

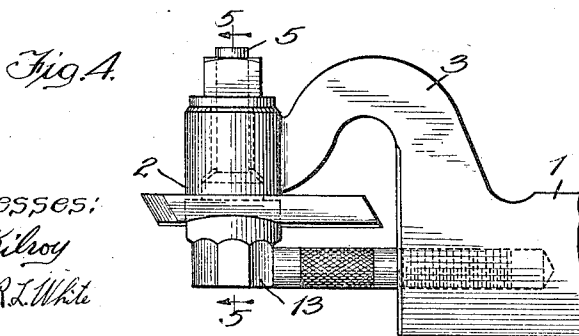
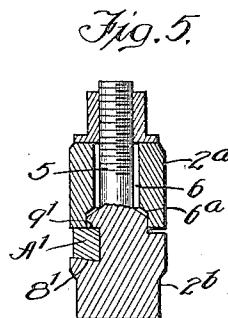
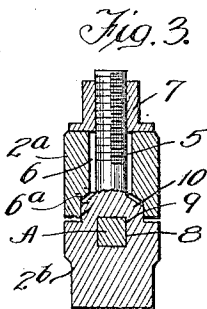
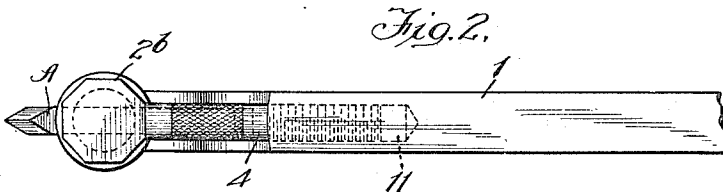
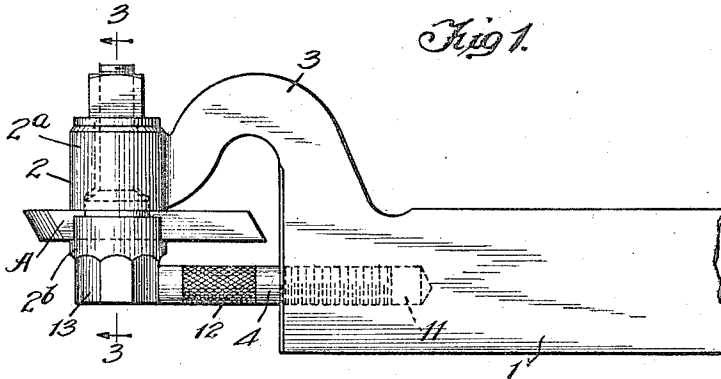
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TOOL HOLDER.

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1,277,481.

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TOOL-HOLDER.

1,277,481.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM S. ROBINSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Tool-Holders, of which the following is a specification.

The invention relates to tool holders of the type employed upon lathes and other metal working machines, wherein it frequently becomes desirable, as in cutting threads, to permit the cutting tool to yield slightly during the cutting operation, in order to produce a nice finish upon the work, and at other times it is preferred to rigidly hold the tool to the work; and the general object of the invention is to provide a tool holder which may be readily converted from a rigid into a resilient holder, and vice versa.

A more specific object of the invention is to provide, in combination with a resilient tool holder having a sectional clamping head, a simple and effective device adapted to be readily manipulated to counteract or neutralize the resiliency of the holder, and which is normally held against removal from the holder by one of the sections of the head, and thus is carried by the tool holder at all times so that it cannot become lost or misplaced when not in use.

The objects of the invention thus generally stated are attained by providing on one end of the shank of a tool holder an inverted U-shaped portion or neck having a sectional head on its end adapted to securely support a tool and to release the tool without being disassembled, and adjustably mounting in the end of the shank below the neck a stop screw adapted to be screwed into engagement with a removable section of the head to serve as a stay or brace between the head and the shank when it is desired that the tool be rigidly supported by the holder.

A preferred embodiment of my invention is illustrated in the accompanying drawings forming part hereof in which Figure 1 is a fragmental side elevation of my improved tool holder. Fig. 2 is a fragmental underside plan view of the tool holder. Fig. 3 is a sectional view on line 3—3 Fig. 1. Fig. 4 is a fragmental side elevation of a slightly modified form of tool holder.

Fig. 5 is a sectional view on line 5—5, Fig. 4.

Similar numerals refer to similar parts throughout the drawings.

The tool holder consists of a shank 1, a sectional tool clamping head 2 carried on the end of an inverted U-shaped neck 3 formed on one end of the shank, and a stop screw 4 mounted in the end of the shank below the neck and adapted to be screwed into and out of engagement with the head.

The shank 1 of the tool holder is in the form of a rectangular bar adapted to be mounted in the tool post or holder (not shown) of a lathe or the like, and the head 2 which may be made cylindrical in form is supported uprightly upon the free or forward end of the neck 3 which is formed integrally with the shank.

The head 2 is preferably made in sections, consisting of an upper section or jaw 2^a, and a lower section or jaw 2^b.

The upper jaw is preferably formed integrally with the neck 3 and the lower jaw is provided with a central upright stem 5 extending upwardly through an aperture 6 in the upper jaw and provided with a nut 7 on its threaded end by means of which the two jaws are adapted to be clamped together. The upper portion of the lower jaw 2^b is provided with a transverse groove 8 which is partially closed by the lower end of the stem 5 formed on the jaw and said stem is also slightly grooved on its under side as shown at 9, Fig. 3, to permit the insertion of a tool A of slightly greater thickness than the depth of the groove 8 in the jaw 2^b. It will thus be evident that a small portion of the tool A will protrude above the upper surface of the lower jaw at each side of the stem so that when the two jaws of the head are clamped together by means of the nut 7 on the stem 5 the lower end of the upper jaw 2^a will engage with the upper surface of the tool and securely hold it in position in the groove 8. Preferably the lower end of the stem 5, as it is formed upon the lower jaw 2^b, has an enlarged portion 10 having a tapered upper surface, and the aperture 6 of the jaw 2^a is correspondingly enlarged and shaped as at 6^a to receive the

portion 10. This construction affords an improved bearing for the stem in the upper jaw.

The neck 3 for supporting the head 2 on the shank 1 is adapted to hold a tool in the head with a substantial degree of rigidity, but at the same time is sufficiently reduced in size from that of the shank upon which it is formed to permit a slight longitudinal yielding of the tool in case a hard and unyielding substance is encountered by the tool in the work, or in case a cut of unusual depth is made by the tool. Such yielding of the tool is advantageous where it is essential that a nice finish be produced upon the work.

It is sometimes desirable to rigidly mount the tool in the lathe and in such event it becomes necessary to employ a tool holder which is not resilient. In order to avoid the necessity of employing a separate tool holder for this purpose I have provided means for staying or bracing the head against a yielding movement and thus enable a tool holder to rigidly support the tool for engagement with the work. Such means consists of the stop screw 4 which is entered through a threaded opening 11 in the forward end of the shank 1, below the neck 3. Such screw is preferably knurled as at 12 and is adapted to be screwed into and out of engagement with the lower jaw 2^b of the head. The screw is made of such length that it cannot be removed from the shank without disassembling the head 2, and the lower end of the jaw 2^b of the head is preferably made in the shape of a regular polygon, as at 13, in order to afford flat bearing surfaces for the forward end of the stop screw in various positions of adjustment of the tool A in the head.

It will thus be seen that the stop screw is readily adjustable into or out of engagement with the head so that the tool holder is readily convertible into either a rigid or a yielding holder, as may be desired, and at the same time the screw is retained in the holder at all times thus avoiding any danger of losing the screw due to the removal of the same in making a change from a rigid to a resilient holder. Furthermore, only a slight movement of the screw is necessary to change the holder into the desired form owing to the comparatively slight extent to which the tool is caused to yield, and thus the operation of converting the tool holder from one form to the other is extremely simple and easy.

In Figs. 4 and 5 I have shown a slightly modified manner of mounting the tool A' in the head of the holder without interfering with the operation of the stop screw. In this instance the tool is mounted in trans-

verse grooves 8' and 9' formed at one side of the jaw 2^b and the stem 5 respectively, the tool and grooves being preferably beveled downwardly and inwardly at their lower edges in order to prevent the tool from slipping laterally out of the grooves.

I claim as my invention:

1. A tool holder including a shank, sectional means for yieldingly supporting a tool upon one end of the shank, and a member carried by the shank movable longitudinally thereof into and out of engagement with the tool supporting means, said member being irremovable without wholly disassembling the tool-supporting means.

2. A tool holder including a shank having a resilient neck, sectional means for supporting a tool carried by the neck, and a member carried by the shank movable longitudinally thereof into and out of engagement with the tool supporting means, said member being irremovable without wholly disassembling the tool-supporting means.

3. A tool holder including a shank, a head for supporting a tool comprising a fixed section and a removable section, a resilient neck connecting the head to the shank and supporting it at substantially right angles thereto, and a stop screw in the end of the shank adapted to be screwed into and out of engagement with the removable section of the head.

4. A tool holder including a shank, a sectional tool supporting head yieldingly mounted on the shank, and a stop screw in the shank adapted to be screwed into and out of engagement with the head, said stop screw being irremovable from the shank without disassembling the head.

5. A tool holder including a shank having a resilient neck; an upright sectional head including a fixed upper section and a removable lower section, and means for clamping the sections of the head together with a tool therebetween; and a stop screw in the shank adapted to be adjusted into or out of engagement with the lower section of the head, said screw being irremovable from the holder without wholly disassembling the head.

6. A tool holder including a shank having a resilient neck; an upright sectional head including an upper jaw and a lower jaw, and a stem on the lower jaw entered through the upper jaw and having a lock nut threaded on its upper end for clamping the jaws together, there being a transverse groove in the lower jaw adapted to receive and hold a tool of greater thickness than the depth of the groove when the jaws are clamped together and to release the tool when the jaws are unclamped without disassembling the head; and a stop screw in the shank adapted to be adjusted into and

out of engagement with the lower jaw of the head, said screw being irremovable from the holder without disassembling the head.

7. A tool holder including a shank, an
5 upright head for supporting a tool, a resilient neck connecting the head to the shank, and a stop screw in the shank adapted to be screwed into or out of engagement with

the head, the lower end of the head being removable to enable the insertion of the 10 screw into the shank and provided with a plurality of flat bearing surfaces on its periphery for engagement by the stop screw.

In testimony whereof, I have hereunto set my hand.

WILLIAM S. ROBINSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."