

No. 765,243.

PATENTED JULY 19, 1904.

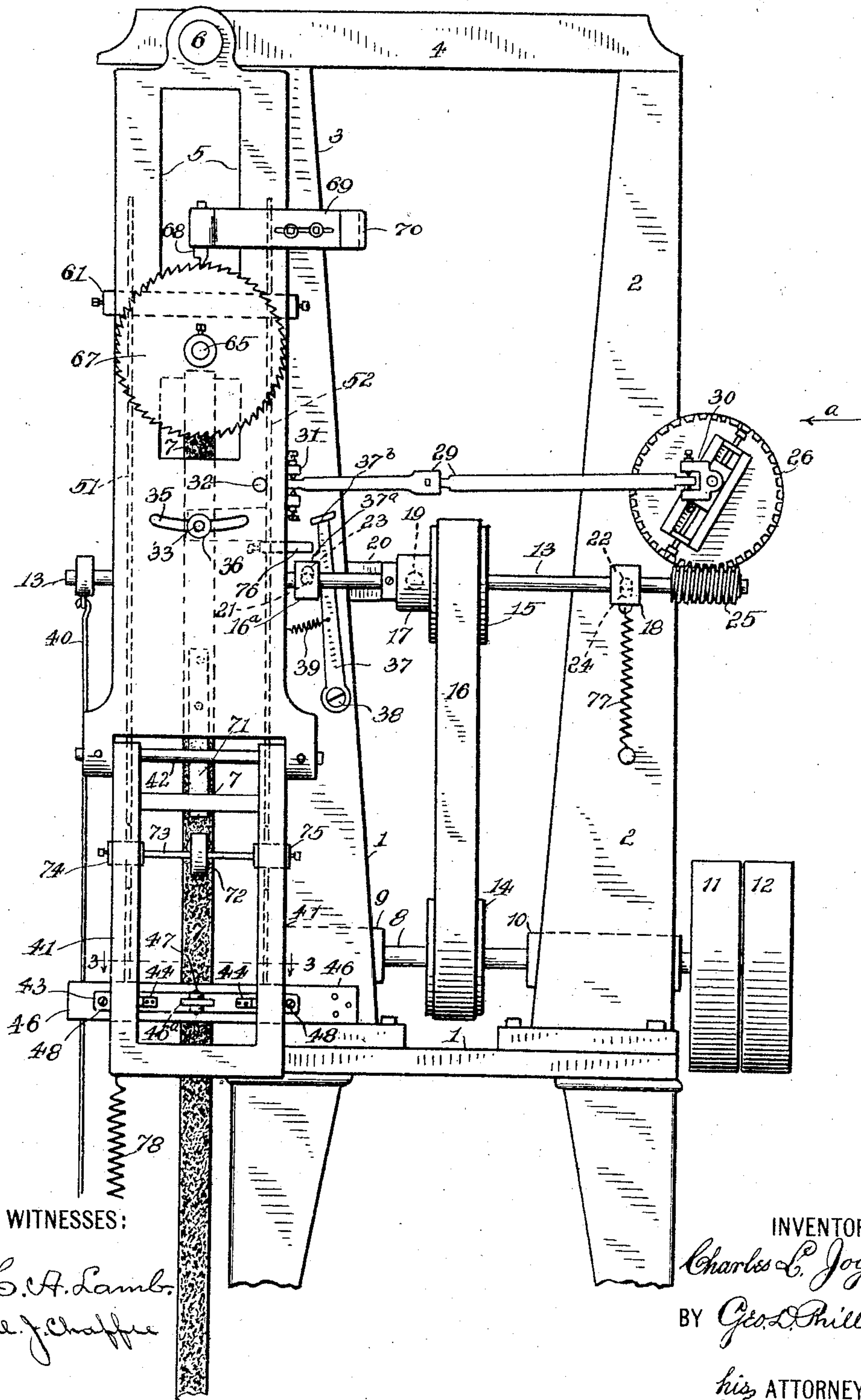
C. L. JOY.
MACHINE FOR POLISHING CUTLERY.

APPLICATION FILED JUNE 22, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 1.

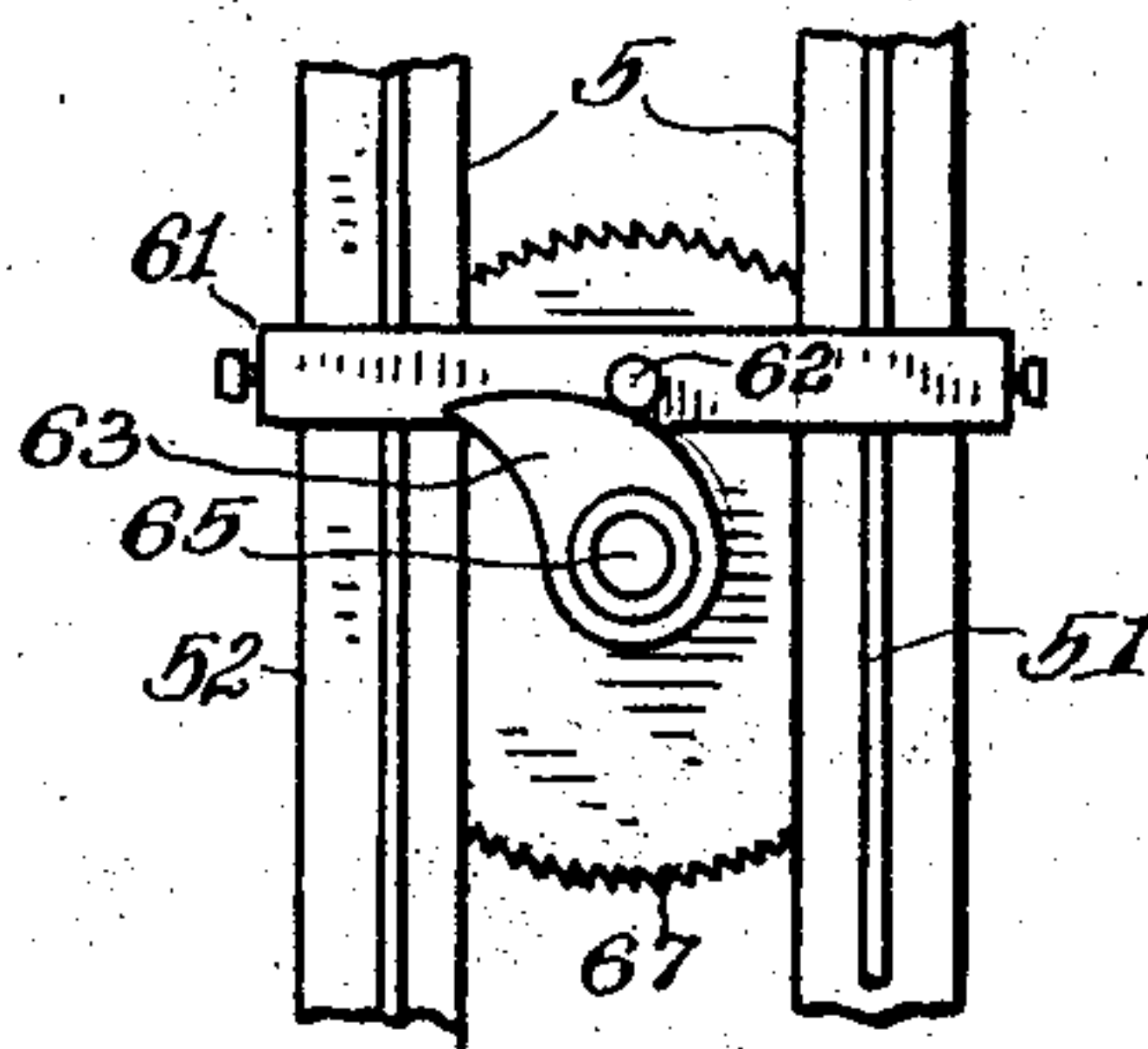


Fig. 2.

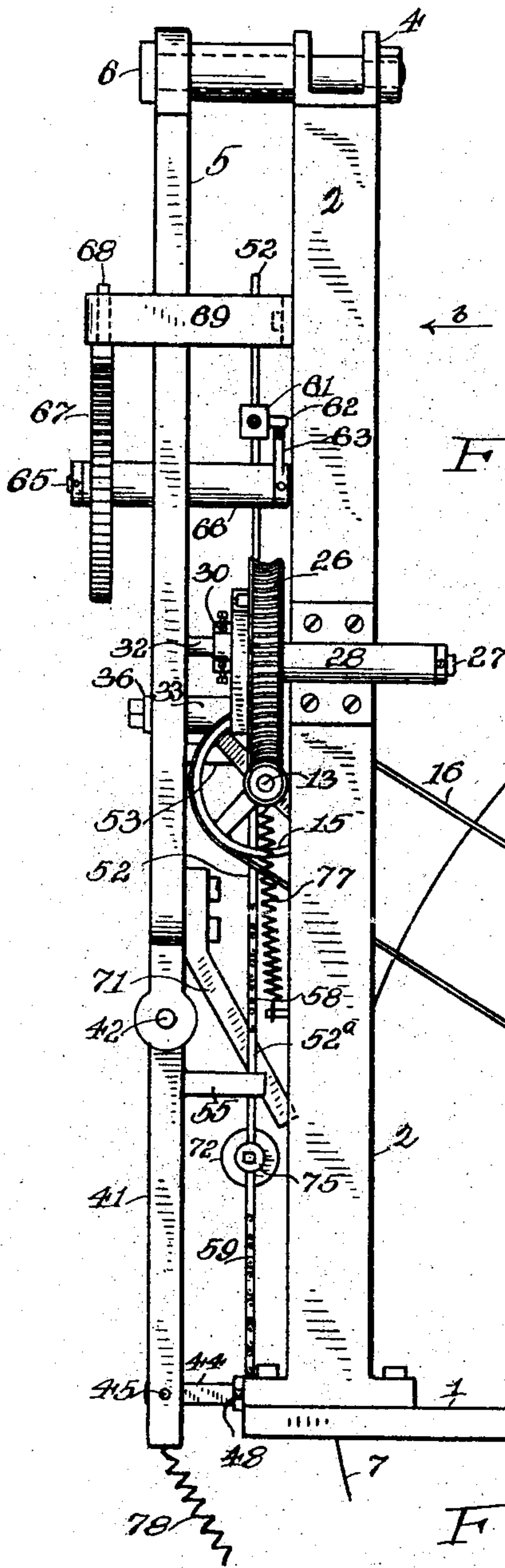
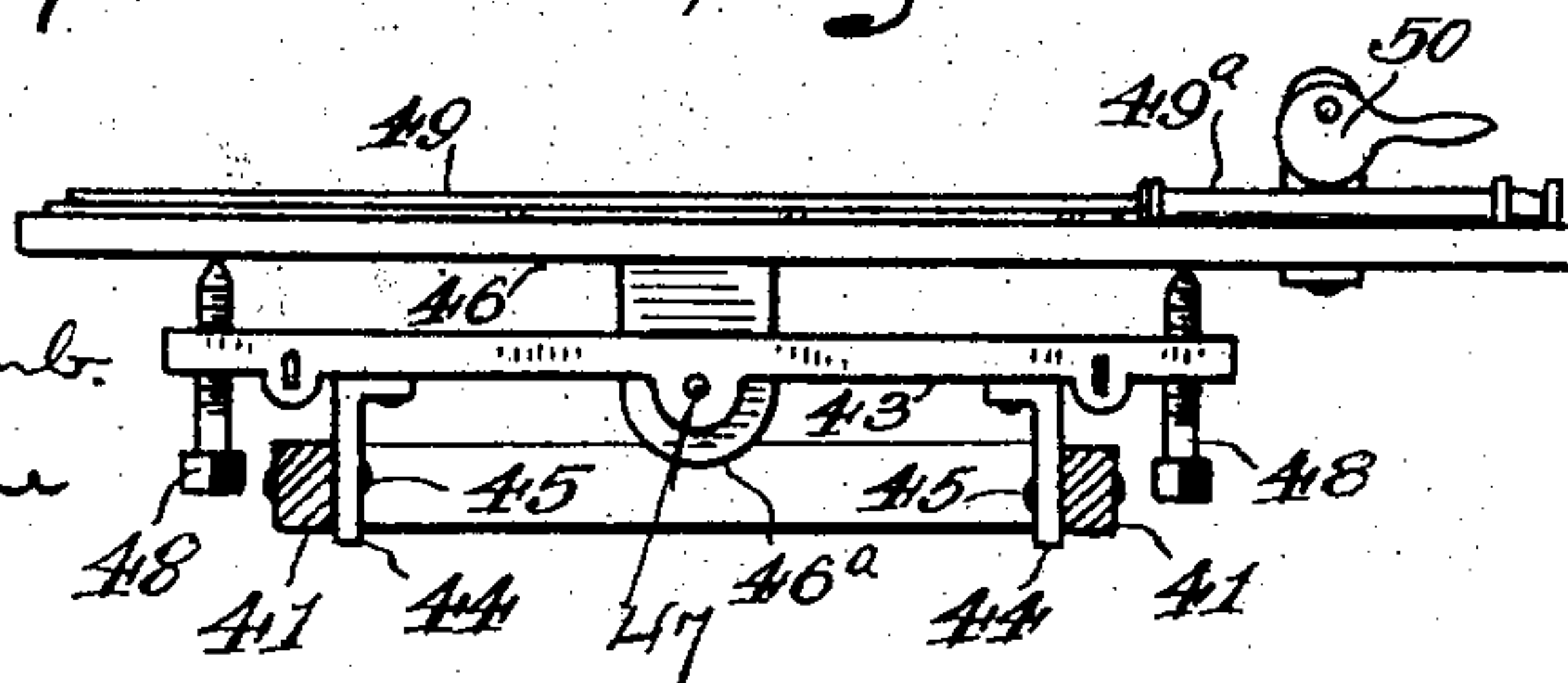


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 5.

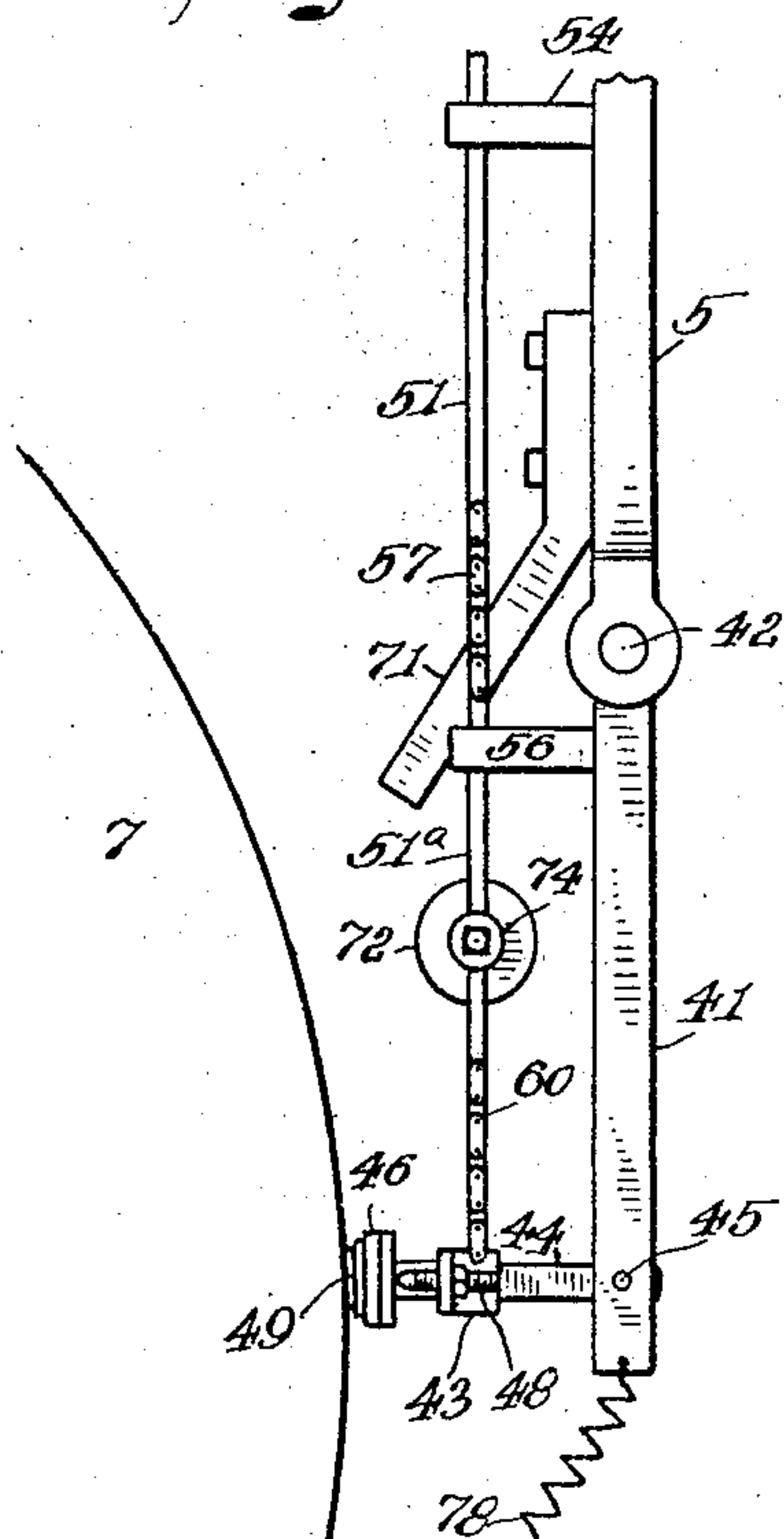


Fig. 6.

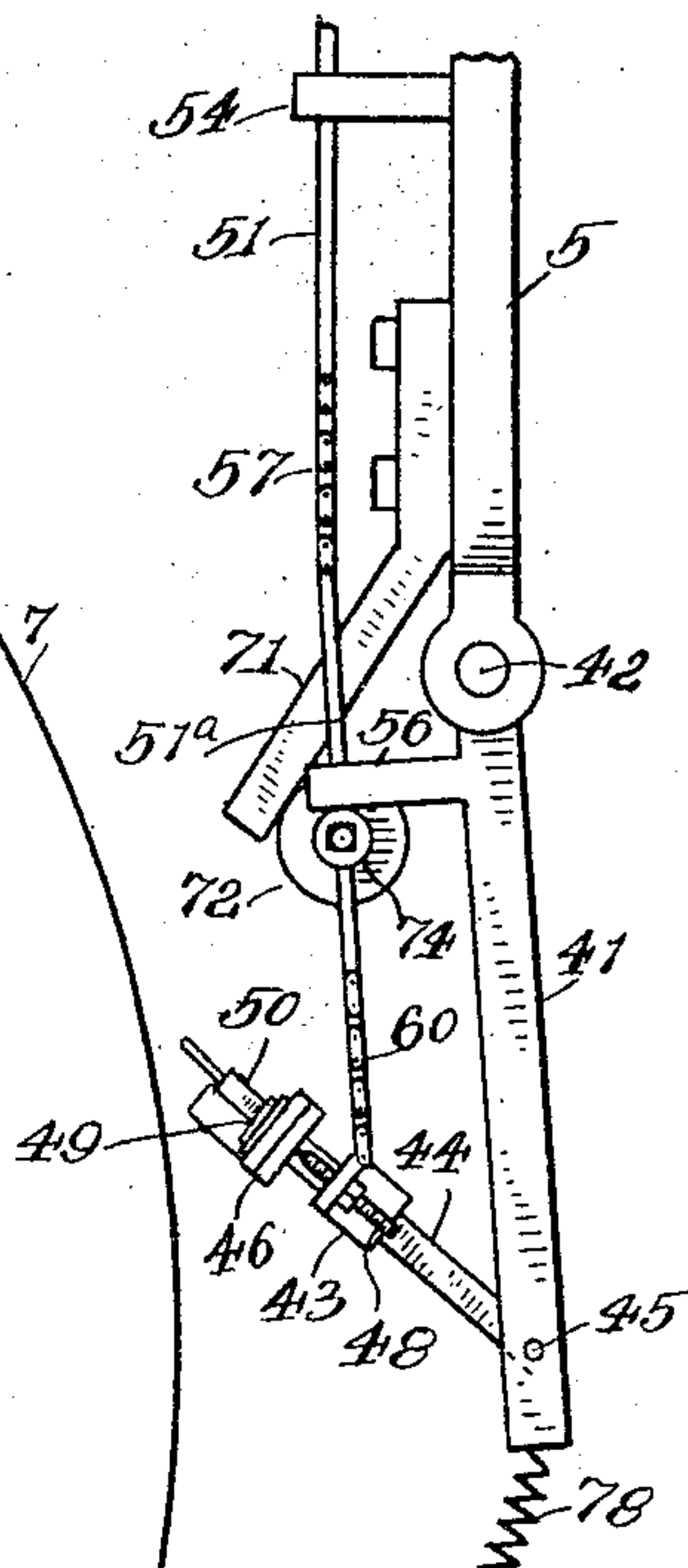


Fig. 7.

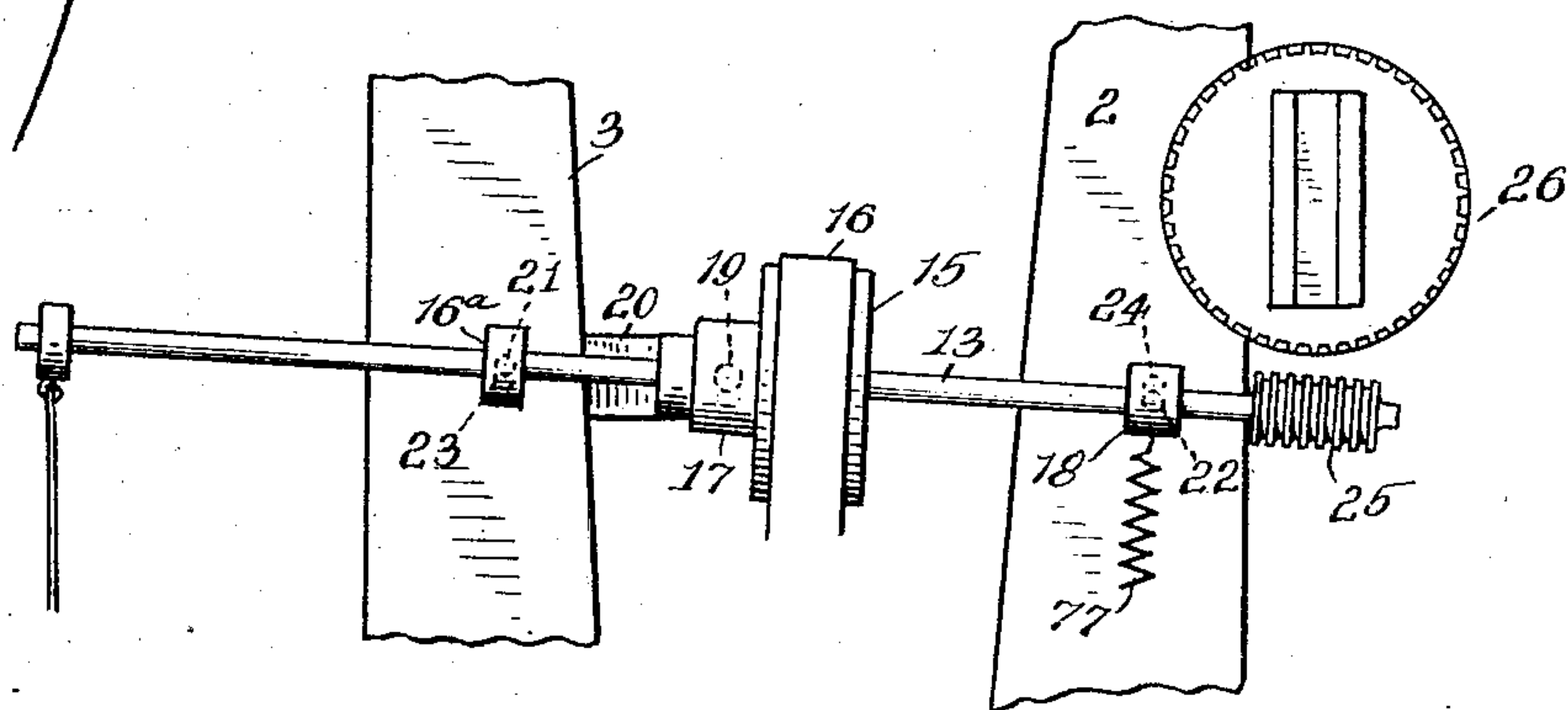
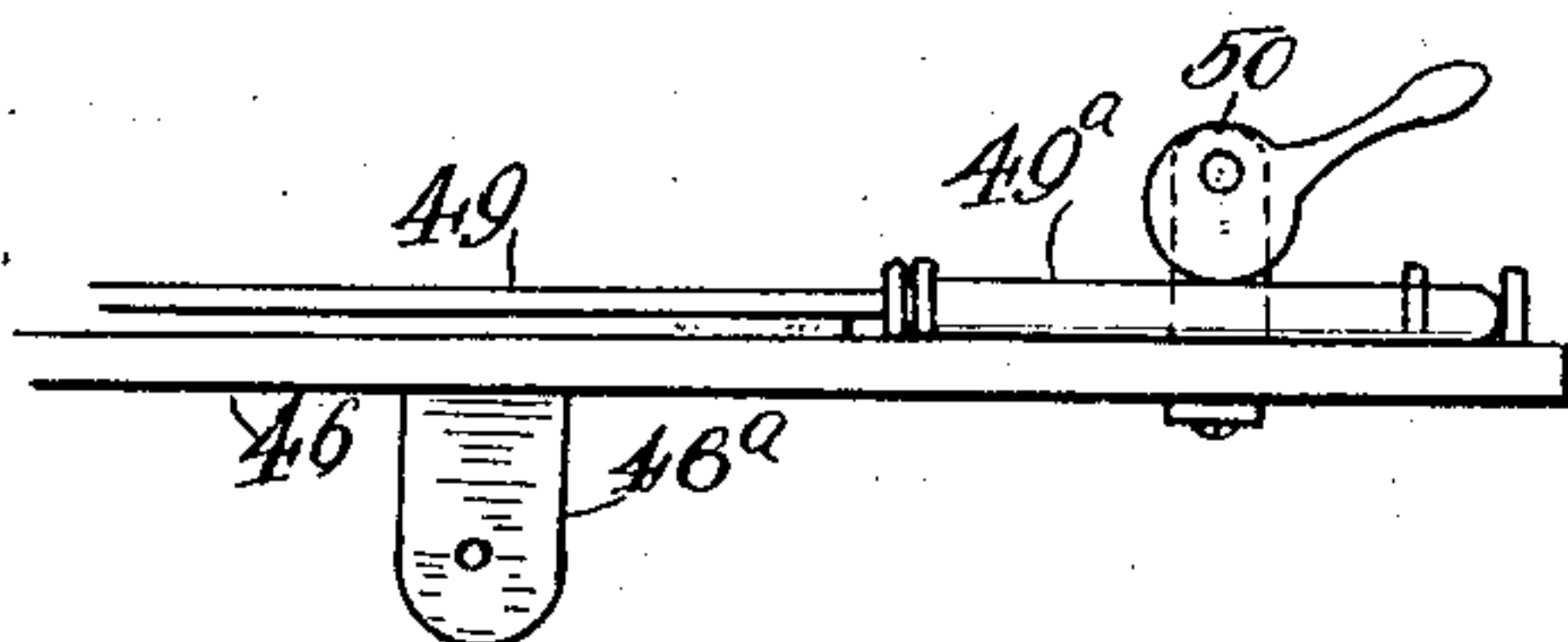


Fig. 8.

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UNITED STATES PATENT OFFICE.

CHARLES L. JOY, OF NEW HAVEN, CONNECTICUT.

MACHINE FOR POLISHING CUTLERY.

SPECIFICATION forming part of Letters Patent No. 765,243, dated July 19, 1904.

Application filed June 22, 1903. Serial No. 162,495. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. JOY, a citizen of the United States, and a resident of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Machines for Polishing Cutlery, of which the following is a specification.

My invention relates to automatic machines adapted for polishing cutlery, its object being to simplify the construction by as few moving parts as possible and to so arrange such parts that but little wear is sustained.

To this end my invention consists in a pendulum-frame adapted to automatically oscillate across the face of the polishing-wheel, and a knife-support frame pivotally supported to the lower end of said pendulum-frame and adapted to move to and from said frame and at right angles to said pendulum-frame, the pivotal point of the pendulum-frame being placed so far above the polishing-wheel as to be out of reach of the flying particles of polishing material as to be fully protected against wear.

To enable others to understand my invention, reference is had to the accompanying drawings, in which—

Figure 1 represents a front elevation of the machine and broken view of its legs, polishing-wheel, spring for the knife-support frame, and trip-rod. Fig. 2 is a side elevation and broken view of the polishing-wheel looking in the direction of arrow *a* of Fig. 1. Fig. 3 is an upper view of the swiveled knife-support, bar on which it is swiveled, and sectional view of the knife-supporting frame through line 3 of Fig. 1. Fig. 4 is a broken view of the pendulum-frame and rear view of the ratchet-wheel that actuates the cam for lifting the knife-support looking in the direction of arrow *b* of Fig. 2. Fig. 5 is a broken view of the polishing-wheel and pendulum-frame with the knife-support in position for polishing. Fig. 6 is a similar view showing the knife-support raised and its frame thrown back from the polishing-wheel. Fig. 7 is a broken view of the machine-uprights, showing the pendulum-frame-operating shaft pivotally supported thereto and dropped out of

engagement with the worm-gear that actuates the pendulum-frame. Fig. 8 is a detail upper broken view of the knife-support with a knife thereon.

Its construction and operation are as follows:

1 represents the machine-bed; 2 and 3, uprights thereon; 4, a cross-piece connecting the uprights at the top.

5 is a pendulum-frame pivotally supported on the stud 6, projecting from the cross-piece 4. This frame is adapted to oscillate back and forth across the face of the large polishing-wheel 7, as follows: 8 is the main driving-shaft, journaled in the standards 9 and 10, mounted on the bed 1. On one end of this shaft is mounted the polishing-wheel 7, and on the opposite end the tight and loose pulleys 11 and 12 by which it is driven.

13 is a shipper-shaft continuously rotated through the pulleys 14 and 15 and the belt 16. This shaft is journaled in the bearings 16^a, 17, and 18. The center bearing 17 is pivotally supported on the pin 19, Fig. 1, projecting from the bracket 20, secured to the upright 3. The outer bearings 16 and 18 have the rearwardly-projecting studs 21 and 22, which pins pass through elongated holes 23 and 24 of the uprights 2 and 3, and said studs are properly secured against withdrawal by means (not shown) on the inside of said uprights.

25 is a worm on the end of shaft 13, adapted to be brought into engagement with the worm-gear 26, mounted on the short shaft 27, Fig. 2, and journaled in the box 28, secured to the upright 2. The pendulum-frame 5 is actuated through the medium of the worm-gear 26 by means of the two-part connecting-rod 29, one end of which rod is pivotally supported in the forked head 30, adjustably supported on the vertical face of the gear 26, which adjustable feature is adapted to increase or decrease the swing of said frame. The opposite end of rod 13 is pivotally supported in the forked head 31, which head in turn is pivotally supported on the stud 32, projecting from said frame. (Shown more clearly in Fig. 1.) This forked head 31 is an exact duplicate of the forked head 30 at the opposite end of the rod 13.

33 is a stud projecting from a bracket (not

shown) attached to the upright 3, which stud projects through the radial slot 35 of the pendulum-frame and carries the washer 36. This arrangement steadies said frame in its oscillatory movement. The engagement of the worm 25 and worm-gear 26 is assured by means of the lever 37, pivotally supported on the screw 38 and the contact of its finger 37^a with the upper edge of the movable bearing 16. 39 is a spring which holds said lever in this locked position, and 40 is a rod adapted to be actuated by the foot to bring the shaft 13 in a horizontal position and the worm and gear into engagement to operate the pendulum-frame.

41 is a short frame pivotally supported on the pin 42, passing through the lower end of the pendulum-frame, and it is adapted to have a swinging movement on said pin at right angles to the pendulum-frame.

43 is a cross-bar carrying the brackets 44, which brackets are pivotally supported on the pins 45, projecting through the sides of the frame 41 and seen more clearly at Fig. 3.

46 is the knife-support, having the projection 46^a, which projection extends through an opening in the cross-bar 43, so that by means of the projection 46^a and the pin 47 the knife-support is pivotally supported to said cross-bar. 48 represents adjusting-screws projecting through said bar, whose pointed ends engage with the knife-support for the purpose of adjusting the position of said support with respect to face of the polishing-wheel, so as to place the knife-blade 49 in proper relation to said wheel. The knife is held firmly against the support 46 by means of the cam 50 engaging with the knife-handle 49^a. The knife-support is adapted to be moved horizontally across the face of the polishing-wheel through the medium of the pendulum-frame and is adapted to move through a circular arc described from the pins 45 as follows: 51 and 52 are two small lift-rods guided in lugs 53 and 54, located on the inside of the pendulum-frame 5.

51^a and 52^a are two short rods guided in the lugs 55 and 56 on the inside of the knife-support frame. 57 and 58 are short pieces of chain adapted to make a flexible connection with these upper and lower rods, and 59 and 60 are other short pieces of chain for making a flexible connection with the cross-bar 43, to which the lower ends of these latter chains are attached.

61 (see also Fig. 4) is a cross-bar adjustably secured to the upper ends of the rods 51 and 52, and it has the pin 62, adapted to be engaged by the lift-cam 63, mounted on the short shaft 65. This shaft is journaled in the sleeve-bearing 66, Fig. 2, of the pendulum-frame. 67 is a ratchet-wheel on the other end of this shaft, which is rotated step by step through its alternate engagement with the stationary pawl 68, mounted in the support 69, adjustably secured to the bracket 70 of

the upright 3. This support can be adjusted on the bracket in such a manner that the ratchet-wheel 67 can be made to turn fast or slow, as required, it being understood that by means of the cam 63 and its engagement with the pin 62 of the upper cross-bar 61 the knife-support is carried through the circular arc before mentioned.

71 is an angular-shaped arm secured to the inside of the pendulum-frame, whose under surface is adapted to be engaged by the circular disk 72 when the knife-support has been elevated so as to bring the knife-blade out of contact with the polishing-wheel, and thus carry the knife-support frame out and away from the wheel, as shown at Fig. 6. The chain connections between the long and short sections of the lift-rods and between the short lift-rods and the knife-support permits the swing of frame 41 on its pivotal support on the pendulum-frame, for it would be impossible to move the frame 41 without such chain connections. The disk 72 is mounted on the rod 73, which in turn is anchored in the blocks 74 and 75, adjustably secured to the short rod-sections 51^a and 52^a.

When the knife-support is sufficiently elevated, the trip-arm 76, adjustably secured to the lift-rod 52, Fig. 1, will have been carried up by such rod until it engages with the inclined projection 37^b of the locking-lever 37, which engagement will release the engagement of said lever with the box or bearing 16, when the spring 77 will cause the shaft 13 to tilt and disengage the worm 25 from the worm-gear 26 and bring the pendulum-frame to a standstill.

When the knife-support is in its elevated position, as shown at Fig. 6, the finished knife is removed and replaced by another and the pendulum-frame is again set in motion, and when the cam 63 drops off from the pin 62 the knife-support will drop to bring the knife-blade on a line and in proper relation with the polishing-wheel, when the spring 78 will carry the frame 41 forward toward said wheel to bring the knife in contact therewith. This spring 78 keeps the knife-blade in flexible contact with the polishing-wheel, so that all even and uneven parts of the blade are touched by the wheel.

The polishing-wheel is made exceptionally large for machines of this character in order to insure an increase of polishing-surface with the least number of revolutions.

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

1. The combination, in a polishing-machine of the character described, comprising, a pendulum-frame pivotally supported above the polishing-wheel so that such pivotal support is protected against the falling particles of emery or other like polishing material, means whereby said frame is caused to oscillate

across the face of the polishing-wheel, a second or knife supporting frame pivoted to the lower end of the pendulum-frame and adapted to swing at right angles thereto, a knife-support connected to said second frame, so that, through the direct instrumentality of the oscillating movement of the pendulum-frame, said second frame and knife-support are actuated and the pendulum-frame brought to a state of rest at a predetermined point, for the purpose set forth.

2. The combination, in a polishing-machine of the character described, comprising, a pendulum-frame adapted to oscillate across the face of a polishing-wheel and a second or knife-support frame pivotally supported at the lower end of said pendulum-frame and adapted to swing at right angles thereto, a cross-bar pivotally supported to said second frame and adapted to move through a circular arc, means for operating it, a knife-support pivotally connected with said cross-bar, and means whereby said support is longitudinally adjusted with respect to the polishing-wheel, for the purpose set forth.

3. The combination, in a machine of the character described, comprising, a pendulum-frame adapted to oscillate across the face of a polishing-wheel, and means for operating it, a knife-support frame pivotally supported at the lower end of said pendulum-frame adapted to swing on its pivotal support at right angles to said pendulum-frame, a cross-bar pivotally supported thereto adapted to have a vertical movement, a knife-support pivotally connected to said cross-bar and adapted to be longitudinally adjusted thereon, lift-rods adapted to operate said cross-bar on its piv-

otal support, a shaft journaled in the pendulum-frame carrying a ratchet-wheel on one end and a lifting-cam on the other end, means connected with said rods to be engaged by said cam to elevate the knife-support, for the purpose set forth.

4. The combination, in a machine of the character described, comprising, a pendulum-frame adapted to oscillate across the face of a polishing-wheel, and means for operating it, a knife-support frame pivotally supported to said pendulum-frame adapted to move at right angles thereto and from the polishing-wheel, a cross-bar pivotally supported to said knife-support frame, a knife-support pivotally connected to said bar and longitudinally adjustable thereon, upper lift-rods journaled in the pendulum-frame, a shaft carrying a ratchet-wheel on one end and a cam on the other end journaled in said frame, means on said rods adapted to be engaged by said cam to lift the same, lower lift-rods journaled on the knife-support frame, flexible connections between the lift-rods of the two frames and flexible connections between the lower lift-rods and the knife-support, means on the lower lift-rods and pendulum-frame for moving the knife-support away from the face of the polishing-wheel when the knife-support is elevated, for the purpose set forth.

Signed at New Haven, in the county of New Haven and State of Connecticut, this 29th day of May, A. D. 1903.

CHARLES L. JOY.

Witnesses:

STEPHEN D. BRADLEY,
SAML. J. CHAFFEE.