

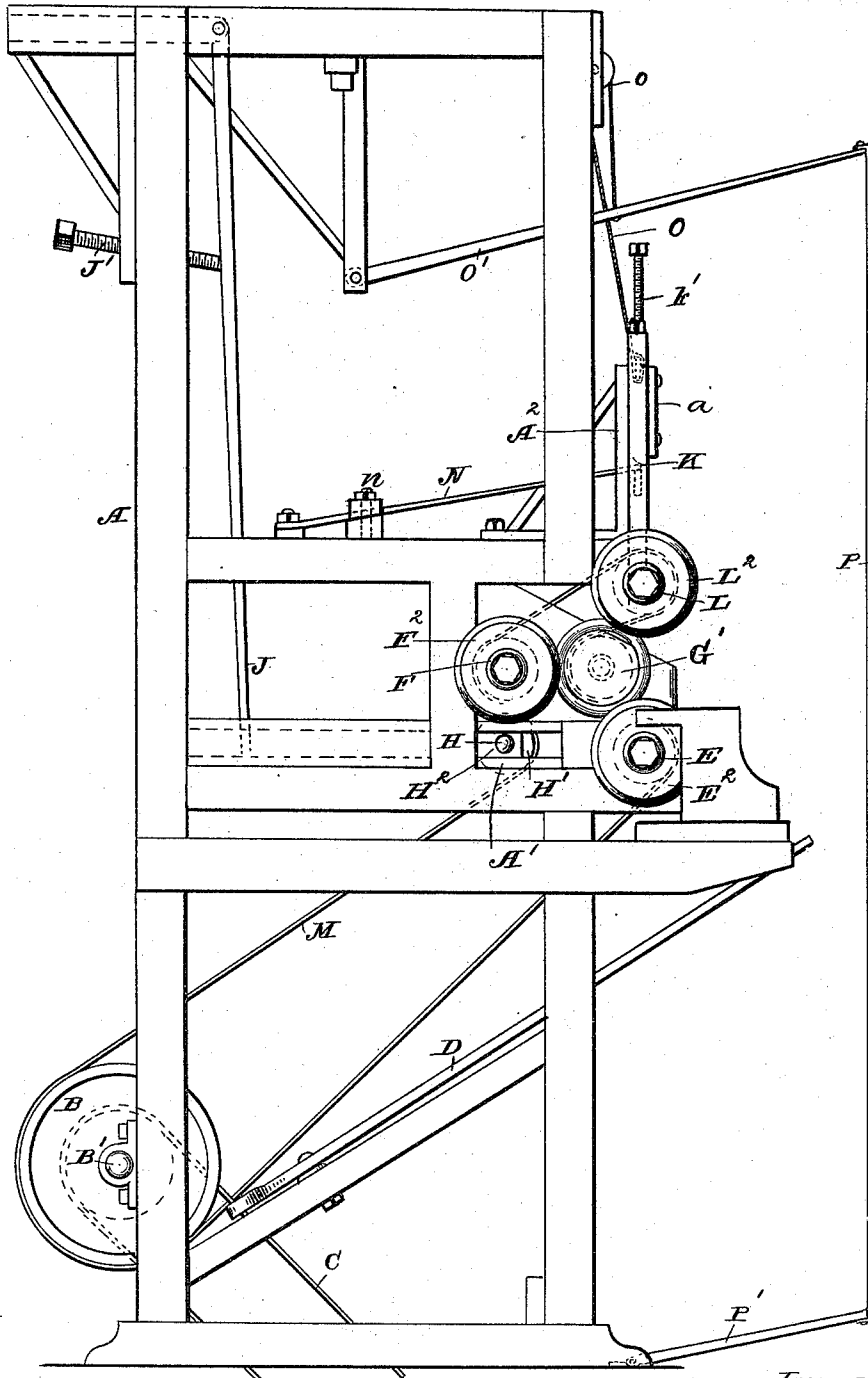
J. A. SLATER.

MACHINE FOR ABRADING AND POLISHING CIRCULAR ARTICLES.

No. 537,490.

Patented Apr. 16, 1895.

-FIG. I-



Witnesses  
*J. C. Turner*  
*H. E. Lecher*

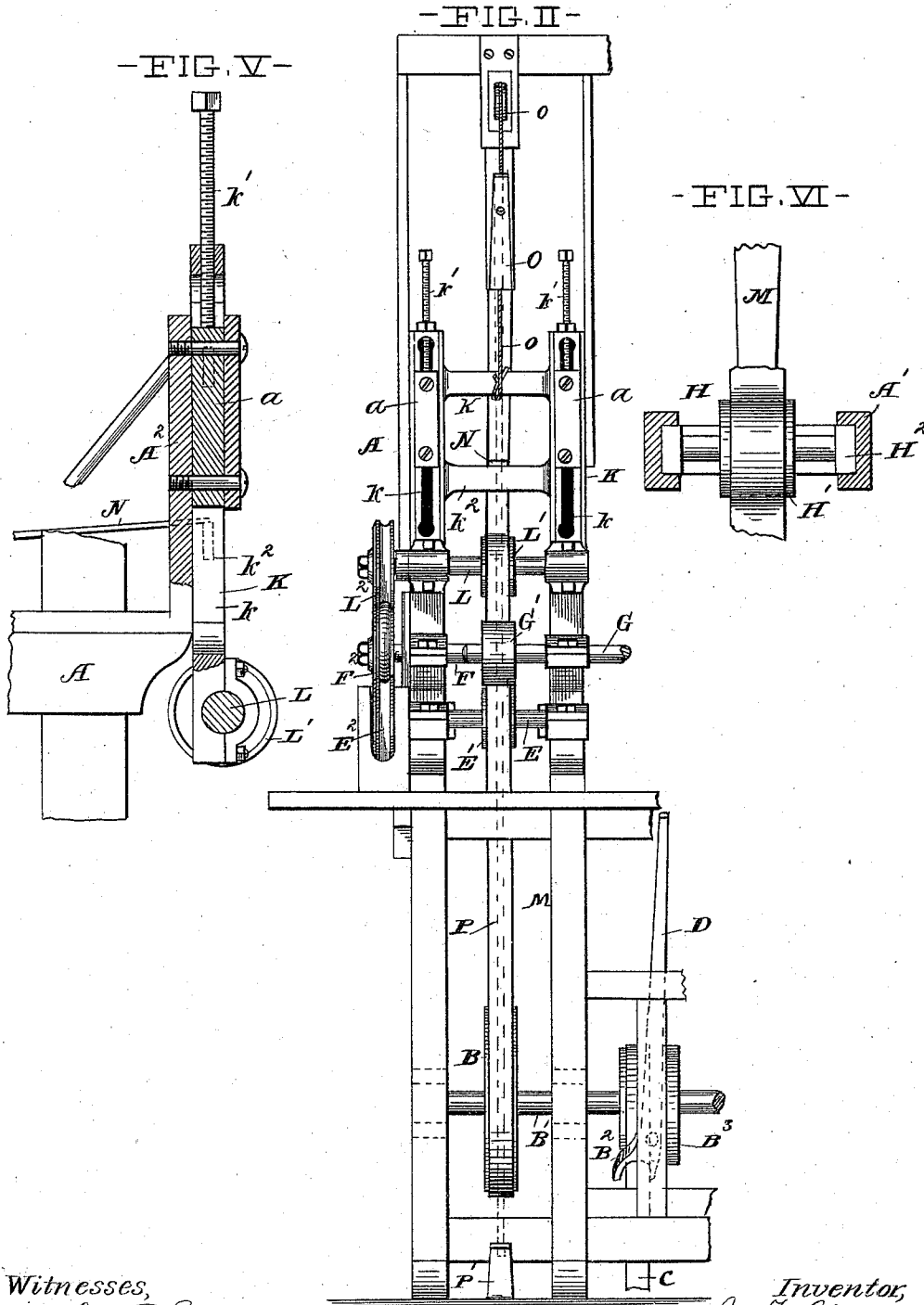
Inventor,  
*J. A. Slater*  
 By *Hall & Gay* Attys.

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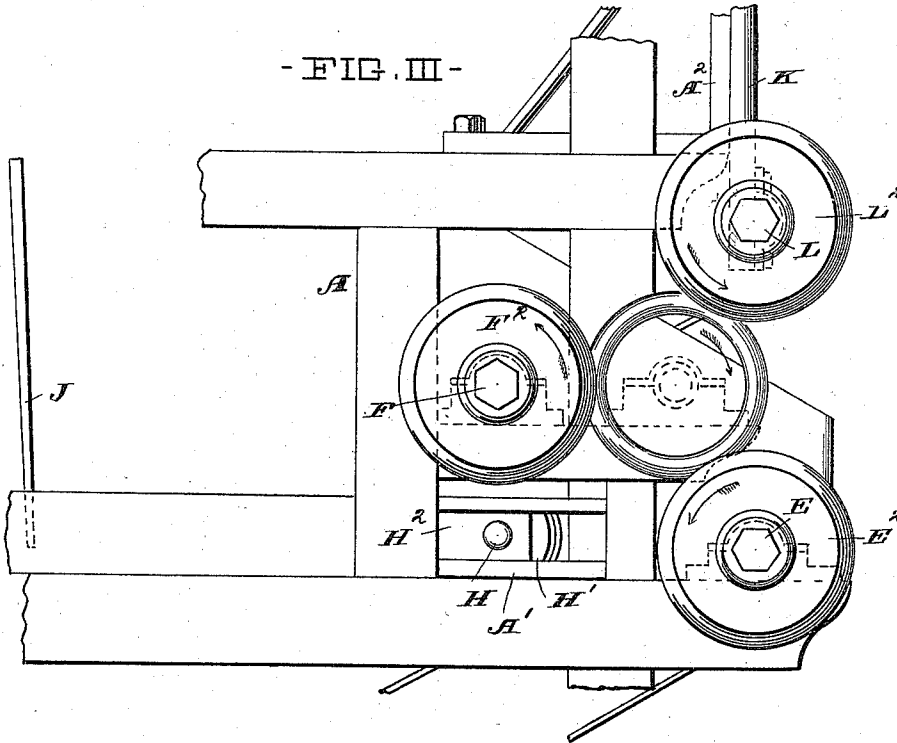
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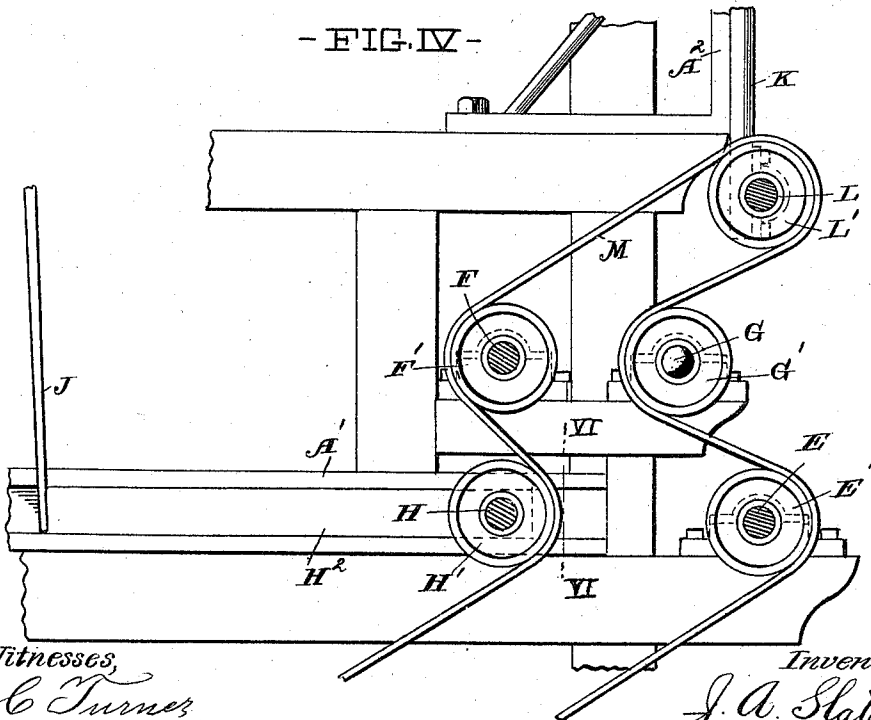
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- FIG. III -



- FIG. IV -



Witnesses,

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J. A. Slater  
By Hall & Fay Attys.

# UNITED STATES PATENT OFFICE.

JARVIS A. SLATER, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLEVELAND WOOD TURNING COMPANY, OF SAME PLACE.

## MACHINE FOR ABRADING AND POLISHING CIRCULAR ARTICLES.

SPECIFICATION forming part of Letters Patent No. 537,490, dated April 16, 1895.

Application filed June 7, 1894. Serial No. 513,737. (No model.)

*To all whom it may concern:*

Be it known that I, JARVIS A. SLATER, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Machines for Abrading and Polishing Circular Articles, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The annexed drawings and the following description set forth in detail, one mechanical form embodying the invention, such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a side elevation of my improved machine for abrading and polishing circular articles; Fig. II, a front elevation of the machine; Fig. III, an enlarged side elevation of the mechanism which supports the article to be abraded and polished; Fig. IV, an enlarged sectional view of the shafts and pulleys which drive said mechanism; Fig. V, an enlarged sectional detail view of the vertically sliding sash which supports the article to be abraded or polished, from above, and Fig. VI, a vertical transverse section on the line VI—VI, Fig. IV.

The machine has an upright frame, A, and a drive pulley, B, is journaled in the lower portion of said frame having its shaft, B', provided with a fast pulley, B<sup>2</sup>, and a loose pulley, B<sup>3</sup>, around which pulleys a belt, C, passes,—being capable of being shifted from one pulley to the other, by means of a belt-shifting lever, D.

A shaft, E, is journaled in the frame, and has a belt pulley, E', secured upon it, and a peripherally grooved roller E<sup>2</sup>, at its end. A shaft, F, is journaled in the frame, to the rear of and above the shaft E, and said shaft F, has a pulley, F', secured upon it, and a peripherally grooved roller, F<sup>2</sup>, secured upon its end. A shaft, G, is journaled in the frame, above the shaft E, and in a horizontal plane with and forward of the shaft F, and has a

pulley G', upon it, in a vertical plane with the pulleys E' and F'.

A shaft, H, has a pulley, H', upon it, and is journaled in a sliding frame, H<sup>2</sup>, which slides in flanged horizontal ways, A', and which has a spring, J, bearing against it, and forcing it forward. Said spring has a screw, J', which adjusts its tension.

A sash, K, slides vertically in its relation to the shaft E, pulley E', and peripherally grooved roller E<sup>2</sup>, and has a shaft, L, journaled in its lower end, said shaft having a pulley, L', and a peripherally grooved roller, L<sup>2</sup>, upon its end. The peripherally grooved rollers upon the several shafts register in a vertical plane, and the belt pulleys upon the several shafts register in a vertical plane.

A belt, M, passes around the drive pulley B, around the belt pulleys E', G', L', F', and the movable tension pulley H', whereby all of said pulleys are revolved.

The sash K is formed with vertical slots, k, which slide upon flanged guides, a, upon vertical guide brackets, A<sup>2</sup>, secured upon the forward portion of the machine frame.

Adjustable stop screws, k', pass through the upper ends of the slots in the sliding sash, and serve to adjust the extent of the downward motion of said sash, and consequently the normal position of the upper grooved roller L<sup>2</sup> in its relation to the rear roller F<sup>2</sup>, and lower roller E<sup>2</sup>. The sash is normally held down by a spring, N, the outer end of which bears against a cross-bar, k<sup>2</sup>, of the sash, and which spring may have its tension adjusted by a screw, n, or other suitable adjusting means.

The vertically sliding sash may be raised by means of a cord, O, which is secured to the top of the sash, passes over a pulley, o, in the upper end of the machine frame, and is secured to a lever, O', fulcrumed at one end in the machine frame. A cord, P, is secured to the end of this lever, and is secured at its other end to a treadle, P', by means of which the sash may thus be raised, when the treadle is depressed.

The peripheral grooves of the rollers E<sup>2</sup>, F<sup>2</sup> and L<sup>2</sup>, are preferably lined with leather or other smooth and slightly yielding material, which will not injure the surface of the article

to be treated and which will have sufficient friction against the article, to revolve it when the rollers are revolved.

The machine is principally intended for sandpapering and polishing wooden rings, although, of course, it may be used for treating other circular articles. When the drive pulley has been started, the belt M will revolve the several shafts, and the three peripherally grooved supporting rollers will be revolved in the same direction. When the treadle is depressed, the sash and upper grooved roller are raised, so that the ring to be treated may be slipped in between the rollers. The tension pulley H' will admit of the necessary straightening of the belt caused by raising the sash, and will take up the slack in the belt caused by again lowering the sash. When the ring to be treated is in place between the grooved rollers, it will be revolved by the rollers, and sandpaper or other abrading material may be applied to all parts of the periphery of the ring, as well as the polishing material, which may be applied after the ring has been smoothed. As the ring is supported at certain portions, only, of its periphery, free access may be had to all parts of the exterior and interior periphery of the ring, as the latter is revolved.

The sash may be adjusted by its screws, to bring the upper, movable roller nearer to or farther from the lower roller, so as to accommodate rings or other circular articles of different sizes.

Other modes of applying the principle of my invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism thus disclosed, provided the principles of construction set forth respectively in the following claims are employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a machine for abrading and polishing circular articles, the combination of two peripherally grooved rollers journaled in the same vertical plane and one slightly above the other and to the rear of the same, a sash arranged to slide vertically above the forward

roller and having means for raising and lowering it, a peripherally grooved roller journaled in said sash and in the same vertical plane as the two rollers, pulleys upon the shafts of said rollers, and a driven belt around said rollers and provided with means for retaining it in its stretched condition, substantially as set forth.

2. In a machine for abrading and polishing circular articles, the combination of two shafts journaled one slightly above and to the rear of the other and having each a peripherally grooved roller and a pulley, a sash arranged to slide vertically above the forward shaft and having means for raising and lowering it, a shaft journaled in said sash and having a peripherally grooved roller and a pulley, a pulley journaled in the same vertical plane as the above-mentioned pulleys and having means for yieldingly supporting it against pressure upon it, a drive pulley, and a belt passing around all of said pulleys, substantially as set forth.

3. In a machine for abrading and polishing circular articles, the combination of two shafts journaled one above and to the rear of the other and having each a peripherally grooved roller and a pulley, a shaft journaled in a plane with the rear shaft and above and to the rear of the lower shaft and having a pulley, vertical flanged guides, a sash having slots which slide upon said guides and having adjusting screws through the ends of the slots and bearing against the upper ends of the guides, a spring bearing downward upon the sash, means for raising the sash, a shaft journaled in the lower end of the sash and having a peripherally grooved roller and a pulley, a pulley journaled in a horizontally sliding frame, a spring forcing said frame forward, a drive pulley, and a belt passing around all of the pulleys, substantially as set forth.

In testimony that I claim the foregoing to be my invention I have hereunto set my hand this 23d day of May, A. D. 1894.

JARVIS A. SLATER.

Witnesses:

WM. SECHER,  
DAVID I. DAVIES.