United States Patent

Leopoldi

[15] **3,641,667**

[45] **Feb. 15, 1972**

[54] CARTON CUTTER OR THE LIKE

[72] Inventor: **Norbert Leopoldi,** 4180 Marine Drive, Chicago, Ill. 60613

[22] Filed: **Jan. 29, 1970**

[21] Appl. No.: **6,910**

[52] U.S. Cl. **30/2,** 30/156, 30/161, 30/339

[51] Int. Cl. **B26b 5/00,** B26b 29/02

[58] Field of Search 30/2, 3, 155, 156, 157, 158, 30/160, 161, 293, 339, 151

[56] **References Cited**

UNITED STATES PATENTS

2,376,887 5/1945 Walters ..... 30/151 X

2,623,282 12/1952 Jauch ..... 30/156 X

3,002,273 10/1961 Merritt 30/2

Primary Examiner—Granville Y. Custer, Jr.

Assistant Examiner—R. C. Riordan

Attorney—Mann, Brown, McWilliams & Bradway

[57] **ABSTRACT**

A carton cutter of simple design which is easily fabricated and which device, in an exemplary embodiment, is made of molded plastic. The components of the device are easily made and assembled and the device carries a blade, for example, an ejector-razor type, in a sheathed or noncutting position and in order to expose the blade an affirmative force must be applied by the user, thereby preventing dangerous exposure of the cutting edge of the device during periods of nonuse.

10 Claims, 5 Drawing Figures

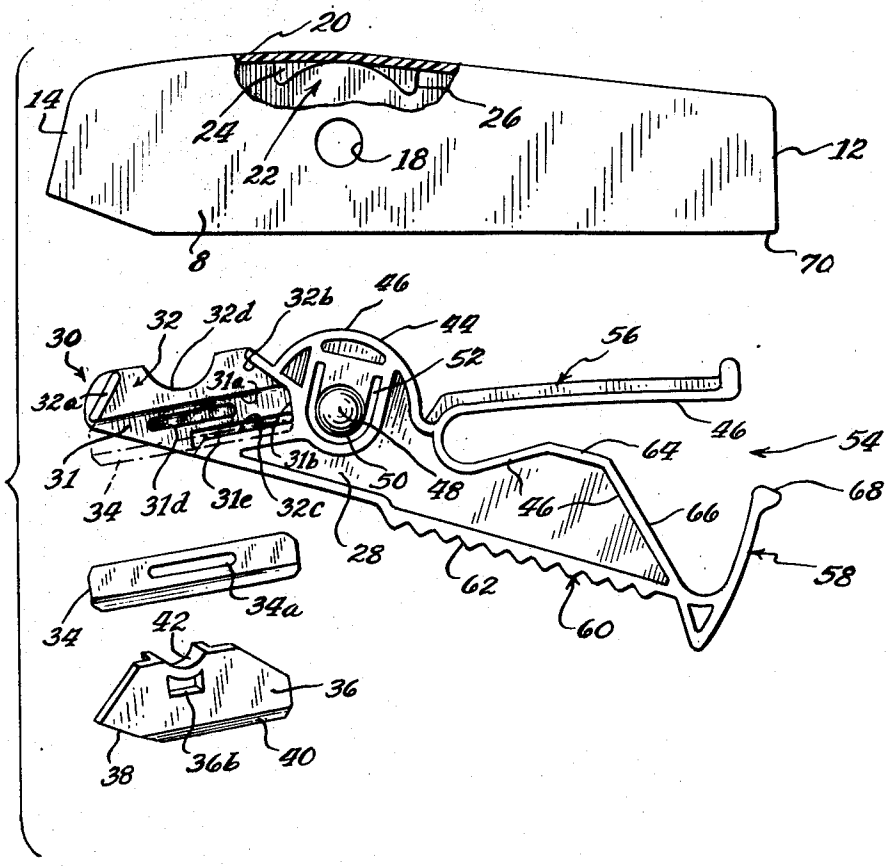


Fig. 3.

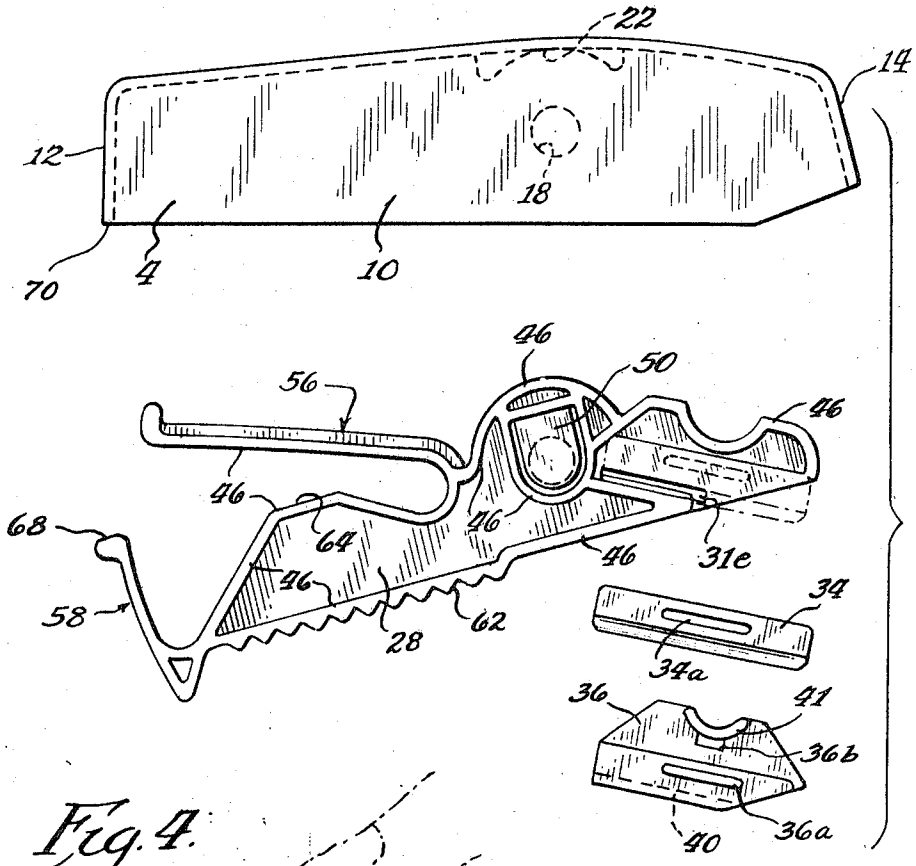


Fig. 4.

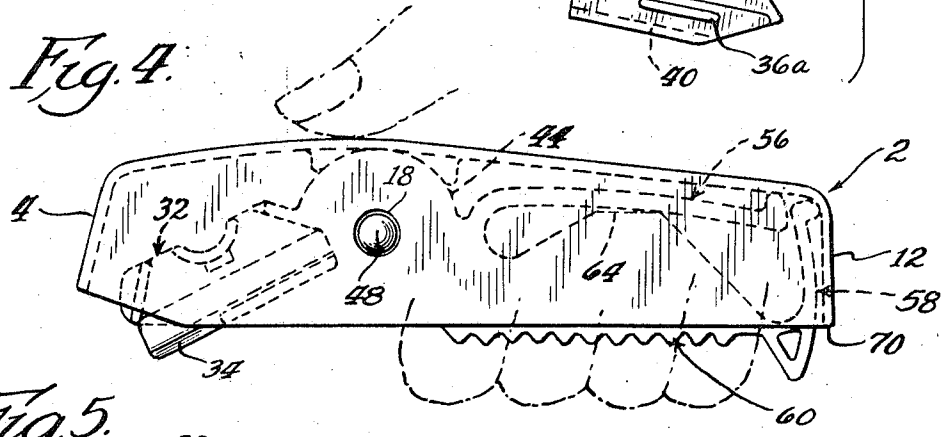
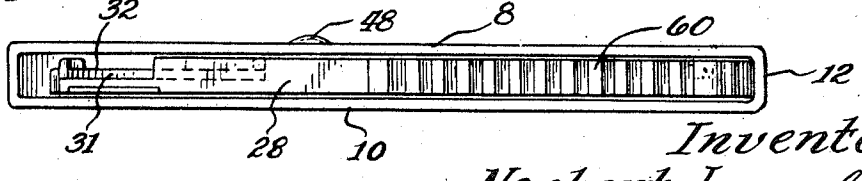


Fig. 5.



Inventor
Norbert Leopoldi

By Mann, Brown, McWilliams & Bradway
Attys.

Fig. 1.

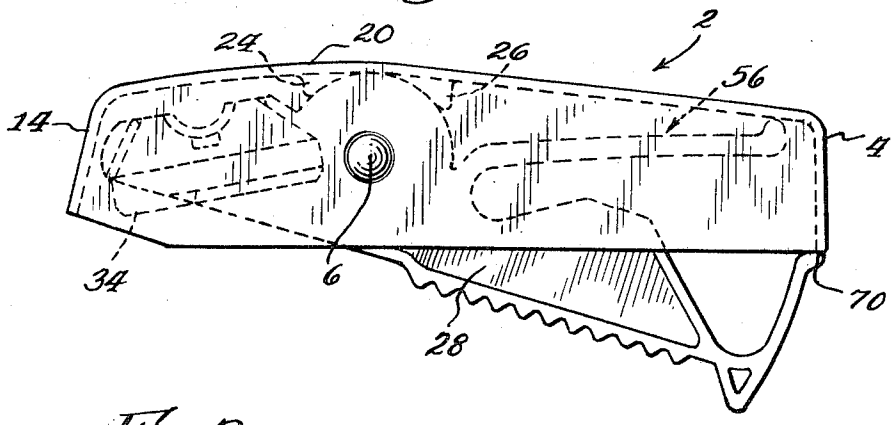
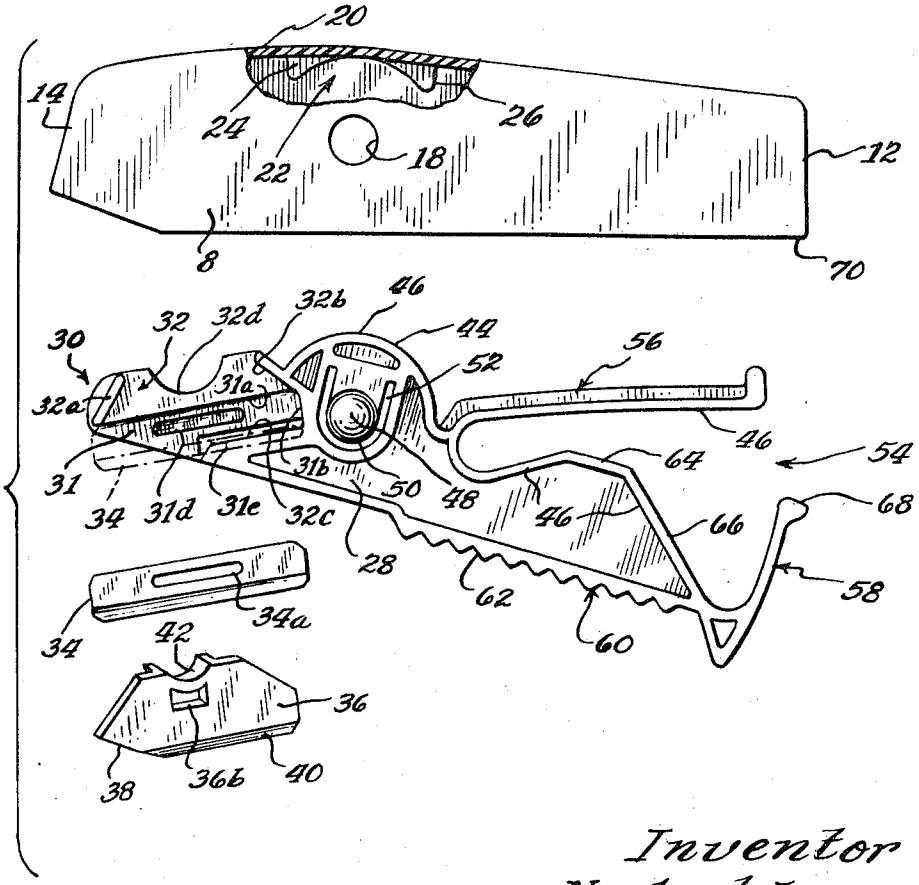


Fig. 2.



Inventor
Norbert Leopoldi

By Mann, Brown, McWilliams & Bradway
Attys.

CARTON CUTTER OR THE LIKE

BACKGROUND OF THE INVENTION

This invention, in an exemplary embodiment, pertains to a carton cutter or like device fabricated economically and operated simply, and wherein a handy compact carton cutter, using a razor blade or similar such cutting member, may be easily used without fear of cutting the user during times of nonuse. The carton cutter of the invention in the specific, illustrative embodiment is fabricated of essentially three main components which snap-fit or otherwise coact together to form the utilitarian devices. The first main blade-carrying member is equipped with a slot or recess into which a cutting blade, such as an ejector razor blade, is inserted. A second retaining member snap fits over the recess to retain the blade in the first member and the blade-carrying member is then pivotally fitted within a sheathlike housing member. The cutting edge of the blade is normally within the housing shroud and in order to bring the blade into the cutting position, the blade-carrying member must be pivotally rotated as by the application of a force to its lower end by the hand of the user. In another embodiment, a safety lock is contemplated which requires an affirmative, positive act on the part of the user in order to allow the foregoing pivotal movement in order to bring the blade of the carton cutter into the usable position.

With the herein disclosed invention, an economically fabricated carton cutter that is simple to assemble and which can be made of low-cost materials is made available for a myriad of uses, but primarily, will find its greatest use in the cutting of cardboard and the like. The devices of this invention are simple to use, are subject to little wear, and make replacement of the used cutting blade simple and fast. In the specific embodiment illustrated, the carton cutter components are made of low-cost, moldable plastic materials which are not subjected to rust or other corrosion and which, by a simple mechanism, bares the cutting edge for instant availability of use. Generally speaking, the devices will be of a size easily grasped by the human hand.

SUMMARY OF THE INVENTION

In an exemplary embodiment, this invention pertains to a carton cutter or the like comprising a sheathlike housing member within which a blade-carrying member is pivotally carried in a normally biased manner to sheath a cutting blade carried on one end of the blade-carrying member. The blade-carrying member is pivotable to bring the blade into a cutting position when a force is applied to the end of the blade-carrying member opposite the blade, and the force applied must be of sufficient magnitude to overcome the normal biasing force tending to sheath the cutting blade within the housing member.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view in elevation showing the assembled carton cutter of this invention in the noncutting state and showing the main components in phantom lines;

FIG. 2 is a front, exploded view of the device shown in FIG. 1 with the blade retaining member shown in perspective to indicate detail thereof;

FIG. 3 is a back, exploded view of the device depicted in FIGS. 1 and 2;

FIG. 4 is a view similar to that of FIG. 1 showing the device in use; and

FIG. 5 is a simplified bottom view of the carton cutter of this invention depicted in FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

While throughout the following commentary, taken in conjunction with the drawings, the invention will be directed specifically to a carton cutter made of moldable plastics having essentially three components excluding the blade member, it is to be understood that other materials of construction such as the metals and their alloys will also suffice. Additionally, while these main components are shown as being unitary or integrally formed, they may of course be made up of several different parts so long as the various hereinafter described functions are retained. In like manner, while a blade-retaining member is indicated, it is of course possible to use but two essential components wherein the blade may be received in frictional engagement in a slot or receiving channel provided in the blade-carrying member. However, for purposes of fabrication and to keep the costs of the devices within proper perspective, the specific disclosed embodiments of the invention are preferred. In like manner, while an ejector-type blade is shown, it is within the purview that common double-edged, single-edged and the like razor blades also be used with, of course, appropriate modification in the members being made. All of these variations and modifications will not depart from the invention as disclosed herein.

Referring now specifically to the drawings wherein like numerals of references designate like elements throughout, the carton cutter **2** comprises essentially two major components, sheathlike housing member **4** within which blade-carrying member **5** is pivotally carried so it can be pivotally rotated about pivot point **6** and, of course, member **5**. Housing member **4** is made of thin-walled, molded plastic having sidewalls **8** and **10**, end walls **12** and **14** and top wall **20**, thereby forming an open-bottomed member **4** and defining chamber **16**. In side elevation, housing member **4** has a whalelike configuration which is adapted to the contours of the other major component of the carton cutter, as will become apparent. In sidewall **8**, aperture **18** is positioned forwardly (toward end wall **14**) from the approximate midpoint of the length of housing **4**. Aperture **18** is spaced inwardly from top wall **20** of housing **4**. Within chamber **16** and spaced inwardly from side walls **8** and **10** is a saddle-type structure **22** formed by semicurvilinear segments **24** and **26**. The curvilinear portions or radius of portions **24** and **26** may, but not necessarily, have their radii congruent to that of aperture **18**. The saddle **22** is disposed immediately above the aperture **18** for reasons which will become apparent when considering that blade-carrying member **28** is adapted to fit within chamber **16** and ride in bearing relation within the saddle **22** about a pivot point such as **6** defined as the approximate center point of aperture **18**. The blade-carrying end **30** of member **28** is provided with a first recessed or slotlike portion **32** having upraised walls **32*a***, **32*b*** and **32*c*** thereabout. Wall **32*c*** is inclined for reasons which will be apparent. A second recess or blade-accommodating slot **31** is provided having side walls **31*a***, **31*b*** and the inclined wall **32*c*** cooperating to receive blade **34**. L-shaped cutout **31*e*** is provided to enable displacement of blade **34** from its retained position, if necessary. Attention is directed to FIG. **5** where the blade **34** and retaining member **36** are removed for purposes of clarity to show the details of construction of the blade-receiving portion. Shallow slot **31*d*** within the slot **31** provides means in cooperation with a retaining member of aligning, for instance, ejector blade aperture **34*a*** of blade **34**. So as to insure the retention of blade **34** within the receiving slot or channel **31**, a snap-fitting type retaining member **36**, having inclined edges **38** and **40** for a snug fit with respect to blade **34**, is provided with extending or frictionally engaging curved portion **42** adapted to engage the curvilinear portion **32*d*** of end **30** of member **28**. It will be noted that retaining member **36** is of congruent size and shape as recess **32**, the sidewalls **32*a***, **32*b*** and **32*c*** of recess **32** receiving the external edges of member **36** in close-fitting abutting relationship. Retaining member **36** is also provided with an upraised boss **36*a*** corresponding in size to slot **34*a*** of blade **34** for obvious retention reasons. Hole **36*b*** is provided for molding and other non important reasons. Obviously, as elaborate a blade retaining channel or slot need not be resorted to as shown, and other more direct ways and means will be apparent to those of skill in this art.

Immediately adjacent the end of recess **32** is curved or hump portion **44**. A great portion of member **28** is provided

with an upraised or thicker (with respect to the remaining portion) reenforcing edges such as **46** which, in this particular instance, follows, for the most part, the main contour of component **28** as shown. The radius of hump portion **44** is identical to the radius of saddle portion **22** of housing member **4** such that portion **44** rides within the saddle defined by segments **24** and **26** which may be of any thickness. It should be at once apparent that in the assembled form, and as shown in phantom lines in FIG. **1**, member **44** is received within saddle **22**. In order to retain member **28** within housing **4** in saddle **22**, a protuberance or button member **48** (which may or may not be of unitary form with respect to member **28**) is provided, and which protuberance is mounted on a springy or flexible section **50**, which springiness comes about by reason of the U-shaped slot **52** and also by reason that the thickness of member **28** around U-shaped slot **52** is less than the remainder of member **28** at this area so that allowance or room is provided for the flexing or bending of portion **50** around U-shaped slot **52** into the plane of the paper as view in FIG. **1**. In the preferred form, protuberance or button **48** is a separate member secured as by plastic glue to portion **50** for ease of fabrication. The opposite end **54** of blade-carrying member **28** is of double wishbone or springlike configuration, the first spring being formed by leverlike portion **56**, while the second, and more wishbonelike appearing in configuration, and forming the terminus of member **28**, is safety catch portion **58**. The reason for first springlike leg member **56** is apparent when viewing the phantom line showings in the drawings, more specifically in FIG. **4**. It is this member which causes all of member **28** to pivot to the downward position (as seen in FIG. **1**) so as to retain the cutting blade **34** in sheathlike housed relationship within housing member **4**. The bottom edge portion **60** of member **28** is serrated or provided with slots or notches **62** which facilitate grasping thereof by the human hand as suggested in FIG. **4**. Member **28** adjacent the edge **60** is of cutoutlike configuration to allow for the flexing of the spring member **56** in the downward position toward the surface **64** while safety spring member **58** flexes toward edge **66**. Thus, member **28** is shown in the normal or biased position (FIG. **1**) with respect to the spring portions **56** and **58** and in the usable position in FIG. **4**. The spring portion **58** is provided with foot end **68** adapted to abut the lower edge **70** of housing member **4** or, more specifically, the sidewall **12**. It will be noted that spring member **58** has a slight bow or curvature for ease of fitting within housing member **4**.

To assemble the device (reference being made to FIG. **2**), one merely inserts blade **34** within the blade-receiving slot **31**, places retaining member **36** thereover, press-fits it into recess **32** and inserts member **28** with the assembled blade into the confines of the chamber **16** defined by housing member **4** and aligns curved or hump portion **44** with saddle **22**. Because the button or protuberance **48** and the adjacent portion **52** are greater in width dimension than chamber **16**, they will be in the flexed position and button **48** will bear against the interior surface of wall **8** until aperture **18** is reached, at which time it will pop and project therethrough to secure member **28** in pivotal relationship with respect to housing **4**. The outermost edge of spring member **56** will frictionally engage and act against the interior surface of upper wall **20** to cause member **28** to assume the position shown in FIG. **1**, and in this position, the foot or safety abutment surface **68** of spring safety member **58** will engage the lower edge **70** of end wall **12** and extend therebeyond as shown. To operate the device, one merely exerts a force on spring member **58** tending to displace it toward surface **66** which will bring member **68** within chamber **16** so that it may ride on the interior surface of end wall **12**. Once this is achieved, one merely places the fingers (FIG. **4**) along the serrated edge **60** which causes member **28** to pivot about point **6**, thereby compressing or causing spring member **56** to move towards edge **64** and bring the cutting edge of blade **34** into the operable position. Obviously this pivotal movement is limited by one or both of the spring members or portions **56** and **58** abutting the interior surface of top wall **20** and end wall **12** of housing member **4**. It will be apparent from the showing in FIG. **4** why the spring portions **56** and **58** of member **28** are configured the way they are and, for that matter, why blade-carrying member **28** and indeed housing member **4** have the configurations that they do. Other configurations, shapes and sizes are possible, and quite obviously, spring portions such as **56** and **58** could be separate as opposed to integral members and could additionally be made of spring steel or the like to provide the necessary biasing and perform the functions as hereinbefore described. Also, the length of the safety lock portion **58** may be such so as to require a positive two-step manipulation to engage the foot **68** in the safety position. These and other modifications, some of which have been alluded to before and some of which will become apparent to those of ordinary skill in the art, will not detract from the spirit of the invention as disclosed herein.

Thus, an easily manipulatable cutting tool has been disclosed which is fabricated of low cost materials and which is assembled in a simplified manner.

The embodiments in which an exclusive property or privilege is claimed are defined as follows:

1. A cutter or the like comprising a sheathlike housing member, a blade-carrying member pivotally mounted intermediate its ends in said housing, pivot means for pivotally mounting said blade-carrying member, a blade mounted in one end of said blade-carrying member and normally retained within said sheathlike housing, a grasping portion on the opposite end of said blade-carrying member normally disposed outwardly of the housing member, a biasing member on the opposite side of said blade-carrying member from said grasping portion normally disposed within said housing member, said blade mounted in said one end and said grasping portion adjacent the opposite end together with said biasing member being disposed on opposite sides of said pivot means, and said blade-carrying member being pivotable against the action of said biasing member to bring said blade into the cutting position by a force applied to said grasping portion of sufficient magnitude to overcome the normal force of said biasing member retaining the blade sheathed in said housing member.

2. A cutter or the like as set forth in claim **1** wherein said sheathlike housing member is of elongated and thin-walled configuration having side walls, a top wall and an open bottom thereby defining a chamber and one of the sidewalls is provided with an aperture at the pivotal point of said blade-carrying member.

3. A cutter or the like as set forth in claim **2** wherein said pivot means includes a receiving saddle in the interior surface of the top wall radially spaced from said pivotal point.

4. A cutter or the like as set forth in claim **3** wherein said sheathlike housing member is of unitary construction and is of a length suitable to be grasped by the human hand.

5. A cutter or the like as set forth in claim **4** wherein said pivot means further comprises an upper portion on said blade-carrying member having a configuration adapted to be received within said saddle and for rotational movement therein and a protuberance carried on the side of said member and being adapted to protrude through and become anchored within said aperture in said side wall os said housing member.

6. A cutter or the like as set forth in claim **5** wherein said one end of said blade-carrying member is recessed to define a blade-receiving cavity on one surface thereof and a retaining plate snaps into said recess to retain said blade within said recess and cavity.

7. A cutter or the like comprising a sheathlike housing member, a blade-carrying member pivotally mounted in said housing member, pivot means for pivotally mounting said blade-carrying member, a grasping portion on said blade-carrying member, biasing means, said blade-carrying member being pivotable against the action of said biasing means to bring said blade into the cutting position by a force applied to said grasping portion of sufficient magnitude to overcome the normal biasing force sheathing said cutting blade, said sheathlike housing member being of elongated and thin-

walled configuration having side and top walls and an open bottom thereby defining a chamber and one of the side walls being provided with an aperture to define a pivotal point, said sheathlike housing member having a receiving saddle in its interior surface of the top wall radially spaced from said pivotal point, said sheathlike housing member being of unitary construction and being of a length suitable to be grasped by the human hand, said blade-carrying member comprising an upper portion having a configuration adapted to be received within said saddle and for rotational movement therein and a protuberance carried on the side of said member and being adapted to protrude through and become anchored within said aperture in said side wall of said housing member defining said pivotal point, said one end of said blade-carrying member being recessed to define a blade-receiving cavity on one surface thereof and a retaining plate snapping into said recess to retain said blade within said recess and cavity, the end of said blade-carrying member opposite said blade being of double wishbonelike configuration to define first and second spring-biasing ends, said biasing ends comprising said biasing means and the portion of said blade-carrying member carrying said protuberance being of thinner construction than the remainder and being resilient to allow flexing thereof for ease of placement within said aperture of said sidewall.

8. A cutter or the like as set forth in claim 7 wherein said first spring-biasing end exerts in the normal or uncompressed state a pivotal force to pivotally rotate said blade-carrying member and to locate said blade within the housing but upon compression allows the cutting blade to be exposed.

9. A cutter or the like as set forth in claim 8 wherein said second biasing end is compressible in a plane substantially normal to the longitudinal axis of said cutter and which in the normal state acts as a safety to engage the bottom edge of said housing wall to prevent pivoting of said blade-carrying member but which upon compression rides within said housing.

10. A cutter or the like as set forth in claim 9 wherein at least a part of the bottom edge of said blade-carrying member opposite said blade is serrated for easy grasp by a human hand and said cutter is fabricated of molded lightweight plastic.

* * * * *