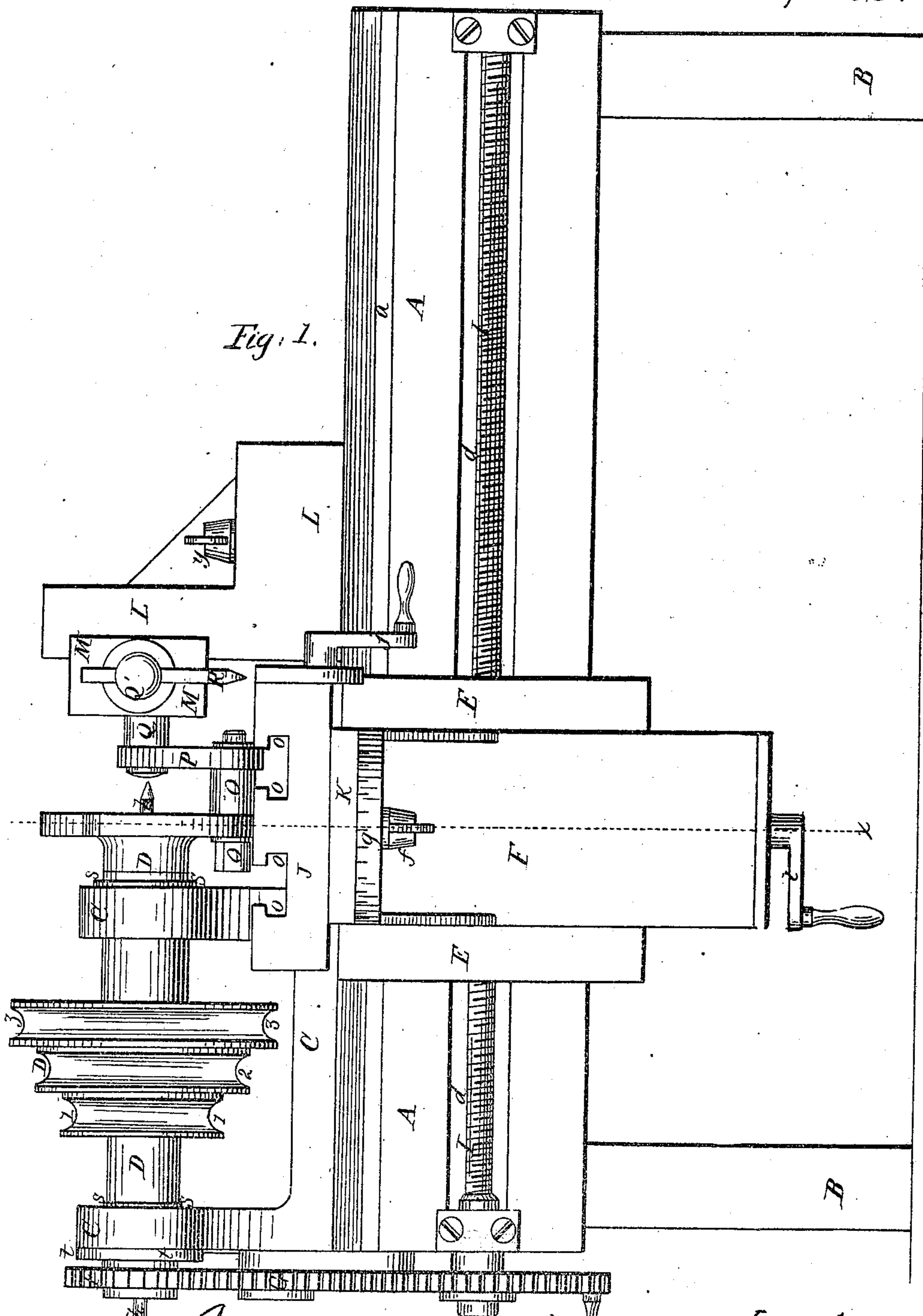


# L. F. Munger. Lathe.

N<sup>o</sup> 73027

Patented Jan. 7, 1868.



Witnesses,

J. D. Patten  
Morse & Co.

Inventor,

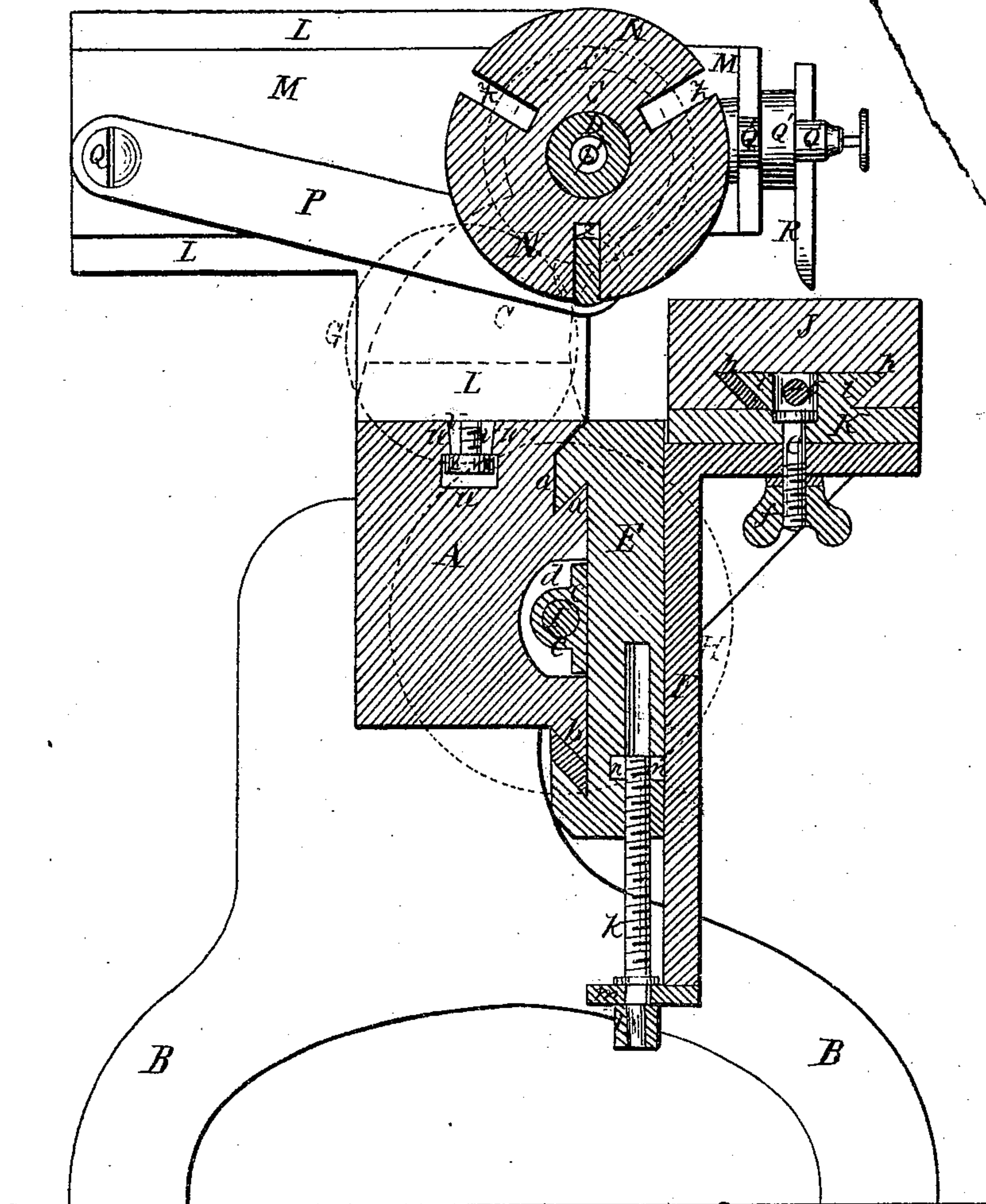
L. F. Munger.  
By Atty. A. B. Sloughton.

L. F. Munger.  
Lathe.

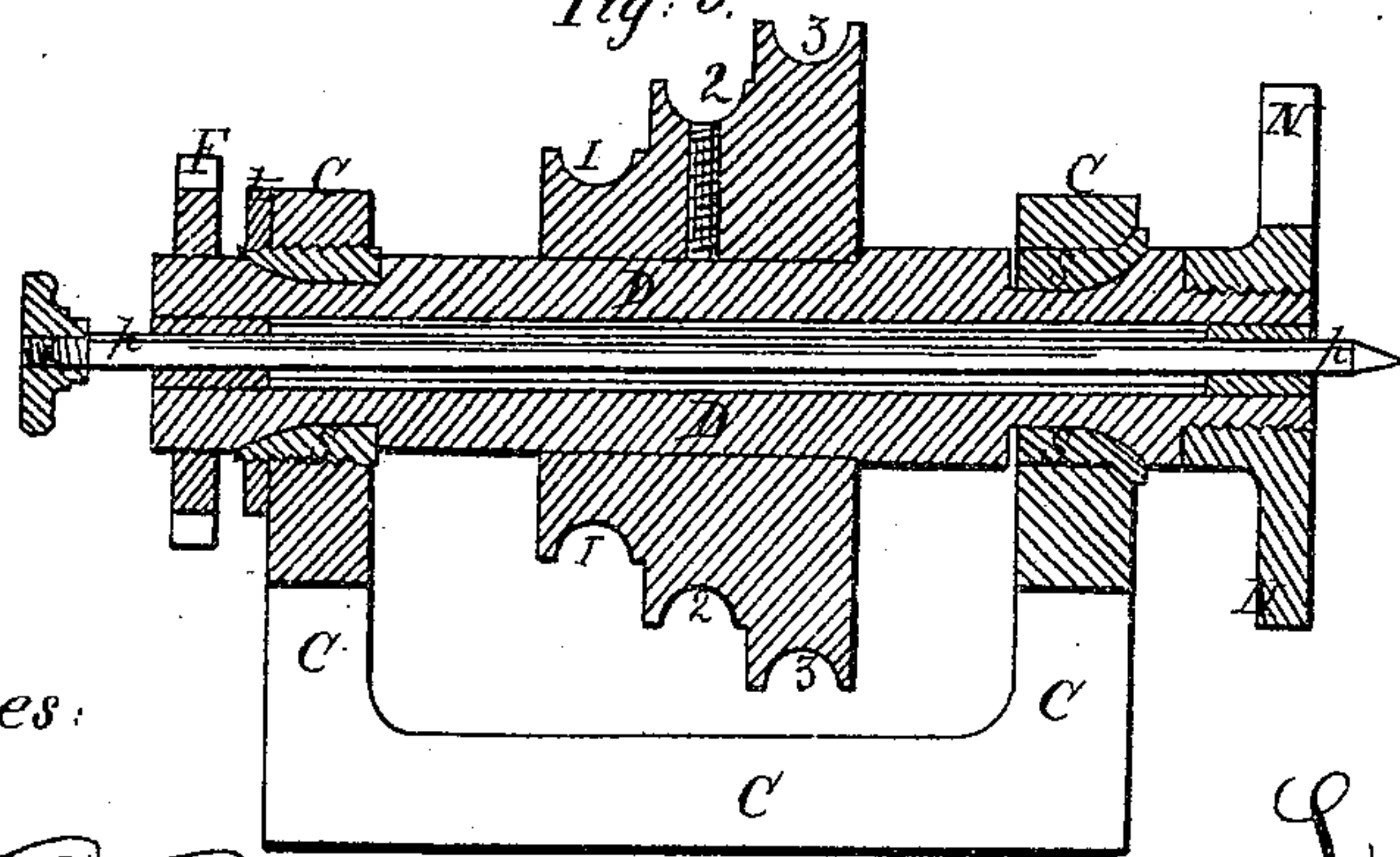
Nº 73027

*Patented Jan. 7, 1868.*

*Fig. 2.*



*Fig. 3.*



*Witnesses:*

J. L. Patten.  
Morris Pool

*Inventor:*

L. F. Munger.  
By Atty. A. B. Stoughton.



# United States Patent Office.

L. F. MUNGER, OF ROCHESTER, NEW YORK.

*Letters Patent No. 73,027, dated January 7, 1868.*

## IMPROVEMENT IN LATHES.

*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, L. F. MUNGER, of Rochester, in the county of Monroe, and State of New York, have invented certain new and useful Improvements in Lathes, and Planing and Shaping-Engines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a front view of the machine.

Figure 2 represents a vertical cross-section taken at the red line *x x* of fig. 1.

Figure 3 represents a longitudinal vertical section-through the mandrel and its connected parts.

Similar letters of reference where they occur in the separate figures denote like parts in all of the drawings.

My invention relates, first, to the placing of the lathe-centres vertically or nearly so over the front of the lathe, or over the ways at the front of the lathe, upon which the slide-rest is supported and moves, so as to more readily adapt the machine to turning, planing, or shaping, as the case may be; second, the combination of the centring-rod with the mandrel and its adjustable bearings, third, in combination with a planing-tool, having an adjustable motion from the face-plate of the lathe, a slide-rest, that has a vertical, horizontal, and swivelling motion, to bring any article thereon or therein up to the tool, in any desired right-angled or oblique lines.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

The bed A of the lathe may be supported on legs B B, and in or on this bed are formed the ways, upon which the tail-block, tool-holder, and slide-rest may move, and be guided and adjusted. Upon one end of the bed A is placed a metallic frame or arms, C, which incline over towards the front of the lathe, and in these arms the mandrel D is supported and turns. On the front side of the bed A are formed the ways *a b*, on which the slide-rest E is moved, as will be explained. The centre of the mandrel is vertical or nearly so over these ways, so that the slide-rest projects considerably from the side of the lathe-bed, as shown in fig. 2. On the mandrel are the usual pulleys, 1 2 3, over one of which the endless belt or band that drives it may pass. The outer end of the mandrel has upon it a gear-wheel, F, that takes into and turns an intermediate, G, and this intermediate gear drives a larger gear, H, on the end of the screw-shaft I, which works through a nut, *e*, in or on the slide-rest, and thus moves the slide-rest E. The screw works in long recess or groove *d* in the bed, so as to be entirely protected therein. On the horizontally-projecting portion or table F' of the slide-rest F there is placed a tool-slide, composed of two pieces, J K, which have movements or adjustments together and independent of each other, as follows: A clamping-screw, *e*, and thumb-nut, *f*, hold the tool-slide to the slide-rest F, and the tool-slide can be turned around this screw as a centre to give it an oblique position to the right or left in relation to the mandrel, and the edge *g* of the table F' may be marked off into divisions, lines, or marks, by which the tool-slide may be definitely set. A dove-tail groove, *h*, is made in the upper portion J of the tool-slide, and a dove-tailed tongue, *i*, on the under portion K, so that said upper portion may be moved laterally on the under portion by means of a screw-rod, *4*, on said upper part, working through a nut, 5, in the under portion, the screw-rod being turned by a crank, *j*. The tool-slide has thus three adjustments, viz, vertical, horizontal in lateral lines, and horizontal in a circular direction around the screw *e*, and it has also its general feed or traverse by means of the screw-rod I. A vertical screw-rod, *k*, with a crank, *l*, upon its lower end, passes through a portion, *m*, of the tool-slide, and through a nut, *n*, in the slide-rest, and the two parts are fitted together by dove-tailed ways, so that by means of the screw-rod *k* the tool-slide may be raised or lowered vertically at pleasure. In the top of the tool-slide J there are undercut grooves, *o o*, in which the tool or any article to be worked with or upon may be placed and secured. The mandrel D is hollow, and through it passes the centring-rod *p*, which has its supports at *r r*, one at each end of the mandrel; and these bearings *r* are bored out after they are put in the mandrel, so as to be perfectly centred in the mandrel, the boring being done by revolving the mandrel in its bearings in the lathe. The mandrel is bushed in its bearings by the wedged or inclined bushes *s s*, one in each arm, and at the geared end of the mandrel there is a screw-nut or sleeve, *t*, which works upon a screw-thread cut around the bush at that end, so that, by turning said nut or sleeve, any and all slack motion in the mandrel endwise can be taken up, and when the lathe becomes worn by use, the bearings and bushes may be renewed, and the lathe-work as true as when first made. The above construction of mandrel



and centring-rod makes the lathe capable of doing the most accurate work, and of the very finest character, and adapts it to turning, planing, shaping, milling, and other work usual in fitting up accurate machinery. I have represented the machine in the drawings as fitted up for planing, but by removing the planing-tool and its support and driving-devices, and slipping on to the same ways the ordinary lathe tail-block, turning or milling can be done, or other lathe-work. A groove, *u*, is cut on the top of the bed of the lathe, in which a tongue, *v*, on the under side of the block *L*, fits, and a clamping-screw, *w*, whose head, *x*, takes under the shoulders of said groove, and then passes up through said block *L*, holds the block in any adjusted position by turning the thumb-nut *y*. Transversely of the block *L* or of the lathe there operates a tool-stock, *M*, to which motion can be given from the face-plate *N* of the lathe, as follows: The slots *z*, in the face-plate, are cut through to the perimeter of the face-plate, and a wrist-pin, *O*, is secured in one of said slots, and at such distance from the centre of the face-plate as will give to the tool the proper traversing motion. To this wrist *O* is connected one end of a pitman, *P*, the other end thereof being attached to a wrist, *Q*, on the sliding-tool stock or holder *M*, and thus, when the mandrel is revolved, the tool-holder receives the reciprocating motion. In the end of the tool-stock *M* there is arranged a tool-holder, *Q'*, which is susceptible of removal, replacement, and of adjustment, and the tool *R* therein traverses over what I have termed the "tool-slide," but which in this arrangement and use of the machine becomes a bed or holder, as it also does when the machine is used for milling, the milling-tool being on the mandrel, and the article to be milled upon this bed or holder, and placed at any suitable angle with regard to the axis of the mandrel.

Having thus fully described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

In combination with the lathe-centres, placed vertically or nearly so over the front of the lathe, the ways *a b*, on said front of the lathe, for the slide-rest to move on, for the purpose of adapting the parts to the different operations, as herein described and represented.

I also claim the combination of the centring-rod with the mandrel and its adjustable bearings, substantially as described.

I also claim, in combination with a planing or chasing-tool, that receives motion from the face-plate or mandrel of the lathe, a slide-rest or holder, that has a vertical, horizontal, and swivelling motion with regard to said tool, as and for the purpose substantially as described.

L. F. MUNGER.

Witnesses:

A. K. HANKS,

G. B. HAYES.