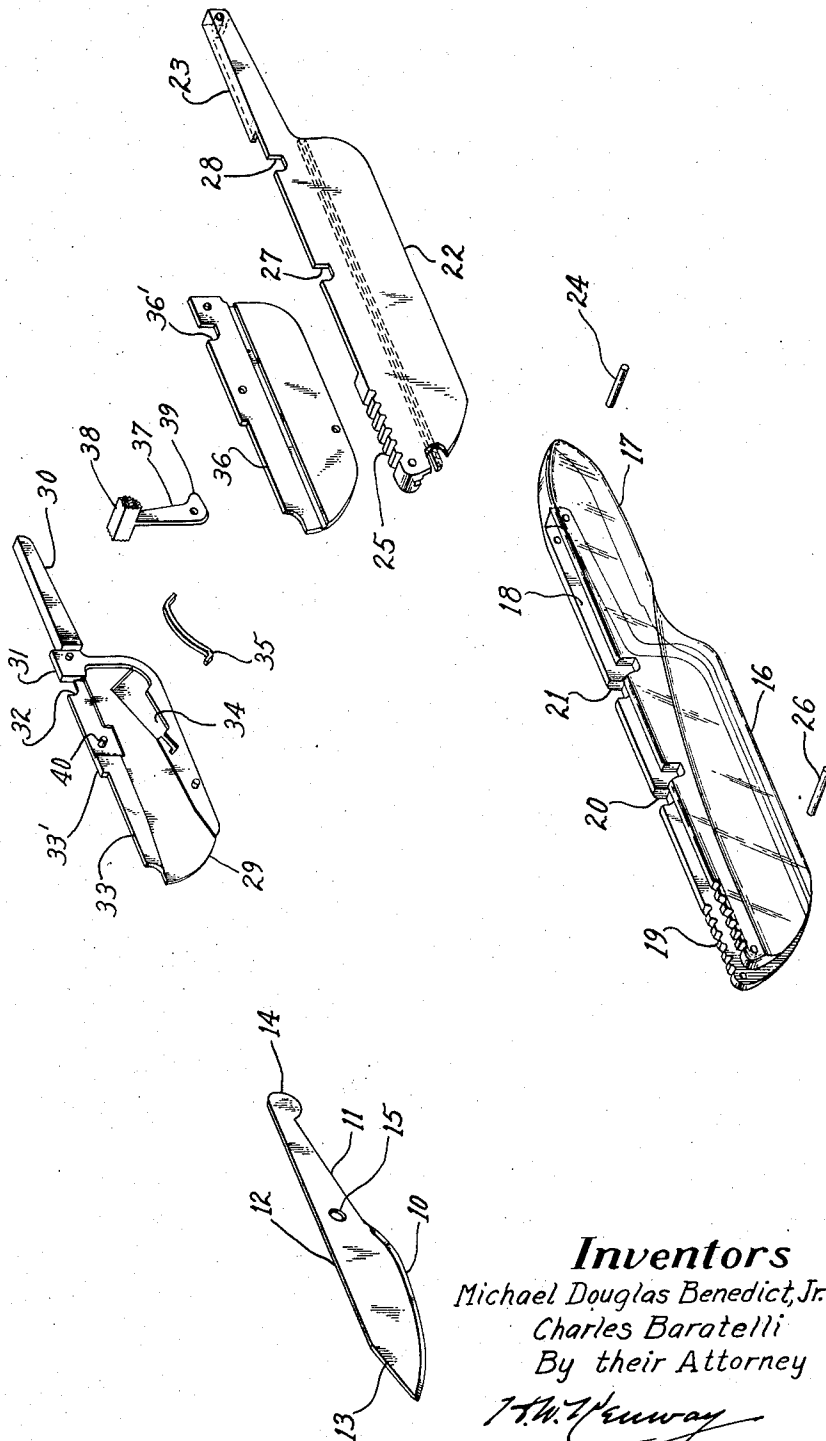
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Fig. 6



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OFFICE KNIFE

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5 Claims. (Cl. 30—162)

This invention comprises a new and improved knife having a detachable and replaceable blade and being of general utility though specially convenient for desk or office use.

Desirable characteristics which are found in the knife of the present invention are the capacity of ready removal and replacement of the blade so that a fresh sharp blade may be conveniently substituted for a worn and dull blade at any time and without danger of cutting to the user, security of the blade when in operative position, the capacity for controlled movement of the blade from an extended or protruded position to sheathed position within the handle, convenience in locking the blade in either of its positions, and complete enclosure and guarding of the blade when retracted and sheathed in the handle.

Our improved knife has also the advantages that it includes no loose parts in its organization and that it may be manufactured at moderate expense, its parts being simple to produce by processes of interchangeable manufacture.

These advantages and others are achieved by novel mechanical features which will be discussed in more detail but include a stationary or fixed metallic lining or holder for the handle in which is received a sliding carrier for the blade and which contains elements for clamping and unclamping the blade, the latter being movable not only with the carrier but also relatively to and within the carrier to and from its clamped position.

Another novel feature resides in a cam lever pivotally mounted on the carrier and organized to perform three distinct functions. It acts in an erect position as convenient means for moving the carrier to locate the blade in operative or in sheathed position. It acts as means for locking the carrier to the handle in either of those positions, and it also acts to move the blade within the carrier into its clamped position, and the clamping function may be effected in either position of the carrier. Thus the blade may be clamped in either operative or sheathed position and the carrier itself may be locked in the handle in either of those positions.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawings in which:

Fig. 1 is a plan view of the knife on a somewhat enlarged scale.

Fig. 2 is a corresponding view in elevation.

Fig. 3 is a view in longitudinal section.

Fig. 4 is a fragmentary view in longitudinal section on a further enlarged scale.

Fig. 5 is a cross sectional view on the line 5—5 of Fig. 3, and

Fig. 6 is a view in perspective showing the parts of the knife in exploded relation.

The blade 10 used in this embodiment of the invention, as best shown in Fig. 6, has a curved sharpened

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portion merging into a tapering shank 11 and a straight back edge 12. The sharpened portion of the blade is defined in part by a short inclined upper edge 13 giving the blade a sharp point. The shank 11 terminates in a rounded enlarged head 14 and for manufacturing purposes the blade is usually provided with a perforation 15 located a short distance behind its sharpened portion.

The handle of the knife as herein shown comprises a body portion 16 which when the blade is retracted serves as a sheath for it. The handle is forked and open at its forward end and merges rearwardly into a solid shank 17 having a channel 18 in its upper edge. The forks of the handle are provided with transverse corrugations 19 at the forward end for gripping security and with forward and rearward notches 20 and 21 spaced apart in their upper edges. In the preferred embodiment of the invention the handle is molded from resinous plastic although, if preferred, it may be formed of light-weight material such as a die casting.

The body of the handle is shaped to receive and enclose a fixed metal lining or stationary holder 22 having a rearwardly extending shank portion 23 right angular in cross section and shaped to fit securely within the channel 18 of the handle. The extreme end of the shank 23 is perforated to receive a pin 24 by which the rear end of the holder is fixed and secured in place within the shank of the handle.

The holder is also provided with a forward extension 25 transversely corrugated in its upper surfaces to match the corrugations 19 of the handle, shaped to fit between the forks of the handle and secured in place by a transverse pin 26. The forward end of the holder is right angular in cross section and is also provided in its upper edge with notches 27 and 28 which register with the notches 20 and 21 of the handle. The holder is permanently secured in the handle in stationary position by the pins 24 and 26. It is constructed of metal and adapted to hold and guide a movable blade carrier which is also constructed of metal and is now to be described.

The carrier comprises the hollow body portion 29 having a rearwardly-extending shank 30 which is square in cross section and designed to make sliding fit with the right angular shank portion 23 of the holder. A part of the carrier is fashioned as rectangular abutment 31 which projects above the surface of the shank 30 and acts as a stop to limit the rearward motion of the carrier in the holder by engaging the stationary forward end of the rear cover part of the shank 23. In advance of the abutment 31, the body of the carrier is provided with a notch 32 so located as to register with the rearmost notch 28 of the holder and the rearmost notches 21 of the handle when the abutment 31 arrests the carrier in its rearmost position.

The carrier is also provided at its forward end with a straight bar or flange 33, and this is designed to make a sliding fit within the corrugated end portion of the holder which, like the shank portion 23, is right angular in cross section. It will be seen, therefore, that the carrier is provided with elongated guiding surfaces at both of its front and rear ends. The flange or bar 33 is provided with an abutment 33', corresponding to the abutment 32 and serves to engage the forward right angular portion 25 of the holder to limit the forward or outward movement of the carrier. In this position the notch 32 is located in registration with the forward notch 27 of the holder and the forward notches 20 of the handle.

The lower portion of the carrier has a fixed lower wall provided with a notched seat 34 to receive a spring 35 of flat steel strip bent to provide a socket or abutment for the rounded head 14 of the blade. The spring is biased upwardly so that the rear end of the blade is always urged upwardly in the hollow body of the car-

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rier. The open side of the carrier is closed by a cover plate 36 which exactly fits the body of the carrier and has a notch 36' at a point in its upper edge opposite the notch 32 above described. The came lever 37 has a cam projection 39 in its lower end and a transverse bar 38 for a handle. The lever is pivotally mounted upon a pin 40 extending between the body portion 29 and the cover plate 36 of the carrier. The length of this lever is such that, when swung into horizontal position, its cross bar 38 fits into the notch 32 of the carrier and the corresponding notch 36' of its cover plate.

The blade 10 may be inserted in the carrier by moving it endwise into its open end until arrested by engagement of its rounded head 14 with the inner wall of the carrier or with the socket formed by the spring 35, and in this movement of insertion the spring 35 tends to maintain the upper straight edge 12 of the blade in contact with the internally overhanging portions of the carrier 29. When the cam lever 37 is swung into its horizontal position, as shown in full lines in Figs. 3 and 4, its cam projection 39 depresses the rear end of the blade against the lifting action of spring 35, moving it downwardly in the carrier and causing it to be positively locked in the carrier. This, of course, can occur in only two positions of the carrier, viz those in which the cross bar 38 is registered with one of the notches 27 or 28 of the holder and one of the corresponding notches 20 or 21 of the handle. In Fig. 3, the cross bar 38 is shown as registered in the rear notches 21, 28 and the blade is positively locked in its inner completely sheathed position.

When it is desired to move the blade into its operative or protruded position, the cam lever 37 is swung into upright position, and in leaving the notches 21, 28 it frees the carrier with the blade for forward movement into the position shown in Figs. 1 and 2. In this position the cam lever is so located as to register with the forward notches 20, 27 when swung into horizontal position, thereby locking the blade securely in its exposed and operative position. When the lever is swung into its upright position, the carrier is free for longitudinal movement and the blade is unclamped so that it may be removed. The upright lever 37 serves as a convenient handle for moving the carrier between its two extreme positions. The blade can be removed only when the carrier is in its forward position because it is only there accessible and in its insertion and removal it is lightly retarded by action of the spring 35.

Having thus disclosed our invention and described in detail an illustrative embodiment thereof, we claim as new and desire to secure by Letters Patent:

1. A knife comprising a handle forming a sheath, a blade carrier having an angular spring seated therein, a blade carrier holder disposed within said handle including means for slidably supporting said carrier for movement between a blade retracted and a blade projected position, an operating lever pivotally mounted on said carrier for movements therewith, said lever including a cam projection, and a blade seated within said carrier having a spring receiving recess, said lever having a

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blade locking position wherein said cam is in engagement with said blade with said spring seated within said recess and a blade-releasing position wherein said cam permits said blade to be slid over said spring and out of said carrier.

2. A knife comprising a sheath-like handle, a stationary holder therein having long straight bearing surfaces at its opposite ends, a carrier movable in the holder and further having cooperating bearing portions movable upon the bearing surface of the holder, abutments in the holder for limiting the travel of the carrier, a blade secured within said carrier, and a lever pivoted to the carrier including a blade-engaging portion to clamp said blade to said carrier in different positions thereat and further having a locking projection, and said handle having notches for receiving said projection when the carrier is engaged with either of said abutments.

3. A knife comprising a plastic handle forming a sheath, a stationary metal holder within said sheath, a carrier in said holder having a hollow body having a blade locking projection mounted therein, a blade disposed within said hollow body of said carrier and having a retaining recess to receive said projection, said holder including means slidably supporting said carrier for movements with said blade as a unit between a blade exposing position and a blade concealing position, blade clamping means mounted on said carrier for movements therewith, said clamping means including means to engage and press said blade into engagement with said projection to lock said blade securely in place within said carrier, and means to disable said blade engaging means to free said blade from said projection to permit removal of said blade.

4. A knife of the character described in claim 3 in which said blade clamping means constitutes a lever pivotally mounted on said carrier, said lever when in blade releasing position extending upwardly from said carrier to form a hand grip by which the carrier together with the blade therein is movable with respect to said handle and said holder between a blade projecting position and a blade concealing position.

5. A knife comprising a handle having spaced walls forming an open slot in one edge and notches at spaced points in said walls, a carrier slidable in and out of said handle, a blade detachably retained in said carrier and movable therewith, and a member pivoted to said carrier and shaped to enter a selected notch to lock the carrier and its blade in corresponding position, said member including a blade clamping portion operative to clamp said blade in said carrier when seated in said selected notch and movable to a position to release said blade from said carrier.

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