Sept. 28, 1971 R. LEVIN 3,608,195

KNIFE WITH REMOVABLE BLADE

Filed March 19, 1969

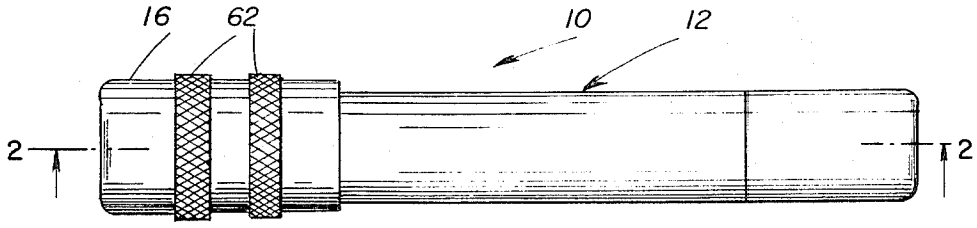



FIG. 1.

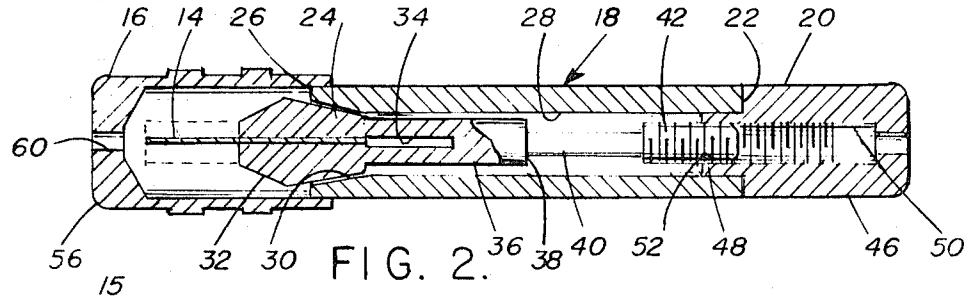



FIG. 2.

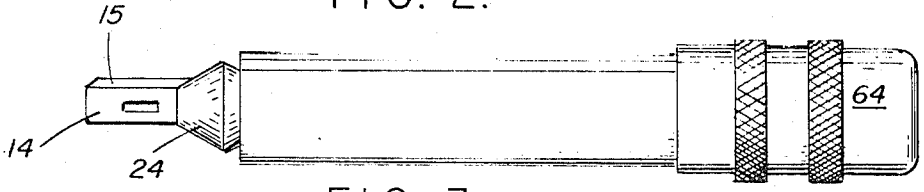



FIG. 3.

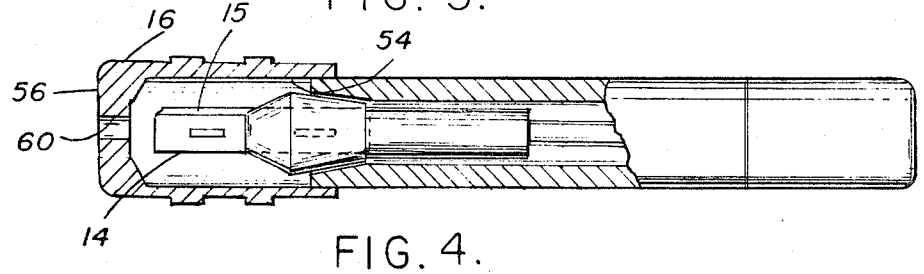



FIG. 4.

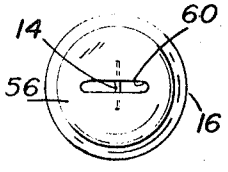



FIG. 6.

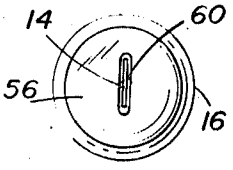



FIG. 7.

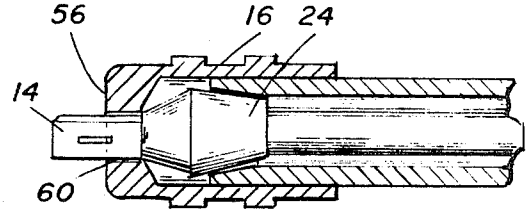



FIG. 5.

INVENTOR.
RALPH LEVIN
BY Friedman & Goodman
Attorneys

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# KNIFE WITH REMOVABLE BLADE

Ralph Levin, 402 Knickerbocker Ave.,
Brooklyn, N.Y. 11237

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## ABSTRACT OF THE DISCLOSURE

A knife comprising a blade-retaining member a blade removably mounted in said retaining member and a cap provided to exposably shield said blade removably mounted in said retaining member.

## BACKGROUND OF THE INVENTION

### Field of the invention

This invention relates generally to knives and more particularly to a knife with a removable blade.

### DESCRIPTION OF THE PRIOR ART

A variety of pocket knives are, of course, available. There are also known many varieties of knives used for precision work such as carving and whittling. Some are equipped with removable knife blades as well. However, there is no knife available today with a removable blade which blade can be a standard injector type razor blade commercially available.

## SUMMARY OF THE INVENTION

It is, therefore, among one of the principle objectives of the invention to provide a knife with a removable blade which blade can be a standard injector type razor blade commercially available on the market.

In accord with the invention, there is provided a knife comprising a blade-retaining member, a blade removably mounted in said retaining member and a cap provided to exposably shield said blade.

## BRIEF DESCRIPTION OF THE DRAWING

The invention will be hereinafter more fully described with reference to the accompanying drawing in which:

FIG. 1 is a side view showing the inventive knife.

FIG. 2 is a sectional view taken along line 2—2 of FIG. 1 in the direction of the arrows and showing the knife blade in a position to be exposed through the cap of the knife, according to a specific embodiment of the invention.

FIG. 3 is a side view showing the blade exposed and ready for use with the cap removed and inserted on the back end of the knife.

FIG. 4 is a partially sectional side view showing the blade in a shielded position and not exposable for use through the cap.

FIG. 5 is a fragmented sectional view of the front end of the knife showing the blade as exposed through the cap in accord with the embodiment shown in FIG. 2.

FIG. 6 is an end diagrammatic view further illustrating the details of FIG. 4 wherein the blade is shown in a non-exposable position.

FIG. 7 is an end diagrammatic view further illustrating the details of FIG. 5 with the cap arranged so that the blade is in the exposed position through the cap.

## DESCRIPTION OF SPECIFIC EMBODIMENTS

Referring now to the figures of the drawing in detail, there is shown therein a knife **10**, constructed according to the invention, comprising a blade-retaining member **12**, a blade **14** with cutting edge **15** removably mounted



therein and a cap **16** which serves as a shield for the blade **14**, but is also adapted to expose the blade for use, as will be more fully described hereinbelow. The various parts of knife **10** may be of metal or plastic (except for the blade which is of a suitable metal, such as stainless steel), preferably metal and still more preferably aluminum.

The blade-retaining member **12** further comprises a generally cylindrical main housing **18**, a base portion **20** provided at the rear end **22** thereof, and a chuck **24** for removably receiving the blade **14** provided at the front end **26** thereof. As mentioned, main housing **18** is of generally cylindrical design with a central bore **28** provided therein; however, towards the front end **26** the bore **28** tapers outwardly as at **30**, in counter-sunk fashion, and the chuck **24** is associatingly sized and shaped to be smoothly, abuttingly received in this tapered portion **30**. Chuck **24** is of a construction consisting of a head portion **32**, provided with a generally centrally longitudinally disposed slot **34** for receiving the blade **14**, and a shank portion **36** integrally merged with said head portion. Shank portion **36** is sided so that it will be received inside bore **28**, in spaced relation therewith, the shank **36** extending towards the rear end **22** of the main housing **18**. Secured to the end **38** of shank **36** is a longitudinally oriented cylindrical shaft **40**, at least a portion of which is threaded as at **42**, preferably an intermediate portion.

Accordingly, base portion **20**, of generally cylindrical shape, having a larger diameter portion **46** and a smaller diameter portion **48**, is provided with a generally central bore **50**, in registry with threaded shaft **42**, and which is at least partially associatingly internally threaded as at **52**, preferably at its smaller diameter portion **48**. Smaller diameter portion **48** of base **20** is sized to be concentrically received within bore **28** of the main housing. Thus, with the chuck **24**, its shank **36** and shaft **40**, in place, inside bore **28**, the base **20** is adapted to be threaded over associating threaded shaft **42** via its own internally threaded bore **52**. It becomes clear then, as the base **20** is threaded over the shaft **42**, that the chuck **24** is resultingly tightly wedged against the wall of tapered bore **30**, the taper of chuck **24** and bore **30** being in association, as earlier mentioned. The wedging force, in turn, tends to compress the head of the chuck **32** forcing slot **34** together so that a blade held in said slot will be tightly held thereby. Therefore, in order to removably mount a blade **14** inside the blade-receiving slot **34**, the base **20** is loosened by turning it in reverse fashion, the chuck **24** is resultingly released from its wedge securement with the walls of tapered bore **30**, and a blade **14** is placed inside slot **34** which is suitably sized to receive it. The blade is then secured in place by tightening the base (see FIG. 2), as described immediately above. The position of the blade **14** may also be adjusted within slot **34** in order to vary the blade length exposure.

Blade **14** may be any suitable sharp blade sized to fit inside slot **34**; however, it is a feature of the invention that an injector-type stainless steel razor blade, which is commercially available over the counter, be employed as the cutting element. Thus, the problem of supply of sharp blades is minimized since they need not be specifically manufactured to order, but are rather readily purchased on the market.

A cap **16** which serves as a shield for the blade **14**, when the knife is not in use, or carried in the pocket of the user, is provided which is of a generally cylindrical shape, being open at one end **54** and partially closed at the other end **56** thereof in a manner to be more fully described subsequently. Cap **16** is sized so that it will slidingly fit over the end **26** of main housing **18**, in tight but not immovable relation. When it is desirous to expose the blade and use

the knife, the cap **16** may be removed and slipped over the base **20** (FIG. 3). Alternatively, the cap **16** is adapted so that it may remain in place over the end of the main housing **18** and yet the blade **14** may be exposed for use (FIGS. 5 and 7). This is accomplished by providing an elongated bore **60** in a generally central location in the end **56** of the cap, the bore being of a size sufficient to allow passage of blade **14** therethrough, when the elongated bore **60** and blade **14** are in registered relationship. When this registered relationship is obtained (FIG. 2) by circularly manipulating the cap **16** around the end **26** of the main housing, the cap **16** is slid rearwardly over main housing **18**, in the direction of base **20**, until the blade is exposed to its desired length. A pair of parallel gripping aids **62** may be provided along the outside wall **64** of the cap to aid in the manipulation of the cap, the gripping aids being roughened to facilitate this further. In this instance, when the knife is no longer in use, the cap **16** is pulled back in a shielding position over the blade **14**, as aforementioned, and in order to prevent accidental exposure of the blade, the cap is given a one-quarter turn thereby displacing the registered relationship of the blade **14** and elongated bore **60**. In this condition, the blade cannot now be even accidentally exposed (FIGS. 4 and 6) and the knife can be safely carried in the pocket.

I claim:

**1.** A knife comprising an elongated blade, a main housing provided with front and rear ends, said housing being generally cylindrical in shape and hollow to define a central bore, a generally cylindrical rotatable base member provided at said housing rear end, a portion of said base member extending concentrically into said housing bore, a blade holder disposed in said housing bore, said blade holder comprising a chuck member secured to a shaft member, said chuck member including a head portion extending outwardly from said housing front end and a shank portion disposed within said housing bore in spaced relation therewith between said head portion and said shaft member, said head portion being tapered and wedgingly disposed in an abutting relationship against walls of said bore adjacent to said housing front end with an exposed part of said head portion being larger than said bore, slot means generally centrally longitudinally disposed in said head and shank portions of said chuck member for removably receiving said blade at any selected position along said slot means in order to obtain a desired blade length exposure, one end of said blade being disposed within said housing with an opposite end of said blade extending outwardly from said head portion in a direction away from said housing, and thread means securing said shaft member to said base member portion in a threaded engagement therebetween for moving said chuck member head portion towards said bore to be wedgingly disposed against said walls of said bore when said base member is turned to resultingly hold said blade in a secure mounting relationship within said chuck member in one selected position.



**2.** A knife according to claim **1**, wherein said blade is an injector-type razor blade.

**3.** A knife according to claim **2**, wherein a cap is provided to exposably shield said blade, said cap being detachably slidingly engageable with said main housing, said cap being open at one end thereof, said cap being of size to fit over either end of said housing.

**4.** A knife according to claim **3**, wherein an end of said cap opposite said open end thereof is provided with opening means registrable with said mounted blade when said cap is slidingly fitted over the front end of said housing thereby rendering said blade exposable through said cap.

**5.** A knife according to claim **4**, wherein said opening means are disposable in non-registry with said mounted blade thereby adapting said knife to be stored in safe condition.

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ROBERT C. RIORDON, Primary Examiner

J. C. PETERS, Assistant Examiner

U.S. Cl. X.R.

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