

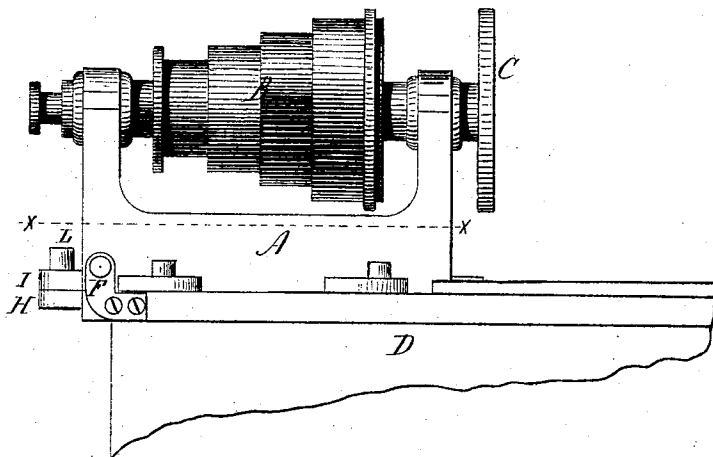
E. F. & G. A. BARNES.

Metal Turning-Lathes.

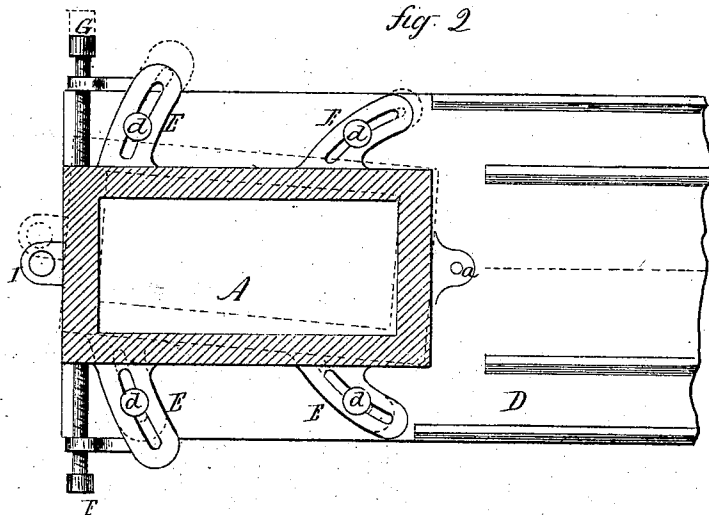
No. 135,064.

Patented Jan. 21, 1873.

*fig. 1*



*fig. 2*



Witnesses

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# UNITED STATES PATENT OFFICE.

ELBRIDGE F. BARNES AND GEORGE A. BARNES, OF NEW HAVEN, CONN.

## IMPROVEMENT IN METAL-TURNING LATHES.

Specification forming part of Letters Patent No. 135,064, dated January 21, 1873.

*To all whom it may concern:*

Be it known that we, ELBRIDGE F. BARNES and GEORGE A. BARNES, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Lathes; and we do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification, and represents, in—

Figure 1, a side view; and in Fig. 2, a top view.

This invention relates to an improvement in the arrangement of the head-stock of a lathe, the object being an adjustment whereby tapering holes may be bored or conical surfaces formed; and it consists in fixing the head-stock by a pivot at the forward end, and providing means of adjustment that the outer end may swing to the right or left of the central line, so that the axis of the arbor will be at an angle with the path of the movement of the tool.

A is the head-stock, in which are arranged pulleys B and the face-plate C in the usual manner. The head-stock is pivoted to the bed D at the forward end, as denoted at *a*, and upon either side of the head-stock are arranged slotted guides E, working upon headed studs *d*. These slots are formed in the arc of a circle, the center of which is the pivot *a*, so that the head-stock may be turned to the right or left, as denoted in dotted lines. For the purpose of adjusting the head-stock, set-screws F G are arranged upon opposite sides of the

same, by means of which the head-stock may be nicely adjusted and held in position.

The path of the movement of the tool governed by the ways on the bed will be parallel to the said bed, cutting upon the front side in the usual manner; hence, if it is desired that the hole which is being formed should increase in diameter from the outer surface in toward the face-plate, the pivot *a* being in line with the face-plate, the rear end of the head-stock must be brought forward to the desired angle for the taper of the hole. If to diminish in diameter, then the rear end of the head-stock should be set back accordingly. In like manner for turning plain surfaces, the path of the tool would be at right angles across the bed.

If desired to turn an externally conical surface, set the rear end of the head-stock forward to the desired angle; and for an internally conical surface, set the rear end of the head-stock back to the desired angle.

For convenience of setting the head-stock in line for ordinary work, we form corresponding lugs H I on the rear end of the bed and head-stock, through an opening in which a pin, L, may be set to fix and secure that central position.

We claim as our invention—

The arrangement of the head-stock of a lathe upon a pivot, *a*, at the forward end, and made adjustable, substantially in the manner described, upon the said pivot.

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Witnesses:

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