

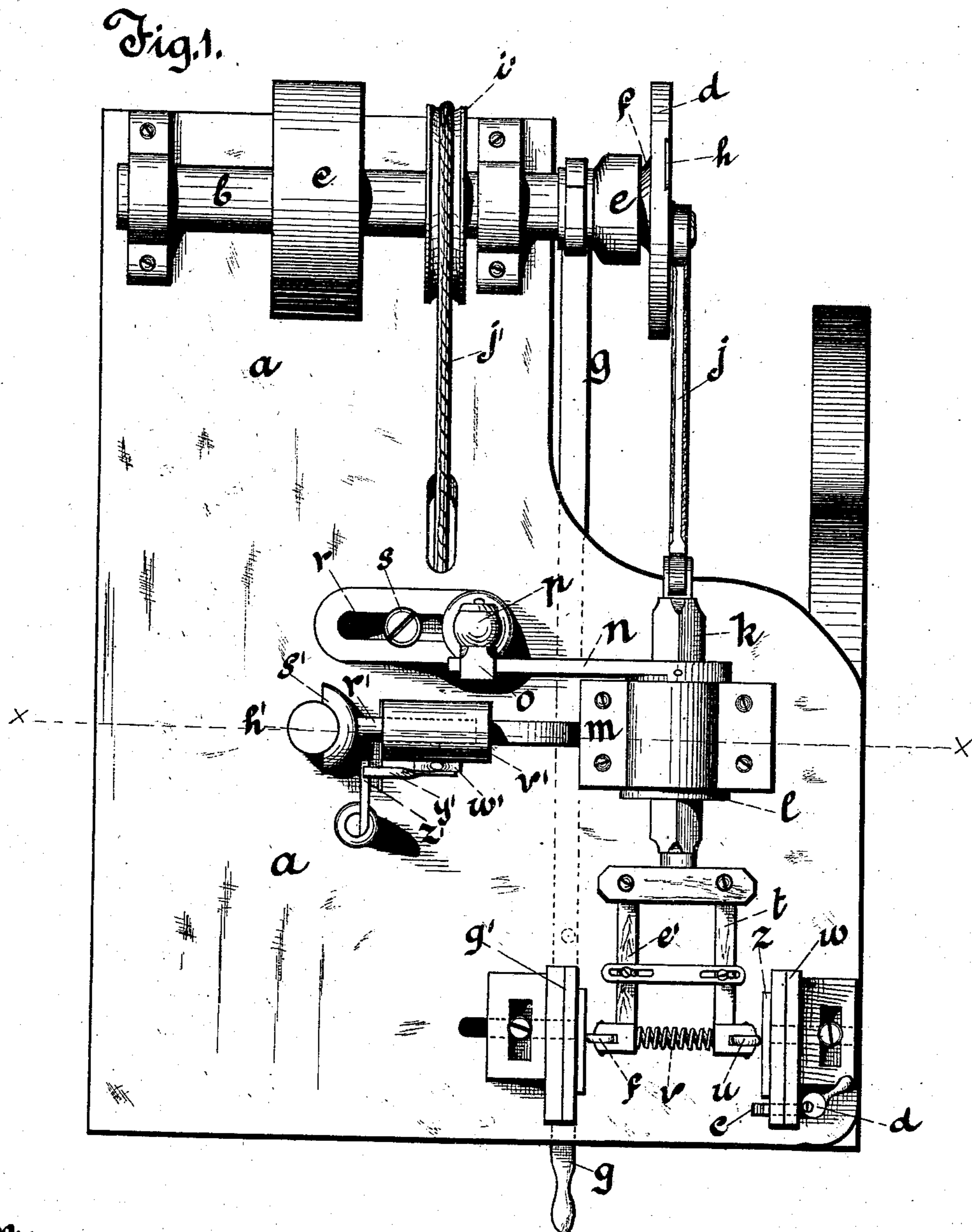
(No Model.)

4 Sheets—Sheet 1.

W. O. WAY.  
Burnishing Machine.

No. 235,921.

Patented Dec. 28, 1880.



Witnesses:

R. J. Gayford,  
H. B. Truman

Inventor:

W. O. Way,  
By W. E. Simonds  
Att'y

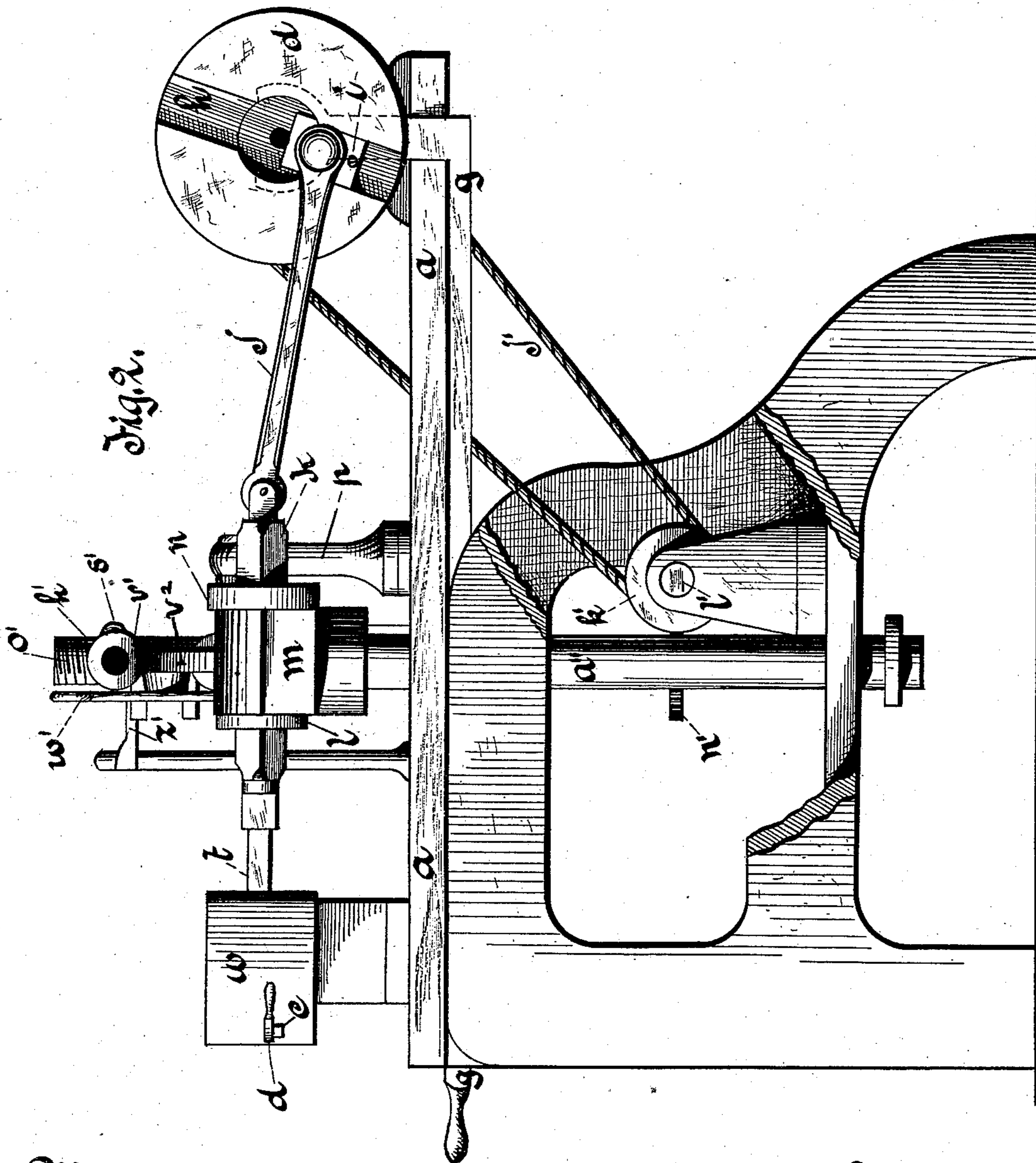
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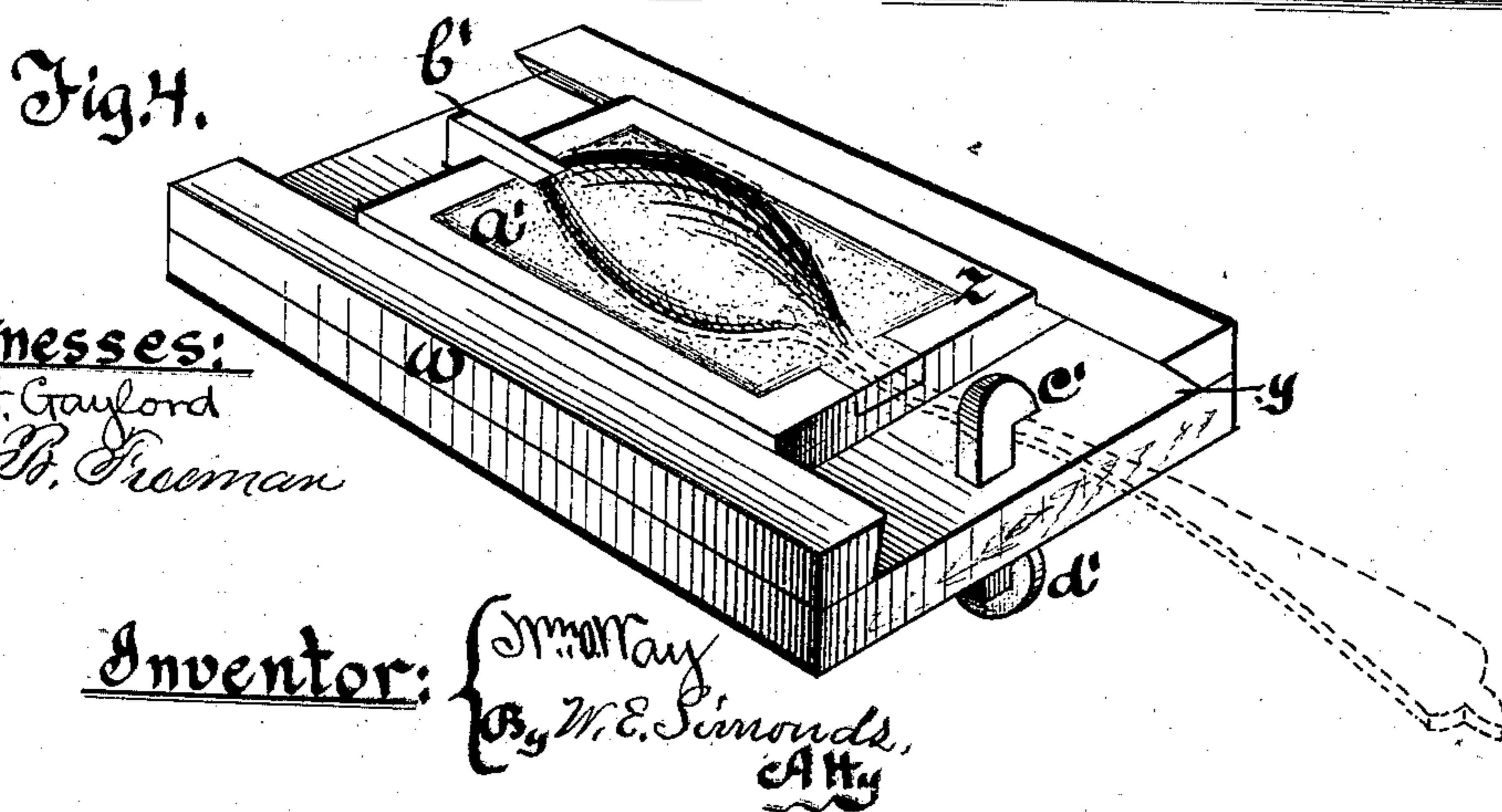
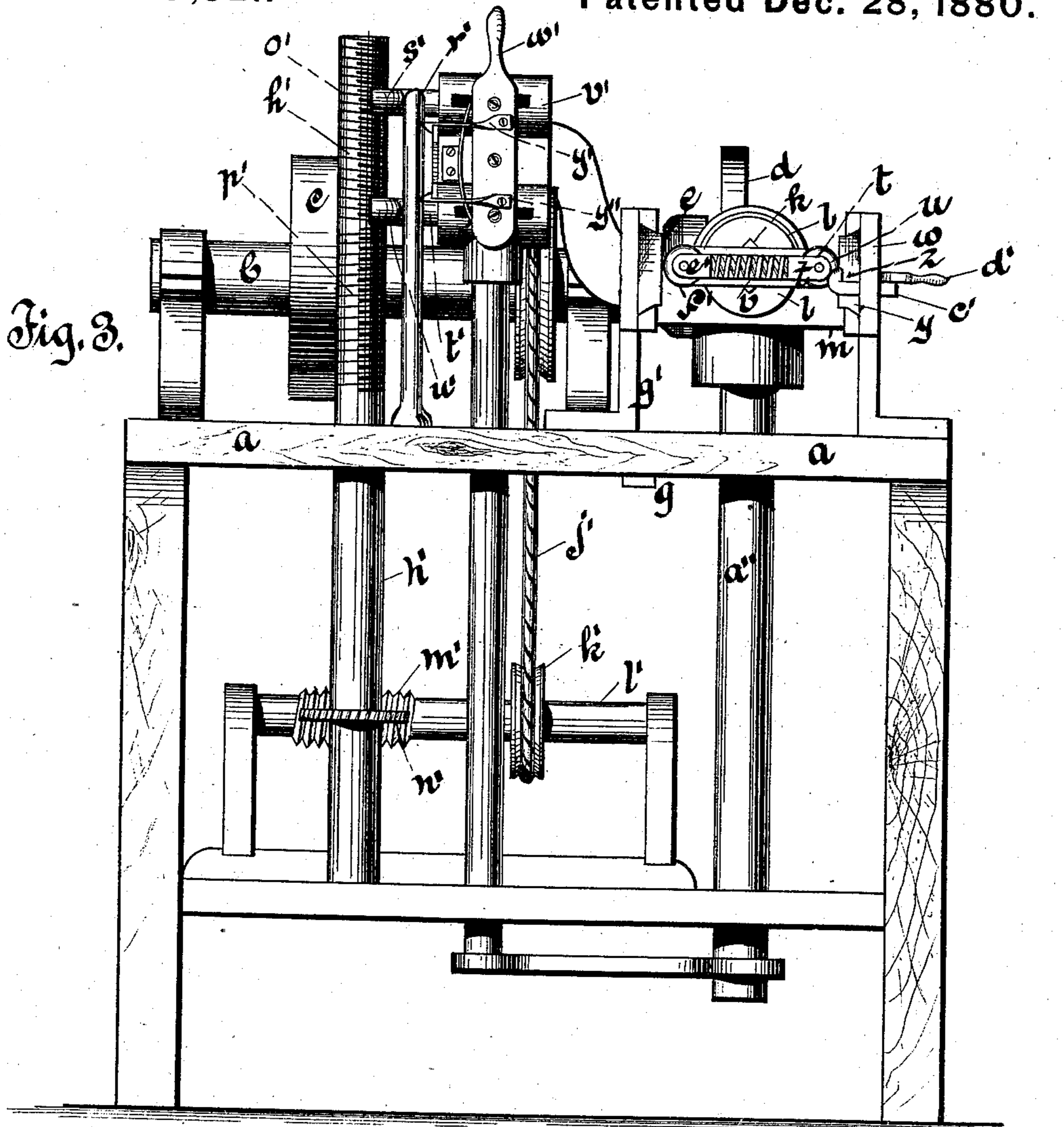
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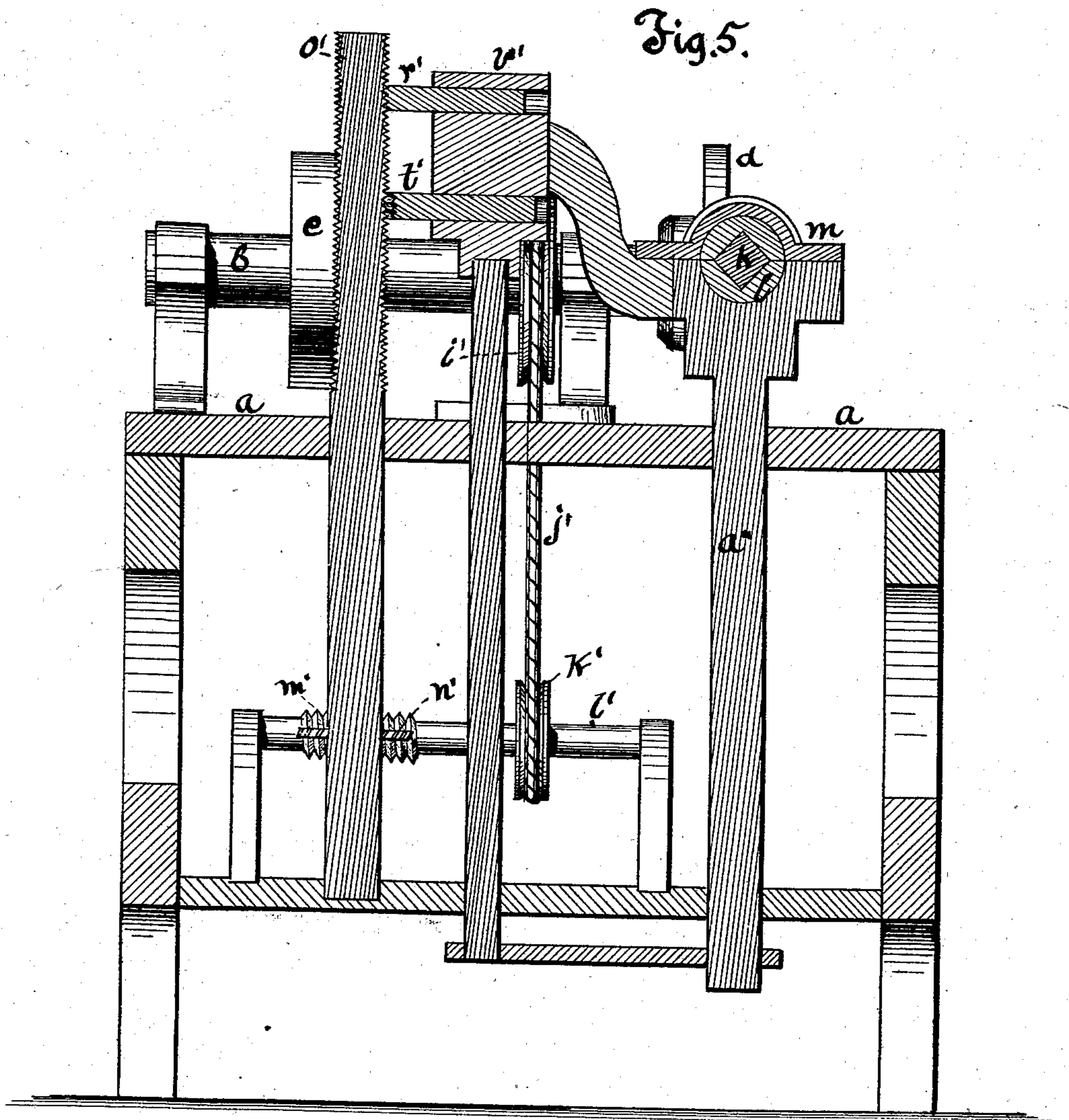
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W. O. WAY.  
Burnishing Machine.

4 Sheets—Sheet 4.

No. 235,921.

Patented Dec. 28, 1880.



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# UNITED STATES PATENT OFFICE.

WILLIAM O. WAY, OF BUCKLAND, CONNECTICUT.

## BURNISHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 235,921, dated December 28, 1880.

Application filed April 17, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, WM. O. WAY, of Buckland, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Burnishing Machinery, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is a top view. Fig. 2 is a side view. Fig. 3 is a front view. Fig. 4 is a detail view of a burnishing-bed. Fig. 5 is a view, in vertical transverse section, on plane *x x*, Fig. 1.

The letter *a* denotes the table bearing the main part of the mechanism supported on suitable legs or standards. At the rear thereof, hung in suitable bearings, is the main shaft *b*, to which power and rotation may be applied by a belt running on pulley *c*. This shaft bears loose thereon the crank-disk *d*, which may be made to rotate with the shaft, by means of the friction-clutch *e*, fast rotarily, but loose longitudinally, on the shaft, having a conical cup or opening in its side co-operating with a part cone, *f*, borne upon the disk and moved to engage with or disengage from said part cone by means of a lever, *g*, pivoted to the under side of the table, its front end suitably situated to be manipulated by the operator, and its rear end forked to take hold of the clutch.

The outer face of the crank-disk bears a radial or diametric dovetail groove, *h*, in which is a crank-pin block, *i*, which may be adjusted radially in this groove, so as to give a greater or less length of stroke to the burnisher, hereinafter described. A pitman, *j*, is pivoted to the pin on the crank-pin block, and is pivoted at the other end to the piston *k*, whereby a longitudinal reciprocating motion may be imparted to the piston.

The piston *k* is polygonal in section, preferably square, so that it may not rotate except as the sleeve *l*, within which it reciprocates, also rotates. This sleeve *l* is borne in a bearing or journal-box, *m*, so that it can partially rotate. It is desirable, in using this machine for burnishing the bowls of spoons, that this sleeve *l* should have a partial rotation as it moves up and down, (for it does move up and down,) and such rotary motion is attained by having the arm *n*, which is fast to a collar encircling one end of this sleeve, enter the pivot-block *o*, rotarily hung in the post *p*, the foot of which has the slot or mortise *r*, through which a set-

screw, *s*, runs into the table, whereby the post *p* may be adjustably set at different distances from the sleeve to control the character of the rotary movement of the sleeve.

The front end of the piston bears, pivoted laterally thereto, a burnisher-arm, *t*, in the front of which is hung, so that it can rotate, a highly-polished round burnisher, *u*, kept against the work by a spring, *v*.

From the table rises a stock-bearing standard, *w*, having in its inner face a dovetail horizontal groove, *y*, in which is a bed-plate, *z*, which can be adjustably set at different points in the groove. There is a matrix in this bed-plate to receive a soft-rubber (substantially india-rubber, pure gum) bed, *a'*, which is so shaped on the face as to substantially correspond to the shape of the piece of stock to be superimposed upon it. In the case of a spoon to be burnished on the outside of the bowl the face of the rubber bed is shaped to substantially correspond to the inside of the bowl. (See Fig. 4.)

The bed-plate bears the catch or stop *b'*, under which the tip end of the piece of work can be caught. The piece of work is then fastened in place by means of the catch or hook *c'* and the cam *d'*.

The front end of the piston also bears, pivoted laterally therein, another burnisher-arm, *e'*, which bears another loosely-rotating round burnisher, *f'*, and the table bears another standard, *g'*, with bed-plate, rubber bed, &c., all similar to the corresponding parts just described, and when spoons are being burnished there is an advantage in burnishing the outsides of the bowls on one standard and the insides of the bowls upon the other standard at the same time, and the spring presses from one burnisher-arm to the other.

I will now explain how the up-and-down motion is given to the journal-box *m*, and consequently to the burnishers, such movement being necessary to cause the burnishers to traverse the breadth of the work.

The letter *h'* denotes a vertical rotating shaft driven from main shaft *b* through the medium of pulley *i'*, belt *j'*, pulley *k'*, shaft *l'*, worm *m'*, and spur-gear *n'*. This shaft bears the left-hand thread *o'* and the right-hand thread *p'*.

The letter *r'* denotes a sliding pawl bearing

at one end a nut-section,  $s'$ , fitted to mesh into the thread  $o'$ . The letter  $t'$  denotes another and similar sliding pawl bearing at one end a nut-section,  $u'$ , fitted to mesh into the thread  $p'$ . Both these pawls are borne in and slide in the socket-box  $v'$ , which is fast, through the medium of an intervening arm,  $v^2$ , to the journal-box  $m$ . Only one of these pawls is thrown into mesh with its thread on the vertical shaft at the same time. When pawl  $r'$  is thrown into mesh the journal-box  $m$  is thereby moved downward, and when pawl  $t'$  is thrown into mesh the journal-box  $m$  is thereby moved upward. A lever,  $w'$ , pivoted to the socket-box  $v'$ , has pins taking into the sides of these two pawls, by the manipulation of which lever either pawl can be thrown into mesh, or both held unmeshed. This lever is provided with the stop-fingers  $y'$   $y''$ , which, at appropriate times, will alternately strike the stop  $z'$ , and thus throw the pawl, which is then meshed, out of mesh, thereby stopping the vertical feed of the burnishers and giving the operator notice to supply a fresh piece of work. The journal-box  $m$  is borne on a pillar or post,  $a''$ , sliding in sockets, so as to allow the pillar vertical movement.

I claim as my invention—

1. A soft-rubber burnishing-bed fitted to the shape of the work, substantially as herein shown and described.

2. The combination of a reciprocating burnisher with a soft-rubber burnishing-bed, substantially as herein shown and described.

3. The combination of the work-bearing standard  $w$ , the bed-plate  $z$ , adjustable on the standard, and the rubber bed  $a'$ , all substantially as herein shown and described.

4. The combination of the work-bearing standard  $w$ , the bed-plate  $z$ , adjustable in the standard, the burnishing-bed  $a'$ , the catch  $b'$ , and the hook and cam  $c'$   $d'$ , all substantially as herein shown and described.

5. The combination of the reciprocating piston  $k$ , the two burnisher-bearing arms  $t$   $e'$ , pivoted to the piston, the spring  $v$ , and the two burnishing-beds, all substantially as herein shown and described.

6. The combination of the burnisher-bearing arm  $t$ , the reciprocating piston  $k$ , the rotarily-hung sleeve  $l$ , the arm  $n$ , the pivot-block  $o$ , and means for reciprocating the sleeve, all substantially as herein shown and described.

7. The combination of the burnisher-bearing arm  $t$ , the reciprocating piston  $k$ , the rotarily-hung sleeve  $l$ , the arm  $n$ , the pivot-block  $o$ , adjustable post  $p$ , and means for reciprocating the sleeve, all substantially as herein shown and described.

8. The combination of the burnisher-bearing arm  $t$ , the reciprocating piston  $k$ , the rotary sleeve  $l$ , and the reciprocating journal-box  $m$ , all substantially as herein shown and described.

9. The combination of the journal-box  $m$ , carrying the sleeve  $l$  and the reciprocating piston, a socket-box,  $v'$ , a pawl,  $r'$ , lever  $w'$ , and a rotating threaded shaft,  $h'$ , all substantially as herein shown and described.

10. The combination of the rotating shaft  $h'$ , bearing right and left hand threads, the two pawls  $r'$   $t'$ , the lever  $w'$ , the socket-box  $v'$ , and the journal-box  $m$ , carrying the sleeve  $l$ , and the reciprocating piston, all substantially as herein shown and described.

11. The combination of the rotating shaft  $h'$ , bearing right and left hand threads, the two pawls  $r'$   $t'$ , the lever  $w'$ , provided with the stop-fingers  $y'$   $y''$ , the stop  $z'$ , and the journal-box  $m$ , carrying the sleeve  $l$ , and the reciprocating piston, all substantially as herein shown and described.

12. The combination of the work-bearing standards  $w$   $g'$ , the burnisher-bearing arms  $t$   $e'$ , the reciprocating piston  $k$ , the rotarily-hung sleeve  $l$ , the arm and pivot-block  $n$   $o$ , the socket-box  $v'$ , the pawls  $r'$   $t'$ , and the double-threaded rotating shaft  $h'$ , all substantially as herein shown and described.

WM. O. WAY.

Witnesses:

WM. E. SIMONDS,  
ROBT. F. GAYLORD.