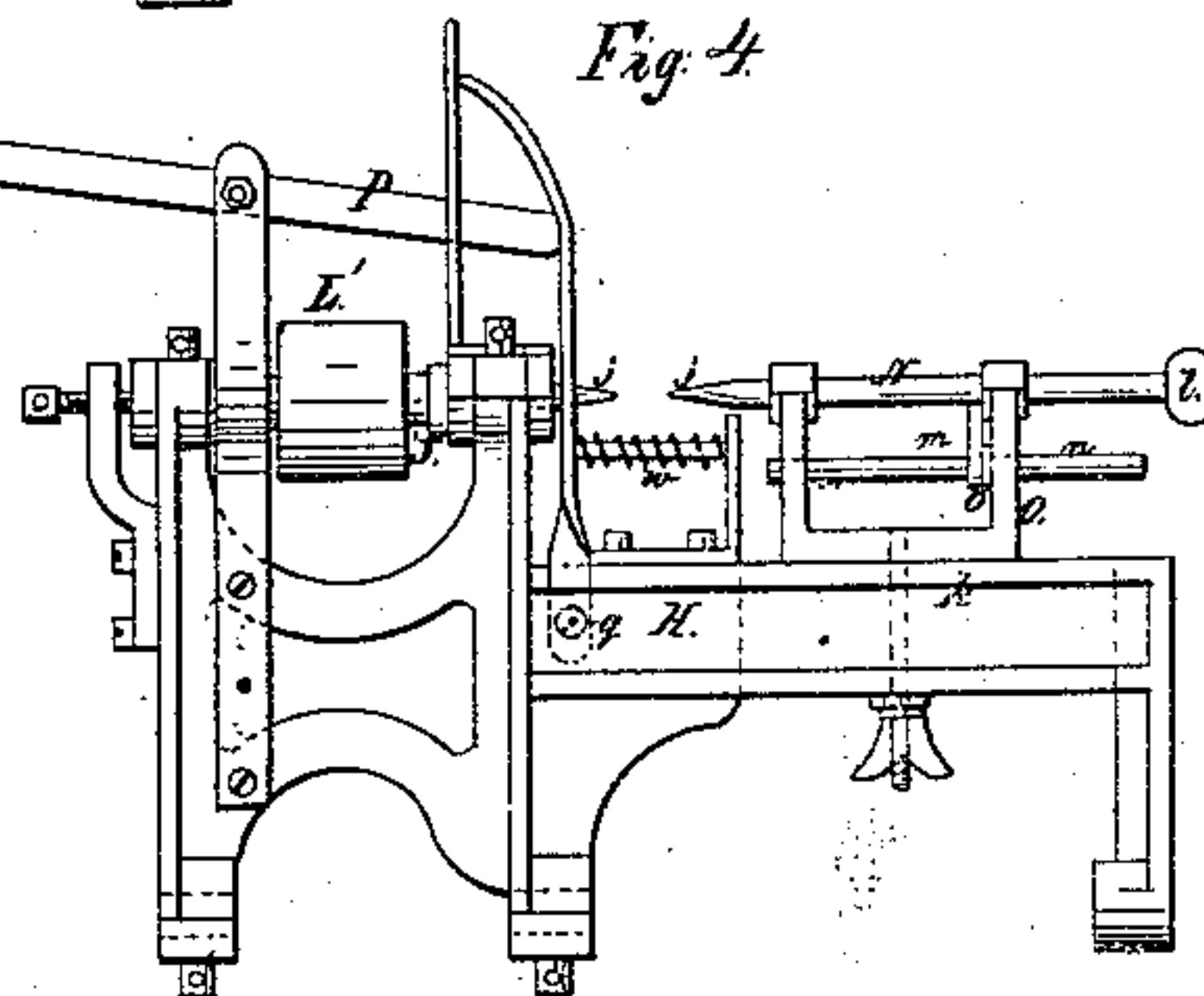
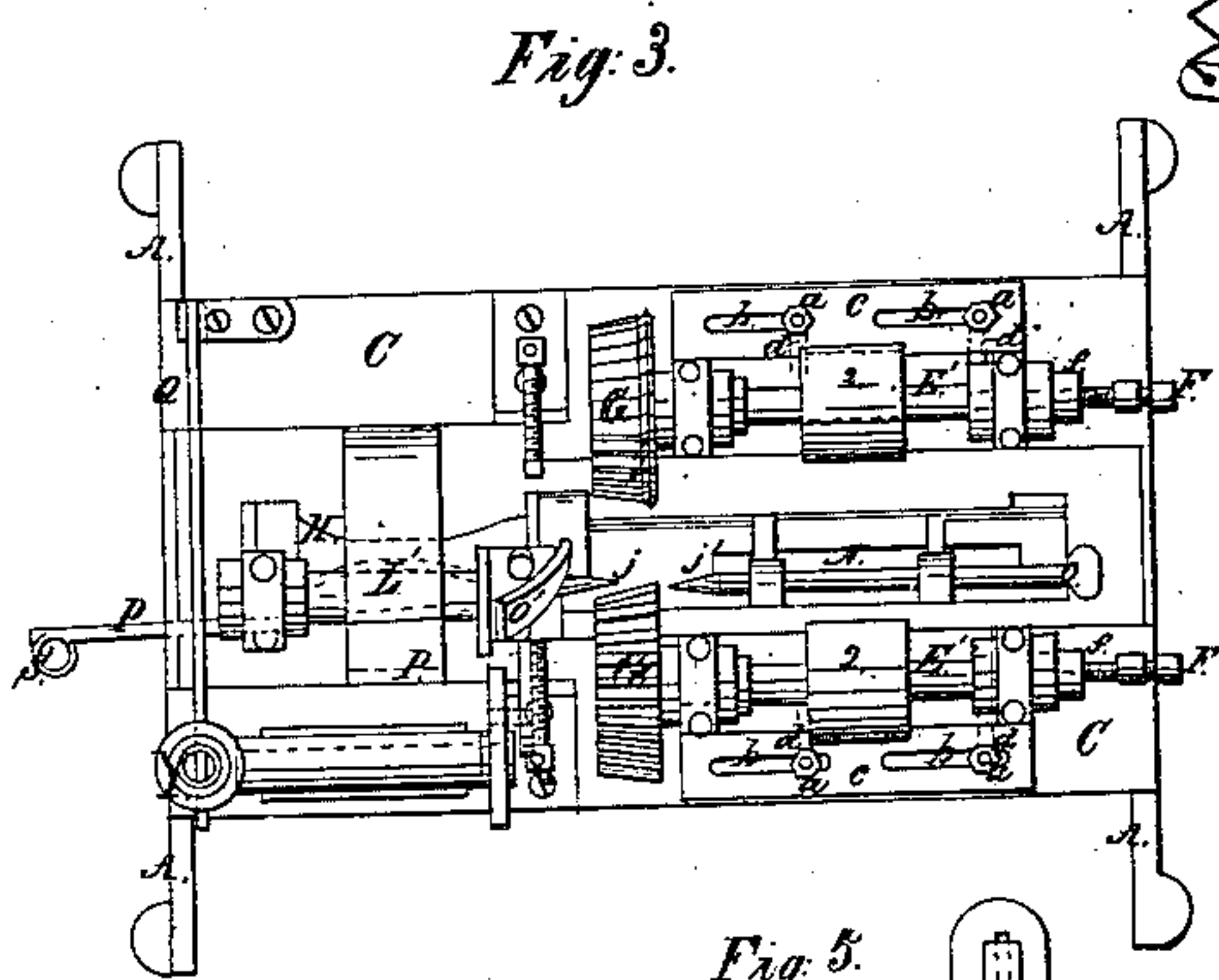
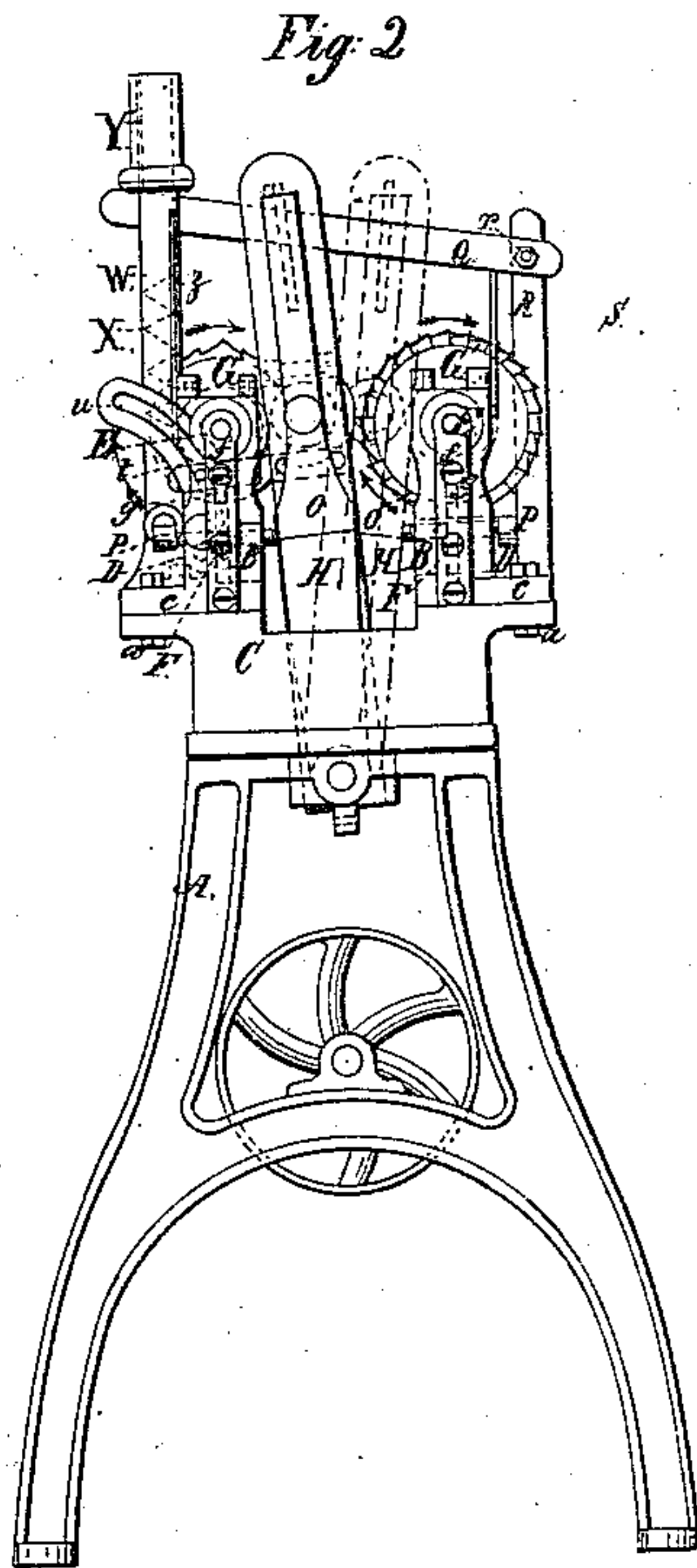
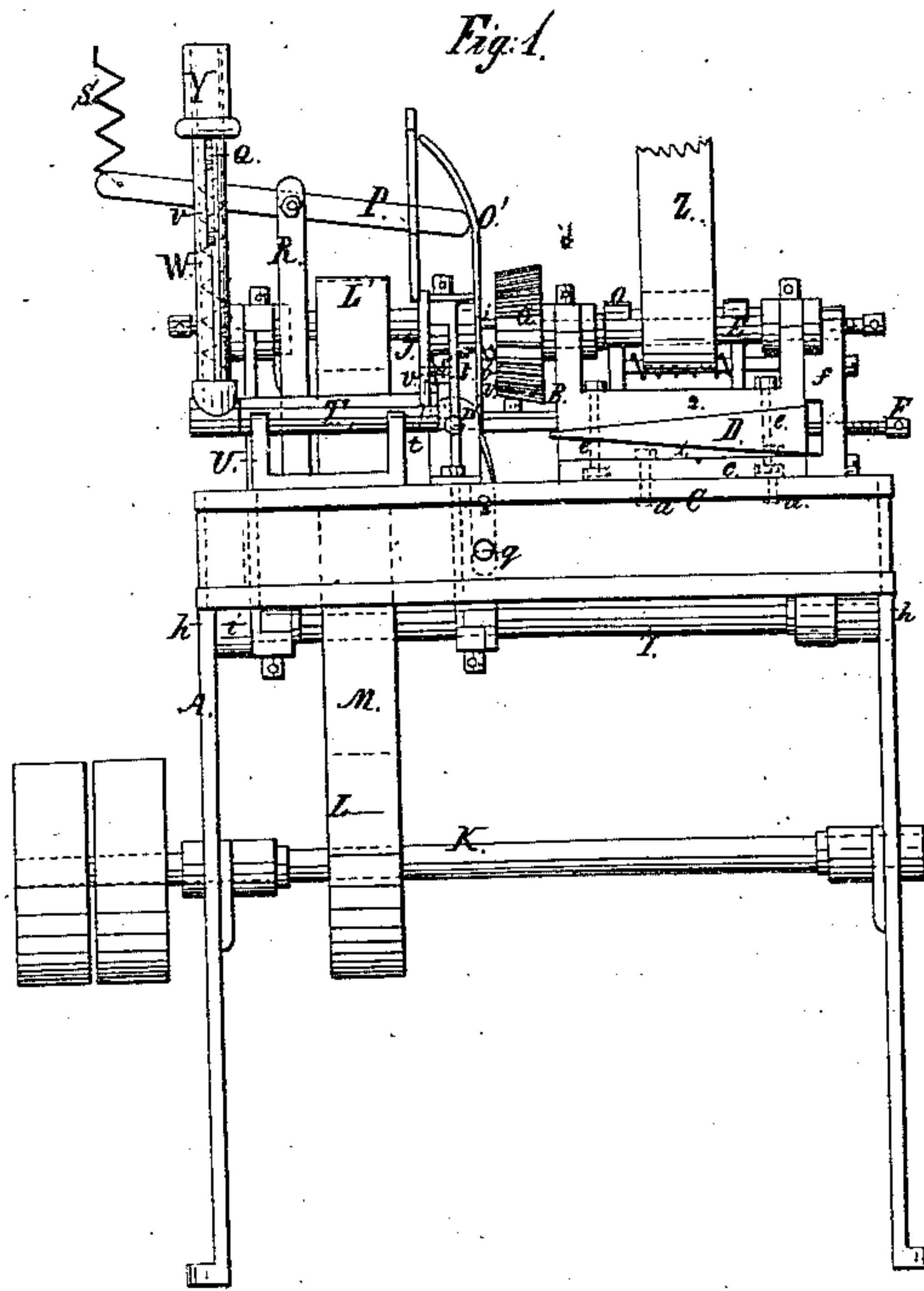


*J. Mc Michael,*

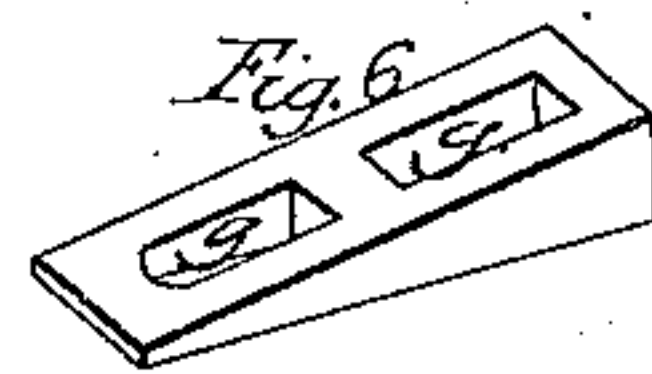
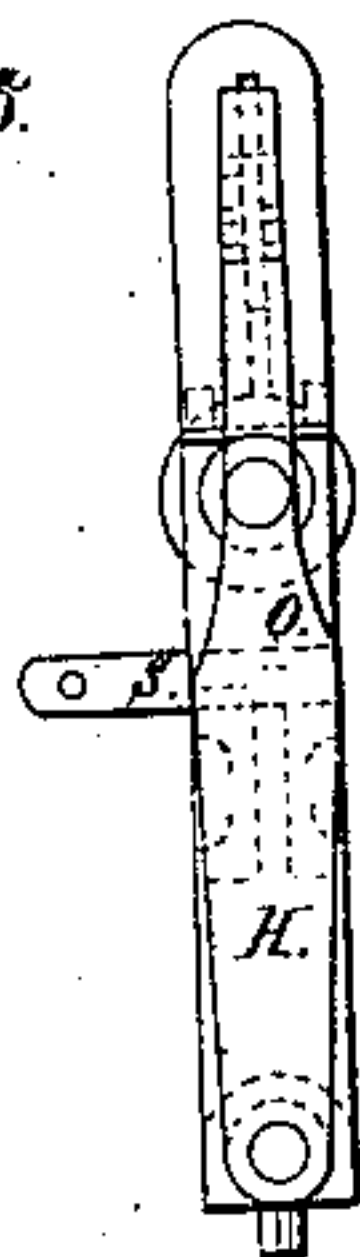
*Turning Regular Forms.*

*Patented Jan. 22, 1867.*

*N<sup>o</sup> 61,442.*



*Fig. 5.*



*Witnesses:*

*John A. Waller*

*Frank. Haffas,*

*Inventor:*

*John Mc Michael,*

*By his attorney  
Stephen Ustick.*



# United States Patent Office.

JOHN McMICHAEL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
JOSEPH WRIGHT, OF SAME PLACE.

*Letters Patent No. 61,442, dated January 22, 1867.*

## IMPROVEMENT IN WOOD-TURNING LATHES.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN McMICHAEL, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Machine for Turning Umbrella Tips, Handles, and other work; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention and improvement consists, in the first place, of a novel mode of bringing the work to the cutters; secondly, of an expeditious mode of securing the pieces to be turned, and disconnecting them from the mandrel; thirdly, of a mode of regulating the diameter of the pieces, with other novelties, all of which will be understood by the following description. In the accompanying drawings—

Figure 1 is a side elevation of the improved machine.

Figure 2 is an end elevation.

Figure 3 is a plan of ditto.

Figure 4 is a side elevation of the rocking-frame H.

Figure 5 is an end elevation of ditto.

Figure 6 is an isometrical view of the wedge D for regulating one of the cutter-heads.

Like letters in all the figures indicate the same parts.

A is the standing frame of the machine. B B' are cutter-heads, secured on the bed-plate C by means of the screw-bolts *a*, there being longitudinal slots, *b*, in the flanges *c* of the heads for the longitudinal adjustment of the latter and cross-slots, *d*, in the bed-plate for their lateral adjustment, and also for the purpose of placing them on angles for changing the sizes and proportions of the tips. The slots *b d* are shown in fig. 3. Each head B and B' is divided into two parts, 1 and 2, the wedge D being interposed between them, for elevating the cutter mandrel E as the cutter is reduced in diameter by wearing. The three pieces in each head are held together by means of the screw-bolts *e*, as seen in fig. 1. The wedges D D are adjusted by means of the set-screws F F in the uprights *f f*, the latter being bolted at their lower end to the parts 1 1 of the heads B and B', and at the upper end to the parts 2 2, as seen in figs. 1 and 2, there being screw-slots in the uprights to allow the elevation of said parts. The wedge is shown in detail in fig. 6. The slots *g g* admit of the adjustment of the wedge, the confining screws *e* passing through them. The cutter G, on the mandrel E, is for taking the rough off the pieces to be turned, and reducing them to nearly their right size, and the cutter G', on the mandrel E', is to give them their proper form and size. The frame H secured to the rocking-shaft I, whose journals, *h*, turn in the boxes *i*, of the standing frame A, is for the purpose of holding the pieces to be turned. The said pieces have long countersunk holes in one end which fit the centre *j* of the mandrel J, to confine them thereto. The said mandrel is connected with the driving-shaft K, by means of the pulleys L L' and belt M. The standing centre *j'* is secured in the mandrel N, of the adjustable head O, on the shears *k* of the rocking-frame H. The mandrel N is made to slide in the head O, there being a knob, *l*, on the outer end of the mandrel for the operator to take hold of, to push it forward to engage the centre *j'* with the piece to be turned. The spring *m* on the sliding-rod *n* bearing against the stud *o*, which connects the rod with the mandrel, throws the latter back when the operator releases his hold to free the centre *j'* from the work. The rocking-frame H is adjusted in its stoppages, back and forth to the cutters G and G', by means of the set-screws *p* and *p'*, as seen in figs. 1, 2, and 3. O' is a cam-lever for removing the work from the centre *j*. It is hung on the pivot *q*, and has a hole through which the centre *j* passes freely. The lever is operated by the longitudinal lever P, which, as herein-after described, is actuated by the lever Q connected with the upright R, by means of the fulcrum pin *r*. The said lever P is held at its outer end up against the lever Q by means of the spring S, the upper end of which is connected with the ceiling, or some other object above the machine. T is a rocking-shaft in the head U, for bringing the work alternately to the cutters; it is connected to the rocking-frame H by means of the slotted cam V, and the stationary arm *s*, the inner end of the arm being bolted to the frame, and the outer end connected with the cam by means of the pin *t*, which passes through the slot *u* of the cam. There is a hollow upright, W, connected at its lower end with the outer end of the rocking-shaft T, there being a spring, X, in the upright, which bears at its upper end under the outer end of the lever Q. Y is a sliding handle, on the upper end of the



upright W, for the double purpose of rocking the shaft T, and operating the lever Q, the outer end of which has an up-and-down motion in the slots *v*, in the upright.

The operation is as follows: A piece to be turned being placed between the two centres *j* and *j'*, and the cutters G and G' being revolved in the direction of the arrows, by the belt Z, which connects the pulleys 1 2, on their mandrels, with the counter-shaft, the operator, by means of the sliding handle Y, turns the rocking-shaft T, until the cam V has brought the rocking-frame H to bear against the set-screw *p*. By this operation the cutter G has taken the rough off the piece and reduced it to nearly its right size. He then by the reverse motion of the cam brings the work against the cutter G', which reduces it to its right size and form by the time the frame H is brought to bear against the set-screw *p'*. Then he turns the rock-shaft T so as to disengage the work from the cutter, and pushes the handle Y downwards, and consequently gives the lever Q a downward motion, which operates the lever P, and through its motion the vertical lever O, so as to throw the work from the centre *j*; he having previously released his hold of the knob *z*, to disengage the back centre *j'* from the work. Then the handle Y is allowed to ascend into its former position, the spring X bearing it upwards with the lever Q. The spring S also pulls the lever P upwards, and the vertical lever O is also brought back by the spring *w* to its former position. The arrangement of this spring is shown in detail in fig. 4. It will be readily seen that my machine is susceptible of various modifications without departing from the main principles of its construction. For instance, instead of having it to move the work to the cutters, the latter may be moved to the work, alternately, by placing the cutter-heads on a rocking-frame, or on a bed-plate which shall have a reciprocating motion imparted to it, as it slides on shears by means of a rack and pinion or other equivalent device.

Having thus described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The rocking-frame H, arranged with the cutters G and G', and the standing frame A, substantially as hereinbefore described, and for the purposes specified.
2. Combining the cam V with the rocking-shaft T, and rocking-frame H, for giving a reciprocating motion to the latter, substantially as and for the purpose above described.
3. The combination of the cam-lever O, with the centre *j*, and lever P, the latter being operated by the lever Q, or its equivalent, substantially as and for the purpose set forth.
4. Arranging the sliding handle Y, and spring X, with the upright W, for the double purpose of giving a rocking motion to the frame H, by means of the cam V, and actuating the cam-lever O, through the intermediate levers P Q, substantially as described and for the purposes specified.

In testimony that the above is my invention, I have hereunto set my hand and affixed my seal this 14th day of November, 1866.

Witnesses:

STEPHEN USTICK,  
JOHN WHITE.

JOHN McMICHAEL. [L. S.]