(No Model.)

A. J. FARMER.

LATHE ATTACHMENT.

No. 603,400. Patented May 3, 1898.

Fig. 1

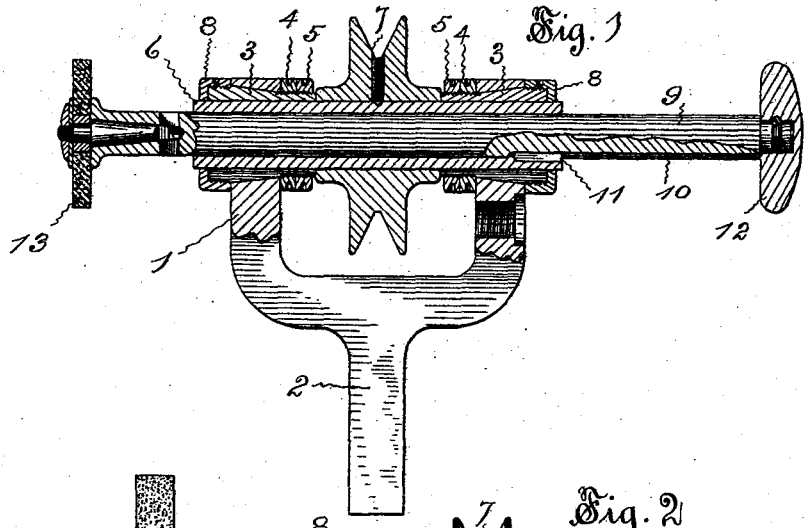


Fig. 2

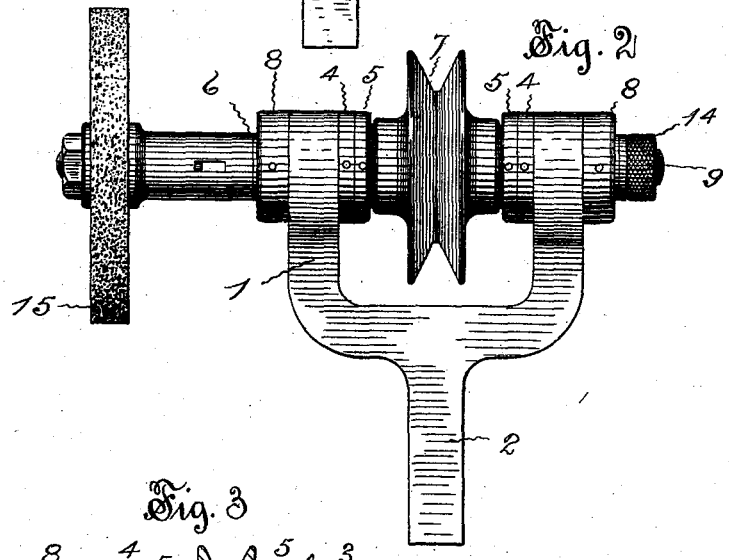
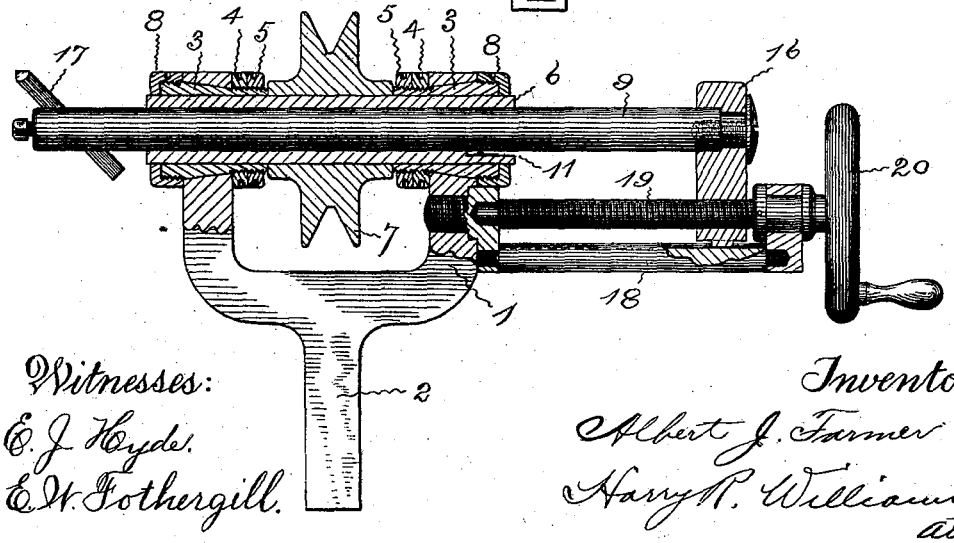


Fig. 3



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UNITED STATES PATENT OFFICE.

ALBERT J. FARMER, OF HARTFORD, CONNECTICUT.

LATHE ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 603,400, dated May 3, 1898.

Application filed December 27, 1897. Serial No. 663,467. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. FARMER, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Lathe Attachments, of which the following is a specification.

This invention relates to an attachment which can be employed with any ordinary engine or hand lathe either for grinding inside or outside surfaces of stock, for drilling straight or tapering holes in stock, or for boring into or turning down the outside of stock held by the live-spindle or held between the centers of the lathe.

The object of this invention is to provide a very simple, inexpensive, and durable lathe attachment which can be utilized to accomplish accurate grinding, perfect drilling, complicated boring, and intricate turning, as the necessity may arise.

The embodiments of the invention illustrated by the accompanying drawings have frames adapted to be attached to the tool-posts of any ordinary lathes, with adjustable bushings arranged in the frames and bearing sleeves upon which are mounted pulleys by means of which the sleeves may be rotated and in which are splined shafts that have front ends formed to receive the shanks of the grinding, drilling, boring, or turning tools and that have their other ends provided with means by which the longitudinal feed of the shafts may be controlled, as more particularly hereinafter described, and pointed out in the claims.

Of the views, Figure 1 is a side elevation, with parts cut in section to better illustrate the construction, of an attachment that embodies the invention arranged for grinding the walls of cavities. Fig. 2 is a side elevation of the attachment as it may be arranged for grinding the outside surfaces of a piece of stock; and Fig. 3 is a side elevation of the attachment, with parts cut in section, provided with a screw-feed and arranged with a tool for boring holes in or turning down the outside surfaces of stock.

The frame consists of a yoke 1 and a shank 2, that is adapted to be fastened to the tool-post of the carriage or tool-slide of any ordinary engine or hand lathe. In tapering perforations made through the outer ends of the yoke are placed tapering split bushings 3. These bushings are provided with exterior threads, and upon the threads there are turned adjusting-nuts 4 and check-nuts 5. Supported by the bushings, so that it may rotate therein, is a sleeve 6, and mounted upon the sleeve between the bushings is a pulley 7, that may be belted to any source of power. Upon the outer ends of the bushings there may be screwed dust-caps 8. Extending through the sleeve is a shaft 9. The shaft is provided with a longitudinal slot 10 for the entrance of a spline 11, secured to the sleeve, so that the shaft may be rotated with the sleeve and may also be given a longitudinal movement independently of the sleeve. The forward end of the shaft is provided with an opening of a shape that will receive and hold the shank of an inside grinding-wheel, an outside grinding-wheel, a drill-holding chuck, a reamer-holding chuck, a boring-tool, or a turning-tool, as desired. The other end of the shaft is provided with a nut, button, or head by means of which the longitudinal movement of the shaft may be controlled. The head 12 on the end of the shaft that is provided with an inside grinding-wheel 13 (shown in Fig. 1) is attached so that the shaft while being rotated may be fed forward, drawn backward, or held stationary by the hand of an operative. The head 14 on the end of the shaft that is provided with an outside grinding-wheel 15 (shown in Fig. 2) is fitted so that the shaft is positively held from longitudinal movement while it is being rotated. The head 16 on the end of the shaft that is provided with a boring-tool 17 (shown in Fig. 3) is arranged so that the shaft may be fed forward, drawn back, or held stationary by a screw under the control of the hand of an operative.

When it is desired to provide a screw-feed for the shaft, a bracket 18 may be screwed to the frame, as illustrated in Fig. 3. Mounted in this bracket is a feed-screw 19, that is provided with a hand-wheel 20. A threaded perforation in the head 16, attached to the shaft, is made to fit the feed-screw, which is held by the bracket so that it cannot move longitudinally. With the construction shown in Fig. 3 the pulley cannot be rotated when the feed-screw is connected with the head 16; but if

the head 16 were attached to the shaft in the manner illustrated in Fig. 1 then the shaft could be rotated as it was advanced by the feed-screw.

The sleeve rotates in the bushings, so that the bushings are only required to withstand the wear of rotation, and as they can be adjusted finely this wear is extremely small. The shaft only moves longitudinally in the sleeve, which forms an extended support, so that the interior of the sleeve is only required to resist the wear incident to the longitudinal movement of the shaft, which wear is very slight. As the sleeve is of considerable length, the shaft, with the different tools, is perfectly guided as it is fed. Thus cutting or grinding can be accurately accomplished with tools held by this attachment.

The parts of this attachment are simple to form and easy to assemble. The attachment is portable and can be so held by the tool-post of any lathe that the tool with which the spindle is supplied may be presented to the inside or to the outside of a piece of stock. The tool held by the spindle of this attachment can be fed directly by hand, can be fed indirectly by hand through the feed-screw, or can be fed by moving the slide or carriage which supports the tool-post, and the spindle with the tool can be advanced to rotating stock without rotating the tool, or the spindle can be rotated and advanced to stationary stock, according to the work to be accomplished.

I claim as my invention—

1. A portable lathe attachment for grinding, drilling, boring and turning, consisting of a yoke with a shank whereby the yoke may be secured to the tool-post of a lathe and a tapering perforation in each branch of the yoke, a tapering split bushing located in each perforation, nuts turning on the bushings for adjusting and holding them in correct position, a sleeve rotarily supported by the bushings, a pulley mounted upon and secured to the sleeve between the branches of the yoke, and a shaft extending through and connected by a spline with the sleeve and having one end arranged for the attachment of an operating-tool and having at the other end a head by means of which the longitudinal movements of the shaft may be controlled, substantially as specified.

2. A portable lathe attachment for grinding, drilling, boring and turning, consisting of a yoke with a shank whereby the yoke may be secured to the tool-post of a lathe and a tapering perforation in each branch of the yoke, a tapering split bushing located in each perforation, nuts turning on the bushings for adjusting and holding them in correct position, a sleeve rotarily supported by the bushings, a pulley mounted upon and secured to the sleeve between the branches of the yoke, a shaft extending through and connected by a spline with the sleeve and having one end arranged for the attachment of an operating-tool and having at the other end a head by means of which the longitudinal movements of the shaft may be controlled, a bracket removably secured to the yoke, a feed-screw rotarily held by the bracket and engaging the head on the shaft, and a handle for rotating the feed-screw, substantially as specified.

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