No. 849,355. PATENTED APR. 9, 1907.

G. AMONSEN.

MILLING ATTACHMENT FOR LATHES.

APPLICATION FILED APR. 6, 1906.

Fig. 1.

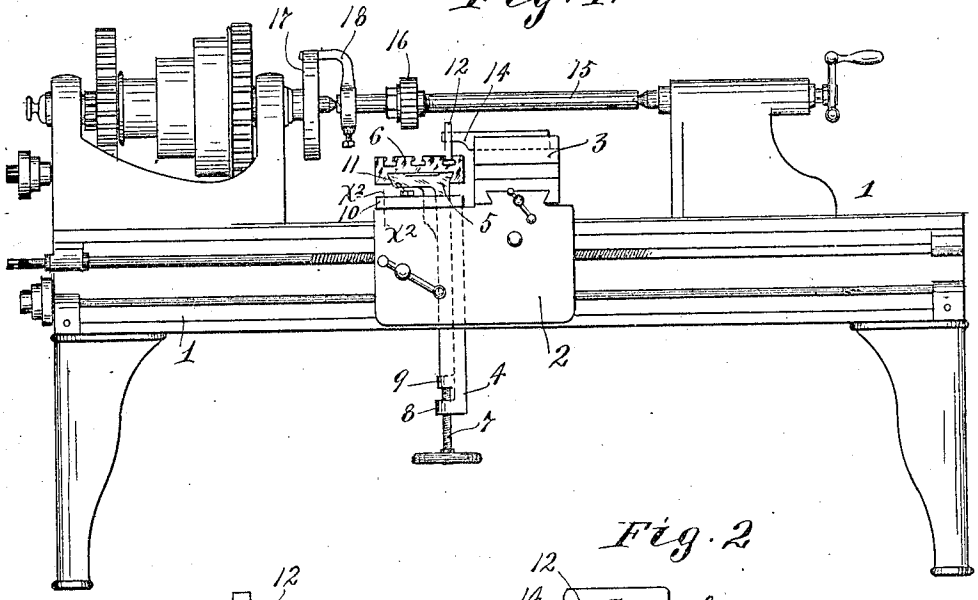


Fig. 2

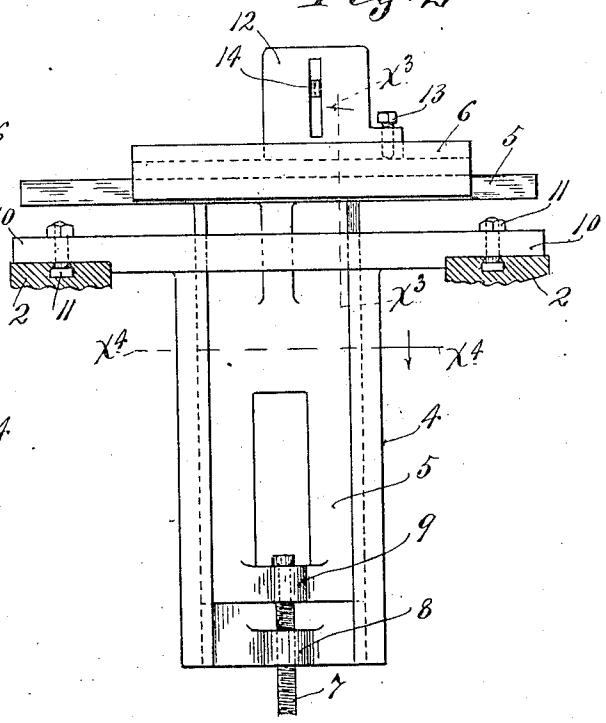


Fig. 3.

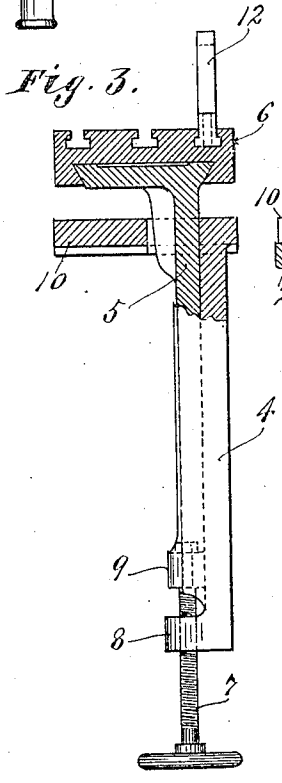
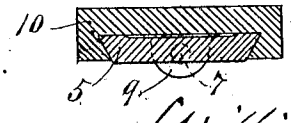


Fig. 4.



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MILLING ATTACHMENT FOR LATHES.

No. 849,355. Specification of Letters Patent. Patented April 9, 1907.

Application filed April 6, 1906. Serial No. 310,286.

To all whom it may concern:

Be it known that I, GELBRET AMONSEN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Milling Attachments for Lathes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved milling attachment for lathes; and to this end it consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in front elevation, showing a lathe having my improved milling attachment applied thereto. Fig. 2 is a detail, principally in elevation, but with some parts sectioned on the line x^2 x^2 of Fig. 1. Fig. 3 is a view, partly in elevation and partly in section, on the line x^3 x^3 of Fig. 2; and Fig. 4 is a horizontal section taken on the line x^4 x^4 of Fig. 2.

The lathe, which is indicated as an entirety by the numeral 1, may be of standard or any suitable construction, but should have a longitudinally-movable carriage 2, provided with a transversely-movable tool-rest 3. The lathe should also have the usual or some suitable form of so-called "cross-feed" for causing the tool-rest 3 to travel in a horizontal direction transversely of the carriage 2 while the latter remains stationary.

My improved attachment in its preferred form comprises a guide-casting 4, a vertically-movable guide-bracket 5, and a so-called "work-carriage" 6. The depending leg of the bracket 5, as shown, has dovetailed engagement with the depending leg of the guide-casting 4 and is adapted to be given vertical movements with respect thereto by means of an adjusting-screw 7, that has screw-threaded engagement with a lug 8 on the lower end of said casting 4 and is swiveled to a lug 9 on the lower end of said bracket. At its upper end the guide-casting 4 has laterally-projecting flanges 10, that are preferably directly bolted to the lathe-carriage 2 by means of nutted bolts 11. The work-carriage 6 is adapted to move in a horizontal plane transversely of the lathe, and to this end has dovetailed engagement with the upper end or head of the supporting-bracket 5, as best shown in Fig. 3.

By suitable connecting means the so-called "work-carriage" 6 is connected to the tool-rest 3 in such manner that it will be caused to travel in a horizontal direction transversely of the lathe with the said tool-carriage, but may nevertheless be given vertical adjustments at will without imparting vertical movements to the tool-rest. This connection preferably is made as follows: A vertically-slotted push plate or lug 12 fits in one of the several grooves of the work-carriage 6 and is adapted to be secured in any desired position with respect thereto by means of a set-screw 13. A tool or push-bar 14, which is clamped or otherwise secured between the jaws of the tool-rest 3, projects at one end and works in the vertical slot of the said push-lug 12. With this construction the work-carriage 6 will be caused to travel in a horizontal direction transversely of the lathe whenever the tool-rest 3 is moved in such direction, and its movements in this respect will be synchronous with that of the tool-rest. At the same time by means of the adjusting-screw 7 the said work-carriage 6 may be moved vertically at will, either upward or downward.

The numeral 15 indicates a mandrel, which carries a milling-tool 16 and is mounted on the "lathe-centers" in the usual way and is connected for rotation with the face-plate 17 of the lathe by means of a dog 18.

The improved attachment above described is adapted for use in doing different kinds of milling-work, but was especially designed and is particularly adapted for use in milling key-seats in shafts. The shaft or other piece of work to be milled may be bolted or rigidly secured in any suitable way to the face of the work-carriage 6. By traveling movements of the tool-rest 3 transversely of the machine the work may be fed by hand to the milling-tool 16 to produce a cut therein, and by throwing the cross-feed of the lathe into action this movement may be accomplished automatically. By vertical adjustments of the work-carriage the work may be raised after each cut to produce the successive cuts required to cut the key-seat to proper depth.

By adjustments of the push lug or plate 12 with respect to the work-carriage 6 said work-carriage may be set at any desired po-

sition transversely of the machine with respect to the tool-rest 3.

The device described, while extremely simple and of small cost, has in practice been found efficient for the purposes had in view.

What I claim is—

1. The combination with a lathe, of a work-carriage mounted for vertical adjustments independently of the tool-rest of the lathe and for traveling movements in a horizontal direction transversely of the lathe, and a connection causing said work-carriage to move with the tool-rest of said lathe, but permitting said work-carriage to move independently of said tool-rest in a vertical direction, substantially as described.

2. The combination with a lathe having a traveling carriage, a transversely-movable tool-rest mounted thereon, of a work-carriage supported by the lathe-carriage and mounted independently of the tool-rest of the lathe to move vertically and in a horizontal direction transversely with respect thereto, and a connection between said tool-rest and said work-carriage causing the two to move together, transversely of the lathe, but permitting said work-carriage to move independently of said tool-rest in a vertical direction, substantially as described.

3. The combination with a lathe having a traveling carriage, of a tool-rest mounted to move transversely of the lathe in a horizontal direction, a vertical guide secured to said lathe-carriage, a supporting-bracket mounted to move vertically on said guide, a work-carriage mounted on the upper end of said supporting-bracket, for movements transversely of the lathe, in a horizontal direction, a vertically-slotted lug on said work-carriage, and a tool secured to said tool-rest and projecting in a slot of said slotted lug, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GELBRET AMONSEN.

Witnesses:

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