(No Model.)

W. O. SMITH.

TURNING LATHE.

No. 250,762. Patented Dec. 13, 1881.

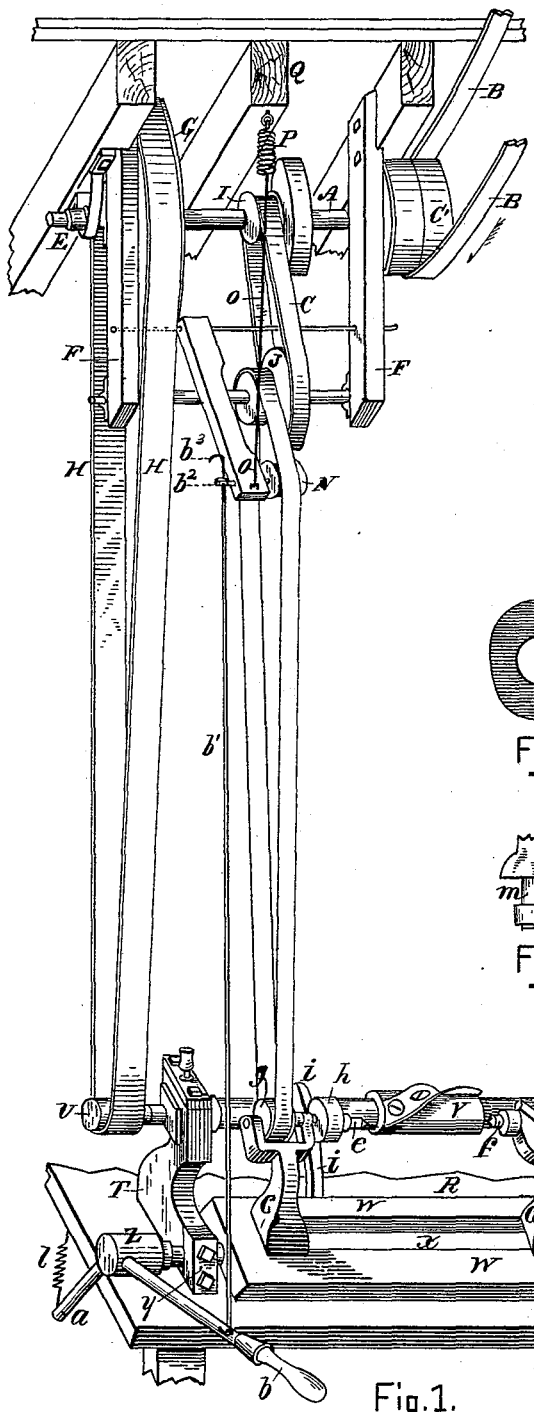

Fig. 1.

Fig. 3.

Fig. 4.

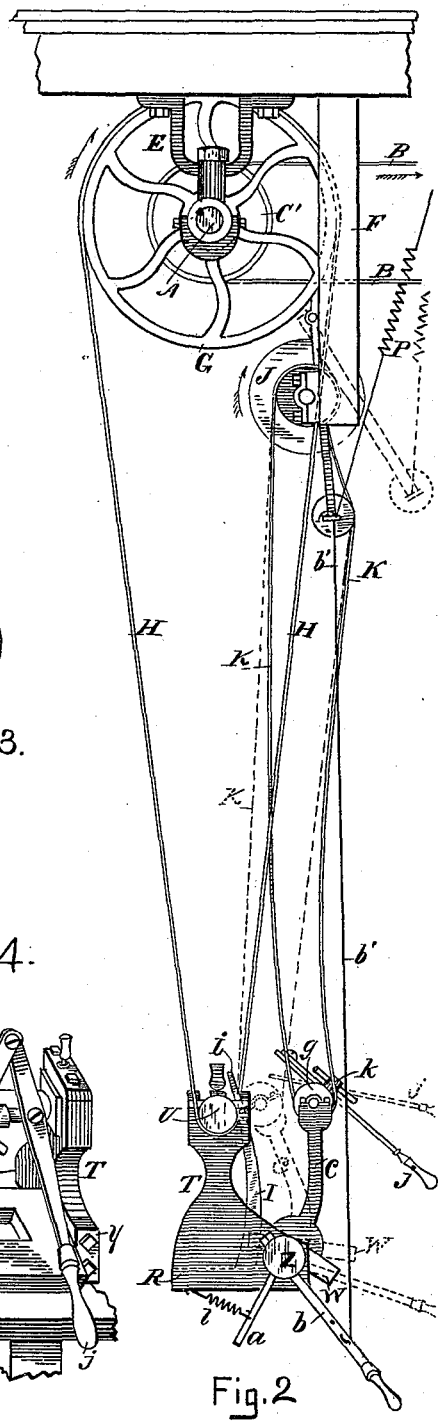

Fig. 2

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UNITED STATES PATENT OFFICE.

WILLIAM O. SMITH, OF BOSTON, MASSACHUSETTS.

TURNING-LATHE.

SPECIFICATION forming part of Letters Patent No. 250,762, dated December 13, 1881.

Application filed August 4, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM O. SMITH, of Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Turning-Lathes, of which the following is a description, sufficiently full, clear, and exact to enable any person skilled in the art or science to which my invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view, representing the lathe in position for use; Fig. 2, an end view, representing it when not in use; Fig. 3, a side elevation of the cam, and Fig. 4 a view of the head-stock.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates more especially to that class of lathes which are designed for turning irregular forms; and it consists in a novel construction and arrangement of parts, as hereinafter more fully set forth and claimed.

In the drawings, A represents the main driving-shaft; B, the main belt; C, the counter-belt; D, the counter-shaft; E, a hanger for the main shaft; and F F, hangers for the counter-shaft.

The shaft A carries a large driving-pulley, G, for the belt H, a smaller driving-pulley, I, for the belt C, and also the main pulley C′, the shaft D being provided with proper pulleys, J, for the belts C K.

Pivoted at its inner end to the rod L in the hangers F there is an arm, M, provided at its outer end with the small flanged pulley N, over which the belt K runs, and with the rod O and coiled spring P, the spring acting contractively, being firmly attached to the beam Q, these parts constituting a tightener for the belt K.

The bed-piece R of the lathe proper is firmly secured to the bench S, and provided with the upright head-pieces T T, in which the horizontal shaft U, carrying the rotary cutter V, is journaled.

A horizontally-arranged plate or bed, W, provided with the longitudinal slot X, is pivoted or journaled in boxes Y Y on the lower front portions of the heads T, one of the pivots or journals of the plate being elongated and provided with the head Z, fixed stud or arm *a*, and lever or handle *b*, the handle being connected to the arm M by the vertical rod b', which passes loosely through the eye b^2, and has the hook b^3 at its upper end.

Disposed in the slot X there are two movable head-stocks, *c d*, in which the live-center *e* and dead-center *f* are respectively journaled, the live-center shaft, in addition to the ordinary pulley *g*, being provided with the face-cam *h*.

Projecting upwardly from the bed R, in front of the shaft U, and between said shaft and the cam *h*, there is a fixed stud or arm, *i*, against which the cam works in shaping the article being turned.

In the use of my improvement one end of the blank (not shown) is placed against the live-center *e* and the sliding or dead center *f* brought properly in contact with the opposite end by means of the lever or handle *j*, where it is secured in the usual manner by the hand-screw *k*. The handle *b* is then raised to bring the cam *h* into contact with the stud *i*, and the blank into contact with the cutter or knife V, as shown by the dotted lines in Fig. 2, after which the latter is started up and the work accomplished in a manner which will be readily understood without a more explicit description.

The arm *a* is provided with a coiled spring, *l*, which acts contractively to depress the handle *b* when the same is released, and to throw the blank out of contact with the knife, the spring *l* being sufficiently powerful to readily overcome the spring P when both are left free to act. It will be seen that when the handle *b* is elevated to bring the blank into contact with the knife the rod b' will slide upwardly through the eye b^2, releasing the arm M, and permitting the spring P to tighten the belt K by forcing the pulley N against the same by means of the rod O, and that when the handle *b* is depressed to throw the blank out of contact with the knife the rod b' will operate on the arm M to remove the pulley N from contact with the belt K, thus slackening the same, as (seen in Fig. 2,) and stopping the rotary movements of the center *e* and cam *h*, preventing the lathe from working.

The head-stocks *c d* are curved, as shown in Figs. 1 and 2, so that when the bed W is tilted to throw the centers *e f* outwardly to receive the blank they will assume a vertical position, as seen in Fig. 2, enabling the work to be inserted and removed to better advantage. The head-stock *d* is provided with a round shank, *m*, passing through the slot X, which enables the stock to be swiveled or partially turned on its seat, thus slightly varying the distance of the center *f* from the knife V, as desired, to overcome any undue depression or projection on the cutting-edge of the knife.

Having thus explained my invention, what I claim is—

In a lathe substantially as described, the rod *b'* and spring P, in combination with the handle *b* and the tilting bed R, for controlling the action of the belt-tightener on the belt E automatically as the blank is brought in contact with and removed from the knife, substantially as described.

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