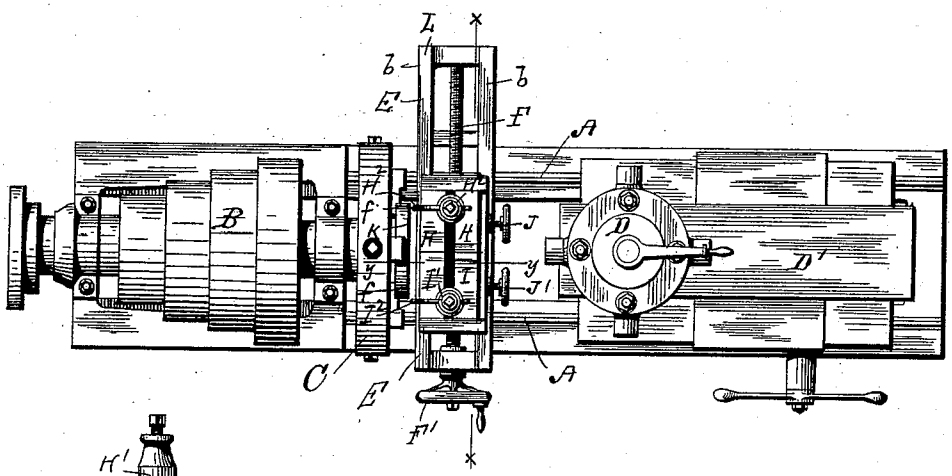
(No Model.)

J. R. BACK.

METAL TURNING LATHE.

No. 400,820. Patented Apr. 2, 1889.

Fig. 1.



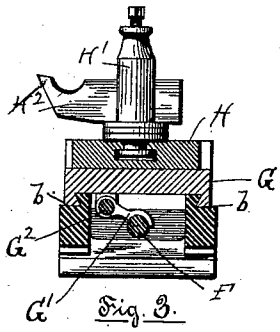
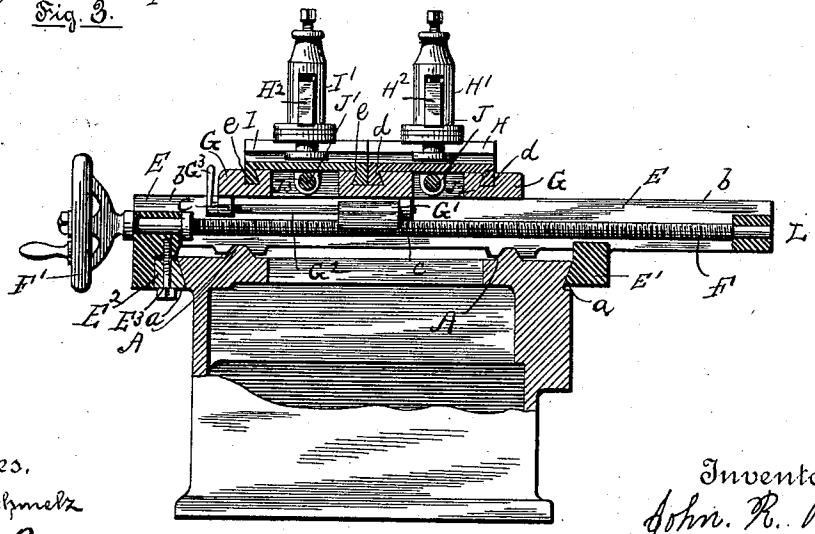


Fig. 3.

Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN R. BACK, OF WORCESTER, MASSACHUSETTS.

METAL-TURNING LATHE.

SPECIFICATION forming part of Letters Patent No. 400,820, dated April 2, 1889.

Application filed July 5, 1887. Serial No. 243,384. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. BACK, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Metal-Turning Lathes, of which the following is a specification.

My invention relates to certain improvements in metal-turning lathes, having for its object to facilitate turning and finishing to an accurate dimension the side of work held in a rotating chuck; and it consists in the construction and arrangement of the tool-holding devices, in combination with means for revolving the work, as hereinafter described, and specifically set forth in the claims.

In the accompanying drawings, which form a part of this specification, and to which reference is herein made, I have shown my invention as applied to an ordinary chucking-lathe; but its use is equally applicable to any form of metal-turning lathe provided with means for chucking and rotating the work.

Figure 1 of the drawings is a top view of a chucking-lathe embodying my invention. Fig. 2 is a sectional view of the tool-holding and tool-actuating mechanism on line X X, Fig. 1; and Fig. 3 is a sectional view through one of the tool-holding sliding blocks on line Y Y, Fig. 1.

Similar letters refer to similar parts in the several figures.

A A denote the ways of the lathe; B, the cone-pulley; C, the chuck, and D a rotating turret supported upon a carriage, D′, capable of sliding on the ways A A toward and away from the chuck C. The construction and arrangement of these portions of the lathe are well understood, as they are in common use, and therefore require no detailed description or illustration.

E is a saddle resting on the ways A A, and attached to the bed of the lathe by means of the gib E′, attached to the saddle E, removable gib E^2, and screw E^3, by which the removable gib E^2 is attached to the saddle, firmly clamping the saddle to the beveled surfaces *a a*. The saddle E is provided with a screw, F, journaled at each end and having a hand-wheel, F′. Supported upon the saddle E is a block, G, capable of a sliding motion along the ways *b b* on the saddle E, actuated by the screw F, which engages the half-nut G′ on a rod, G^2, journaled in the bearings *c c* on the sliding block G, and having a lever-handle, G^3, at the end of the sliding block G, by which the rod G^2 is rocked and the half-nut G′ either raised so as to clear the screw F and allow the block G to be moved along the ways *b b* independently of the screw, or lowered in the position shown in Figs. 2 and 3, so as to engage the screw F. The sliding block G is also provided with the ways *d d* and *e e*, to receive the sliding tool-blocks H and I, carrying the tool-posts H′ and I′, and each having a sliding motion transversely to the saddle E and parallel with the bed of the lathe by means of the actuating-screws J J′, journaled in bearings on the sliding block G and engaging nuts J^2 J^3 on the tool-holding blocks H and I, in the usual manner of moving the tool-block in the common slide-rest of a turning-lathe, and therefore not shown in the drawings in detail.

The tool-post H′ carries a cutting-tool, H^2, adapted to remove the scale and the principal portion of the stock, and the tool-post I′ is provided with what is known as a "smoothing" or "finishing" tool, I^2. The two cutting-tools H^2 and I^2 may be moved simultaneously in a direction transversely to the ways of the lathe by means of the screw F, and each of the cutting-tools has also an independent movement in a direction parallel with the ways of the lathe by means of the screws J J′.

The work (shown at K, Fig. 1) is held in the jaws of the chuck C in the usual manner, with the side opposite the cutting-tools placed against the shoulders *f f* of the jaws of the chuck. This side is held in a position at right angles with its axis of rotation and parallel with the traversing motion of the cutting-tools H^2 and I^2. The cutting-tool H^2 is then advanced to take the requisite chip from the work and brought against the edge of the work, as shown in Fig. 1, and the work rotated in the direction of the arrow 1, while the cutting-tool H^2 is at the same time traversed from the edge of the work to the center by the screw F. The work is thus reduced in size, so that but a light chip is required to bring it to the desired size. The finishing-tool is advanced toward the work, so as to bring it to the size required, and the work ro-

tated in the direction of the arrow 2, while the finishing-tool is traversed from the edge of the work to its center. Any number of similar pieces of work can then be turned, and so long as the position of the finishing-tool remains unchanged an absolute uniformity of size of the several pieces will be secured. As a light chip is only taken after the scale has been removed, the finishing-tool may be used a long time without sharpening, while the roughing-tool H^2 can be frequently ground without disturbing the position of the finishing-tool. The rotation of the work is reversed by means of pulleys on a counter-shaft, (not shown,) which run in opposite directions, and from which a belt is taken alternately to the cone-pulley B in the manner common in turning lathes. The saddle E is extended to the rear of the lathe-bed, as shown at L, Figs. 1 and 2, to allow the sliding block G to be moved away from the work, which is effected by disengaging the nut G′ from the actuating-screw.

I do not confine myself to the particular method shown for attaching the saddle to the bed of the lathe, as such forms no part of my present invention, and any of the well-known methods of accomplishing the same result may be adopted; neither do I confine myself to the special construction and arrangement of the screws for actuating the several sliding blocks G, H, and I.

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In a turning-lathe, the combination, with the chucking mechanism, substantially as described, for holding the work to be operated upon, of a carriage capable of a sliding motion transversely to the axis of the chucking mechanism, sliding blocks carrying tool-posts and mounted in ways upon said carriage, said ways being parallel with the axis of the chucking mechanism, and actuating-screws journaled in said carriage and engaging nuts upon said sliding blocks, whereby each of said blocks, with its tool-post, can be moved toward or away from the chucking mechanism independently, substantially as described.

2. In a turning-lathe, the combination, with rotating chucking mechanism for holding the work to be operated upon, of a saddle placed at right angles to the axis of the rotating chuck, a screw journaled in said saddle, a sliding block or carriage actuated by said screw and sliding in ways on said saddle transversely to the axis of the rotating chucking mechanism and carrying the tool-holding blocks, and a pair of tool-holding blocks, each having an independent sliding motion parallel with the axis of the rotating chucking mechanism through actuating-screws, substantially as described.

3. In a turning-lathe, the combination, with a saddle resting on the ways of the lathe, of a screw journaled in said saddle, a sliding block sliding in ways on said saddle and detachably connected with said screw, and a pair of tool-holding blocks having a sliding motion in ways on said sliding block and at right angles thereto, substantially as described.

4. In a turning-lathe, the combination, with a rotating chucking mechanism for holding the work to be turned, of a pair of tool-holding blocks having an independent sliding motion parallel with the axis of the rotating chucking mechanism, a sliding block supporting said tool-holding blocks and having a sliding motion at right angles with the axis of the rotating chucking mechanism, and a saddle supporting said sliding block and resting on the ways of the lathe, said saddle extending over said ways, so as to allow the tool-holding blocks to be moved away from the work, substantially as described.

JOHN R. BACK.

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