

UNITED STATES PATENT OFFICE.

LOUIS SMITH, OF BROOKLYN, NEW YORK.

TOOL-HOLDER.

1,212,271.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LOUIS SMITH, a citizen of the United States, and a resident of borough of Brooklyn, in the county of Kings and city and State of New York, have invented certain new and useful Improvements in Tool-Holders, of which the following is a description in such full, clear, and exact terms as will enable any person skilled in the art to which it pertains to make and use the same.

My invention relates to a tool holder for lathes and like metal working machines adapted for cutting threads and for performing other cutting operations on rotating work and will produce a better finished job than with the tools heretofore used.

The object of the invention is to provide a tool holder which will allow the tool to yield when it meets with any unusual obstruction in the work and to instantly return to its proper working position. By this arrangement I avoid breaking the tool or its holder or spoiling the work piece.

To this end the invention comprises certain novel features of construction and combinations of parts which will be fully set forth hereinafter and particularly pointed out in the claims.

Reference is had to the accompanying drawing which represents as an example the preferred embodiment of the invention in the drawing.

Figure 1 is a side elevation of the tool holder. Fig. 2 is a longitudinal section on the line 2—2 of Fig. 1, Fig. 3 is a cross section on the line 3—3 of Fig. 1 and Fig. 4 is a sectional view showing a modification.

10 indicates the shank of the tool holder which is fastened in place on the lathe or other machine and has two bearings 11 in which the shaft 12 of the tool holder is mounted to rock. At one end said shaft is furnished with socket 14 in which the tool 15 is removably fastened by set screw 16.

At the other end the shaft 12 has a collar 17 fastened to it by set screw 18. The collar is furnished with an opening 19 therein and this is designed to receive a stud 20 fastened to one of the bearings 11. The opening 19 is larger than the stud or pin 20 and therefore allows the shaft 12 a limited rocking motion in the bearings 11, the degree of such rocking motion being determined by the size or length of the opening or slot 19 in the collar 17.

21 is a coil spring which surrounds the shaft 12 and has one end anchored in the rear bearing 11. The other end of the spring is anchored in a collar 22 which is mounted on the shaft 12 and fastened thereon at any desired position by a set screw 23.

24 indicates a number of openings in the collar 22 which is designed to receive a pin by which the collar may be turned and the tension of the spring 21 adjusted, this turning of course, being effected when the set screw 23 is loose after which the set screw is tightened to hold the collar at the desired adjustment.

In the use of the invention the tool 15 is set to the work in the usual way by fastening the shank 10 of the tool holder on the lathe and the tool thus placed operates in the usual way, the spring 21 being of sufficient strength to hold the tool up to the work and cause it to perform its necessary functions. Should the tool strike an obstruction in the work, for example, a flaw producing an unusually hard mass which will usually tend to break the tool or to chip or otherwise spoil the work, the spring 21 gives and allows the tool to yield from the work. The obstruction in the work is thus passed and the tool at once springs back to its work. The spring 21 it should be noted is of sufficient tension to hold the tool during all of its normal operation and it yields only when an unusual obstruction is encountered which would otherwise either smash the tool or splinter or chip the work itself.

To increase the retracting action of the tool it may be placed eccentrically in the socket 14 of the shaft 12 as indicated in Fig. 4. By this means the rocking of the shaft moves the tool 15 bodily sidewise away from the work simultaneously with the removal effected by rotation.

The invention is useful in a great many situations in metal working. It is particularly useful in cutting interior threads.

What I claim is:—

1. The combination of a tool holder body piece with a bearing therein, a rocking shaft in the bearing adapted to carry the tool and means for yieldingly holding the shaft against turning motion for the purpose of retracting the tool when it strikes an obstruction in the work.

2. The combination of a tool holder body piece with a bearing therein, a rocking shaft

in the bearing adapted to carry the tool and means for yieldingly holding the shaft against turning motion, such means comprising a spring coiled around the shaft and
5 engaging the bearing at one end and fastened to the shaft at the other for the purpose of retracting the tool when it strikes an obstruction in the work.

3. The combination of a tool holder body
10 piece with a bearing therein, a shaft mounted in the bearing and carrying the tool, means for yieldingly holding the shaft against turning motion, a collar fastened to the shaft and having an opening therein
15 and a stop pin engaging the walls of the opening, said slot in the collar being longer than the width of the stop pin for the purpose specified.

4. The combination of a tool holder body
20 piece having a bearing, a shaft mounted to turn therein and adapted to carry the tool, a spring coiled around the shaft, one end of

the spring anchored to the body piece, an adjustable collar on the shaft to anchor the other end of the spring, a collar fastened to
25 the shaft and having a slot therein and a stationary pin projected in the slot, the slot being longer than the width of the pin for the purpose specified.

5. The combination of a tool holder body
30 piece with a bearing therein, a rocking shaft in the bearing adapted to carry the tool and means for yieldingly holding the shaft against turning motion, the shaft formed to carry the tool eccentrically for the purpose
35 specified.

In testimony whereof I have hereunto signed my name in the presence of two witnesses.

LOUIS SMITH.

Witnesses:

ISAAC B. OWENS,

PATRICK A. BOLGER.

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