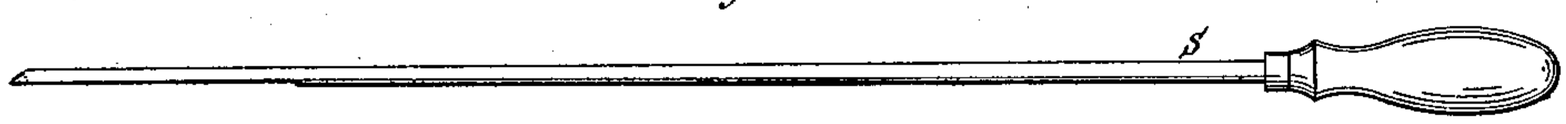
J. Richards,

Lathe Tool.

No. 66,885. Patented July. 16, 1867.

Fig. 4.



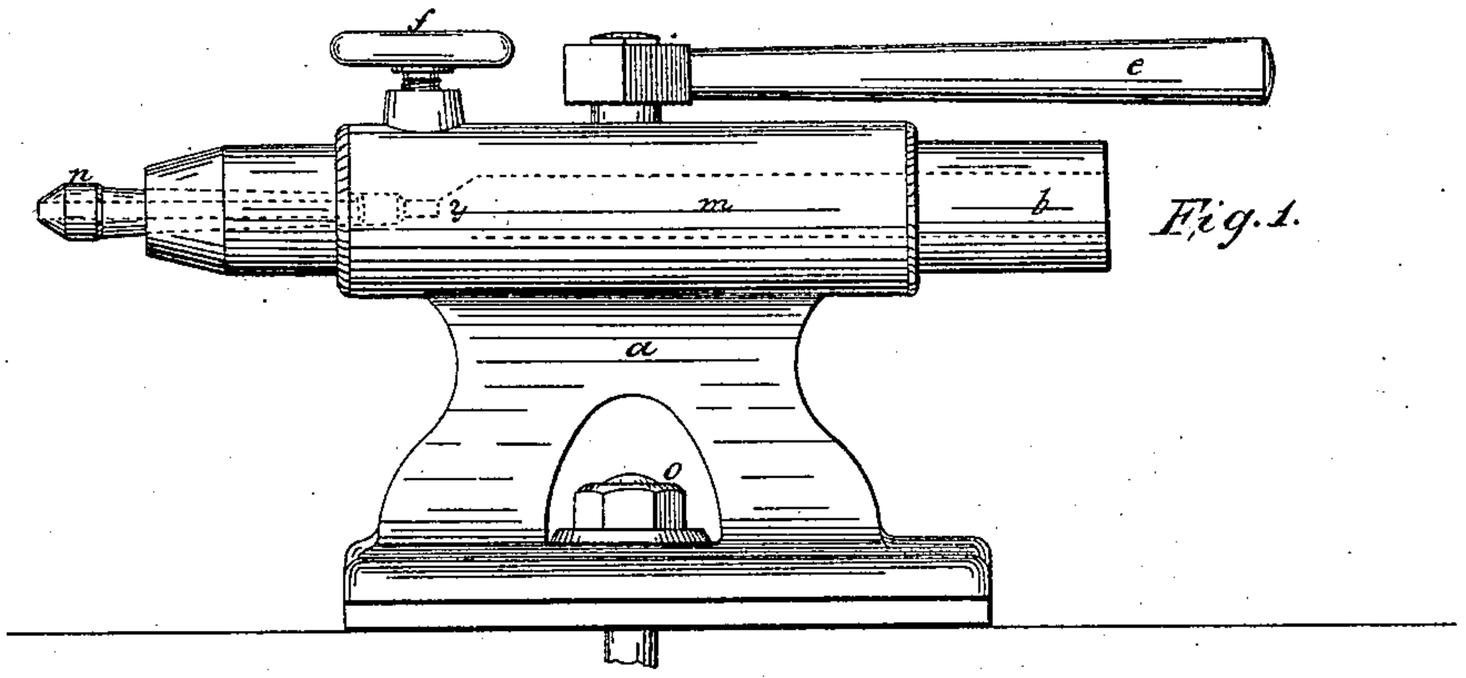


Fig. 1.

Fig. 2

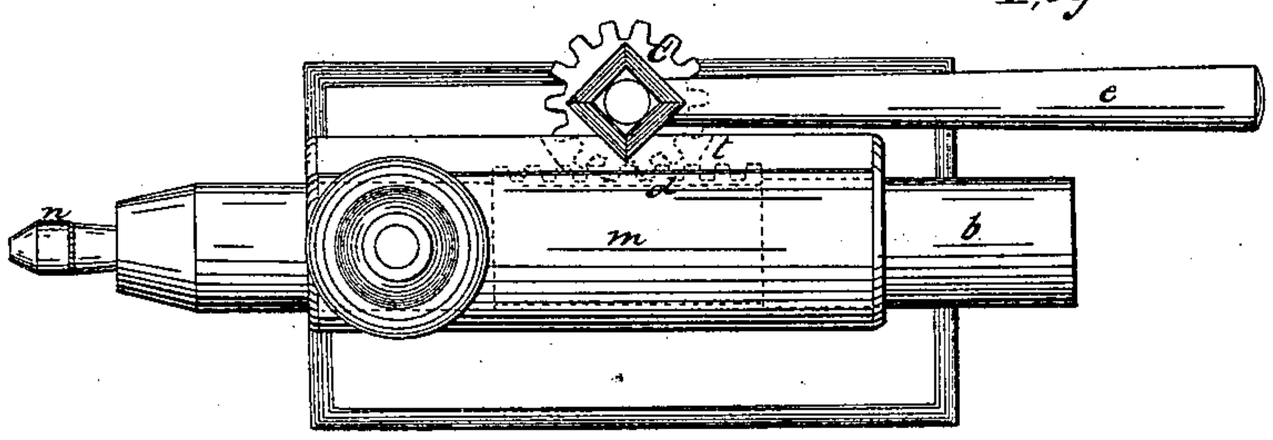
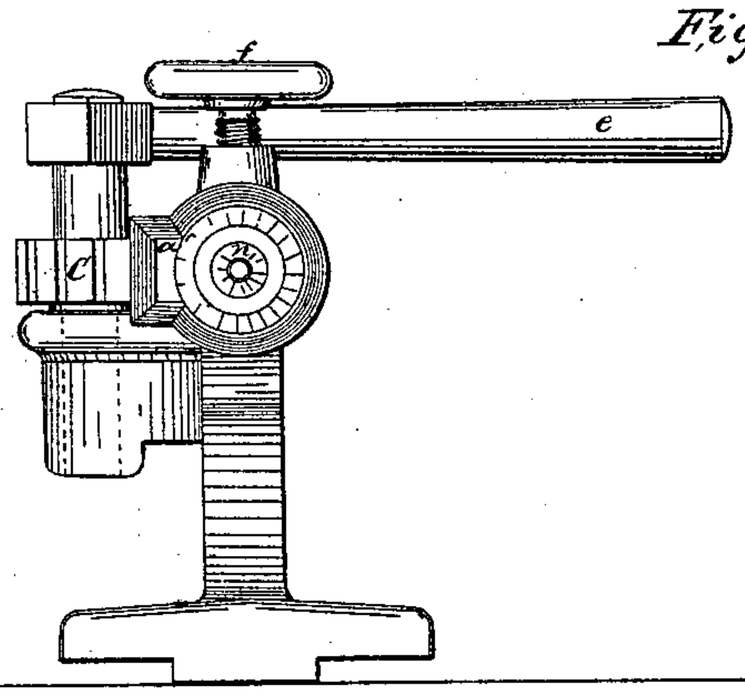


Fig. 3



Witnesses
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JOHN RICHARDS, OF CINCINNATI, OHIO, ASSIGNOR TO J. A. FAY & CO OF THE SAME PLACE.

Letters Patent No. 66,885, *dated July* 16, 1867.

IMPROVEMENT IN WOOD-TURNING 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, JOHN RICHARDS, of Cincinnati, in the county of Hamilton, and State of Ohio, have invented a new and improved Tail-Stock for Wood-Turning Lathes; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—.

Figure 1 is a side elevation of a tail-stock complete.

Figure 2 is a top view of the same, and

Figure 3 an end view.

Figure 4 shows a bit used for boring articles at the same time they are turned, in the manner hereinafter described.

Similar letters of reference on the different figures indicate corresponding parts.

The nature of this invention consists in a tubular tail-bar arranged to receive a bit for boring handles and other pieces where a true central hole is required, and in a rack and pinion for the movement of the same, and in the peculiar form of the casting for receiving the tubular tail-bar with a solid rack, as hereafter described in this specification.

In wood turning-lathes used for turning handles and other work that requires central boring, it is common to bore such work or pieces, before or after turning, involving the operation of two machines; or, when the ordinary lathe is arranged for boring it cannot be used for common turning. With the tail-stock here illustrated, when used with the head-stock of common construction, it has all the functions of a machine for chuck-boring and a complete hand-lathe. The movement of the tail-bar being by means of a rack cast upon its side, and the common screw dispensed with, it admits of a central bore throughout its entire length, through which can be passed a bit for boring into the end of the piece, and when such boring-bit is not used, the tail-stock requires no change for ordinary turning. By the use of a rack and pinion, a rapid and convenient movement of the tail-bar is secured with all of the pressure necessary for holding the piece. This quick movement is equally convenient in removing pieces when turned, while from the simple and strong construction it is not liable to derangement, and forms an important improvement in tail-stocks aside from the boring arrangement before mentioned.

To enable others skilled in the art to make and use my invention, I will proceed to describe the mode of constructing and the manner of operating the tail-stock with the aid of the drawings.

The tubular tail-bar *b* I make of cast iron, forming the hole with a core, as shown by dotted lines in fig. 1. This core stops at *y*, leaving the rest of the distance to be drilled in fitting the centre-point *n*. Upon the side of this tubular tail-bar is cast a rack, shown at *d*, fig. 2, with a sufficient number of teeth to give the required movement of the bar. Opposite this rack, or for the distance of its length, the bar is formed small enough to pass through the main shell *m* without fitting; the remaining portion is turned to fit accurately, but loosely, to move longitudinally, as in any common lathe. The pinion C is keyed firmly upon a revolving stud with a square extension to receive the wrench *e*, by which it is rotated to move the bar *b* with the rack, as shown. *f* is a common clamping-screw to hold the bar *b* when a piece is fastened in the lathe. The centre *n* is bored through to suit the diameter of the boring-bit used, or a common solid centre can be used when the bit is not needed.

To bore: The bit S is inserted through the tail-bar and pressed into the piece, the chips being drawn out into the enlarged bow of the tail-bar, or can be made to fall out through an aperture in the bottom of the centre-point. The pocket in the main casting, shown at *a'*, fig. 3, is cored out in the casting to allow the rack to pass through without fitting; this arrangement also keeps the bar *b* from turning and holds it in position. A hole is cored through at *t*, fig. 2, to allow the pinion C to gear into the rack.

Having thus described the nature of my invention, what I regard as new, and desire to secure by Letters Patent, is—

1. The combination of a tubular tail-stock, with a rack and pinion for moving the same, arranged and operating in the manner and for the purposes specified.

2. I claim the recess or rectangular extension of the bow in the tail-stock shown at *a'*, formed in the manner and for the purposes specified.

JNO. RICHARDS.

Witnesses:

W. S. KELLEY,

W. H. DOANE.