US006158127A

# United States Patent [19]

Taylor

[11] Patent Number: 6,158,127

[45] Date of Patent: Dec. 12, 2000

[54] **FOLDING KNIFE WITH ONE-HANDED BLADE MOVEMENT**

[75] Inventor: **William J. Taylor**, Marietta, Ga.

[73] Assignee: **Camillus Cutlery Co.**, Camillus, N.Y.

[21] Appl. No.: **09/227,377**

[22] Filed: **Jan. 8, 1999**

[51] **Int. Cl.**[7] ..... **B26B 1/02**

[52] **U.S. Cl.** ..... **30/158**

[58] **Field of Search** ..... 30/158, 159, 160, 30/161

[56] **References Cited**

U.S. PATENT DOCUMENTS

| | | | |
|---|---|---|---|
| 338,853 | 3/1886 | Marks | 30/161 X |
| 1,495,449 | 5/1924 | Sibley et al. | 30/160 X |
| 2,304,601 | 12/1942 | Schrade | 30/159 |
| 4,670,984 | 6/1987 | Rickard | 30/161 |
| 4,811,486 | 3/1989 | Cunningham | 30/158 X |
| 4,974,323 | 12/1990 | Cassady | 30/158 X |
| 5,060,379 | 10/1991 | Neely | 30/161 |
| 5,293,690 | 3/1994 | Cassady | 30/160 X |
| 5,495,674 | 3/1996 | Taylor, Jr. | 30/160 |
| 5,979,065 | 11/1999 | Hsu | 30/161 X |

FOREIGN PATENT DOCUMENTS

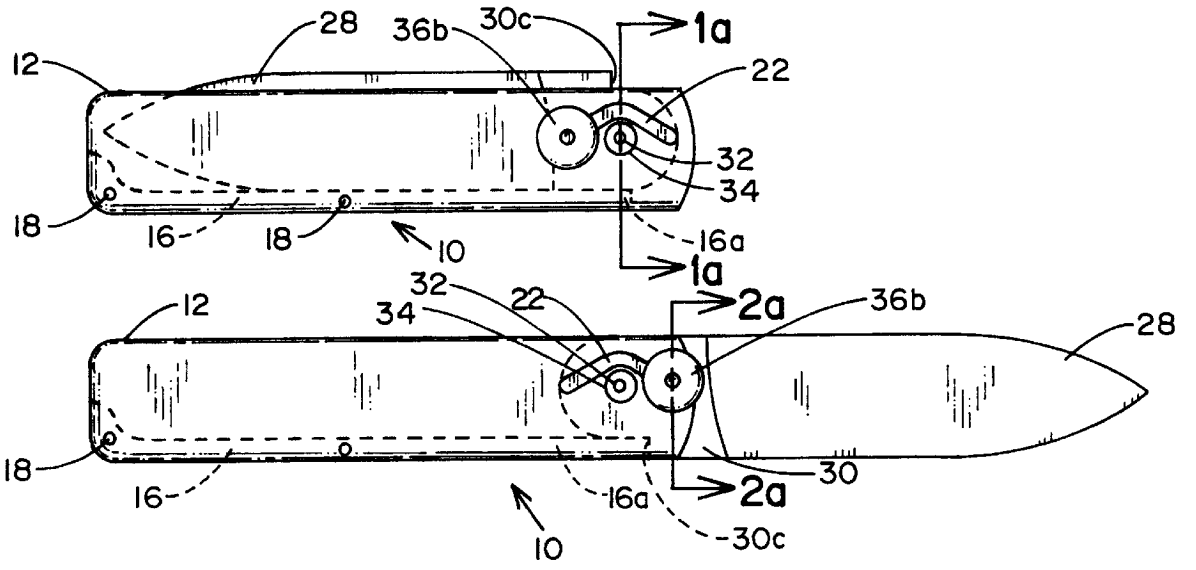
| | | | |
|---|---|---|---|
| 342119 | 10/1921 | Germany | 30/160 |
| 140515 | 3/1920 | United Kingdom | 30/160 |
| 246742 | 2/1926 | United Kingdom | 30/161 |

*Primary Examiner*—Rinaldi I. Rada
*Assistant Examiner*—Charles Goodman
*Attorney, Agent, or Firm*—George R. McGuire; Hancock & Estabrook, LLP

[57] **ABSTRACT**

A folding knife of the type wherein the blade may be moved between open and closed positions with the hand holding the knife. A blade is connected by a fixed pivot pin to a casing having the usual two handle or cover pieces providing a casing with a space for receiving the blade in the closed position. A substantially V-shaped slot extends through one of the cover pieces in close proximity and partially surrounding relation to the pivot pin. In addition to a circular opening for the pivot pin, the blade tang includes a linearly elongated, through slot communicating at one end with the circular opening. An actuating member, having integral head and stem portions, extends through the V-shaped slot in the cover piece and slidingly engages the slot in the blade tang, and into a blind V-slot in the inwardly facing surface of the other cover piece. The head of the actuating member may be manually engaged by the operator and moved from one end of the V-shaped slot to the other as the stem portion engaging the tang slot moves the blade about the pivot pin between open and closed positions.

**10 Claims, 2 Drawing Sheets**



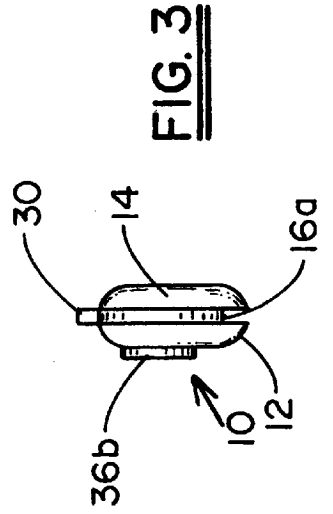



FIG. 3

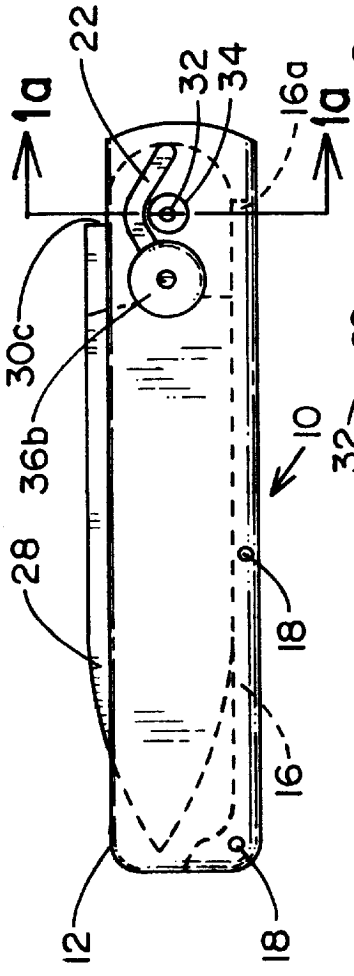



FIG. 1

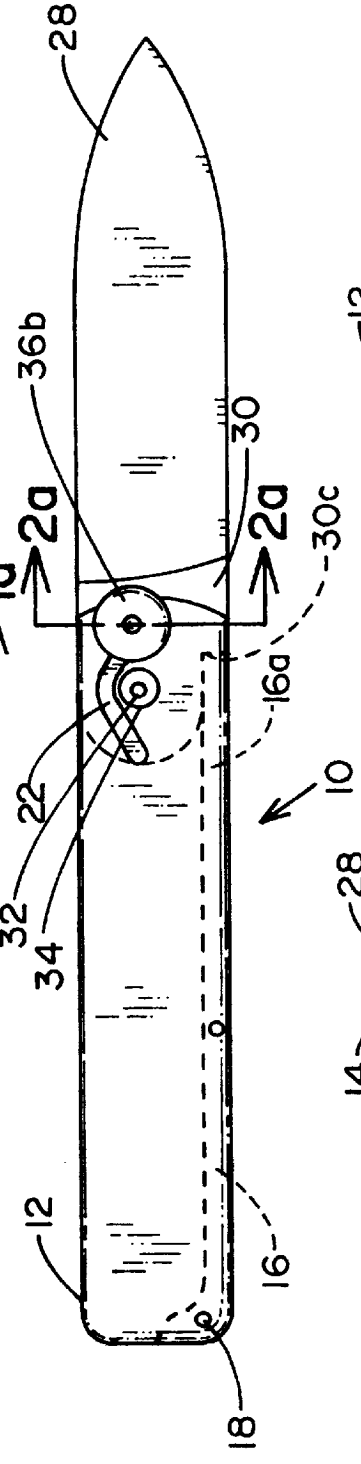



FIG. 2

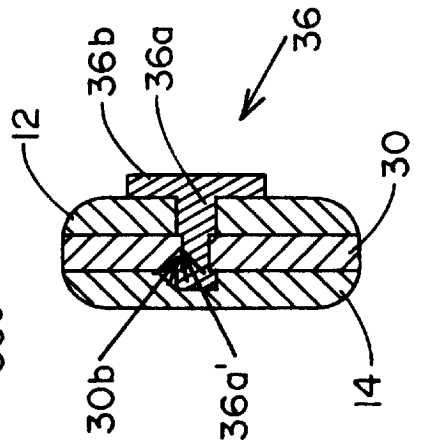



FIG. 2a

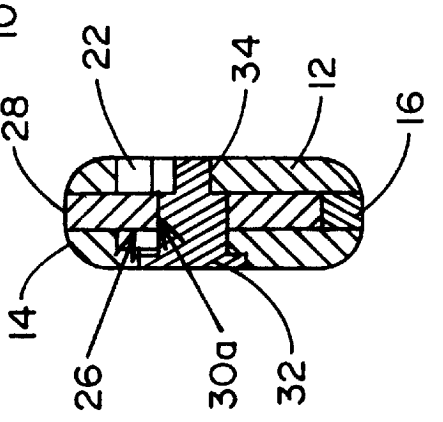



FIG. 1a

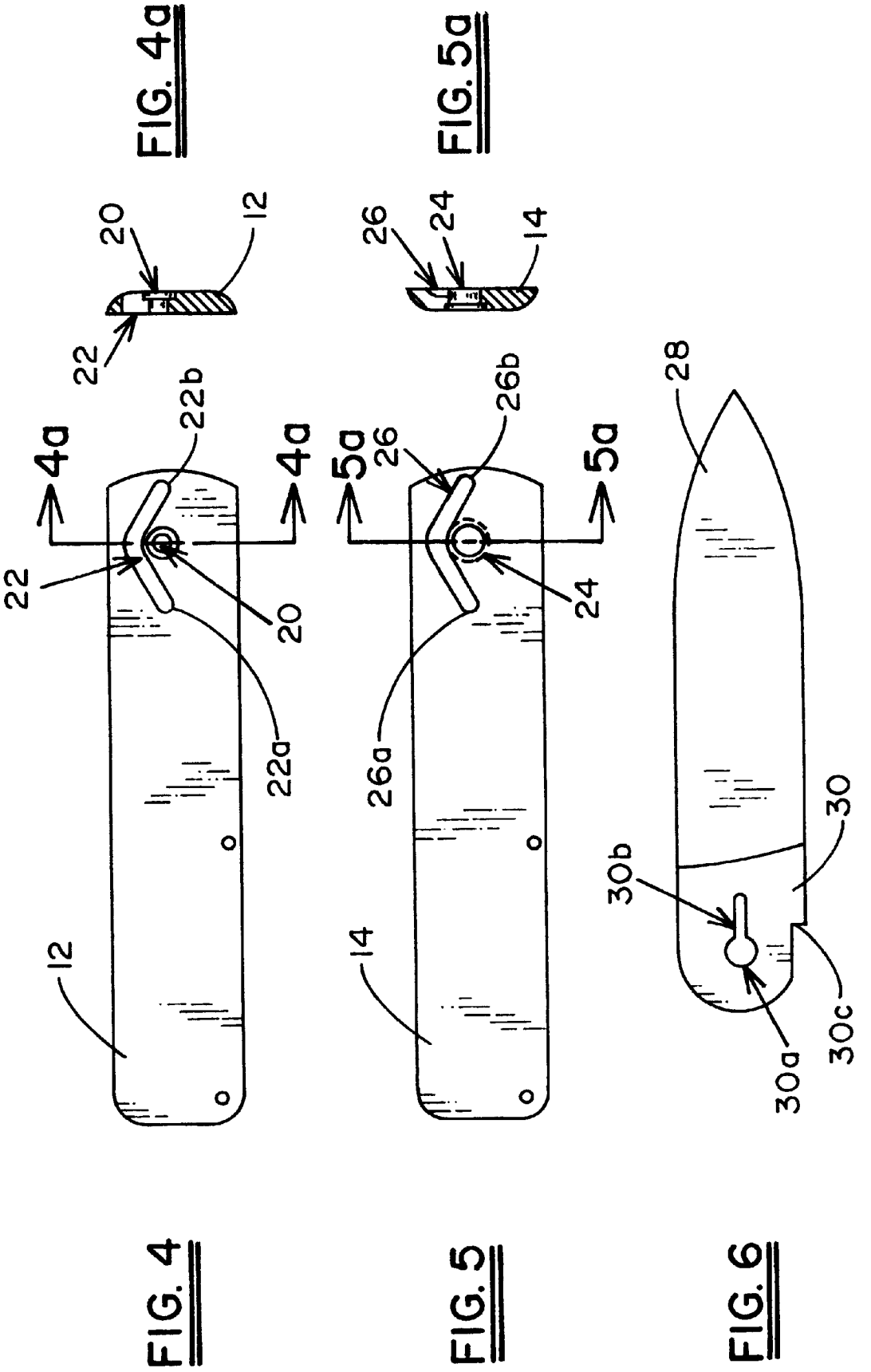


FIG. 4a
FIG. 5a
20
12
22
22b
4a
4a
22
20
22a
12
FIG. 4
26
24
14
26b
5a
5a
26
24
26a
14
FIG. 5
28
30
30b
30a
30c
FIG. 6

# FOLDING KNIFE WITH ONE-HANDED BLADE MOVEMENT

## BACKGROUND OF THE INVENTION

The present invention relates to folding knives, and more particularly to knives having a blade or other implement movable between open and closed positions with one hand, i.e., the hand holding the knife.

Folding knives, also known as pocket knives, include one or more blades or other implements which are movable about a pivot axis between open and closed positions relative to a casing in the form of a handle portion of the knife. In most folding knife designs, the casing is held in one hand while the blade or implement is moved with the other hand. In some designs, such as so-called switch blades, a spring biases the blade, and effects movement thereof, to the -1S open position in response to manual manipulation of a release mechanism, normally by the hand holding the knife. Other examples of folding knife designs wherein blade movement is effected by the hand holding the knife may be found in applicant's U.S. Pat. Nos. 4,719,700 and 5,495,674.

The object of the present invention is to provide a novel and improved folding knife wherein the blade or other implement may be moved between open and closed positions with respect to the casing by manipulation performed with the hand holding the knife.

## SUMMARY OF THE INVENTION

The knife of the invention is disclosed in an embodiment including a handle portion or casing made up of a pair of cover pieces and a spacer. The spacer, which is smaller than the cover pieces, is placed between the opposed, inwardly facing surfaces of the cover pieces to provide therebetween a space of suitable dimensions for receiving at least a portion of the blade or other implement when in the folded or closed position. The blade, which term will be used herein as inclusive of any implement which may be mounted upon and pivotally moved with respect to a knife casing, is attached to the casing with a pivot pin extending through an opening in the tang portion of the blade and anchored to the casing on opposite sides of the blade. The cover pieces and spacer are fixedly attached to one another with an unattached end portion of the spacer acting as a spring bearing on the tang portion of the blade and as a stop defining the fully open position of the blade.

All features generally described in the preceding paragraph are conventional in prior art folding knife designs. Features unique to the design of the present invention include a through, linearly elongated slot in the blade tang communicating at one end with the pivot pin opening, a generally V-shaped slot extending through the cover piece on one side of the casing and a matching slot extending into the inwardly facing surface and partially through the cover piece on the other side of the casing. The slots are closely adjacent to and partially surround the pivot axis. An actuating member having a stem portion and a head portion is placed with the stem extending through the open V-slot in one cover piece, through the open slot in the blade tang, and into the blind slot in the other cover piece, with the head portion on the outer surface of the cover piece with the through slot. The operator may engage the head of the actuating member with the thumb of the hand holding the casing and push the actuating member from one end of the V-shaped slot to the other. During such movement, the blade is moved, by the stem portion of the actuating member engaging the sides of the open slot in the blade tang, from the closed to the open position. Opposite movement of the button effects closing movement of the blade.



The foregoing and other features of construction and operation of the folding knife of the invention will be more readily understood and fully appreciated from the following detailed description, taken in conjunction with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. **1** and **2** are side elevational views of the disclosed embodiment of the knife in the closed and open positions, respectively;

FIGS **1A** and **2A** are elevational views in section on the line **1A**—**1A** of FIG. **1**, and **2A**—**2A** of FIG. **2**, respectively;

FIG. **3** is a front elevational view of the knife in the closed position;

FIGS. **4** and **5** side elevational views of the two cover pieces of the knife casing, seen from the outwardly and inwardly facing sides, respectively;

FIGS. **4A** and **5A** are elevational views in section on the line **4A**—**4A** of FIG. **4**, and **5A**—**5A** of FIG. **5**, respectively; and

FIG. **6** is a side elevational view of the blade.

## DETAILED DESCRIPTION

The knife of the invention, denoted generally by reference numeral **10**, includes a handle portion or casing made up, in the disclosed embodiment, of cover pieces or wall members **12** and **14** and spacer **16**. Cover pieces **12** and **14** are of identical outline and are placed in superposed relation with spacer **16** between the opposed, inwardly facing surfaces of the cover pieces along portions of one, elongated side and one end, as seen in hidden lines in FIGS. **1** and **2**. The three casing pieces are fixedly attached by rivets **18**, leaving end portion **16***a* free for limited movement in the manner of a cantilever spring.

Cover pieces **12** and **14** are shown individually in FIGS. **4** and **5**, respectively. The surface of cover piece **12** seen in FIG. **4** is the surface which faces outwardly in the assembled condition of the knife, while the surface seen in FIG. **5** is the inwardly facing surface. Cover piece **12** includes through, circular opening **20**, having relatively larger and smaller diameter portions, and through slot **22**, extending in essentially V-shaped configuration between opposite ends **22***a* and **22***b*. Cover piece **14** includes through, circular opening **24**, also having relatively larger and smaller diameter portions, and V-shaped slot **26** extending into the inwardly facing surface, but only partially through cover piece **14**, as seen in FIG. **5**A. (V-shaped slot **26** includes opposite ends **26***a* and **26***b*) Thus, slot **22** is termed an open slot and slot **26** a blind slot.

Blade **28** has tang portion **30** at one end. Circular opening **30***a* and linearly elongated slot **30***b*, communicating at one end with opening **30***a*, extend through tang **30**. Blade **28** is attached to the casing by pivot pin **32** for movement between the folded position of FIG. **1**, wherein the cutting edge, pointed end, and majority of blade **28** is received in the space between the opposed surfaces of cover pieces **12** and **14**, and the open position of FIG. **2**. As best seen in FIG. **1**A, pivot pin **32** extends through opening **24** of cover piece **14**, opening **30***a* of blade **28** and opening **20** of cover piece **12**, and is secured by washer **34**.

Actuating member **36** includes integral stem and head portions **36***a* and **36***b*, respectively. The parts are assembled by inserting stem portion **36***a* through open slot **22** of cover

piece **12** and through circular opening **30***a* of tang **30**. Reduced diameter portion **36***a*' of stem portion **36***a* is then slid into tang slot **30***b*, the axial length of reduced diameter portion **36***a*' being approximately equal to the thickness of tang **30**. The terminal end portion of stem **36***a* is placed in slot **26**, the cover pieces, blade and actuating member then being in the relative positions shown in FIG. **2**A. Pivot pin **32** is then inserted and secured, and the cover pieces and spacer **16** are mutually attached by rivets **18** to complete assembly of knife **10**. In moving blade **28** from the closed to the open position, the periphery of tang **30** flexes end portion **16***a* of spacer **16** downwardly, as seen in FIGS. **1** and **2**, and the end portion engages shoulder **30***c* of the tang to define the fully open position of the blade, as in conventional folding knives. It will be noted that the distance between stem portion **36***a* and pivot pin **32** varies as actuating member **36** is moved from one end of the V-shaped slots to the other. This is accommodated by reduced diameter portion **36***a*' moving longitudinally along tang slot **30***b* during movement of the actuating member.

Contemplated modifications include changing the position of the cover piece slots relative to the pivot pin, which would also involve changing the orientation of the tang slot. For example, if the cover piece slots were to be placed below the pivot pin, as the knife is oriented in FIGS. **1** and **2**, slot **30***b* would extend from opening **30***a* toward the left, as the blade is oriented in FIG. **6**. Configurations of other than V-shaped for the cover piece slots, and other than linear for the tang slot are also possible, although the illustrated configurations are preferred. The invention may also be employed in a two-bladed knife with through slots in both cover pieces and corresponding slots in a wall member between the blades.

What is claimed is:

**1**. A folding knife comprising:

a) a casing extending along a longitudinal axis and including a pair of spaced wall members through at least one of which a first slot is formed;

b) a blade having proximal and distal ends, a tang portion adjacent said proximal end, a pivot pin receiving opening formed through said tang portion, and a second slot formed through said tang portion;

c) a pivot pin extending through said pivot receiving opening and anchored in said wall members to establish a pivot axis, perpendicular to said longitudinal axis and fixed with respect to said casing, about which said blade is movable between open and closed positions with respect to said casing; and

d) an actuating member having a manually engageable portion positioned on an exterior of said casing and a stem portion extending from said manually engagable portion, said stem portion extending through and positioned for sliding movement relative to said first elongated slot in said casing and said second elongated slot, whereby said blade movement is actuated between said open and closed positions in response to manual movement of said actuating member along said first and second slots and between first and second positions relative thereto.

**2**. The knife of claim **1** wherein said stem portion extends along a linear axis parallel to and spaced from said pivot axis.

**3**. The knife of claim **2** wherein said first slot is substantially V-shaped.

**4**. The knife of claim **3** wherein said first slot partially surrounds said pivot pin.

**5**. The knife of claim **1** wherein said first slot extends along a non-linear path between said first and second positions.

**6**. The knife of claim **5** wherein said first slot has first and second, opposite ends and said first and second positions are substantially at said opposite ends.

**7**. The knife of claim **6** wherein said manually engagable portion comprises a head portion integral with said stem portion.

**8**. The knife of claim **1** wherein said first slot extends fully through one of said wall members and a third slot extends partially through the other of said wall members.

**9**. The knife of claim **8** wherein said stem portion extends fully through said first slot in said one of said wall members to a terminal end within the said third slot in said other of said wall members and includes a medial portion engaging said blade.

**10**. The invention according to claim **1**, wherein said second slot and said pivot pin receiving opening are positioned in communication with one another.

* * * * *