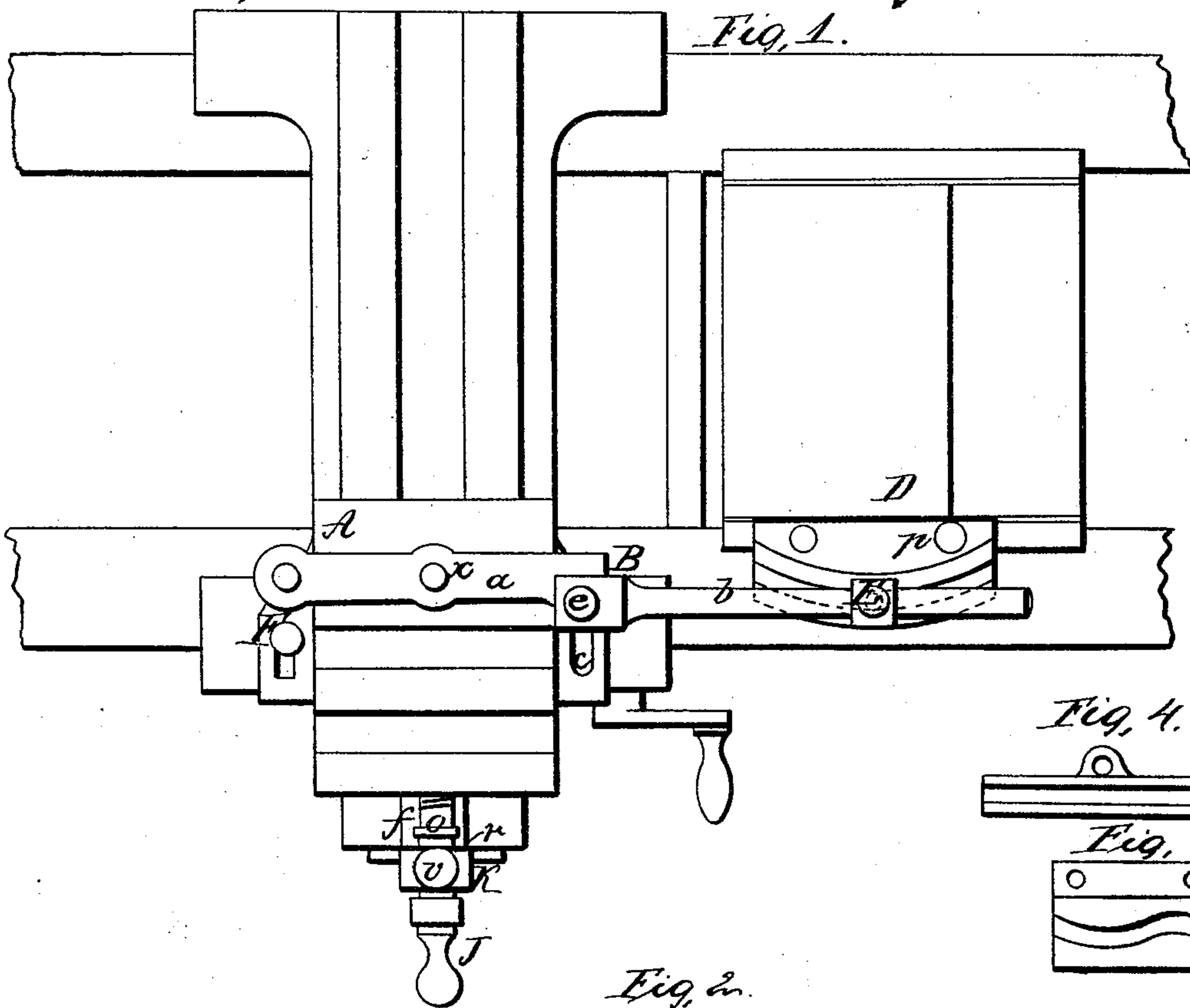


*S. Yeal.*

*Turning Lathe.*

*N<sup>o</sup> 81,309.*

*Patented Aug. 18, 1868.*



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*Att'y*

# United States Patent Office.

SQUIRE TEAL, OF ROCHESTER, NEW YORK.

*Letters Patent No. 81,309, dated August 18, 1868.*

## IMPROVEMENT IN ENGINE-LATHE.

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, SQUIRE TEAL, of the city of Rochester, in the State of New York, formerly of Yorkshire, England, have invented a new and useful Engine-Lathe; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification, in which—

Figure 1 is a top view, showing my improvements.

Figure 2 is a side elevation.

Figure 3 is a transverse section of the tool-holder.

Figures 4 and 5 are top views of different pattern-plates to be used on the lathe.

Like letters of reference indicate corresponding parts.

The nature of this invention will be fully understood by reference to the drawings and specifications.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

On the left-hand side of a tool-holder, A, of an engine-lathe, I pivot a guide-bar, B, by an angle-iron, F, having in its horizontal part a slot for a clamping-bolt, to make it adjustable. The guide has a slot to receive a stud, *x*, fixed in the base of the tool-holder. The rear end of it extends back to the tail-block D, and it is divided in two parts, *a* and *b*, to make it adjustable. The part *a* has its rear end bent out, and has a slot, *c*, through which a bolt, *e*, passes, to hold the part *b* in a horizontal position. On the part *b*, I put a movable guiding-pin, E, which works in a groove of a pattern-plate, *p*, shown in the drawing bolted on a bracket, H, fig. 2, having in its perpendicular part slots *h*, for clamping bolts. The plate *p* may be substituted by other plates, having grooves that will give any desired shape to the metal being turned, such as shown in figs. 4 and 5. In case of turning tapers, the plate having a straight groove, fig. 4, is used, and is set in an angle bearing the same relative position to a line drawn through the centre of a shaft being turned that the required taper forms to that line. On the ordinary screw, *f*, which moves the tool-holder A transversely, I put a movable sleeve, *r*, between the collar *o* and handle J, fitted into the journal-box K, carrying its outer end. I leave space sufficient between the collar *o* and handle J to allow the screw *f* to have a slight end-play, and through the journal-box K, I put a set-screw, *v*, to hold the sleeve when required.

It is necessary, also, in operating this device, that the guide-pin E shall be set so that it will be in a proportioned distance from the stud *x* that the pivoting-point is from it, as four is to one, when a pattern-plate is used, having the groove in the same circle, as shown in the drawing; and if the proportioned distance is between the guide-pin E and the stud on the tool-holder, and between the stud and pivot-point is made less than shown in the drawing, the grooves are made in a greater circle, and if more, the circle is decreased.

The object of this device is to turn metal shafts tapering, or in irregular forms, without changing the centre of the tail-block of common engine-lathes.

The operation is as follows: The metal to be turned is put into the lathe in any known manner. The pattern-plate having the groove of the desired shape is bolted on the bracket H. The guide-bar B is so arranged that the guide-pin E is fastened on it four times the distance from the stud *x* that the stud is from the pivot F, and the tail-block set so that the guide-pin E will enter the rear end of the groove of the pattern-plate. The set-screw *v* in the journal-box K is loosened, which allows the transverse screw *f* and the tool-holder A, to which it is attached, to move transversely without turning the handle J.

The tool-holder A being set in motion as it travels along, the guide-bar is moved by the guide-pin E travelling in the groove of the pattern-plate, gives the desired shape to the material being turned. The part *a* of the guide-bar B, being made transversely adjustable by the slots in the bent part of *a*, and the slots in the angle-iron F, allows the tool-rest to be moved transversely to suit different-sized pulleys or pieces of iron being turned.

There may be a groove in the upper face, each side of the slot *c*, to receive corresponding ribs on the end of section *b* of the guide-bar B, to relieve the clamp-bolt *e* from side-draught.



The bracket H being adjustable longitudinally, aids in arranging the required distance between the guide-pin E and pin  $x$  for different-length shafts.

By moving out the screw  $f$  until its collar comes against the journal-box K, and turning the set-screw  $v$ , it fastens the sleeve  $r$ , and taking off the guide-bar B, the lathe is then used in the ordinary way. It might be desirable to place the attachment on the rear side of the lathe.

I am aware that it is not new, in the construction of machines for planing and turning curved and irregular surfaces, to connect the sliding tool-holder with a stationary pattern, in order to guide the tool in a curved or irregular path, such a device being found described in the patent granted to W. B. Bennet, May 21, 1867; nor do I claim such construction as my invention; but

What I do claim as my improvements in machines of this character, is—

1. The combination of the adjustable bracket H, the pattern-plate attached thereto, and the jointed guide-bar B, with the tool-holder, when arranged and operating substantially as described.
2. The combination of the sleeve  $r$ , set-screw  $v$ , and screw  $f$ , with the tool-holder, in the manner described, for the purpose of permitting or prohibiting to the tool-holder, as may be found necessary, independent transverse movement.

3. Arranging the bracket which supports the pattern on the tail-stock of the machine, and connecting the tool-holder with the pattern by a jointed lever, in the manner substantially as herein described.

SQUIRE TEAL.

Witnesses:

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