W. PARKER.

HOLDER FOR THREADING TOOLS.

APPLICATION FILED AUG. 14, 1915.

1,216,484. Patented Feb. 20, 1917.

Fig. 1.

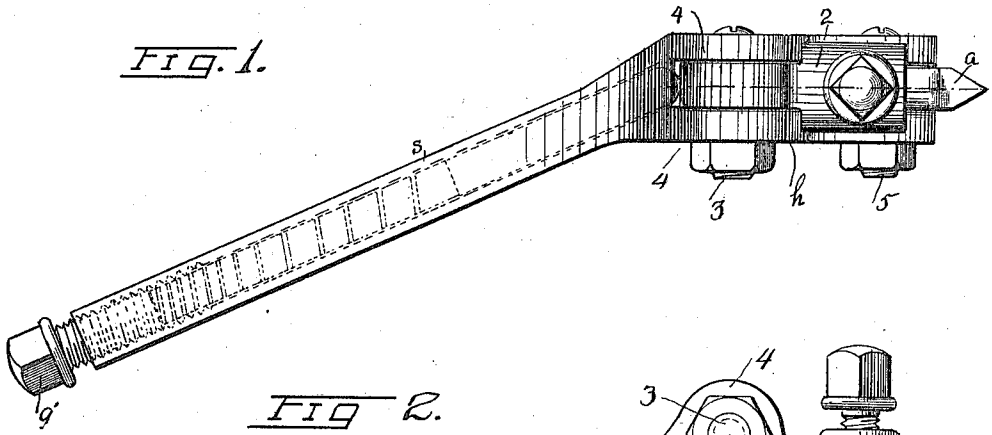


Fig 2.

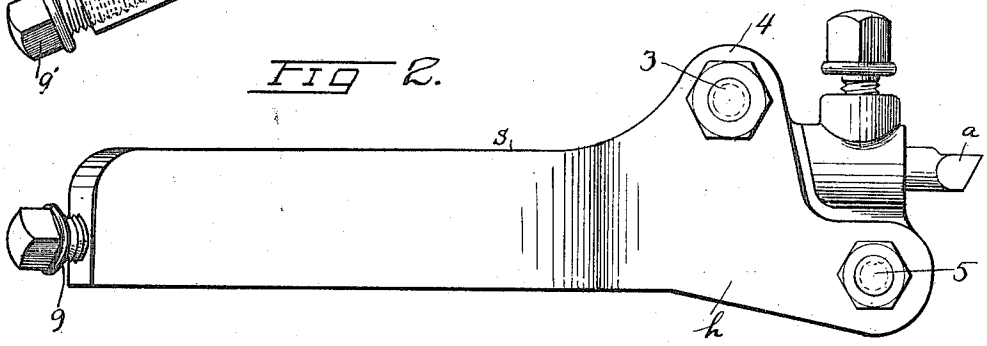


Fig. 3.

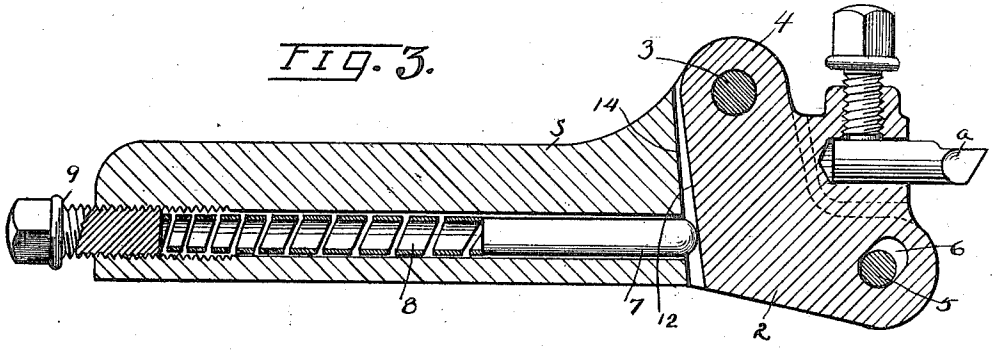
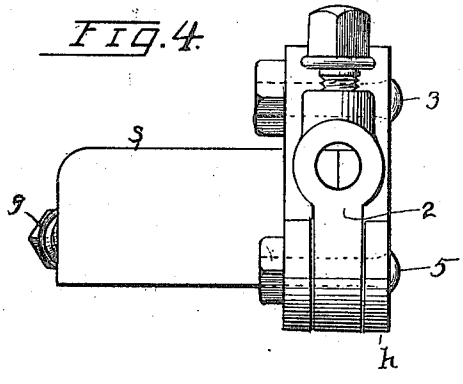


Fig. 4.



WITNESS

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HOLDER FOR THREADING-TOOLS.

1,216,484. Specification of Letters Patent. Patented Feb. 20, 1917.

Application filed August 14, 1915. Serial No. 45,527.

To all whom it may concern:

Be it known that I, WILLIAM PARKER, a subject of Great Britain, residing at East Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Holders for Threading-Tools, of which the following is a specification.

This invention relates to holders for threading tools, and the invention consists in a holder constructed and adapted to operate substantially as shown and described and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a plan view of the holder complete and Fig. 2 is a side elevation thereof. Fig. 3 is a longitudinal sectional elevation and Fig. 4 is a direct front view thereof.

As thus shown the said holder is featured with a shank *s* adapted to be engaged in the post of a lathe or machine more or less as usual, and a head *h* having a recess open from top to bottom and of a shape and size to receive the tool support 2. The said support is pivotally suspended in said recess from the top and rear thereof by a pivot 3 through the ears 4 of said head, and the said support is limited in its possible movement on said pivot back and forth by a bolt 5 transversely through the same and through the inclined slot 6 in the tool support 2 plus the wall at the rear of said recess and the bolt therein. The tool *a* is removably socketed in the said support and held by set or clamping screw, and a bolt 7 and a sustaining spring 8 are located in the bore of the holder shank *s* and bear against the heel of the tool support 2, as plainly seen in Fig. 3.

An adjusting screw enters the said bore behind the spring 8 and is adapted to tighten or loosen said parts more or less according to the sustained resistance or pressure required behind the tool *a*. Obviously, it is desirable to maintain the tool firmly in any given working position and practically as if no provision were made or were necessary to afford a yielding resistance to meet different operating conditions, such as to prevent chattering of the tool and to back it in work on metals of different degrees of hardness. Hence the spring 8 is not only so constructed and arranged behind the bolt 7 as to maintain the necessary back support for the tool for varying cutting conditions of metal, also that the resistance set up by the spring will be cumulative from the minimum to the maximum resistance required and all within the accommodation afforded by the slot 6 and the bolt 5 therein. For example, having the tool engaged on soft work the support 2 will sustain the relation to the other parts, say as shown in Fig. 3, but in case the work be considerably harder the support 2 will be forced back correspondingly but against increased resistance because the wider and stiffer coils of the spring will then be brought into play. To this end, I have devised a spring 8 which may be formed from a strip of flat spring metal tapered lengthwise along both edges and bent into a coil as shown, the coils being of gradually increased width from end to end and hence of increasing resistance as the wider or heavier coils are brought into play. All the coils are comparatively close at their edges and of course the first compression comes on the narrower coils and follows therefrom to the stiffer coils with cumulative resistance.

It will be seen that, normally, the support 2 hangs with its rear edge 12 apart from the rear wall 14 of the recess approximately as much as the play afforded in slot 6 for the screw 5 therein. Inward adjustment of screw 9 closes the narrower coils as a first step and all the coils can be compressed into a solid formation by sufficient inward adjustment of the screw. In practice, heavy cutting of the work is accomplished best by first closing the springs to make a solid backing for the tool support and then for the lighter and finishing cuts the spring is opened more or less to permit backing away of the tool when the stock begins to tear, and the graduated spring permits accurate and sensitive adjustment to various depths of cut.

Among other things it will be observed that in the tool shown there is no room whatever for side shake since the construction and arrangement of the tool holder in the head is such as to make such deviation impossible. Practically the recess in the head for the holder is an open slot, which provides a close lateral confinement on both sides over almost the entire side surface of the support 2 and the tool comes midway between the pivot 3 and the transverse tightening and limiting bolt 5. Thus the tool support 2 is caused to be housed well up in the head *h* and prevents all possible side

movement in the holder and makes an inaccurate or drunken pitch impossible.

Again, the style of the spring 8 with its flat sides is of the essence of the invention because the tool shank in which the spring is confined is necessarily slight to enter the usual lathe tool posts as some of these do not exceed half an inch in width. Hence a bore in such a shank must not exceed five-sixteenths of an inch. The use of a flat spring of the type shown is therefore deemed imperative. Furthermore, by making the spring flat and of a continuous graduated coil, the lathe operator is enabled to get almost any desired pressure to back the tool and the tool can be adjusted to take the light cuts in either shallow or deep threads necessary to produce a perfectly smooth surface, because of the extreme flexibility of the spring when extended and its stiffness when the lighter coils are closed.

What I claim is:

A tool holder having a shank with a longitudinal bore through the same and a head with a recess open to said bore, a tool support pivoted in said recess and adapted to tilt within limits therein and inclosed at both sides by the walls of the recess, a thrust sustaining bolt in said bore bearing against said support below its pivot and a single flat spirally wound cumulative spring behind said bolt having coils of uniformly increasing width from end to end and adapted to exert increased resistance as back pressure through said bolt increases.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM PARKER.

Witnesses:
GEO. E. KRICKER,
F. C. HARROLD.

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