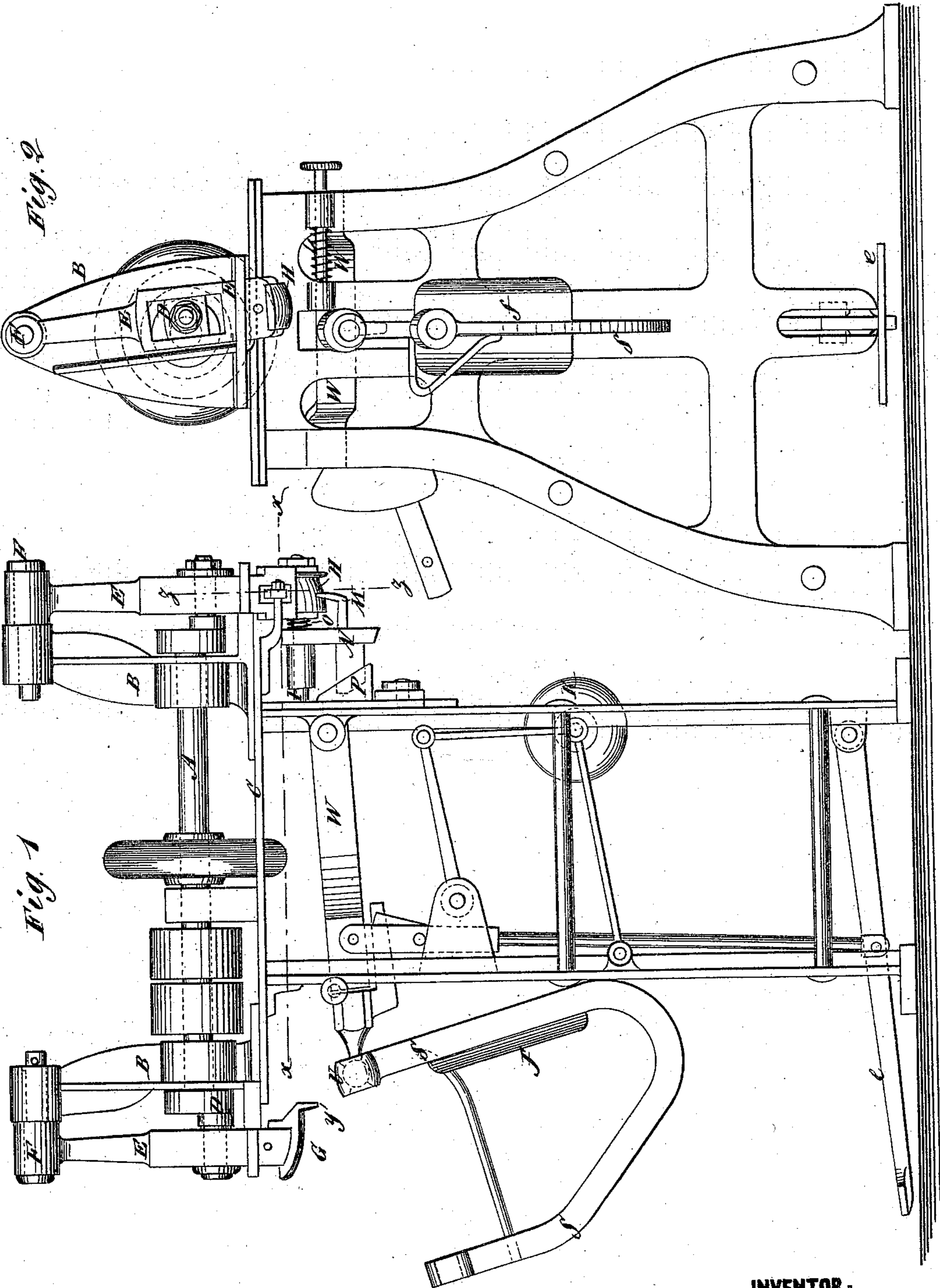


L. GRAF.

HEEL AND EDGE POLISHING-MACHINE FOR BOOTS AND SHOES.
No. 174,231.

Patented Feb. 29, 1876.



WITNESSES:

C. Noyes
J. Goethals

INVENTOR:

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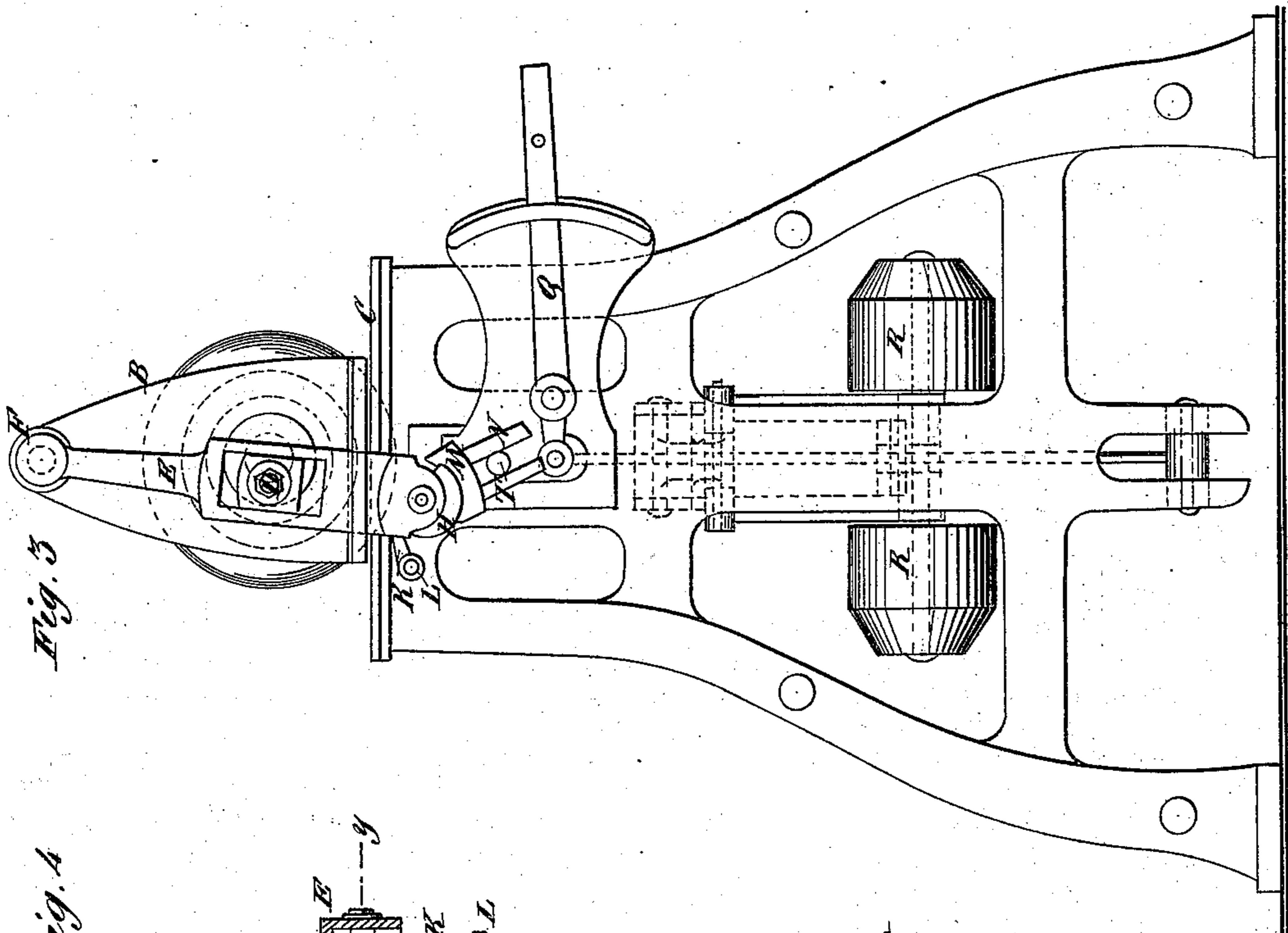


Fig. 3

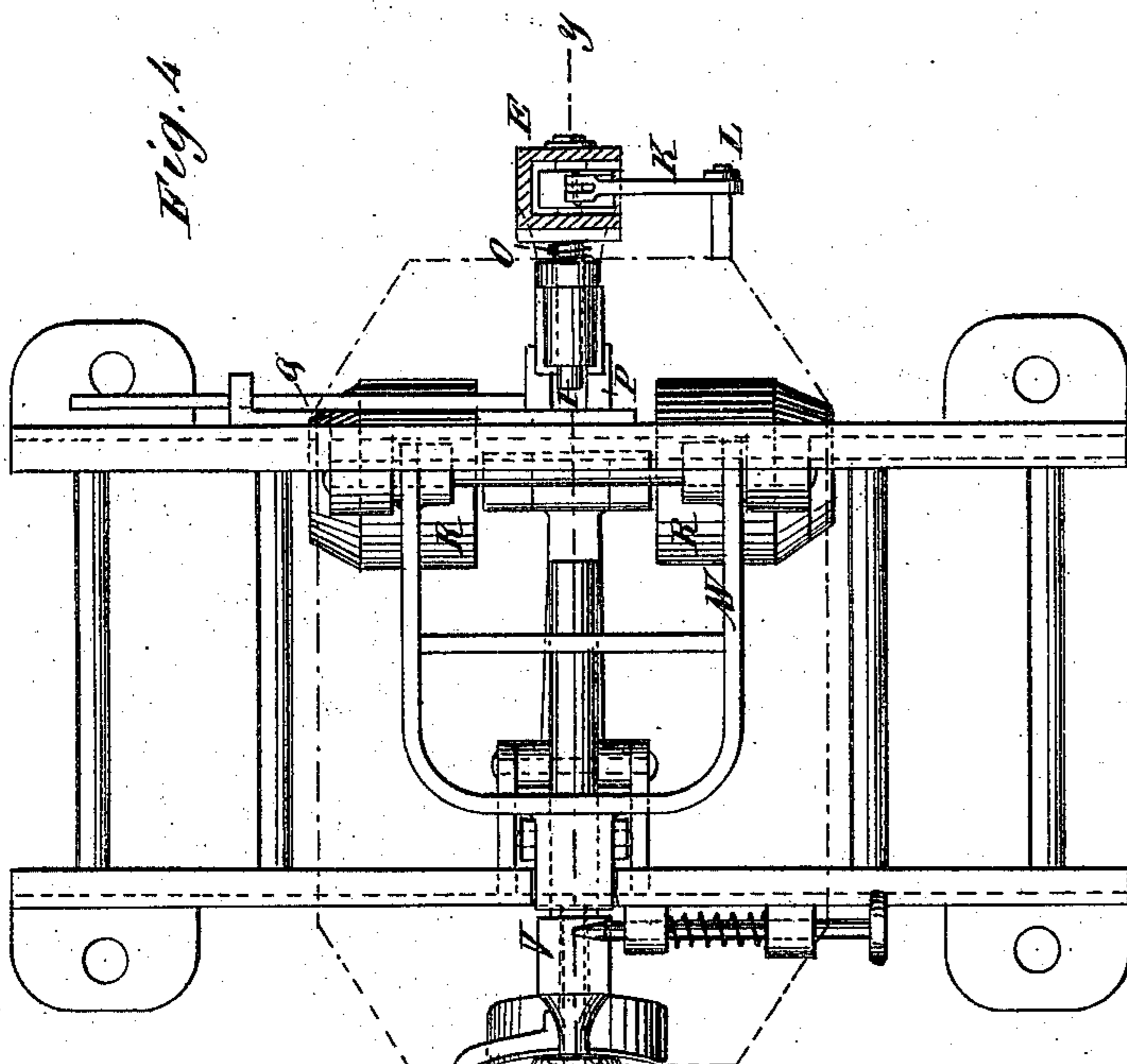


Fig. 4

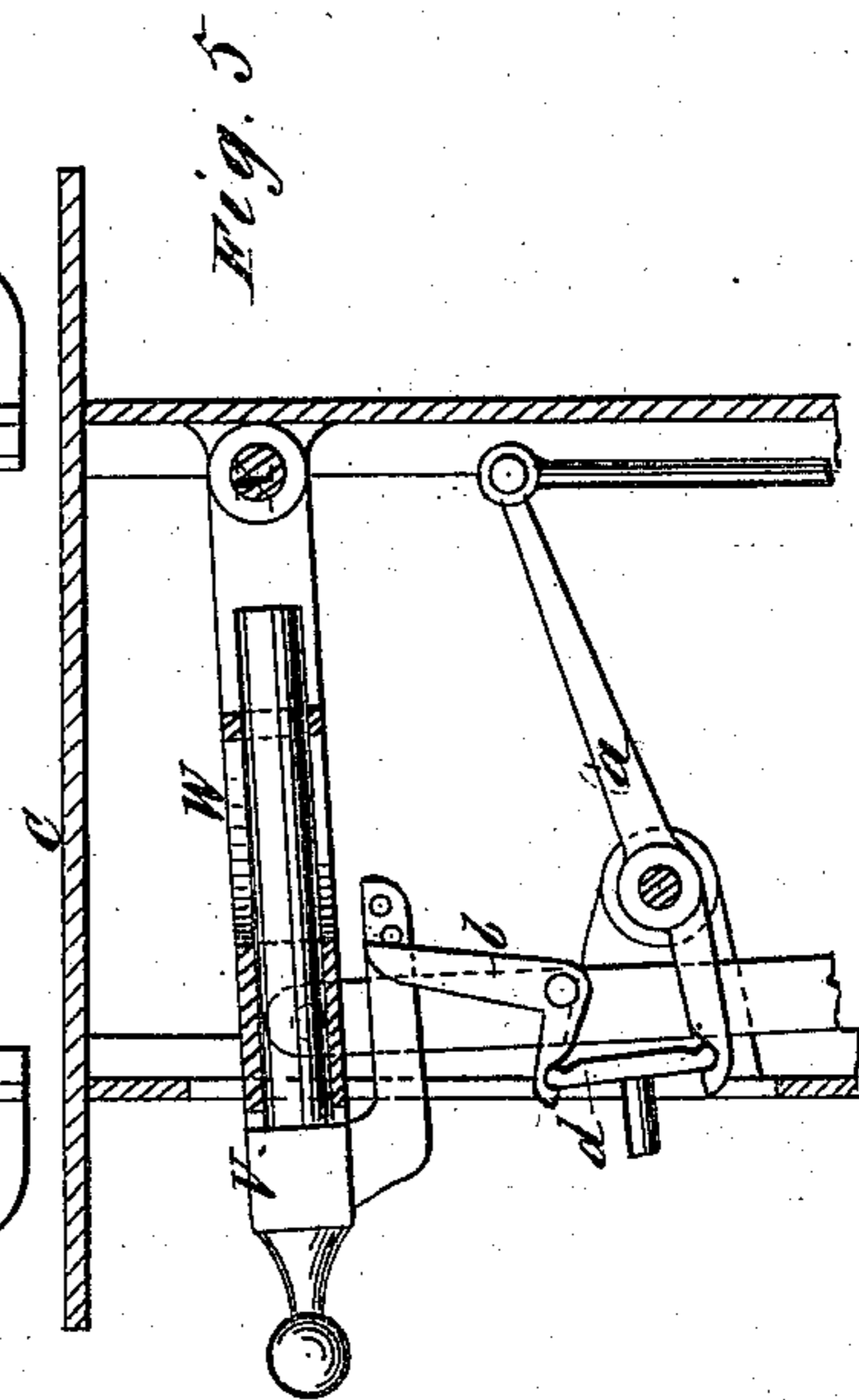


Fig. 5

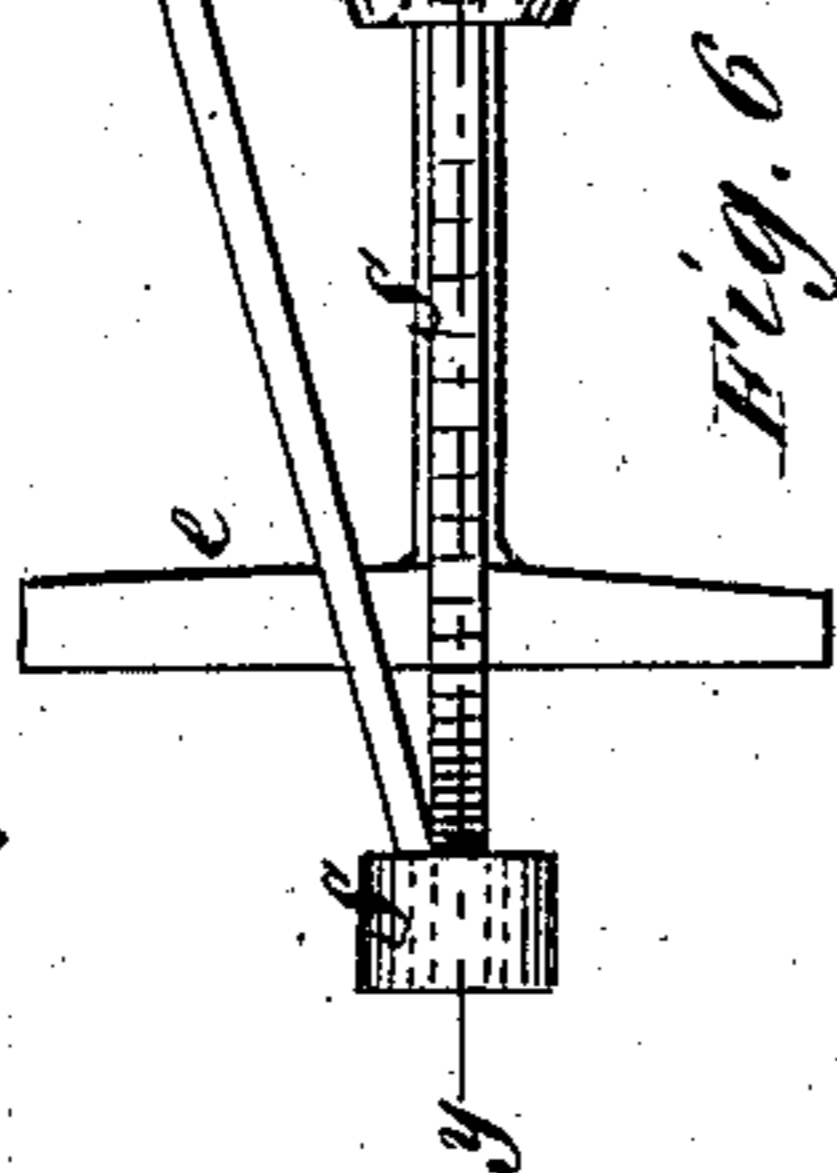
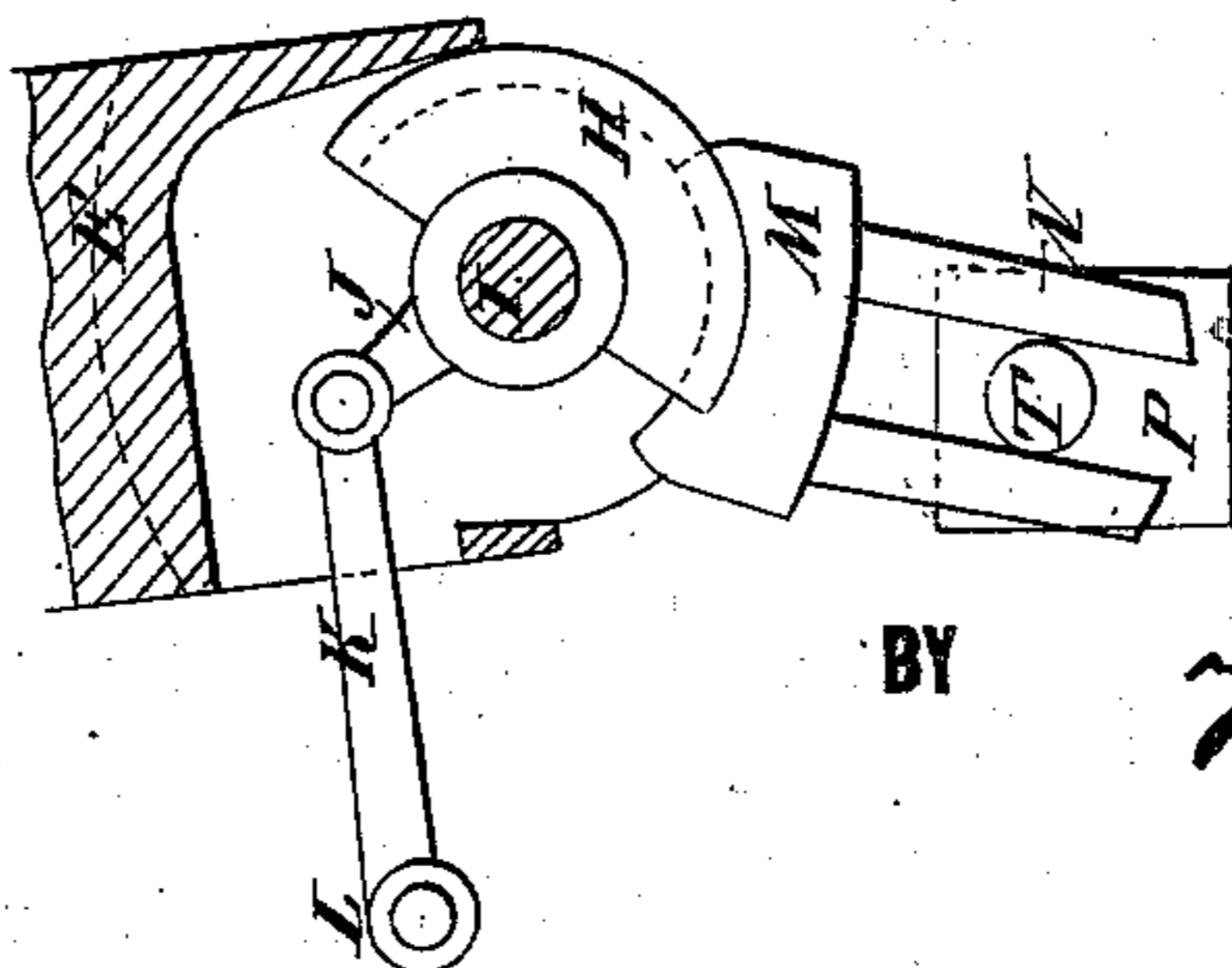


Fig. 6



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UNITED STATES PATENT OFFICE.

LEOPOLD GRAF, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN HEEL AND EDGE POLISHING MACHINES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **174,231**, dated February 29, 1876; application filed January 3, 1876.

To all whom it may concern :

Be it known that I, LEOPOLD GRAF, of Newark, in the county of Essex and State of New Jersey, have invented a new and Improved Heel and Edge Polishing Machine, of which the following is a specification :

My invention consists of improvements in polishing-machines for finishing the edges of the heels and soles of boots and shoes, whereby two polishers—one for the heel and the other for the sole—are operated by one and the same driving-shaft, in such manner that both operations may be carried on at the same time.

The invention also consists of a simpler and better contrivance of the gear by which the polishers are operated; also of an arrangement for obtaining a better action of the polishers, and a higher speed of them for a given speed of the driving-shaft than heretofore obtained; also of an improved contrivance for gaging the polishers to edges of different thicknesses, and also of an improved shape of the clamp-frame for holding the shoe, all as hereinafter described.

Figure 1 is a side elevation of my improved machine. Figs. 2 and 3 are elevations of the two ends. Fig. 4 is a horizontal section taken on line *x x* of Fig. 1. Fig. 5 is a sectional elevation taken on line *y y*, and Fig. 6 is a section on line *z z* of Fig. 1.

Similar letters of reference indicate corresponding parts.

A is the driving-shaft, which is mounted in the standards B above the top C of the frame, and has a short crank at each end working in a sliding box, D, fitted in a slotted-polisher carrier, E, which swings on a pivot, F, in the top of the standard B, and carries a polisher, G or H, at its lower end.

The polisher may be rigidly attached to the carrier, as at G, but I prefer to fix it on a pivot, I, in the lower end of the carrier and connect it by an arm, J, and rod or bar, K, with a stationary object at L, so that it is made to rock on its pivot I at the same time that it swings, thus increasing the speed of the polishing surface, and also obtaining a better action on account of the small circle of the face of the polisher which may be used in such arrangement, and which gives better re-

sults than when made on a large circle to correspond with the radius of the carrier.

M is an adjustable gauge combined with the polisher and fixed to slide along its face for gaging it to soles of different thicknesses, being fitted to slide forward and backward on the pivot I, on which it also swings, to correspond with the swinging of the polisher. It has a forked projection, N, embracing the stud T, to cause it to turn on pivot I, and it has a spring, O, to push it back and a cam-block, P, acting on the projection N to push it forward, and the cam-block is connected to a hand-lever, Q, for working it.

R is a rest for the hands of the attendant to bear against when holding the toe of the sole up to the polisher by hand, to enable him to hold the shoe steadier than he could without it.

For polishing the edges of the soles the boots or shoes will preferably be held by hand, but for polishing the heels they will be held in a clamp, S, which is connected by the ball and socket joint U, fixed in the vibrating frame W so as to be pressed back to make the bottom of the heel press firmly against the lip *y* of the polisher. The frame vibrates to raise the heel up to the polisher and lower it away again, and the bar V is pressed back by the weighted-lever *a* acting on it through the toggle-piece *d* and bell-crank *b*. The weighted-lever *a* also raises the boot or shoe up against the polisher and holds it there while being polished and the foot-lever *e* brings it down again.

f is a sole-plate fitted on one of the bars of the clamp-frame for the sole of the shoe to have a fair bearing on when clamped in the frame.

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

1. A polisher, pivoted at lower end of its carrier and connected with a stationary object at L by the arm J and bar K, in combination with a carrier that swings on a pivot, F, in the top of a standard, B, as and for the purpose specified.

2. The combination of the vibrating and adjusting gage M with the polisher, substantially as specified.

3. The gage M, fitted on the pivot of the polisher and connected with stationary stud T, substantially as specified.

4. The combination of sliding gage M, spring O, and the cam-block P, substantially as specified.

5. The combination, with the sole plate, of clamp-frame S, connected, by the ball-and-

socket joint U, to holder V, having a sliding motion in the swinging holder W, substantially as specified.

LEOPOLD GRAF.

Witnesses:

T. B. MOSHER,

ALEX. F. ROBERTS.