W. X. STEVENS.

Screw-Threading Machine.

No. 62,977. Patented March 19, 1867.

Fig. 2

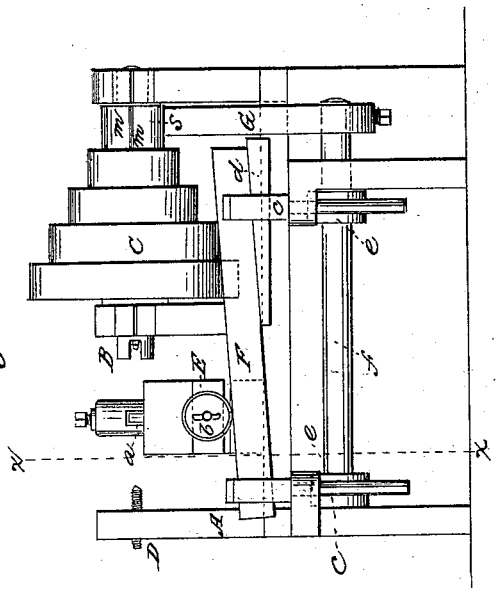


Fig. 3

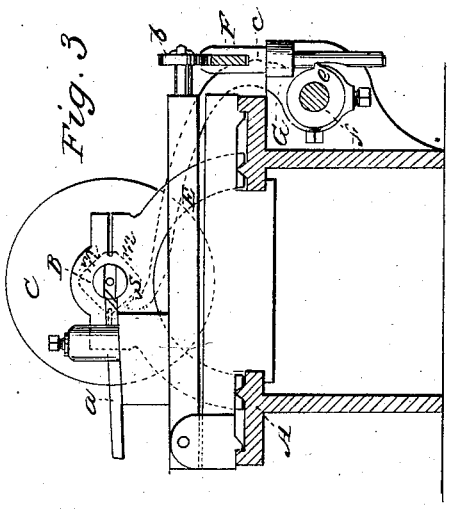
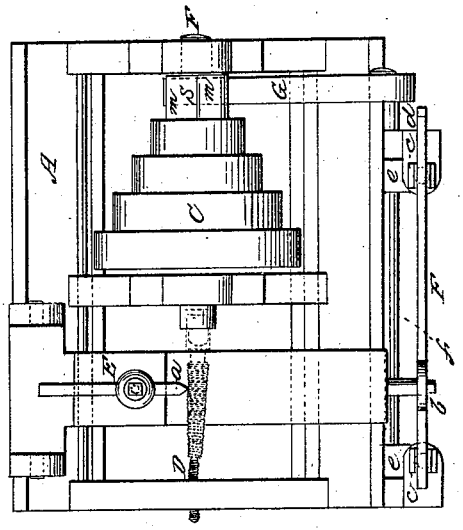


Fig. 1



Witnesses:

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United States Patent Office

W. X. STEVENS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO J. M. AND D. B. KING, OF WATERFORD, NEW YORK.

Letters Patent No. 62,977, *dated March* 19, 1867.

IMPROVEMENT IN LATHES FOR CHASING AND BACKING DOWN TAPS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, W. X. STEVENS, of Worcester, in the county of Worcester, and State of Massachusetts, have invented a new and useful Improvement on Lathes for Chasing and Backing Down Taps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 is a plan of a lathe in part, with my improvement applied thereto.

Figure 2, a side elevation thereof; and

Figure 3, a transverse section, as denoted by the line *x x* in fig. 2.

Like letters indicate corresponding parts throughout the several figures.

In this my improvement I employ many parts or details which are common to other lathes for doing similar work, such as the revolving mandrel and driver to the tap blank, which is held by the usual centres at opposite ends horizontally, sliding and raising and lowering tool-stock, and guide-bar used for making the tool follow the taper or profile of the tap. These parts, therefore, will only be generally referred to in the following description of my invention, the nature of which consists in, firstly, giving to the tool its "backing-down" motion through the guide-bar previously mentioned, and which device is accordingly made to accomplish two functions instead of one, and to secure the proper relative performance of both. Also, my invention further consists in raising the end of the tool-stock by means of a pattern on the mandrel, which forms a simple and effective device for the purpose. Likewise, my invention consists in a novel combination of pattern on the mandrel lever, with its lifter or lifters set in motion by the pattern, bar operated by the lifters, and tool-stock raised at its end by the motion of the bar, the whole or such several parts operating as an entirety to effect the "backing-down" action required in an easy and practicable manner.

Having specified the nature of my invention, I proceed to describe the same with reference to the accompanying drawing, in which A represents the frame and bed part of the lathe, B the revolving mandrel, with its cone of pulleys, C; D the back centre, between which and the mandrel the tap blank is held, as represented at fig. 1 in red. E is the tool-stock, arranged to slide on the bed or beds of the lathe by the ordinary or any other suitable feeding mechanism, and holding at its back or hinged end the cutting tool, *a*, while its front or lifting end may be provided with a roller, *b*, to ease its action by or on the inclined rail or guide-bar, F, which, during the feed of the tool-holder, makes the tool follow the taper or profile of the tap, as well understood by those conversant with machinery of this description. This bar F may also be made the means for giving to the tool its "backing-down" action, or a separate bar similarly applied and operated may be used for this purpose. I prefer, however, the same bar, not merely on account of its reducing the number of parts employed, but as, by using both the same means, causing the guidance of the tool in the taper of the tap and "backing-down" action of it to be more in unison. To do this I support the bar F on or in guiding stems, *c*, in which it may freely fit so as to be raised or lowered by a wedge, *d*, at its one end to alter the inclination of its upper surface according to the taper required to give the tap. These stems, passing through suitable guiding apertures in projections from the frame, are formed with a toe, or otherwise equivalently constructed, so as to rest on lifters, *e*, of a rocking-shaft, *f*, which carries at its one end a lever, G, that may be adjustable thereon and is extended to underlap the rear portion of the mandrel on which is secured a pattern, S. This pattern is of a figure corresponding to the transverse section of the tap, except that in the pattern the depressions from a circular form are much greater in proportion to its diameter than in the tap after "backing down," thus, where the backing down is to be made four times in the circumference, the pattern S has four properly shaped depressions, *m m*, so that at each revolution of the mandrel the lever G will be depressed and recover its position four times, causing the bar F, through the lifters and guiding stems as described, to raise the tool-stock and so work the tool further from the centre of the tap blank, and afterwards to lower or work it deeper into the blank, accordingly as the pattern depresses the lever G, to lift the tool-stock, or the latter, by its weight and relief from lift, falls or resumes its normal position. In this way is the desired irregularity of cut given to the tap blank, to complete the "backing down." The tap is afterwards slotted lengthwise in the usual way to form teeth, care being taken

to slot out from the centres of the highest to the lowest points, leaving the highest point for the tooth facing forwardly in direction of the cut.

What I claim herein as new and useful, and desire to secure by Letters Patent, is—

1. Operating the guide-bar F, which regulates the taper of the tap, so as to channel it longitudinally by mechanism constructed substantially as described.

2. The arrangement on the mandrel B of the pattern S, acting in combination with and indirectly through the lever G, rock-shaft *f*, cams *e*, and guide-bar F, on the tool-stock E, for throwing back the tool, essentially as herein set forth.

3. The combination of the pattern S on the mandrel, the lever G, with its rock-shaft and lifters, and the bar F, raised by the latter and acting on the lifting end of the tool-stock, substantially as and for the purpose or purposes specified.

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Witnesses:

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