(No Model.)

M. E. STOCKWELL.

LATHE FOR TURNING ROUND RODS.

No. 358,759. Patented Mar. 1, 1887.

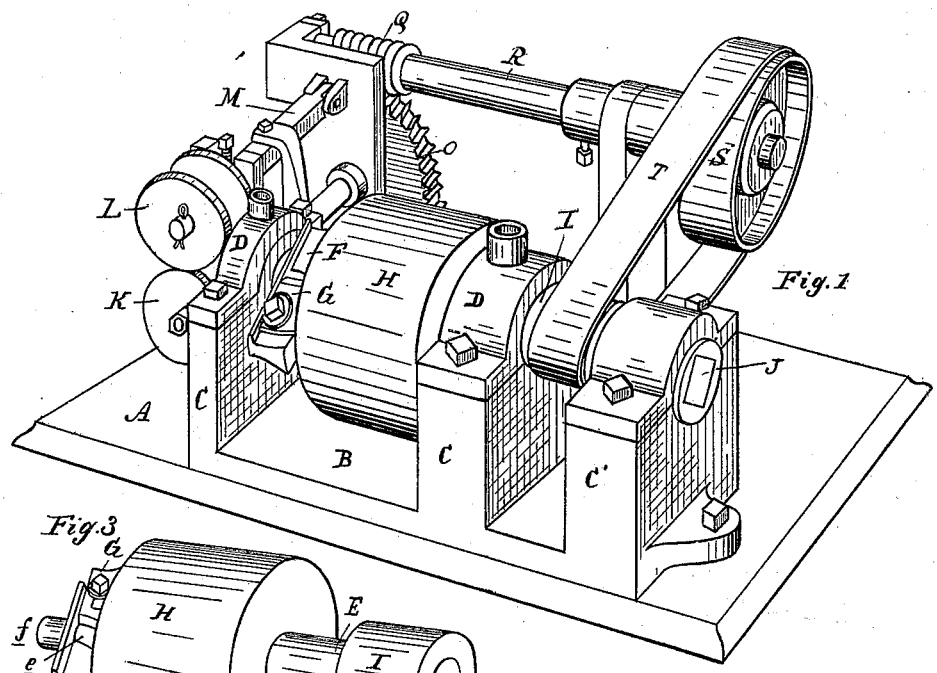


Fig. 1

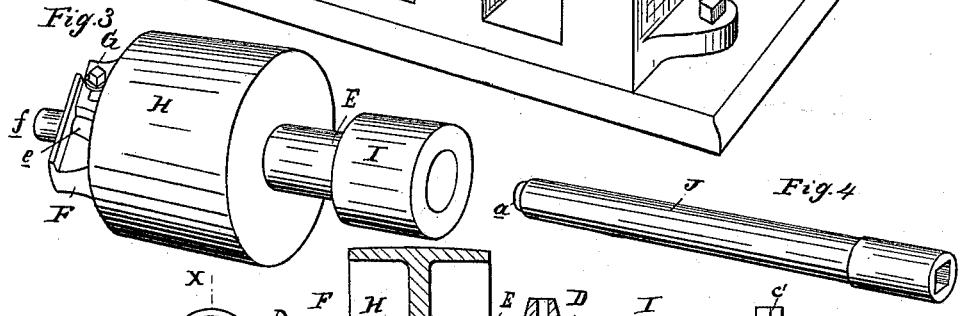


Fig. 3

Fig. 4

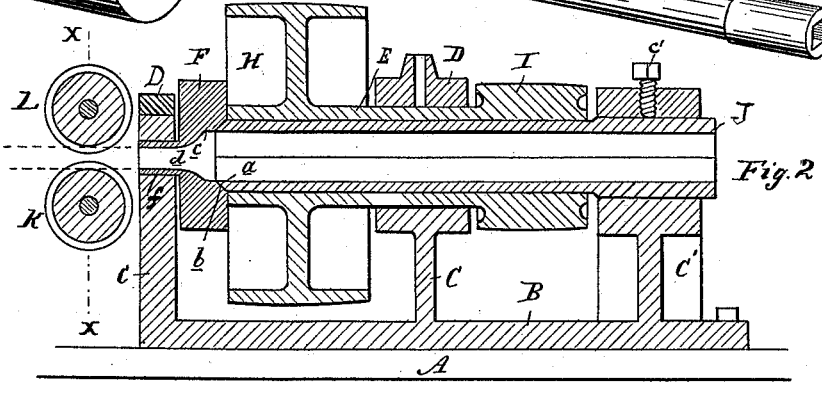
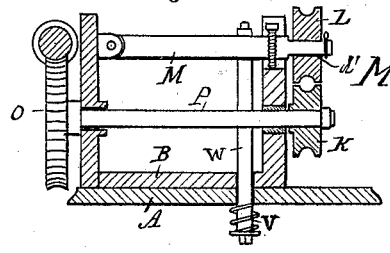


Fig. 2

Fig. 5



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UNITED STATES PATENT OFFICE.

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LATHE FOR TURNING ROUND RODS.

SPECIFICATION forming part of Letters Patent No. 358,759, dated March 1, 1887.

Application filed July 3, 1886. Serial No. 206,884. (No model.)

To all whom it may concern:

Be it known that I, MILLARD E. STOCKWELL, of Grand Ledge, in the county of Eaton and State of Michigan, have invented new and useful Improvements in Lathes for Turning Round Rods; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to new and useful improvements in lathes of that class used for turning rods; and the primary object of the invention is to feed and guide the stick through the knife-head in a superior manner to that done in lathes of this kind in present use, where it is found very difficult to entirely prevent the sticks from springing or twisting under the action of the knives, especially when rods of very small diameter are being turned, and where it has been found impossible heretofore to prevent the ends of the sticks from springing and acquiring thereby a more or less irregular shape.

To this end my invention consists in the peculiar arrangement of a guide-tube in connection with the mandrel, and in the peculiar arrangement of the feed-rolls, all as more fully hereinafter set forth.

Figure 1 is a perspective view of my improved lathe. Fig. 2 is a vertical central section through the axis of the mandrel. Fig. 3 is a detached perspective of the mandrel. Fig. 4 is a detached perspective of the guide-tube. Fig. 5 is a vertical cross-section on the line *x x* in Fig. 2.

In the accompanying drawings, which form a part of this specification, A is a supporting frame or table. B is a bed-plate. C are two standards rising from said bed-plate and provided with suitable bearings, D, in which the hollow mandrel E of the lathe is journaled. This hollow mandrel is provided with the knife-head F, to which the knife G is secured, and with the drive-pulley H and feed-pulley I. It is also provided with an extension, *f*, supported by the end bearing, C, as shown in Fig. 2.

J is an apertured guide-sleeve, secured upon a standard, C′, in the axial center of the mandrel. Its aperture is square in cross-section, and of proper size to guide the square stick on which the lathe is intended to operate in its passage through the knife-head. The free end of the guide-sleeve is provided with a bevel, *a*, which, when the sleeve is in position, corresponds with a shoulder, *b*, in the knife-head, into which the free end of the guide-sleeve projects.

The aperture through that portion of the mandrel into which the guide-sleeve projects is sufficiently larger than the diameter of the latter to avoid frictional contact in motion, the guide-sleeve being held stationary by means of the screws *c′* in the bearing C′.

That portion of the aperture in the mandrel immediately adjoining the free end of the guide-sleeve, and marked *c*, is cylindrical, and its diameter is equal to the diagonal of the aperture in the guide-sleeve. The remaining portion, *d*, of the aperture through the knife-head is gradually contracting, in the same degree, or nearly so, as the knife cuts away the stick, a sufficient opening, *e*, being left in front of the cutting-edge of the knife to permit a free discharge of the chips. The remaining portion of the aperture adjoining the knife-head at the discharge end of the stick is of a size corresponding with the diameter of the finished stick, and it is made just sufficiently long to provide a bearing for the mandrel.

K and L are grooved feed-rolls. The lower roll, K, runs in suitable bearings and has a drive-connection with the pulley I, that in the present instance consisting of the gear-wheel O on the shaft P of said lower roll, which meshes with the worm Q on the shaft R, which carries a drive-pulley, S, around which and the pulley I passes the belt T, while the upper roller turns loose on the end of the hinged arm M, and has a sufficient lateral play on its bearings *d′* to center itself upon the stick, suitable downward pressure being brought upon the hinged arm M in any suitable way, preferably by means of the spring V on the bar or rod W, as shown in Fig. 5, to make the upper roll bear on the stick.

In practice the stick is inserted by an attendant into the aperture of the guide-sleeve, and pushed forward through the knife-head

until the feed-rolls take hold of it and feed it through automatically. It will be observed that while the stick is exposed to the action of the knife it is firmly guided and supported by the guide-sleeve and by the peculiar construction of the aperture through the knife-head and the discharge end of the mandrel, so that the stick can neither be twisted off nor be sprung under the action of the knife.

The beveled-off portion of the guide-sleeve, projecting, as it does, within the knife-head, holds the stick just where the severest action of the knife occurs, and beyond the end of said sleeve the walls of the aperture in the knife-head and mandrel prevent any springing of the stick, so that I am enabled by the use of my lathe to turn rods of all kinds of woods and of any thickness down to the size of a lead-pencil, and without any portion thereof, not excepting the very end, being turned irregular, as with the lathes in present use.

The peculiar construction of the feed-rolls improves the grip and holds the stick much firmer against any twisting action than where both rolls are live-rolls, as in the present construction.

What I claim as my invention is—

1. In a lathe of the kind described, the combination, with the hollow revolving mandrel E, of the stationary live feed-roll K and of a vertically self-adjusting loose feed-roll, L, having a lateral play, substantially as described.

2. In a lathe, the combination, with the hollow mandrel and stationary guide-sleeve secured in the axis thereof, of the stationary live feed-roll K, the vertically self-adjusting loose feed-roll L, having a lateral play, the hinged arm M, carrying said roll L, and a drive-connection between the roll K and the mandrel, substantially as described.

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Witnesses:

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