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A. C. WOLF

2,474,609

SAFETY KNIFE

Filed March 7, 1946

FIG. 1.

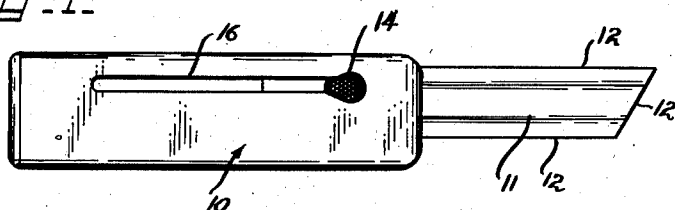


FIG. 2.



FIG. 3.

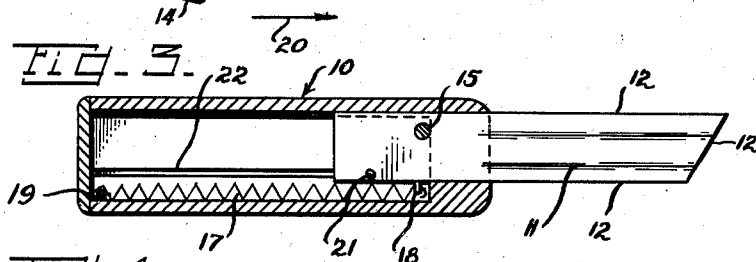


FIG. 4.

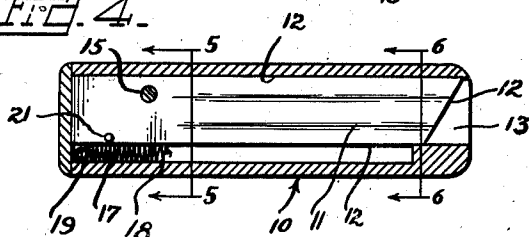


FIG. 5.

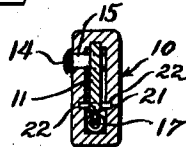
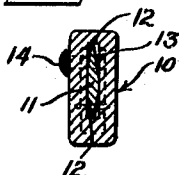


FIG. 6.



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2,474,609

SAFETY KNIFE

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Application March 7, 1946, Serial No. 652,591

3 Claims. (Cl. 30—162)

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This invention relates to new and useful improvements and structural refinements in safety knives, the principal object of the invention being to provide a device of the character herein described, which is particularly adapted for use by workers in textile industries, paper or rubber mills, shoe factories, and similar other occupations.

A further object of the invention is to provide a device which is of a "pocket knife" nature, consisting generally of a projectible and retractible blade slidably positioned in an enclosing sheath. The blade is projectible into the cutting position by manipulating a suitably positioned push-button and the novelty of the invention resides chiefly in the combination of the foregoing with automatic means for retracting the blade into the sheath, as soon as the push-button is released.

The safety factor of the invention thus becomes readily apparent and a further object of the invention is to provide a device which is of simple construction and which cannot easily become damaged.

Another object of the invention is to provide a knife of the character described, which may be opened and manipulated with one hand, while the work is being held with the other.

An additional object of the invention is to provide a knife which, in addition to its specific uses as above outlined, may also be employed in place of conventional knives for cutting or slicing operations in general.

With the above more important objects in view, and such other objects as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the invention, showing the blade thereof in the opened or projected position.

Figure 2 is a plan view of the same, but showing the blade retracted.

Figure 3 is a longitudinal cross-sectional view of the subject shown in Figure 1 (blade projected).

Figure 4 is a similar cross-sectional view, but with the blade retracted.

Figure 5 is a cross-sectional view, taken in the plane of the line 5—5 in Figure 4, and

Figure 6 is a cross-sectional view, taken in the plane of the line 6—6 in Figure 4.

Like characters of reference are used to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention consists of an elongated

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sheath, configured substantially as shown and designated by the general reference character 10. A suitable blade 11, provided with the cutting edges 12 is slidably positioned in the sheath, being projectible and retractible through an opening 13 provided in one end of the same.

A push-button 14 is formed integrally with a shank 15, whereby it is secured in a suitable aperture provided adjacent the inner end of the blade 11. One side of the sheath 10 is formed with a longitudinally extending slot 16 and the shank 15 slidably engages this slot, as will be clearly apparent from the accompanying drawings. The button 14 may be suitably knurled and it will be noted that by sliding the button in the slot, the blade 11 will be projected from or retracted into the sheath 10.

A tension spring 17 is positioned in the sheath, the blade 11 being provided for this purpose with an eye 18 to which one end of the spring may be anchored. The remaining end of the spring is secured to a further eye 19, this being mounted adjacent the inner closed end of the sheath 10.

The cross-section of the sheath 10 is best illustrated in the accompanying Figures 5 and 6, this being such as to accommodate the blade and the aforementioned spring, as will be clearly understood without further description.

When the invention is placed in use, the blade 11 is projected into its working position by simply pushing the button 14 in the direction of the arrow 20. During this operation, the spring 17 will be stretched as shown in Figure 3, this figure, together with Figure 1, illustrating the projected position of the blade.

As soon as the button 14 is released, the resiliency of the spring 17 will automatically retract the blade 11 to its closed or concealed position in the sheath, as is illustrated in Figure 4. It will be noted that while in this position, the entire blade is covered by the sheath and accidental or unintentional contact with the cutting edges of the same is thereby completely eliminated.

It is presumed that the sliding action of the shank 15 in the slot 16 will be sufficient to prevent dipping of the inner end of the blade into the chamber occupied by the spring 17. However, if this is not considered sufficient, the movement of the blade may be further guided by means of a transversely extending pin 21, protruding at both sides of the blade 11. The inner side walls of the sheath 10 are formed with a pair of longitudinally extending recesses 22, the protruding ends of the pin 21 slidably engaging these re-

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cesses, and thus guiding the sliding movement of the blade.

It should be understood that the provision on the pin 21 and the recesses 22 may be added if the guiding action of the shank 15 in the slot 16 is considered insufficient.

It is believed that the operation and use of the invention will be clearly understood from the foregoing and further description thereof is accordingly considered unnecessary.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What I claim as my invention is:

1. A safety knife comprising in combination, a sheath formed with an opening in one end thereof, a slidable blade in said sheath, said blade being projectible and retractible through said opening, a push-button on said blade, said sheath having in one side thereof a longitudinally extending slot, said button slidably engaging said slot and protruding therethrough, a coiled tension spring in said sheath and disposed on one side of the blade, an eye on said blade and a further eye in the closed end of said sheath, said spring extending between said eyes and normally urging said blade into the retracted position, and means to prevent the blade from entering the space occupied by said spring.

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2. The device as defined in claim 1 together with a pin extending transversely through said blade and projecting at both sides therefrom, the inner side walls of said sheath being formed with a pair of longitudinally extending recesses, and the projecting ends of said pin slidably engaging said recesses for guiding the movement of said blade, the spring being housed in a hollow portion of said sheath extending longitudinally thereof and on one side of the blade when said blade is in retracted position.

3. A device according to claim 2 and in which said knife is bevelled at the outer end, and said sheath has an inwardly projecting slide bearing member disposed adjacent said opening in said sheath and at one side of the blade, said member substantially closing the outer end of the space within the sheath occupied by said spring.

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REFERENCES CITED

The following references are of record in the file of this patent:

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