April 4, 1961 N. B. MANESS 2,977,668

TOOL HOLDER

Filed March 3, 1958

Fig. 1

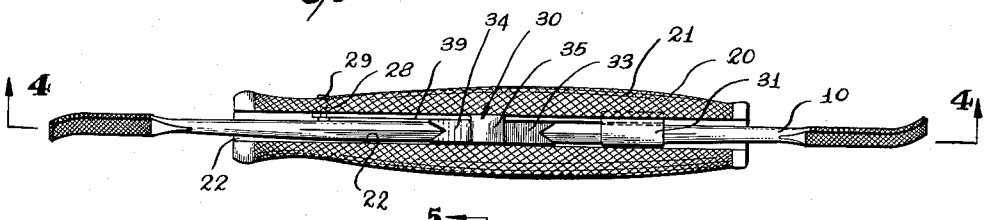


Fig. 2

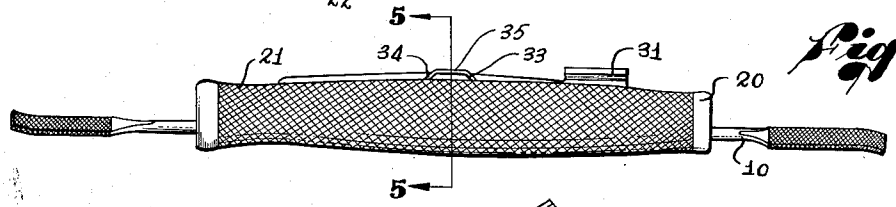


Fig. 3

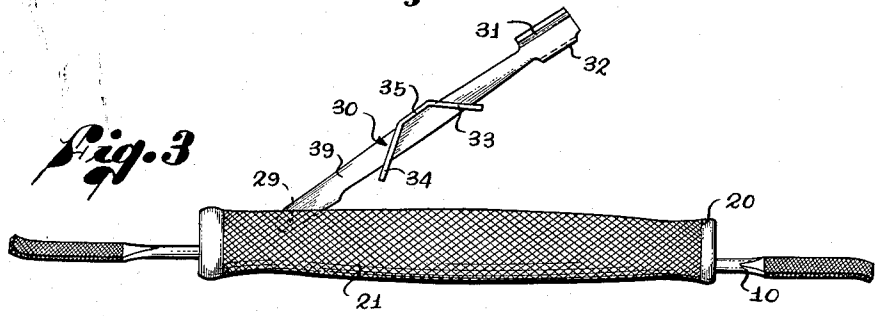


Fig. 4

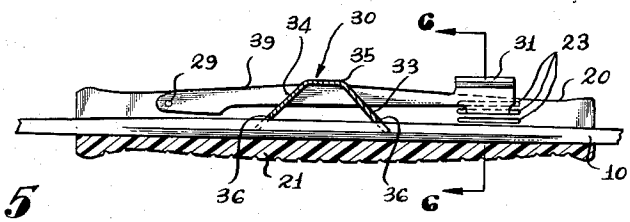


Fig. 5

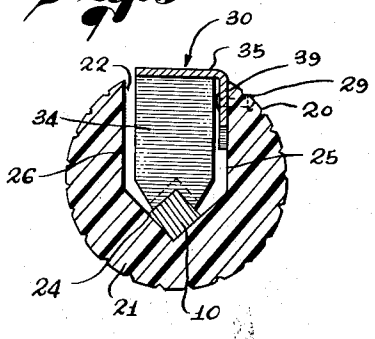
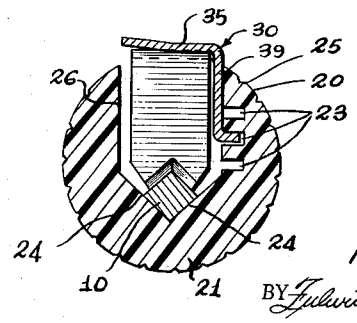


Fig. 6



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TOOL HOLDER

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1 Claim. (Cl. 29—80)

This invention relates generally to tool holders, and, in particular, to a holder for files in die making.

Large numbers of files, known in the trade as riffle files and needlepoint files, are used in the die making and mold making business. In general, riffle files have an elongated shank, generally of rectangular cross-section, with files at each end. Needlepoint files generally have a file at one end with a shank of round cross-section.

It has been deemed desirable to provide a single handle for both needlepoint and riffle files, which will be easily removable, and which will interchangeably hold any of the needlepoint and riffle files used by die makers. The different shank cross-sections, as well as the fact that riffle files have files at both ends, while needlepoint files have files only at one end, have made this a difficult problem. The problem has been complicated further by the elongated nature of these files.

There have been many developments in removable holders for files. However, none has accomplished the multiple purposes and functions of (1) interchangeably holding either needlepoint or riffle files adequately; (2) providing a handle through which the opposed file ends on riffle files may simultaneously protrude so the file may be constantly reversed in use; and (3) provide a holder for seating a riffle file within the holder in such manner that only one end will protrude from the handle when desired, in order that pressure may be exerted at the other end of the handle.

I have achieved the foregoing objects and accomplished the desired results by providing a handle having a longitudinally extending open-sided slot along the entire length of the handle, into which a file shank may be dropped with one or both ends thereof projecting beyond the end or ends of the handle. Associated with this handle is a tool-clamping device having tool-holding elements extending downwardly into the said open-sided slot in the handle to engage the file shank and clamp the same against the bottom of the slot. In a preferred form of the invention, the bottom of the slot is substantially V-shaped and the tool-clamping device has two downwardly diverging tool-clamping elements, each having a V-shaped notch at the lower end which notches engage upper side of the tool shank at spaced-apart points thereon when the clamping device is in tool-holding position.

Further objects and advantages of this invention will be more thoroughly understood by reference to the following specification and attached drawings of a preferred embodiment of my invention, in which:

Figure 1 is a plan view of the invention, looking down upon the exposed edge of the cavity in the holder;

Figure 2 is a side elevation of the same;

Figure 3 is a side elevation with the clamping device opened;

Figure 4 is a longitudinal section through the device, taken at 4—4 of Figure 1;

Figure 5 is a transverse section at 5—5 of Figure 2; and

Figure 6 is a sectional view through the device, taken at 6—6 in Figure 4.

Referring now to the drawings, the present invention will be seen to comprise a handle 20 having a clamping device 30 mounted thereon, which clamping device is adapted to engage and hold a file 10. The handle 20 is an elongated generally cylindrical body having a longitudinally extending, open-sided slot 22 extending its entire length and into which a file 10 is placed. The vertical sides 25 and 26 of the slot are preferably flat and parallel, as will best be seen in Figures 5 and 6, and the bottom 24 of the slot 22 is V-shaped in order to best accommodate either round or rectangular cross-sectioned file shanks. A hole 28 extends from the outer surface of the handle 20 to the surface 25 of the slot 22, and through this hole a pin 29 is inserted upon which the clamping device 30 is mounted. Near the end of the handle opposite from that in which the pin is located there are a plurality of horizontal, vertically-spaced grooves 23. The grooves 23 are adapted to receive a laterally-projecting lip 32 on the clamping device in order to hold it in varying positions relative to the lower portion of the slot 22. The outer surface of the handle 20 is knurled or scarified, as shown at 21, to provide a non-slip surface for easier and more effective handling.

The clamping device 30 may take a number of different forms, but in the preferred embodiment illustrated, it is seen to comprise a relatively flat bar or arm 39 of spring steel, steel or the like, vertically disposed within the slot 22 and closely adjacent the side 25. Projecting laterally from one end of the bar 39 is pivot pin 29 inserted into hole 28. At the other end of the bar 39 a lip 32 is bent laterally outwardly and is engageable in one of the grooves 23 to lock the bar in appropriate tool-clamping position. At the upper edge of said end of the bar immediately over the lip 32 is a laterally inwardly bent lip of finger catch 35 which forms a finger-hold which may be used for engaging and disengaging the lip 32 from the grooves 23.

More or less at the center of the bar 39 is an inwardly bent flange portion 35 having downwardly diverging tool clamp elements 33 and 34 which project into the slot 22. The lower ends of the tool-clamping elements 33 and 34 are formed into downwardly facing V-shaped notches 36 which are preferably beveled to provide a sharp edge for better bite on the tool shank. The V-shaped notches 36 act against the shank of a file 10 to press the same against the V-shaped bottom 24 of the slot 22 and thus are capable of gripping either square, rectangular or round cross-section shanks with equal facility.

Clamping device 30 is formed from one piece of spring steel, pivotally mounted to handle 20 by rivet 29. Finger catch 31, holding lip 32 to engage in a series of grooves 23 in the handle 20, and tool-clamping elements 33 and 34, are formed integrally with other portions of clamping device 30 and are connected thereto by shoulder 35.

Particular attention is invited to Figure 5 which is a cross-section of the invention through the plane 5—5 of Figure 1, and shows the file 10 held in position within the V-shaped lower portion 24 of the slot-like cavity 22 within the handle 20. The file 10 is held firmly seated within the V-shaped lower portion 24 of slot 22 by the two spring steel clamping elbows 33 and 34, each of which has a V-shaped notch in the end which engages the file shank, as illustrated particularly in Figure 6.

In practice, the clamping device 30 is raised to the position of Figure 3 of the attached drawings when it is desired to insert or remove a file. A file 10 is placed in the cavity 22 and the clamping device 30 is pressed down upon it. When pressed down, the only portions of the clamping device 30 which come into contact with the file 10 are the clamping elements 33 and 34. When the clamping device

30 is depressed into the handle 20, the lip 32 acts as a catch and engages one of the grooves 23 within the handle 20. By using different grooves for engaging lip 32, the tension upon the file shank may be varied and various sizes may be accommodated.

The file may be held with only one end protruding from the handle by loosening clamping device 30 and sliding the file one direction or the other through the cavity 22 until one end of the file is totally enclosed within the handle 20.

The outer surface of the handle 20 is knurled or otherwise shaped or scarified, as shown at 21, to provide a non-slip surface.

In a preferred form, the handle may be made of plastic and the tool-clamping device of spring steel. It is clear that the handle might be formed from wood, aluminum, or other material, and that the clamping device might be made of a number of different materials.

While the embodiment of my invention shown and described is fully capable of accomplishing the results desired, it is clear that a number of modifications and changes, all within the scope and spirit of this invention, will occur to anyone skilled in the art. It is not intended that this invention be limited to the particular embodiment shown or that any limitations be placed upon it by the embodiment shown, except such as are required by the appended claim.

I claim:

A tool holder of the class described comprising: an elongated handle; and longitudinally extending open sided cavity in said handle and extending the entire length of said handle to receive a tool shank; a clamping device

pivotally attached to said handle and movable between tool clamping and released positions; a portion on said clamping device projecting toward one side of said cavity to engage said tool shank and clamp the same against said one side of said cavity, said projecting portion on said clamping device adapted to be movable to a non-clamping position disposed substantially entirely outside of said cavity to a position such that said open side of said open-sided cavity is completely cleared and said cavity is capable of receiving a tool throughout the entire length of said cavity by way of said open side; said clamping device when in said tool clamping position being substantially entirely disposed within said elongated handle; and means for securing said clamping device in tool-holding position.

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CERTIFICATION OF CORRECTION

Patent No. 2,977,668 April 4, 1961

Norman B. Maness

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 29, for "and" read -- a --.

Signed and sealed this 29th day of August 1961.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

DAVID L. LADD
Commissioner of Patents