

(No Model.)

E. A. MULLER.  
FEED MECHANISM FOR LATHES.

No. 421,866.

Patented Feb. 18, 1890.

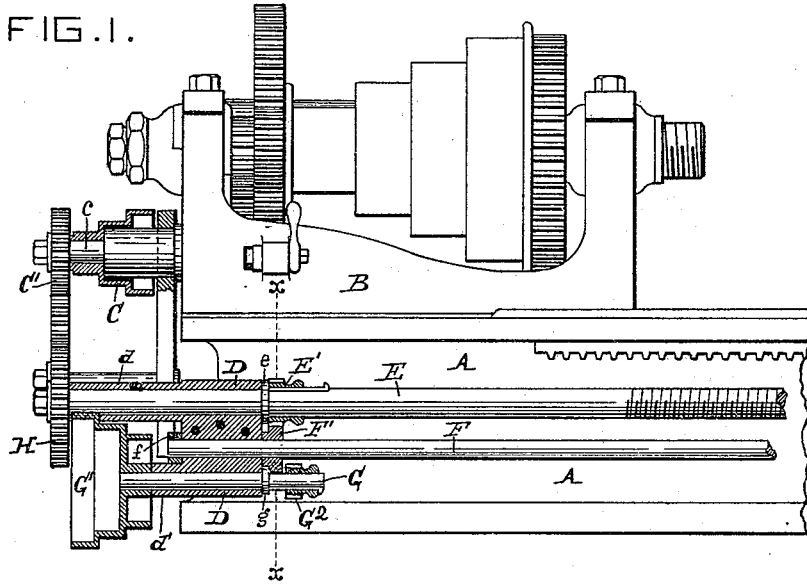
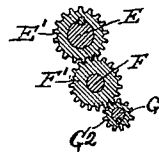
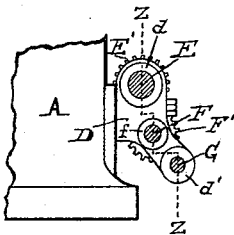


FIG. 2.

FIG. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## FEED MECHANISM FOR LATHES.

SPECIFICATION forming part of Letters Patent No. 421,866, dated February 18, 1890.

Application filed November 16, 1889. Serial No. 330,535. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD A. MULLER, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Feed Mechanism for Engine-Lathes, of which the following is a specification.

The object of my invention is to provide an improved feed mechanism for engine-lathes, which is adapted to be run either by belt or gearing, which may be readily changed from one to the other without throwing off the belt, and which will insure a steady reliable feed without strain upon the parts and without jarring or vibration, which is liable to throw the parts out of alignment.

The invention will be first fully described in connection with the accompanying drawings, after which its novel features will be particularly referred to, and pointed out in the claims.

Referring to the drawings, in which like parts are indicated by similar reference-letters wherever they occur throughout the various views, Figure 1 is a side elevation of the head-stock and the head end of a lathe-bed upon which it is mounted, and a vertical axial section through the feed mechanism bearings and its cone-pulleys, taken in line *z z*, Fig. 2. Fig. 2 is an end elevation of the bearings for the feed mechanism secured to the lathe-bed, a portion of which is also shown in end elevation. Fig. 3 is a detail view taken in vertical transverse section through line *x x* of Fig. 1, looking to the right.

The bed-plate A, head-stock B and its attachments, and the means for driving the cone-pulley C are of well-known construction. I have selected one well-known form of engine-lathe to which I have shown my improvements attached. The manner of applying them to other forms will readily suggest itself to any skilled builder of machine-tools.

To the bed-plate A is secured a casting D, which furnishes bearings for the lead-screw E, feed-rod F, and the shaft G, upon the outer end of which is secured the cone-pulley G'. This casting has tubular extensions *d d'*, which extend out to bear against the hubs of the cone-pulley G' and the gear-wheel H,

which is secured upon the end of the lead-screw E. By this arrangement long bearings are obtained for the lead-screw and shaft, which insures steady even movements and prevents jar or rattling, and hence wear upon the journals and their bearings. The lead-screw has a collar *e*, either formed with or secured upon it, to bear against the inner dressed end of the bearing D. This collar upon one end of the bearing and the hub of gear H, being tightened up against the other end, prevents end play of the lead-screw. The shaft G and feed-rod F are also provided with collars *g* and *f* for the same purpose. Upon the feed-rod is rigidly secured a pinion F', and upon the lead-screw E and shaft G are splined pinions E' and G<sup>2</sup>, each of which is adapted to be thrown into gear with the fixed pinion F', or disengaged from it, so that the feed-rod may, by disengaging one of the splined pinions and engaging the other, be driven as desired, either by the cone-pulley or cog-gearing. When the lathe is used for chasing screws, both pinions E' and G<sup>2</sup> are thrown out.

The shaft *c* of the cone-pulley C has secured upon its end a gear-wheel C', which drives the lead-screw through intermediate gear, which mesh with the gear H. The speed of the lead-screw is regulated to the work under treatment by change gear in the usual manner.

It will be seen that when it is desired to run the feed-rod by the cog-gearing the pinion G<sup>2</sup> is thrown out and the pinion E is enmeshed with the pinion F on the feed-rod, as shown in the drawings. In this case the cone-pulley G' and its shaft run idle; and that when it is desired to run the feed-rod by the belt on the cone-pulleys the position of the pinions E' G<sup>2</sup> is reversed, when the lead-screw will run idle, being of course disconnected from the carriage by separating its half-nuts. (Not shown.) In either case it is not necessary to disturb or remove the belt or cog-gearing, and as the changes are rapidly made much time is saved.

While I have shown the bearing D as a separate casting secured to the bed-plate A by bolts, which I believe to be the best plan, as it enables me to dress the ends and finish

the journal-bearings without the labor of handling the bed-plate, it is obvious that it may be cast with the bed-plate; and it is also obvious that other mechanical changes may be made in the disposition of the parts without departing from the spirit and scope of my invention.

I claim as new and desire to secure by Letters Patent—

10 1. The combination of the bed-plate, the bearing D, the lead-screw, feed-rod, and shaft G, journaled in said bearing, the gear for driving the lead-screw and the cone-pulleys, and belt for driving the shaft G, the fixed  
15 pinion F' on the feed-rod, and the pinions E' and G<sup>2</sup>, splined, respectively, upon the lead-screw and shaft G, whereby the feed-rod may be driven by either the lead-screw gearing or the cone-pulleys and belt, substantially as  
20 shown and described.

2. The combination, substantially as described, of the casting D, having tubular extensions *d d'*, the lead-screw, feed-rod, and

shaft G, journaled in said casting, the collar *e* and gear H, secured upon the lead-screw, 25 and the pinion E', splined thereon, collar *f* and pinion F', secured upon the feed-rod at opposite ends of its bearings, the shaft G, the pinion G<sup>2</sup>, splined upon the same shaft, the gear for driving the lead-screw and the cone- 30 pulley, and a belt for driving the shaft G.

3. In a feed mechanism for engine-lathes, the combination of the lead-screw, feed-rod, and cone-pulley shaft mounted in proximity and parallel to each other, a pinion fixed upon 35 the feed-rod, and pinions splined upon the lead-screw and cone-shaft and arranged to be thrown into or out of gear with the said fixed pinion, cogged gear to rotate the lead-screw and cone-pulleys, and belt-gearing to rotate 40 the cone-pulley shaft, substantially as and for the purpose specified.

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Witnesses:

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