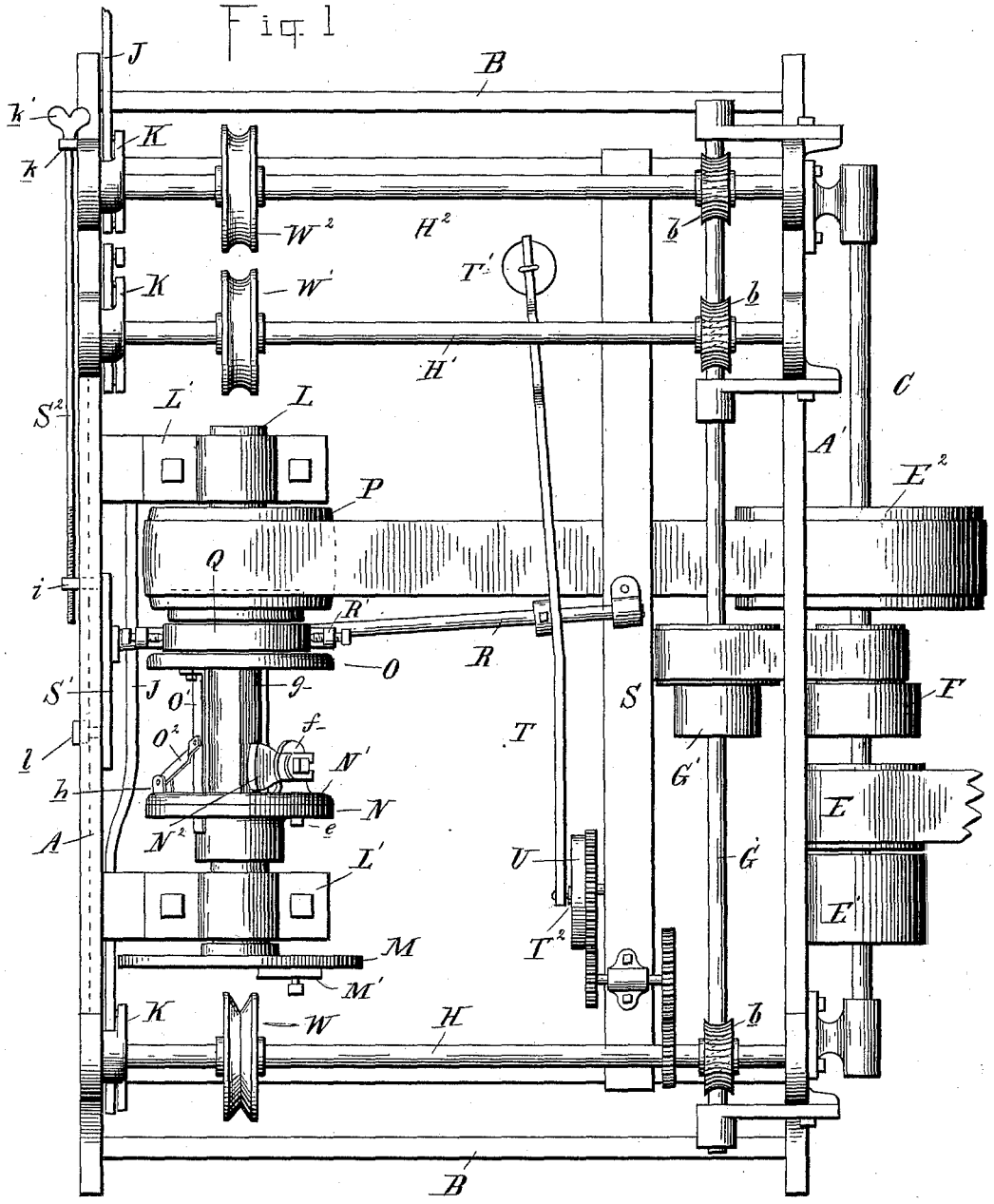
(No Model.) 3 Sheets—Sheet 1.

P. T. LAMKIN.

LATHE FOR TURNING HANDLES.

No. 430,862. Patented June 24, 1890.

Fig. 1



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(No Model.) 3 Sheets—Sheet 2.

P. T. LAMKIN.

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No. 430,862. Patented June 24, 1890.

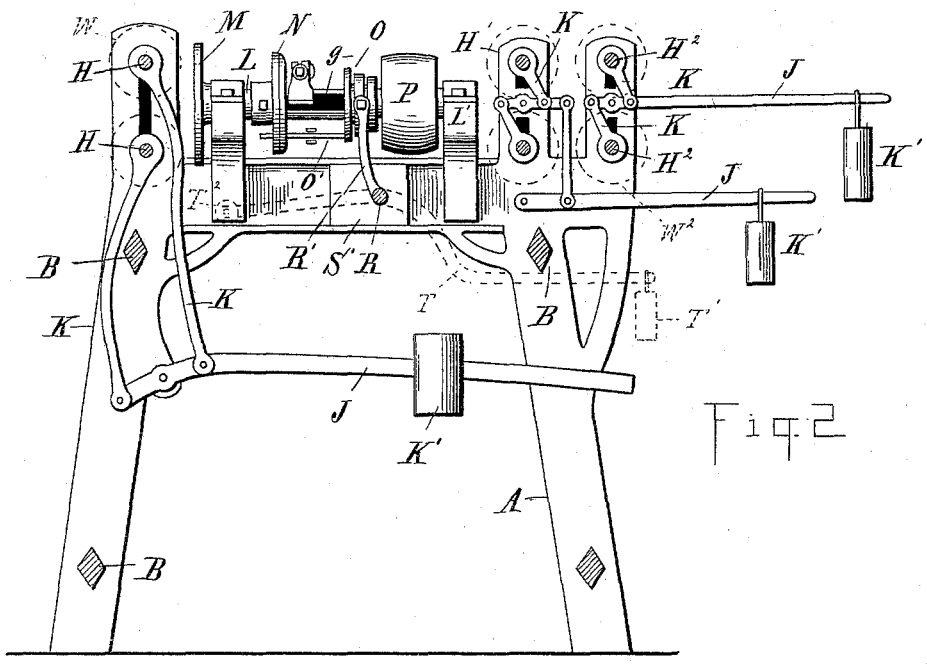

Fig. 2

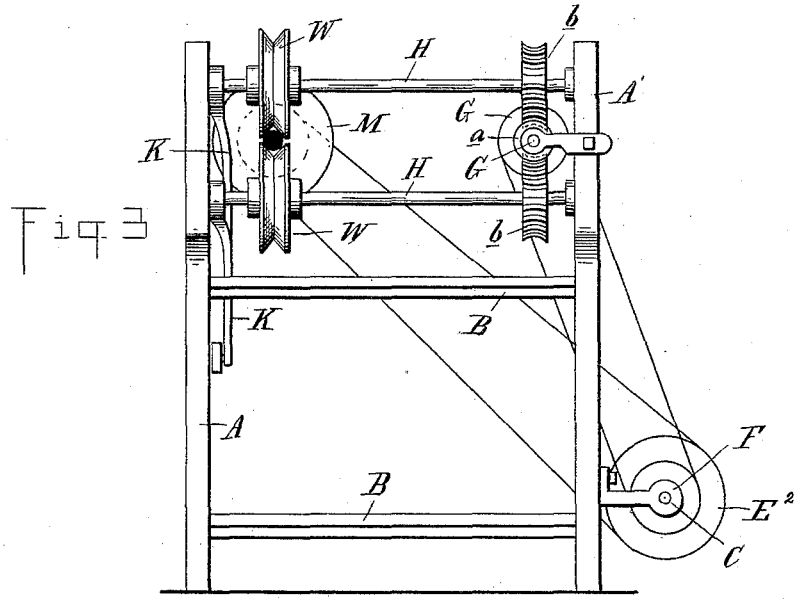

Fig. 3

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(No Model.) 3 Sheets—Sheet 3.

P. T. LAMKIN.

LATHE FOR TURNING HANDLES.

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Fig. 4

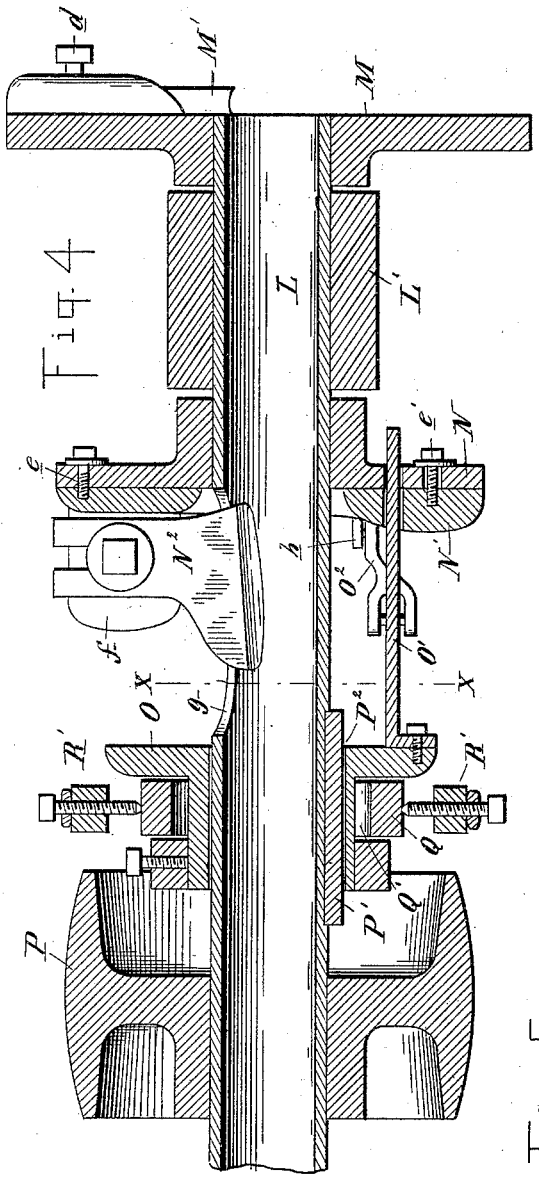


Fig. 7

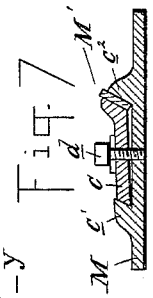


Fig. 6

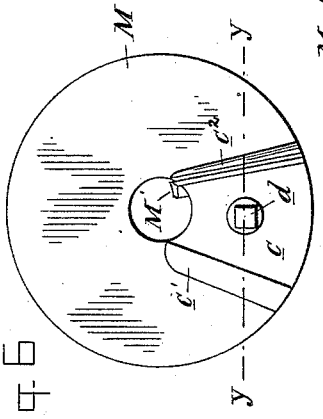
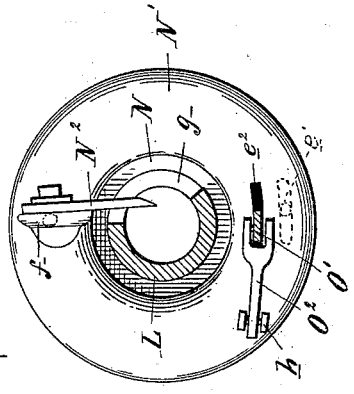


Fig. 5



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UNITED STATES PATENT OFFICE.

PERRY T. LAMKIN, OF WHITTAKER, MICHIGAN.

LATHE FOR TURNING HANDLES.

SPECIFICATION forming part of Letters Patent No. 430,862, dated June 24, 1890.

Application filed December 4, 1889. Serial No. 332,497. (No model.)

To all whom it may concern:

Be it known that I, PERRY T. LAMKIN, a citizen of the United States, residing at Whittaker, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Lathes for Turning Handles, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in lathes for turning regular work—such as handles, &c.—and which are commonly known as "lathes for turning handles;" and the invention consists, first, in the improved construction and operation of the cutter; second, in providing the machine with an easy adjustment, whereby handles of different diameters may be turned without changing the pattern; third, in the use of self-centering feed-rolls; fourth, in the peculiar construction, arrangement, and combination of parts, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a plan view of my handle-lathe. Fig. 2 is a vertical central longitudinal section thereof, looking from the rear toward the front of the machine. Fig. 3 is an end elevation with some of the parts omitted. Fig. 4 is an enlarged central section of the hollow mandrel. Fig. 5 is a section on line *x x* in Fig. 4. Fig. 6 is an elevation of the roughing cutter-head. Fig. 7 is a cross-section on line *y y* in Fig. 6.

The frame of the machine is preferably constructed of cast-iron frames A and A′, joined together by suitable cross-braces B.

C is the main shaft, journaled in suitable brackets in the rear of the machine and carrying the tight and loose pulleys E and E′, drive-pulley E″, and cone-pulley F. G is another shaft mounted parallel thereto near the top of the frame, having the cone-pulley G′, corresponding to the cone-pulley F on the shaft C. The shaft G is provided with the worm *a*, adapted to engage with the worm-gears *b* on the feed-shaft H, H′, and H″, arranged in pairs above and below the shaft G and at right angles thereto. Each pair of feed-shafts is yoked together at the front end by links K, pivotally connected to the levers J at points on opposite sides of their fulcrums and equidistant therefrom. A pressure-weight K′ is applied to each lever.

L is a hollow mandrel journaled in bearings L′ to the frame of the machine and having mounted upon it the heads M and N, sleeve O, and pulley P. To the head M is adjustably secured the roughing-knife M′ by means of the segmental clamping-plate *c*, which is secured between two clamping-ribs *c′* and *c″* by means of a set-screw *d*. (Shown in Figs. 6 and 7.) The head N forms a face-plate, to which is pivotally secured at *e* the movable face-plate N′, which has a central aperture of sufficient size for the passage of the mandrel and to provide for a limited play of said face-plate on its pivot-pin. A tap-bolt *e′*, passing through a curved slot in the head N and engaging into the face-plate N′, serves both to limit the movement of the latter and to keep it into contact with the head N.

N″ is a knife adjustably secured to an ear *f* on the face-plate N′ in proximity to the pivot *e*, and, extending therefrom, passes with its cutting-edge through an aperture *g* in the hollow mandrel.

O is a sleeve on the mandrel L, carrying the arm O′, the free end of which passes through a slot *e″* in the plate N′ at a point opposite, or nearly so, the pivot *e* and slidingly engages into a bearing in the head N.

O″ is a link, one end of which is pivotally secured to the arm O′ and the other end to the ear *h* on the plate N′ at such an angle to the arm O′ that the sliding of the sleeve O from or toward the head N will swing the plate N′ on its pivot.

P′ is a feather on the mandrel, engaging in a feather-way in the sleeve O.

Q is a collar loosely fitting in an annular groove Q′ in the sleeve and carried between the bifurcated end of the rock-arm R′, all so arranged that the sleeve O is free to slide on the mandrel L in a longitudinal direction, while the feather P, engaging in the feather-way P′, revolves the sleeve with said mandrel. At the same time the motion of the sleeve produces a corresponding movement of the face-plate N′ through the medium of the arm O′ and link O″, which together form a toggle, that as the sleeve approaches or re-

cedes moves the face-plate on its pivot to one side or the other, thereby carrying the knife out or in from the center of the mandrel from or toward the work.

R is a rock-shaft, one end of which is secured in pivotal bearings on the cross-bar S of the frame and the other end in the horizontally-sliding bearing S′.

S″ is a rod screw-threaded at one end and engaging in an ear *i* on the bearing S′, while the other end passes through a bearing *k* and is provided with a handle *k′* to turn it conveniently.

l is a set-screw for securing the bearing S′ in any adjusted position.

R′ is a rock-arm secured to the rock-shaft R, the free end of which is bifurcated, embracing the collar Q and pivotally connected thereto.

T is a lever attached to the shaft R near its center, one end of which is provided with a weight T′ and the other with an anti-friction roller T″, which engages with the under side of the cam-shaped pattern-wheel U, which latter is actuated by a suitable train of gearing from the feed-shaft H.

W, W′, and W″ are feed-rollers mounted in pairs on the feed-shafts H, H′, and H″, respectively, and in the same vertical plane with the centers of the mandrel. The first pair of feed-rolls W are preferably provided with V-shaped grooves to feed the square sticks into the mandrel, while the feed-rolls W′ and W″, which receive the handle when turned, are preferably made of rubber with rounded grooves, so as not to injure the finished surface.

In practice, the parts being arranged as shown and described, they are intended to operate as follows: Motion being communicated to the shaft C, it is conveyed by belts connecting the pulleys E^2 and P and cone-pulleys F and G′ to the hollow mandrel L and shaft G, respectively, from the latter of which it is communicated to the feed-shafts H, H′, and H″ through the medium of the worm-gearing. The operator feeds the square stick between the rolls W, which carry it to the head M, where the roughing-knife rounds it, making it small enough to readily enter the hollow mandrel through which it is fed. At the same time, motion being communicated from the shaft H to the pattern-wheel, it will be seen that any irregularity in the periphery of said wheel will produce a movement of the lever T and a corresponding movement of the rock-arm R′, which in turn moves the sleeve O, thereby oscillating the cutting-edge of the knife N″ from or toward the center of the mandrel, as before described. Thus by using a suitable pattern-wheel any desired shape of handle may be made. By adjusting the screw S^2 the bearing S′ may be moved backward or forward, thus making the handles of greater or less diameter. By yoking the feed-shafts together in the manner described the feed-rolls are always kept equidistant from the center of the mandrel, thus making self-centering feed-rolls.

What I claim as my invention is—

1. In a handle-turning lathe, the combination, with the revolving hollow mandrel, of a cutter-head consisting of a face-plate N, secured upon the mandrel, a face-plate N′, having a pivotal connection *e* with the face-plate N and provided with an enlarged aperture through which the mandrel loosely passes, whereby it is free to swing in a plane at right angles to the axis of the mandrel, a knife N″, secured to the face-plate N′ and adapted to operate upon the work in the mandrel through an aperture *g* formed therein, a sliding sleeve upon the mandrel controlled by a pattern-wheel, and suitable connection between said sliding sleeve and the face-plate N′ for correspondingly swinging the latter upon its pivot to draw the knife from or toward the work, substantially as described.

2. In a handle-turning lathe, the combination of the mandrel L, provided with the aperture *g*, the cutter-head consisting of the swinging face-plate N′, which carries the knife, and the face-plate N, fast upon the mandrel, and to which the face-plate N′ is pivotally secured free to swing, whereby the cutting-head of the knife is tangentially adjusted from or toward the work in the mandrel, the sliding sleeve O upon the mandrel, controlled by a pattern-wheel, the bar O′, carried by said sliding sleeve, and the link O″, pivotally connecting the bar O′ and the face-plate N′, substantially as described.

3. In a handle-turning lathe, the combination of the mandrel L, provided with the aperture *g*, through which the knife operates upon the work, the cutter-head consisting of the face-plate N, fast upon the mandrel, and the face-plate N′, free to swing thereon on a pivot *e* and carrying the knife, the sliding sleeve O, controlled by a pattern-wheel, the bar O′, secured to it and slidingly engaging into a bearing on the face-plate N, and the link O″, pivotally connecting the bar O′ and face-plate N′, substantially as described.

4. In a handle-turning lathe, the combination, with the revolving hollow mandrel and its cutter-head having the swinging face-plate N′, carrying the knife, the sliding sleeve O upon the mandrel, the bar O′ and link O″, adapted to swing the face-plate by the movement of the sliding sleeve O, the pattern-wheel U, the rock-shaft R, provided with the lever T, bearing upon the pattern-wheel, and with the arm R′, carrying the sliding sleeve, and the slidingly-adjustable bearing S of said rock-shaft, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 12th day of August, 1889.

PERRY T. LAMKIN.

Witnesses:
CHARLOTT BISHOP,
WILL BISHOP.