(No Model.)

F. S. PERKINS.

ENGINE LATHE.

No. 544,115. Patented Aug. 6, 1895.

Fig. 1.

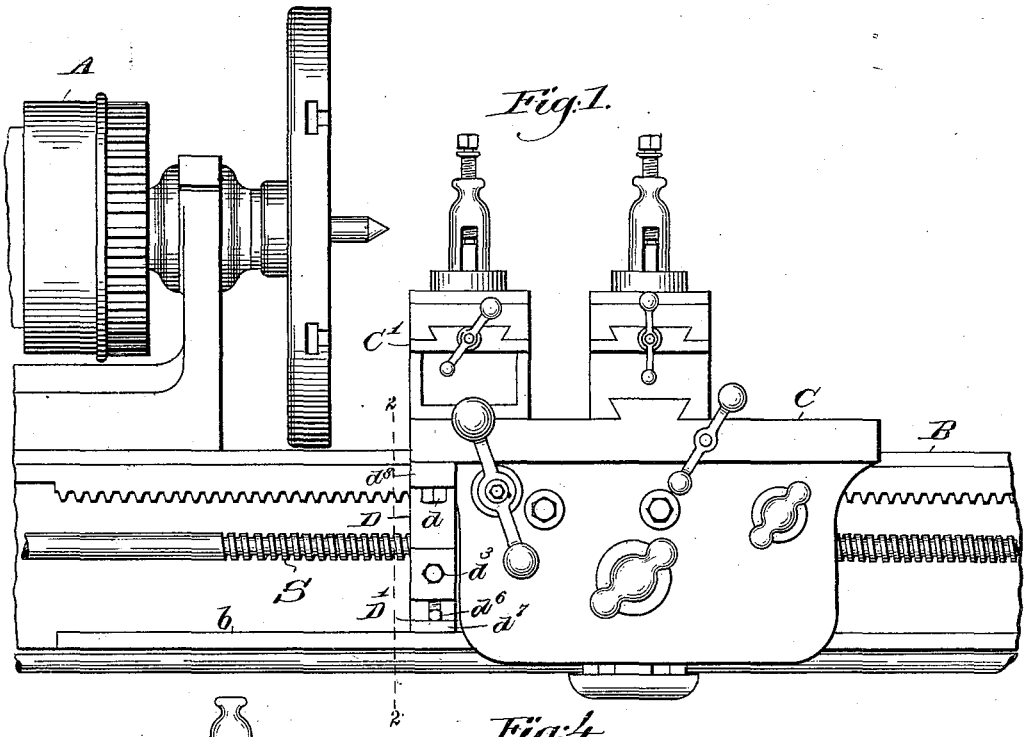


Fig. 2.

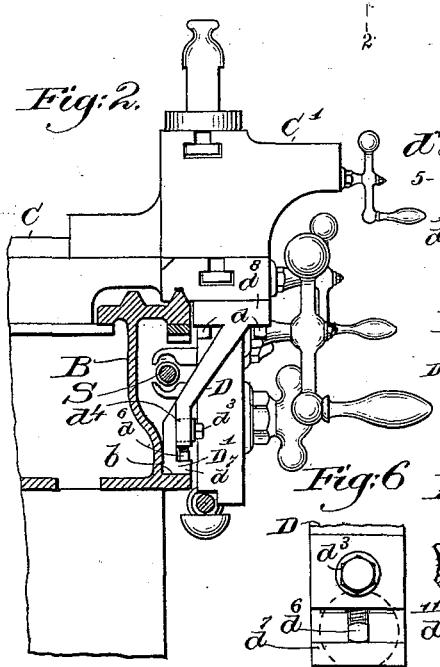


Fig. 4.

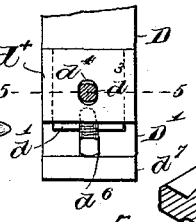


Fig. 5.

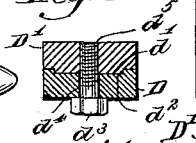


Fig. 3.

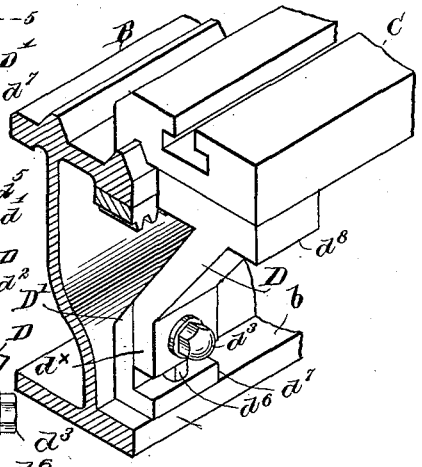


Fig. 6

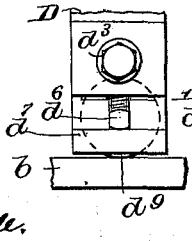
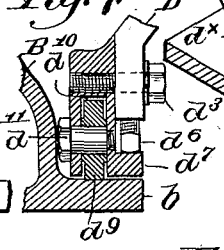


Fig. 7.



WITNESSES.

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Thomas J. Drummond.

INVENTOR

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

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ENGINE-LATHE.

SPECIFICATION forming part of Letters Patent No. 544,115, dated August 6, 1895.

Application filed February 19, 1895. Serial No. 538,910. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS S. PERKINS, of Lowell, county of Middlesex, State of Massachusetts, have invented an Improvement in Engine-Lathes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In turning work of large radius on engine-lathes, such as large pulleys, &c., a pulley-rest is employed, which rest is usually placed at the extreme end of the carriage extension of the lathe, and the pressure caused by the cutting is frequently so great as to cause a deflection of the carriage. This deflection obviously will interfere seriously with the accuracy of the work or will spoil it altogether, and the duty of the lathe is not what it should be.

This invention has for its object the production of means whereby this deflection is prevented, thereby adapting the lathe for accurate work in turning objects of large as well as small radius.

My invention accordingly consists in various details of construction and arrangement, hereinafter fully described in the specification and particularly pointed out in the claims.

Figure 1 represents in side elevation a sufficient portion of an engine-lathe to be understood with my invention applied thereto. Fig. 2 is a sectional view on the line 2 2, Fig. 1, looking toward the right. Fig. 3 is an isometric view of a portion of the lathe-bed and carriage, more clearly showing my invention applied thereto. Fig. 4 is a front elevation, on a larger scale, of a part of the brace forming my invention. Fig. 5 is a transverse section taken on the line 5 5, Fig. 4; and Figs. 6 and 7 are a front elevation and partial longitudinal section of a modified form of my invention to be described.

Referring to the drawings, the head-stock A, bed B, carriage C, tool-rest C′, and traverse-screw S are and may be of usual and well-known construction.

In turning large pulleys and similar work the tool-rest C′ is used, and as it is usually placed at the extreme end of the carriage extension the pressure of the cut deflects the carriage and interferes with or altogether prevents accurate work. To prevent this deflection without interfering with the movement of the carriage, I have secured thereto, preferably beneath the rest C′, a brace, preferably composed of two parts D and D′, the part D being secured to the carriage C by suitable bolts d extended through the brace-head d^8 into the carriage, as clearly shown in Figs. 1 and 2. The part D′ of the brace is adjustably connected to the part D by a bolt d^3 passing through a longitudinal slot d^4 in the part D (see Figs. 2 and 4) and into a threaded hole d^5 in the part D′, as shown in Fig. 5. As shown in Figs. 2 and 3, the part D is bent inward and downward, the slot d^4 being made in the lower part $d^\times$, which lies flat against D′. The part D′ is formed or provided with a laterally-extended foot d^7, which rests upon and slides on an outwardly-projecting flange or rail b, cast upon or secured to and extending along the outer side of the bed B, the top of said flange or rail b being planed in parallelism with the working face of the bed.

The two parts of the carriage-brace are positively maintained in adjustment by means of an adjusting-screw d^6, which enters a threaded hole in the part $d^\times$ of the brace member D, the head of the screw resting on the foot d^7 of the other member D′.

It will be obvious that, the connecting-bolt d^3 of the brace members having been loosened, the foot d^7 will drop upon the rail or flange b, after which the bolt d^3 is tightened and the screw d^6 rotated until its head rests against the foot d^7. Movement of the brace member D on its fellow member is thus prevented positively.

To insure more perfect and rigid alignment of the brace members I preferably provide one of them, as D′, with a rib or projection d' to enter a depression d^2 in the other member D, as shown best in Fig. 5.

From an inspection of the drawings it will be evident that the thrust upon the end of the carriage C adjacent the tool-rest C′ will be taken up by the brace D D′ and transmitted to the rigid brace rail or flange b, so that it is impossible to deflect the carriage out of true. The foot d^7 of the brace will move over the rail b with but little friction; but it is obvious that if desired I might reduce the friction to a minimum by mounting a friction-roll d^9 (see Figs. 6 and 7) in a cav-

ity d^{10} in the adjustable brace member D′, supporting the roll to rotate on a bolt or stud d^{11}, the roll moving over the brace rail or flange *b*.

My invention is not restricted to the precise construction and arrangement herein shown, as the same may be considerably modified without departing from the spirit and scope of my invention.

During ordinary usage of the lathe the brace may be removed from the carriage, if desired, by the loosening of the two bolts *d*.

I claim—

1. In a lathe, the bed, a brace rail thereon, a carriage movable along the bed, a longitudinally adjustable brace rigidly secured to the carriage and adapted to slide upon the brace-rail, and means to maintain the longitudinal adjustment of the brace, substantially as described.

2. A bed, an overhanging carriage longitudinally movable thereon, a brace rail parallel to its path, a two-part brace, one member of which is rigidly secured to the carriage, the other member resting on the rail, and means to adjust the members vertically one upon the other, substantially as described.

3. A bed, an overhanging carriage longitudinally movable thereon, a brace rail parallel to its path, a two-part brace, one member of which is rigidly secured to the carriage, the other member resting on the rail, means to adjust the members vertically one upon the other, and a positioning device to positively maintain the members in adjusted position, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANCIS S. PERKINS.

Witnesses:
EUGENE H. TURNER,
CYRUS PERKINS.