

July 3, 1962

V. S. BOBKOWSKI

3,041,724

EXTENSION TOOL

Filed June 28, 1961

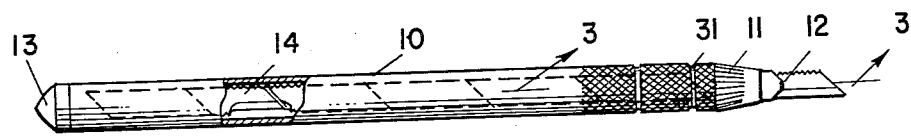


FIG. 1.

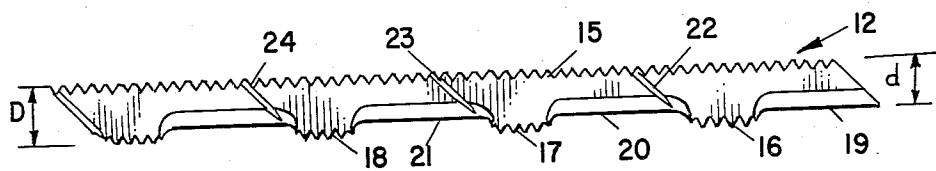


FIG. 2.

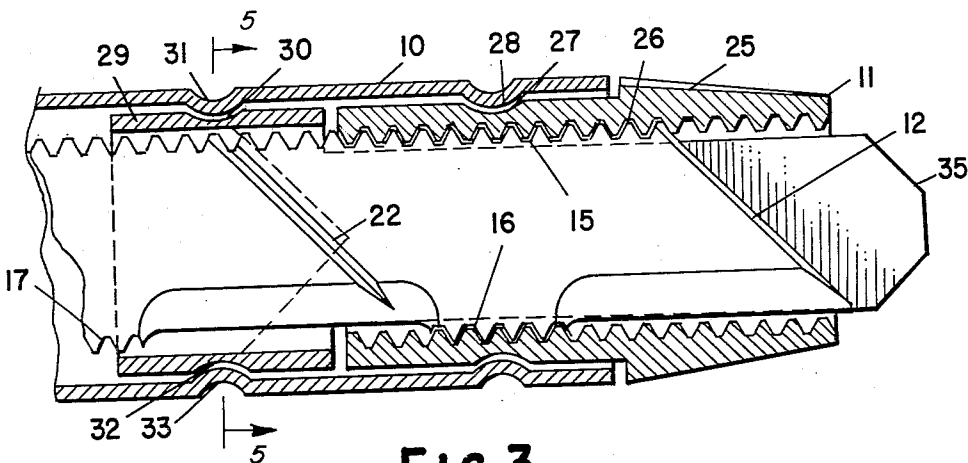


FIG. 3.

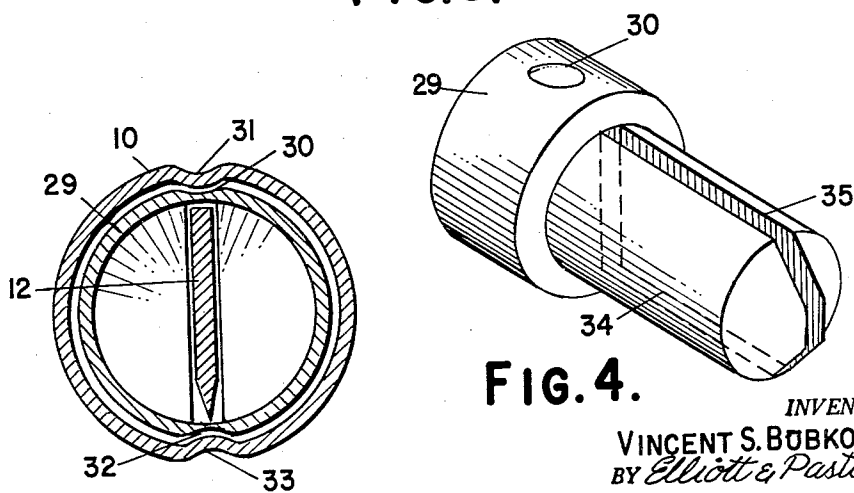


FIG. 4.

FIG. 5.

INVENTOR.
VINCENT S. BOBKOWSKI
BY *Elliott & Pastoriza*
ATTORNEYS

1

3,041,724

EXTENSION TOOL

Vincent S. Bobkowski, 1560 1/2 S. Bundy Drive,
Los Angeles, Calif.

Filed June 28, 1961, Ser. No. 120,418

3 Claims. (Cl. 30—162)

This invention relates generally to portable tools and more particularly to a novel extension tool approximating the size of a conventional fountain pen useful, for example, in cutting or filing operations.

In the past, various different types of portable cutting knives have been provided. For example, draftsmen usually have such a cutting knife for scoring, erasing, or actually cutting paper. Such devices provided heretofore have included a handle of convenient size approximating that of a fountain pen or pencil with means for holding a knife blade, file, or other tool to one end of the handle portion.

A major problem, however, with devices of the foregoing type is that once the knife edge or filing surface becomes dull, the blade must be removed from the handle and replaced by another blade. Thus, it is not an easy matter to provide a new edge unless a succession of the tools are on hand and may be successively picked up. Moreover, care must be exercised in storing the tool to protect and keep the blade or other working surface clean. Additionally, the degree of working surface is usually fixed so that adjustment of extent of the knife from the holder is not possible.

With the foregoing in mind, it is a primary object of this invention to provide a novel extension type tool approximating the size of a pen or pencil in which an elongated tool element such as a knife blade may be stored in the handle of the device and have working surface portions thereof successively extending from one end of the handle. By this arrangement, new surfaces for working purposes may be constantly exposed and the annoyance of having to maintain several different tools on hand for successive use thereof is avoided.

Another object is to provide an improved extension tool of the foregoing type in which the working surface is adequately protected when retracted within the handle structure and in which the surface may be extended to any desired degree by a simple, easy manual operation.

Another object is to provide a tool which includes means for storing additional tool elements so that the structure constitutes a self-contained unit.

Briefly, these and other objects and advantages of this invention are attained by providing an elongated hollow handle member terminating at one end in a tool egress structure and at its other end in a closure cap. The handle is dimensioned to hold a plurality of elongated tool elements which may include in longitudinal alignment several working surfaces separated by transverse score lines. One end of the elongated tool element is received within the tool egress structure which may comprise any suitable extension means for successively exposing given length portions of the tool.

With a scored tool element as described, after a given working surface has been used up or is worn, it is a simple matter to extend the tool slightly and break it off at the score line so that the next successive working surface is available for use. The structure is such that the working surface itself is adequately protected during both extension and retraction and while the tool element is stored within the hollow handle.

A better understanding of the invention will be had by now referring to a preferred embodiment thereof as illustrated in the accompanying drawings, in which:

FIGURE 1 is a side elevational view partly broken

2

away of one embodiment of the extension tool of this invention;

FIGURE 2 is a greatly enlarged elevational view of an elongated tool element employed with the tool of FIGURE 1;

FIGURE 3 is an enlarged cross sectional view taken in the direction of the arrows 3—3 of FIGURE 1;

FIGURE 4 is a perspective view of one of the components employed in the structure of FIGURE 3; and,

FIGURE 5 is a cross section taken in the direction of the arrows 5—5 of FIGURE 3.

Referring first to FIGURE 1, there is shown the extension tool in the form of an elongated hollow handle 10 terminating at one end in an egress structure 11 for successively projecting an elongated tool 12. The other end of the hollow body 10 is closed by a closure cap 13. As shown in the broken away mid-portion, the hollow interior of the handle 10 is dimensioned to accommodate a plurality of elongated tool elements 14 in addition to the retracted end of the tool 12.

Referring now to the enlarged view of FIGURE 2, the element 12 has its upper longitudinal edge 15 threaded over its entire length and has its opposite longitudinal edge threaded at portions 16, 17, and 18 between which working surfaces 19, 20, and 21 are provided. In the embodiment chosen for illustrative purposes, the working surfaces 19, 20, and 21 constitute cutting edges or knives. Alternatively, however, they could constitute files or other working surfaces.

Also dividing the working surfaces are transverse score lines 22, 23, and 24 adjacent to the threaded lower portions 16, 17, and 18, respectively, so that when a working surface has been worn, the tool portion may be broken at the score line to expose the next successive working surface.

In the operation of the device of FIGURE 1, the egress structure 11 is manipulated to successively extend portions of the tool shown in FIGURE 2, and after each portion becomes worn, it may be broken off at the proper score line.

With reference now to FIGURES 3, 4, and 5, the preferred egress structure for enabling successive exposure of the elongated tool element of FIGURE 2 is shown. This structure includes a nut 25 rotatably mounted within one end of the handle structure 10 and including internal threads 26 for engagement with the opposite threads 15 and 16 of the elongated tool 12. As shown, the nut 25 is locked against longitudinal movement by a keying means in the form of an annular groove 27 receiving an annular ridge 28 formed in the interior surface of the handle body 10.

In addition to the foregoing structure, there is provided a constraining means to hold the elongated tool element 12 against rotation when the nut 25 is manually rotated. This structure may take the form of a slotted cylindrical base member 29 having a dimple 30 formed therein for cooperation with an external dimple 31 on the body 10. Preferably, the diametrically opposite portion of the base 29 is also provided with a dimple 32 for cooperation with an external dimple 33 on the body 10. These dimples will prevent rotation of the cylindrical base member 29 within the hollow body 10 and also prevent longitudinal movement thereof.

With particular reference to the perspective view of the base structure 29 as shown in FIGURE 4, the structure includes forwardly extending semi-cylindrical portions 34 and 35 defining a transverse slot through which the elongated tool element 12 extends. The arrangement can best be seen by reference to FIGURE 5 wherein it will be evident that the elongated tool element is constrained against rotation but is not prevented from longi-

3

tudinal movement between the semi-cylindrical portions and out the egress structure.

Preferably, the surface of the rotating nut 25 is knurled and also a suitable etching may be provided on the front barrel portion of the elongated handle 10 to simplify holding while manipulating the nut 25. The end portions of the semi-cylindrical portions 34 and 35 which constrain the tool element 12 from rotation serve as bearing surfaces in effecting a breaking of a portion of the tool off at the appropriate score line.

In the operation of the device as described in conjunction with FIGURES 1-5, a blade within the hollow handle 10 is caused to engage the internal threads of the nut 25. This is accomplished by removing the cap 13 and initially inserting the end of the elongated blade element 12 in the cylindrical base portion 29 of the constraining means. The element may then be manipulated until the same is positioned to be received within the slot between the portions 34 and 35. The element is then urged gently within the slot portion between the members 34 and 35 until the oppositely threaded portions 15 and 16 engage the internal threads of the nut 25. The nut 25 is then carefully rotated to accept the threads of the elongated blade element to start the same on its travel out the end of the holder.

With particular reference to FIGURE 2, it should be noted that the threaded portions 16, 17, and 18 are spaced from the oppositely threaded longitudinal edge 15 by the distance D. This distance is greater than the distance d between the working surfaces 19, 20, and 21, and the opposite longitudinal edge 15. Thus, the working surfaces are recessed between the threaded portions so that they are adequately protected and will not engage the internal threads of the nut at any time during extension or contraction.

By having the entire length of one longitudinal edge of the element threaded as indicated at 15, continuous contact and longitudinal stability is provided between the internal threads of the nut 25 and the element itself. With such elongated contact, the oppositely threaded portions need only constitute two or three actual thread turns so that relatively long working surfaces may be disposed therebetween as shown in FIGURE 2. Preferably, the distance between the threaded portions such as 16 and 17 is slightly less than the overall length of the threads within the nut 25 so that, for example, when threading the elongated blade element 12 to the right as viewed in FIGURE 3, the threads 17 will engage the internal threads 26 of the nut 25 before the threads 16 leave the internal threads. This arrangement again will provide longitudinal stability for the element.

After a blade has been entirely used up, it is a simple matter to start feeding another blade retained within the hollow handle. Preferably, the overall handle structure approximates the size of a fountain pen so that the same is easy to carry about or keep in a draftsman's box with his other instruments.

Modifications that fall clearly within the scope and spirit of this invention will occur to those skilled in the

4

art. The extension tool is therefore not to be thought of as limited to the one example of knife edge portions set forth merely for illustrative purposes.

What is claimed is:

1. An extension tool comprising, in combination: an elongated hollow handle having a tool egress structure at one end, said handle including at least one elongated tool element having a plurality of working surfaces extending along one longitudinal edge and a plurality of transverse score lines between adjacent working surfaces, respectively, said tool having threads along its opposite longitudinal edge and threaded portions along said one longitudinal edge periodically spaced between said working surfaces, said egress structure including a nut rotatably mounted to said one end of said elongated handle and keyed thereto to prevent longitudinal movement thereof, said tool element extending through said nut in threaded engagement therewith; and constraining means for preventing rotation of said tool element while permitting longitudinal movement thereof so that rotation of said nut extends said tool element whereby after one of said working surfaces is worn, it may be broken off at said score line and the next successive working surface extended for use.

2. A tool according to claim 1, in which the working surfaces along said elongated tool element are recessed so that the threads along portions of said one longitudinal edge extend beyond said working surfaces to protect the same when said elongated tool element is being extended, said score lines being immediately adjacent threaded portions so that breaking off of any given working surface of said tool removes said threaded portion associated therewith, whereby the working surface is available for use when extended from the end of said egress structure.

3. In an extension tool, an elongated tool element arranged to have working surface portions thereof successively extended from the end of the extension tool, said elongated tool element having at least one longitudinal edge constituting screw threads over its entire longitudinal length, the opposite longitudinal edge including threaded portions periodically spaced therealong, said working surfaces being disposed between said threaded portions, said elongated tool element also including transverse score lines adjacent to said threaded portions, respectively, so that portions of said tool element may be broken at said score lines to expose next successive working surfaces, said working surfaces being recessed within the edge containing said threaded portions so that the protrusion of said threaded portions protects said working surfaces.

References Cited in the file of this patent

UNITED STATES PATENTS

158,830	Buterworth	Jan. 19, 1875
1,553,985	Ciesnierski	Sept. 15, 1925
2,051,199	Cristianson	Aug. 18, 1936
2,145,985	Krajicek	Feb. 7, 1939
2,736,963	Seiter	Mar. 6, 1956