2 Sheets--Sheet 1.

L. GRAF.

Heel Polishing Machine.

No. 164,443. Patented June 15, 1875.

Fig. 1.

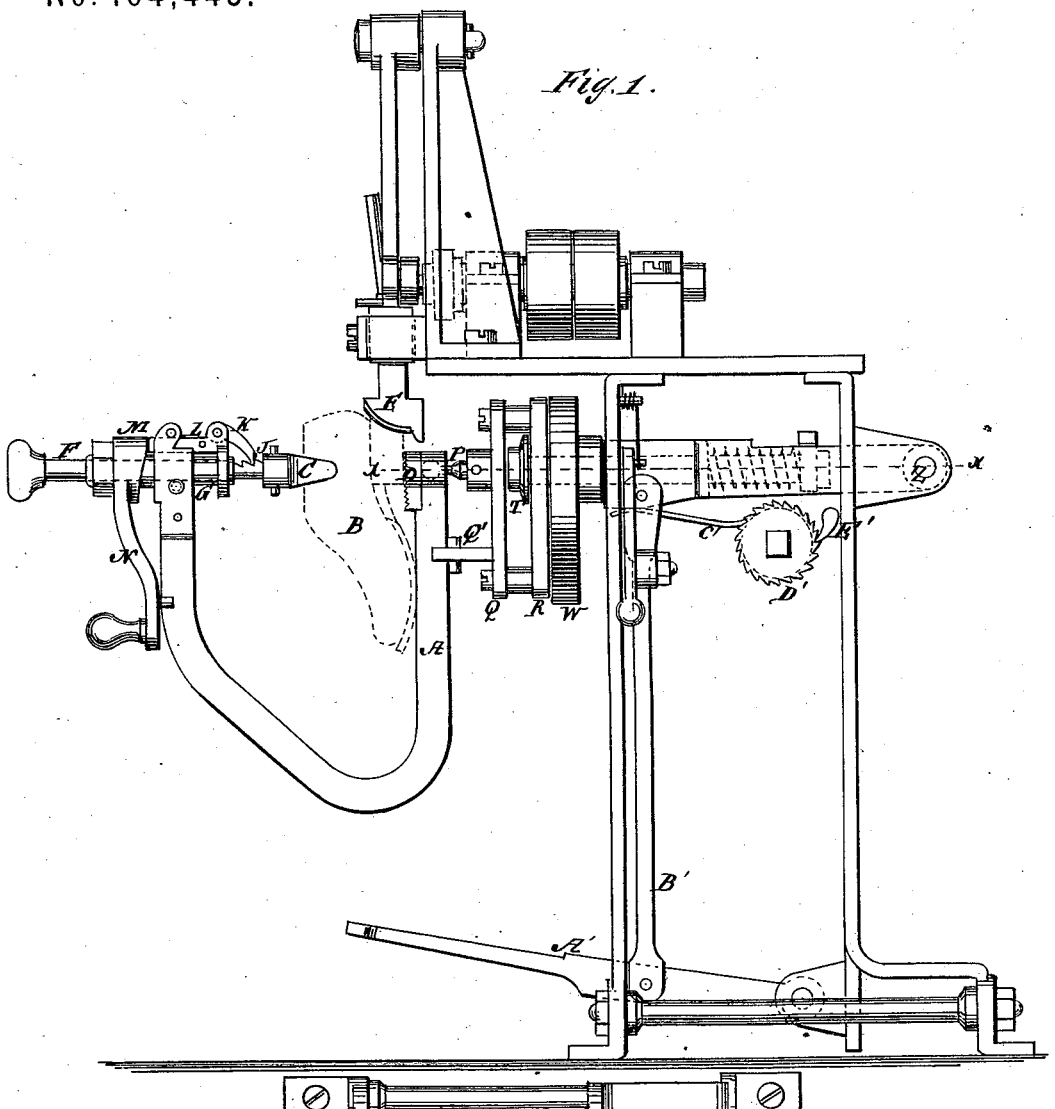
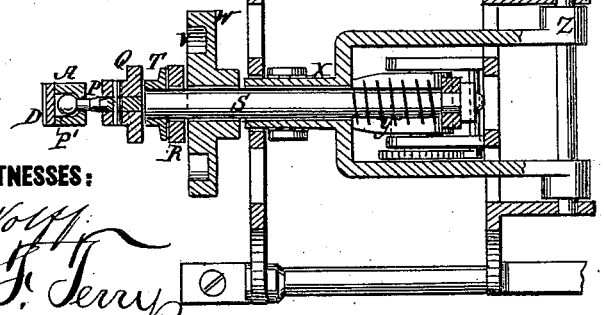


Fig. 2



WITNESSES:

E. Wolff

A. F. Terry

INVENTOR:

L. Graf

BY

Munn & Co

ATTORNEYS.

THE GRAPHIC CO PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

L. GRAF.

Heel Polishing Machine.

No. 164,443. Patented June 15, 1875.

Fig. 3.

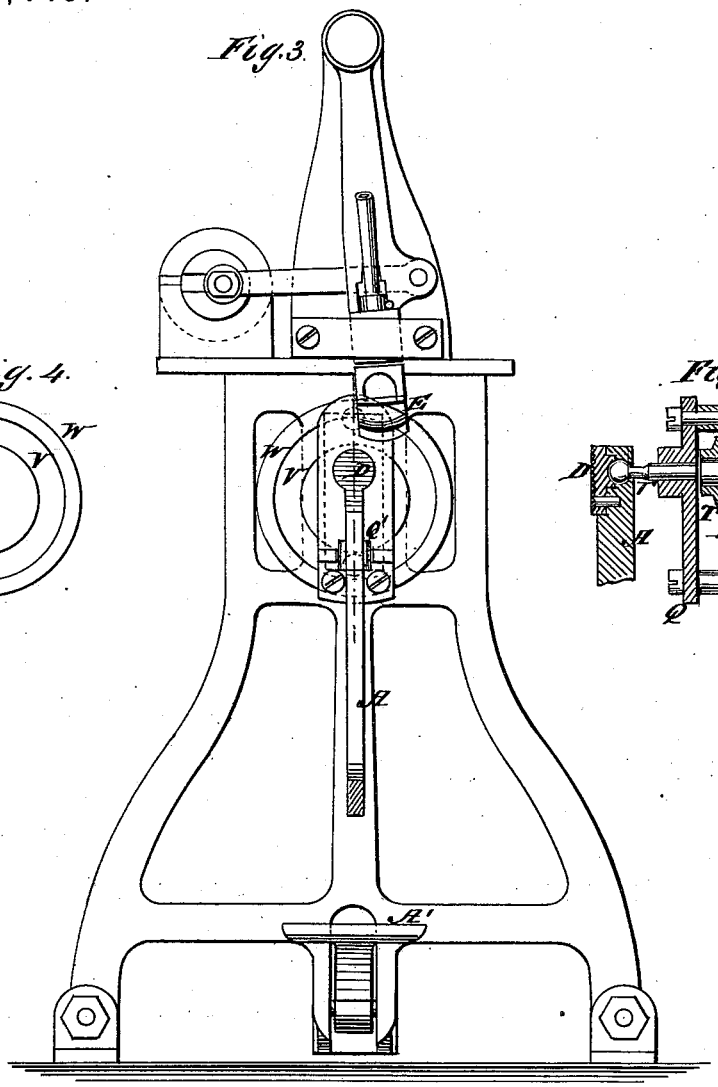


Fig. 4.

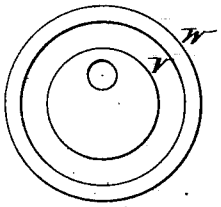


Fig. 5.

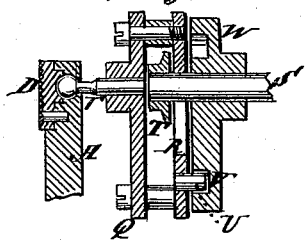
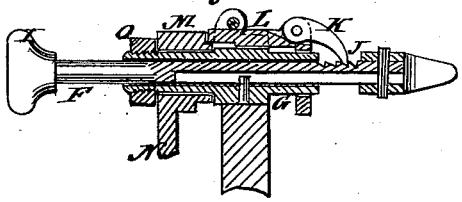


Fig. 6.



WITNESSES:

E. Wolff.

A. F. Terry

INVENTOR:

L. Graf

BY

ATTORNEYS.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

LEOPOLD GRAF, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN HEEL-POLISHING MACHINES.

Specification forming part of Letters Patent No. **164,443**, dated June 15, 1875; application filed May 15, 1875.

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-Polishing Machine, of which the following is a specification:

The invention will first be described in connection with drawing, and then pointed out in the claims.

Figure 1 is a side elevation of my improved machine. Fig. 2 is a horizontal section taken on the line *x x*. Fig. 3 is a front elevation of the machine, except the yoke, which is sectioned. Fig. 4 is a face view of the eccentric cam which governs the presentation of the heel to the polisher. Fig. 5 is a section of the clamp for fastening the shoe in the yoke.

Similar letters of reference indicate corresponding parts.

A is the yoke, in which the shoe B is held by the adjustable clamp C and the serrated heel-piece D to be rubbed smooth by the reciprocating polisher E. This clamp is fitted on the end of the rod F, which is capable of sliding lengthwise in the tubular bearing G in the outer arm of the yoke, and it has a knob-handle, I, for pulling it back, and the ratchet J for being pushed up to the shoe by the pawl K, which is pivoted to the sliding dog L, which I propose to actuate by the cam M, having a crank or handle, N, for turning it, and being pivoted on the tube G between the yoke and the nut O to hold it to its work. The advantage of this cam is, that it can be operated very quickly to fasten and release the work, as it only needs to be moved a quarter-turn or thereabout, which is important in the use of these machines, as the work has to be changed very often. The yoke is connected to its holder P by a ball-and-socket or other universal joint, P′, to allow the yoke to be shifted in a way as may be required for heels of different form, as concave, convex, or straight-sided, and it also connects temporarily to the plate Q by the notched stud Q′, to turn the eccentrically-rotating plate W by the yoke. The holder P to which the yoke is pivoted is attached to the plate Q, which is bolted to the slotted plate R, which is held on the shaft S by the nut T, and has a guide-pin, U, running in the guide-slot V of the face-plate W, which is eccentric to the shaft S, for turning the surface of the irregular or eccentric heel evenly and uniformly against the polisher. The shaft S is fitted in the rocking frame X, so as to slide endwise a little, and has a retracting-spring, *y*, to pull it back, so that the heel may be adjusted forward and backward to the face of the polisher, as may be required, by pulling the shaft against the spring, and allowing the spring to pull it back. This rocking frame X is pivoted at Z, and connected to the foot-treadle A′ by a rod, B′, for depressing the yoke to apply and remove the work without obstruction by the tool, and a spring, C′, is employed to raise it, and hold the work up to the tool. As the yoke has to be depressed and raised very frequently, it is highly important that the tension of the spring should be just right; consequently I attach the spring to the axis of a ratchet-wheel, D′, having a holding-pawl, E′, by which the tension can be increased or diminished at will.

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

1. The lever-cam M, pivoted on the bearing G, in combination with the yoke A, dog L, pawl K, and the clamp C F, substantially as specified.

2. The combination of the eccentrically-rotating plate R with the yoke-holder, substantially as specified.

3. The ratchet-wheel D′ and holding-pawl E′, combined with the lifting-spring C′ of the yoke-holder, substantially as specified.

LEOPOLD GRAF.

Witnesses:

T. B. MOSHER,

ALEX. F. ROBERTS.