

(No Model.)

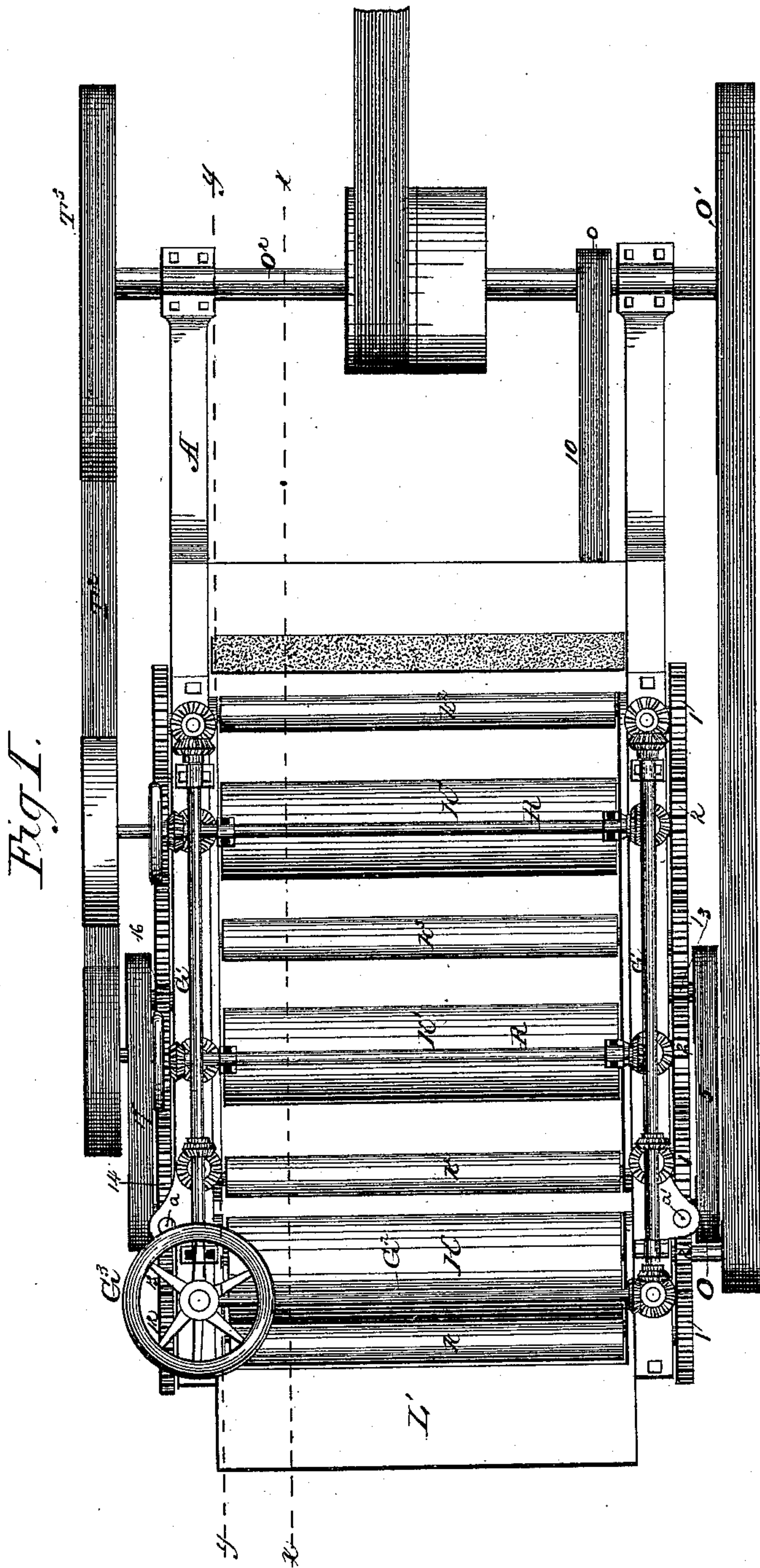
8 Sheets—Sheet 1.

J. L. PERRY.

WOOD POLISHING MACHINE.

No. 273,303.

Patented Mar. 6, 1883.



*Witnesses:*

C. B. Strong  
E. W. Kent

*Inventor:*

Inventor:  
James L. Perry  
Key Street & Greenwood  
Attorneys:

*Attorneys:*

(No Model.)

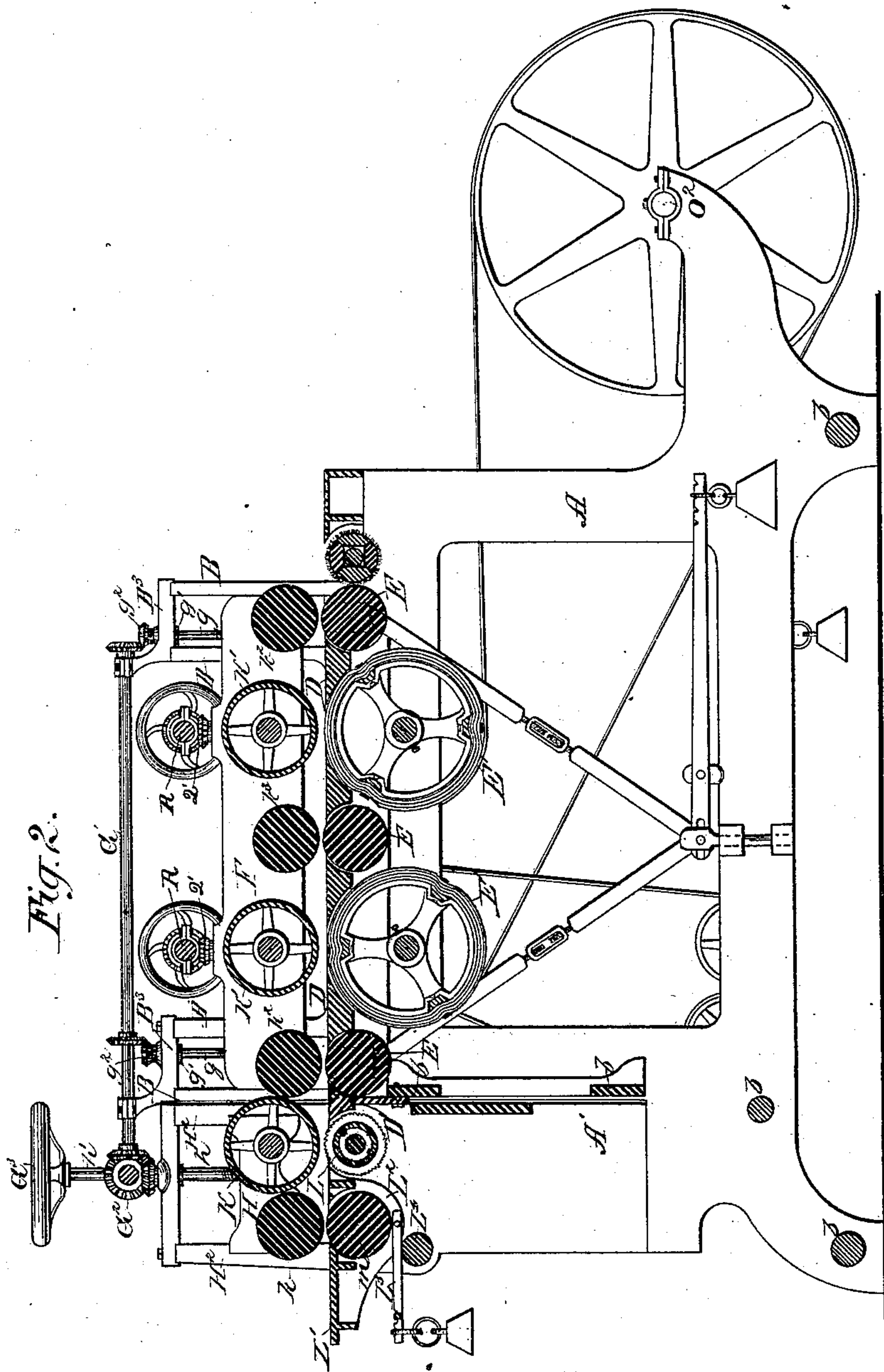
8 Sheets—Sheet 2.

J. L. PERRY.

WOOD POLISHING MACHINE.

No. 273,303.

Patented Mar. 6, 1883.



Witnesses:

*O. B. Story*  
*E. W. Smith*

Inventor:

*James L. Perry*  
*By Stuart & Woodward*  
*Attorneys*



(No Model.)

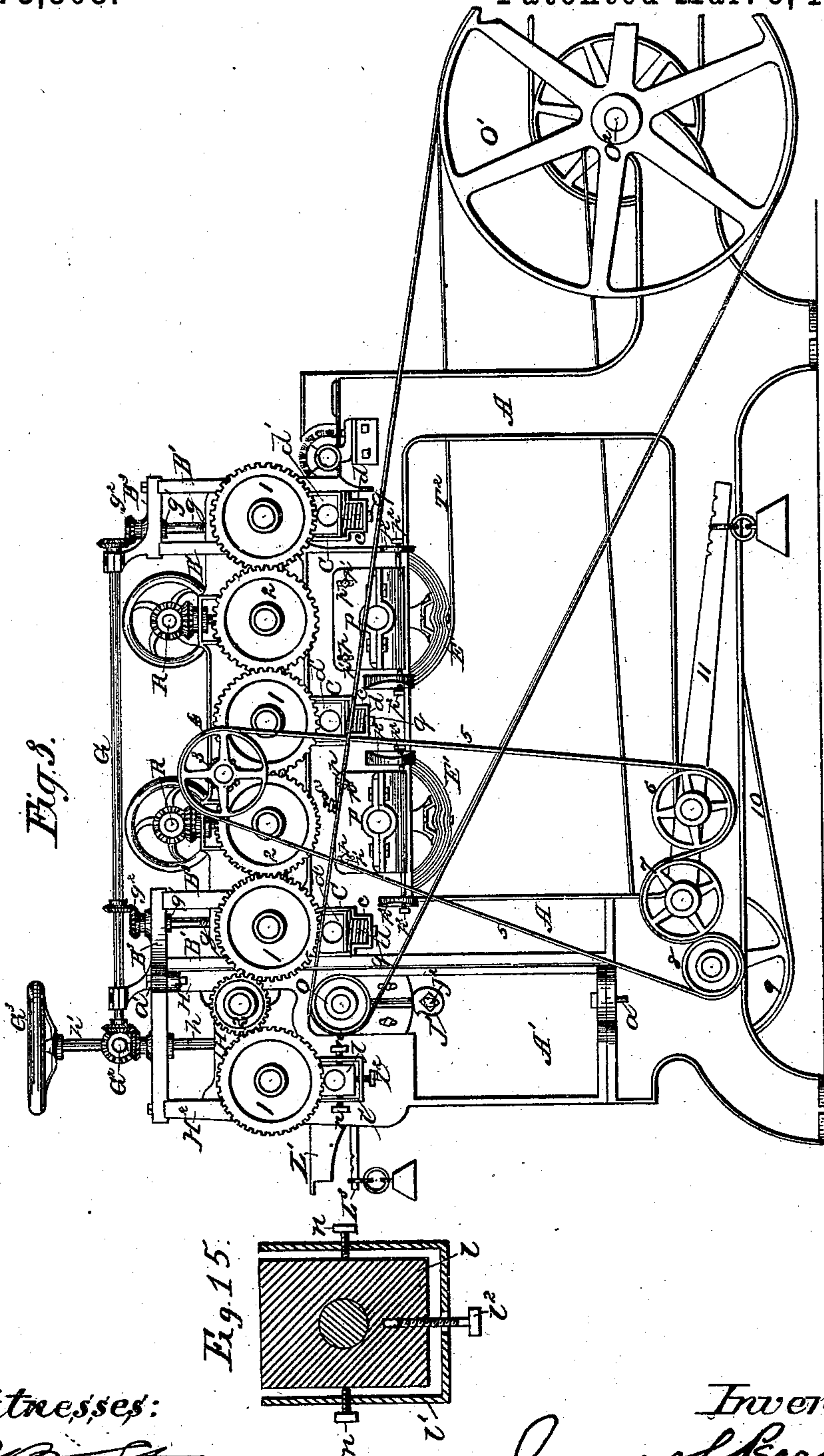
8 Sheets—Sheet 3.

J. L. PERRY.

WOOD POLISHING MACHINE.

No. 273,303.

Patented Mar. 6, 1883.



Witnesses:  
*O. B. Story*  
*E. M. Stark*

Inventor:  
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(No Model.)

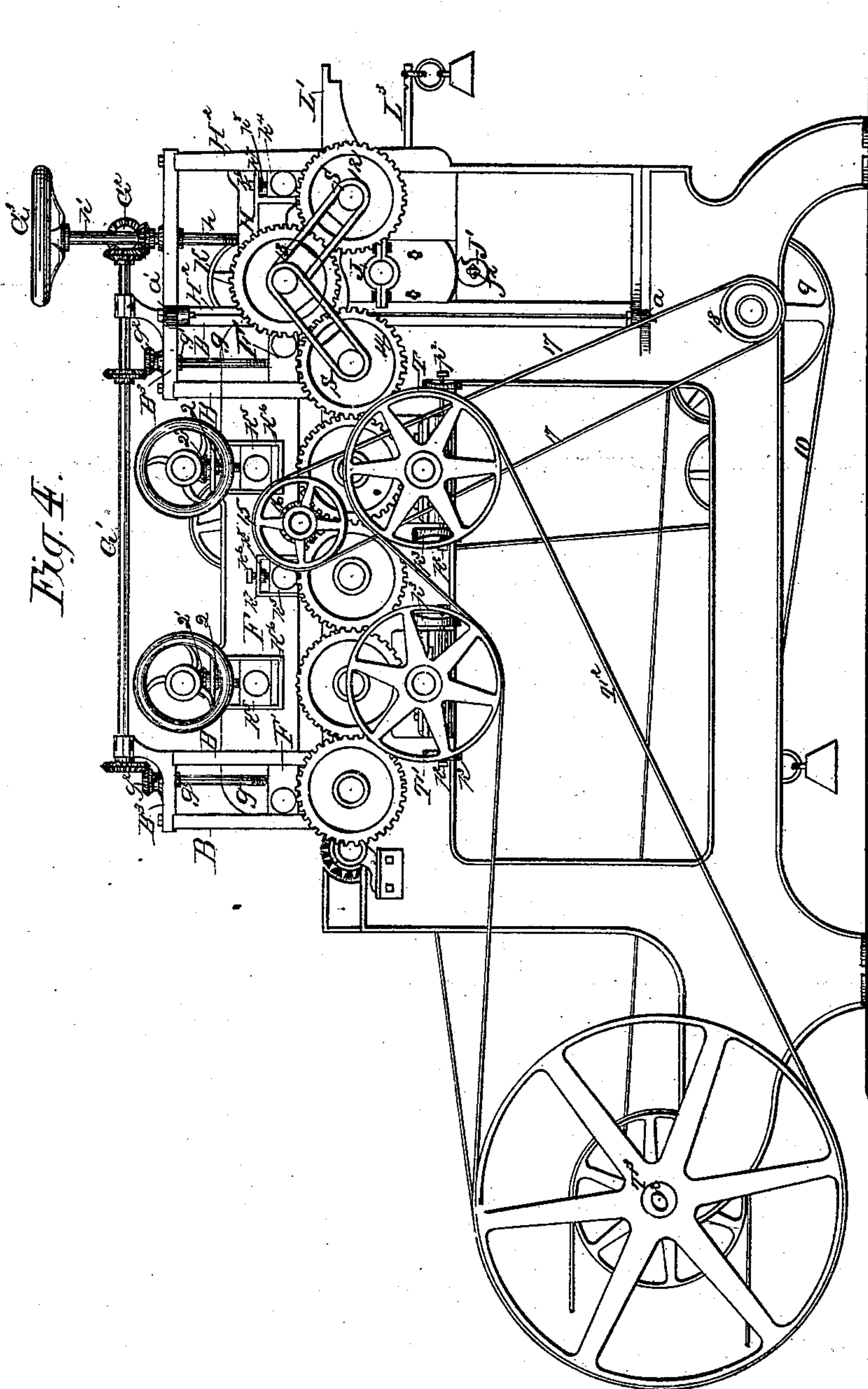
8 Sheets—Sheet 4.

J. L. PERRY.

WOOD POLISHING MACHINE.

No. 273,303.

Patented Mar. 6, 1883.



Witnesses:  
*O. B. Perry*  
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Inventor:  
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(No Model.)

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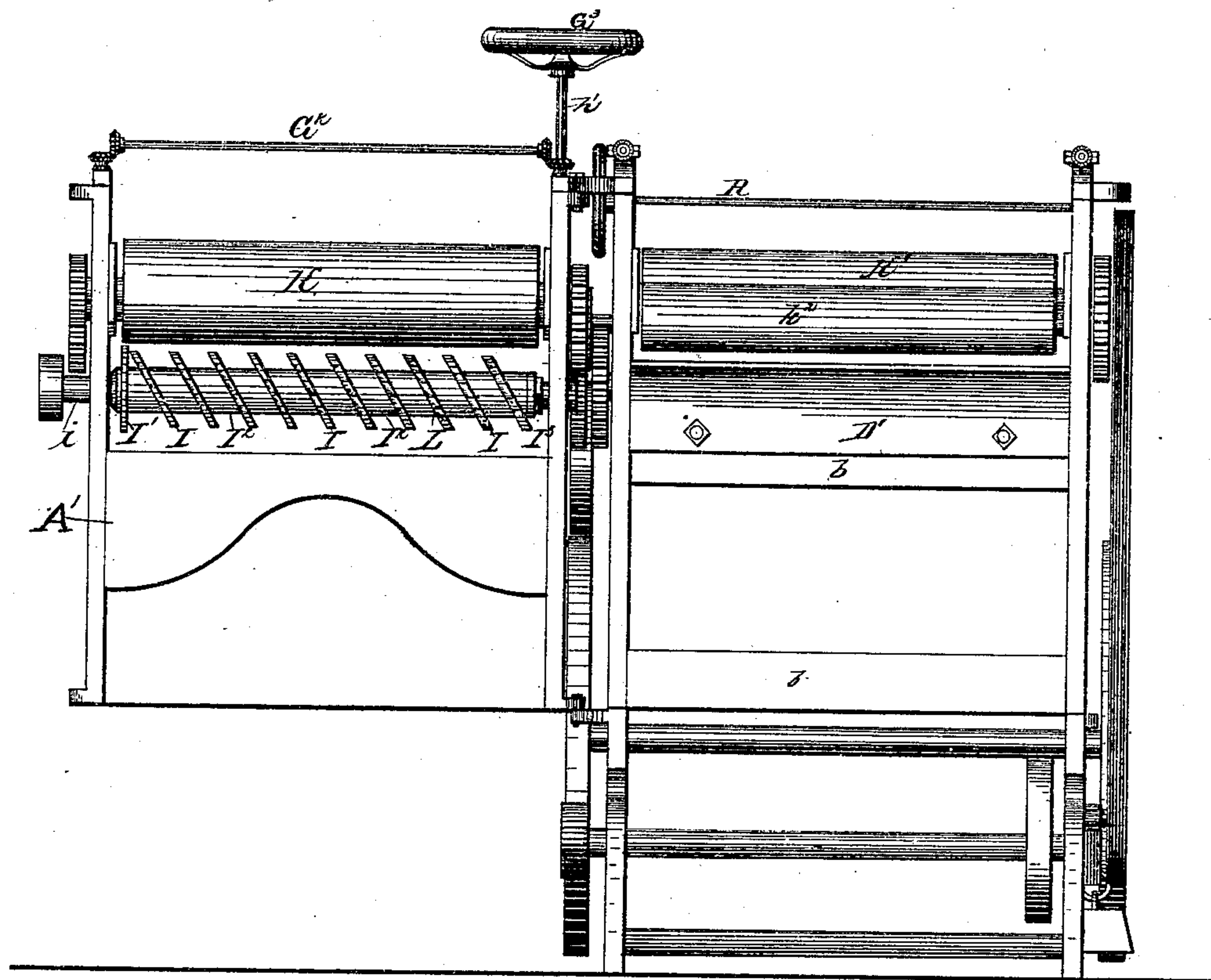
J. L. PERRY.

WOOD POLISHING MACHINE.

No. 273,303.

Patented Mar. 6, 1883.

*Fig. 5*



Witnesses:  
*O. B. Story*  
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(No Model.)

8 Sheets—Sheet 6.

J. L. PERRY.

WOOD POLISHING MACHINE.

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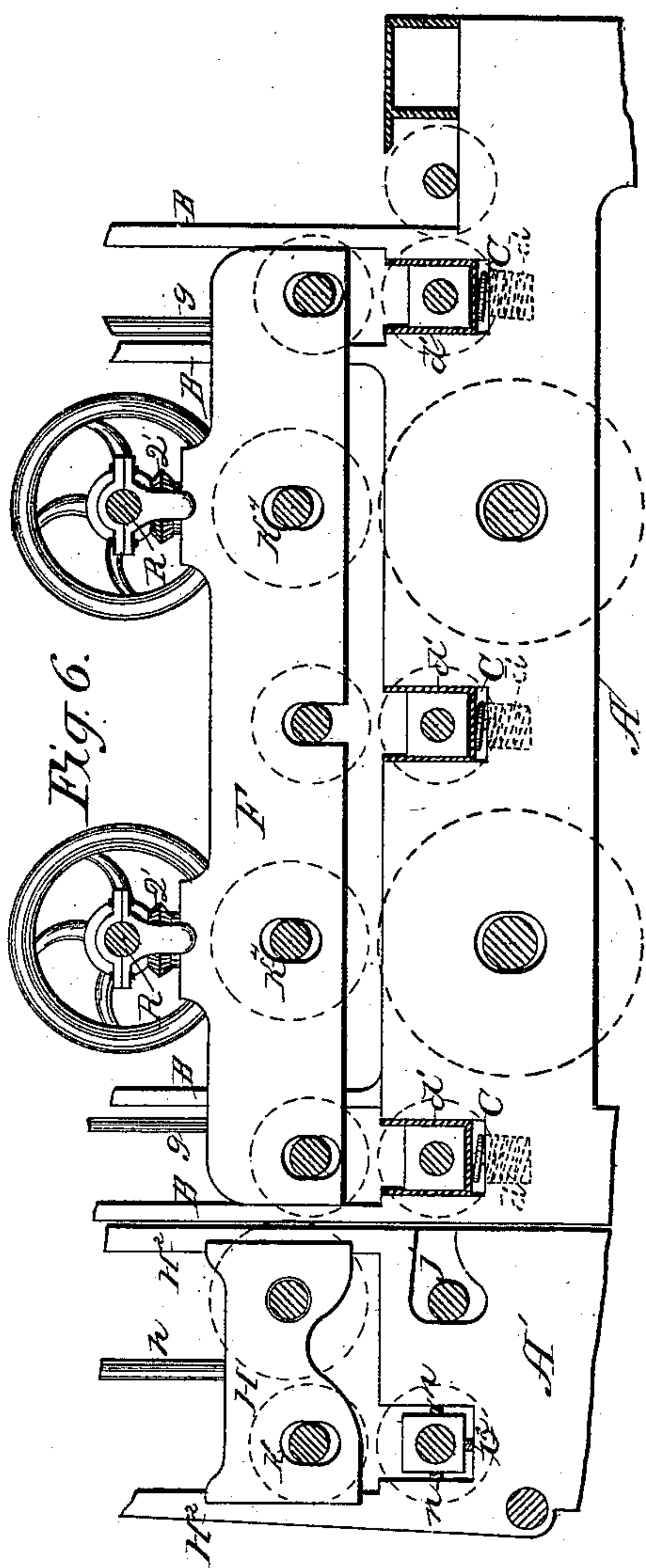
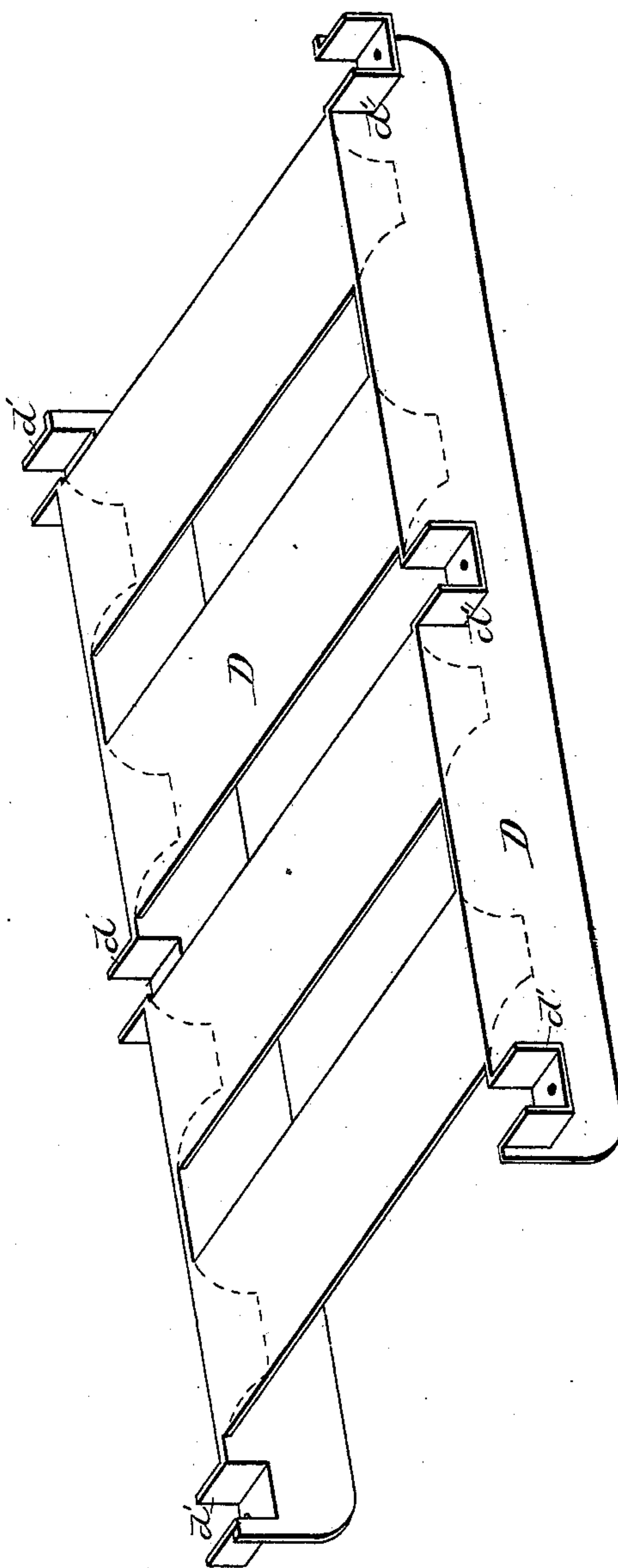


Fig. 7.



Witnesses:

*C. B. Perry*  
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Inventor:

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*by Stiel & Underwood*

Attorneys:

(No Model.)

8 Sheets—Sheet 7.

J. L. PERRY.

WOOD POLISHING MACHINE.

No. 273,303.

Patented Mar. 6, 1883.

Fig. 8.

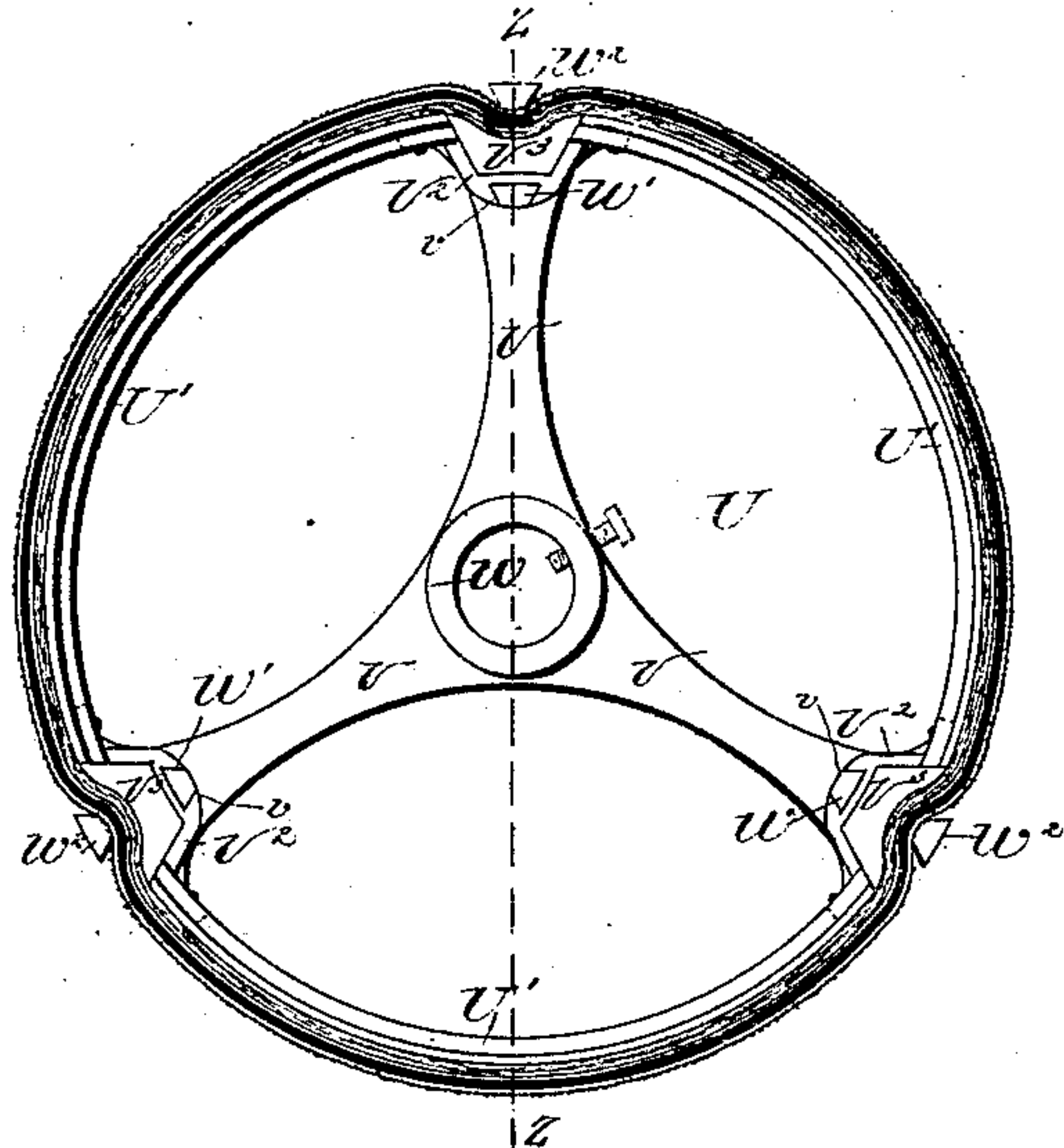


Fig. 9.

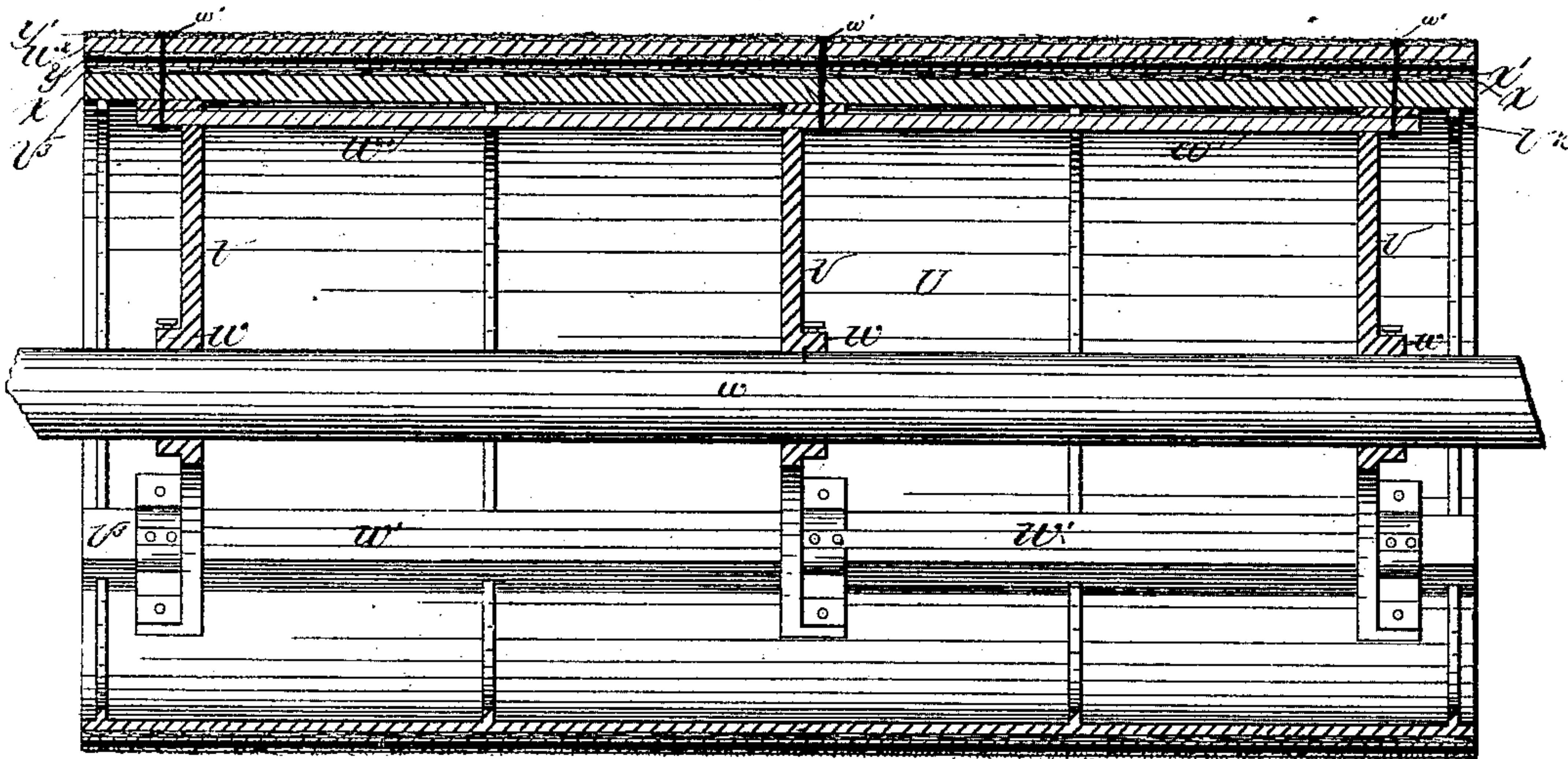


Fig. 10.

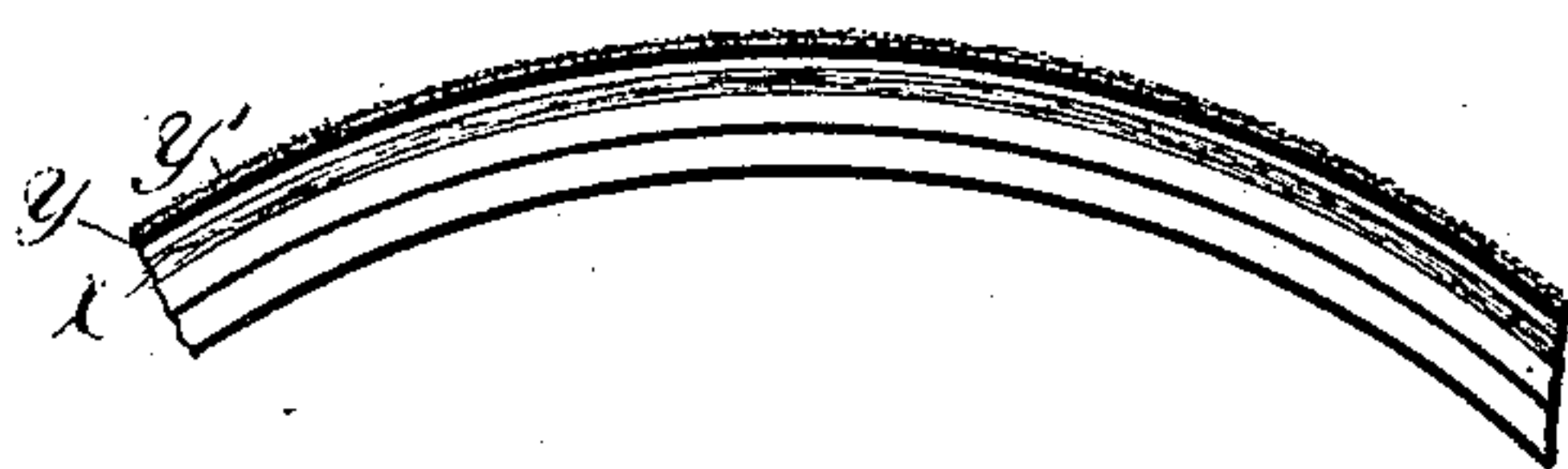


Fig. 11.



Witnesses:

C. B. Story  
E. M. Smith

Inventor:

James L. Perry  
by Frost & Underwood  
Attorneys:



(No Model.)

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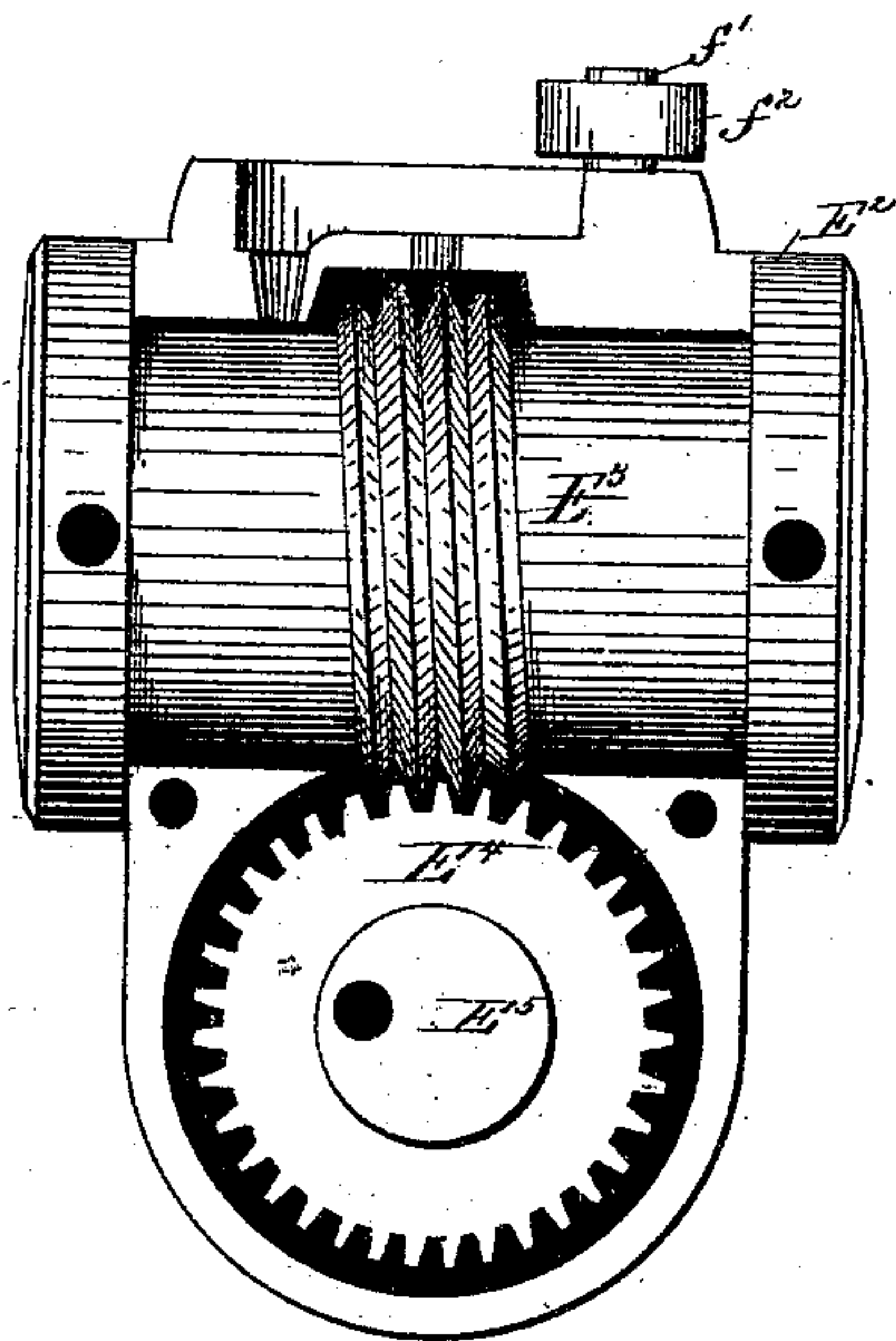
J. L. PERRY.

WOOD POLISHING MACHINE.

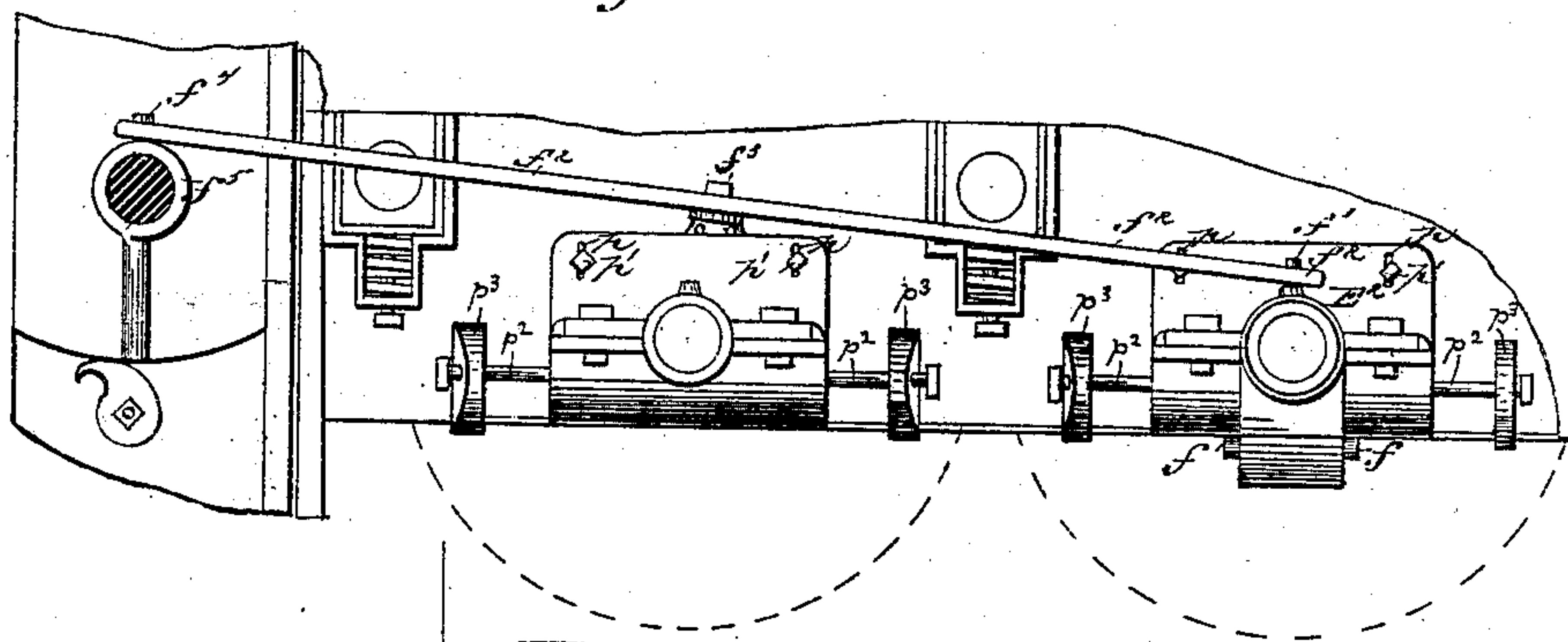
No. 273,303.

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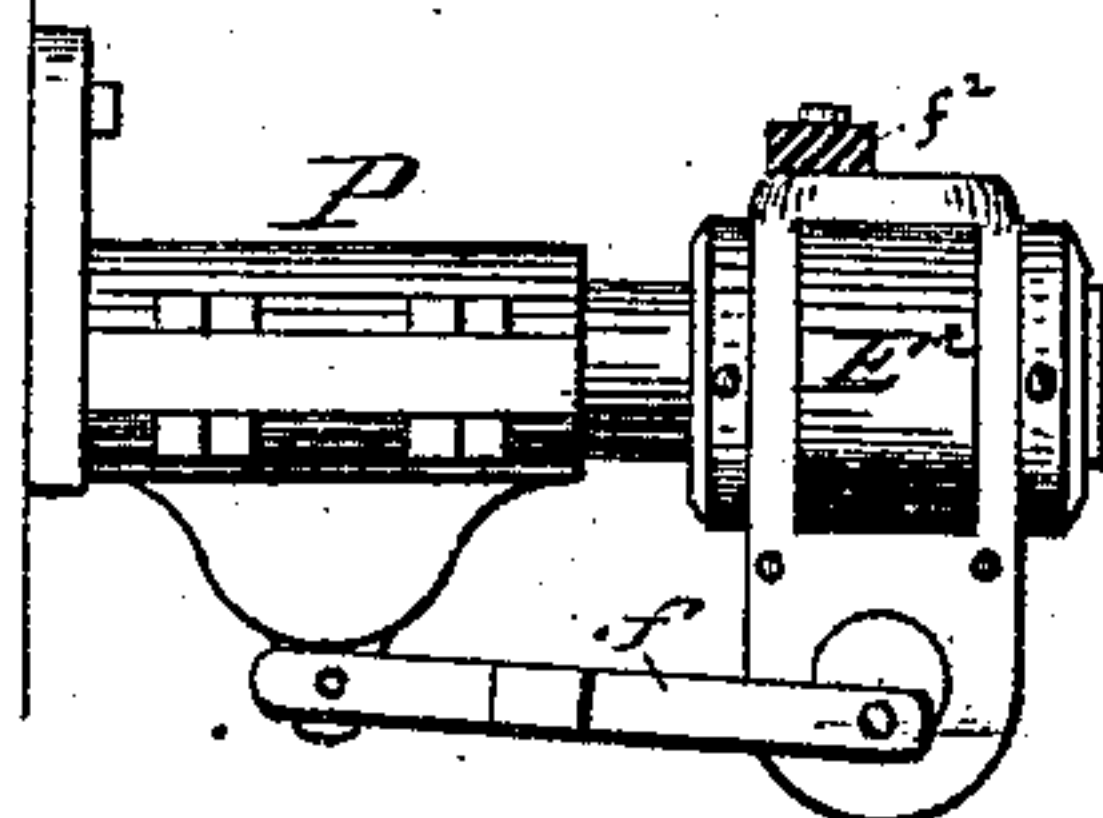
*Fig. 12.*



*Fig. 13.*



*Fig. 14.*



*Witnesses:*  
*C. B. Strong*  
*E. H. Smith*

*Inventor:*  
*James L. Perry*  
*by Smith & Woodward*  
*Attorneys:*



# UNITED STATES PATENT OFFICE.

JAMES L. PERRY, OF BERLIN, WISCONSIN, ASSIGNOR OF ONE-HALF TO  
CHARLES A. MATHER, OF SAME PLACE.

## WOOD-POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 273,303, dated March 6, 1883.

Application filed October 27, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES L. PERRY, of Berlin, in the county of Green Lake, and in the State of Wisconsin, have invented certain  
5 new and useful Improvements in Wood-Polishing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to wood-polishing machines, and will be fully described hereinafter.

In the drawings, Figure 1 is a top view or plan of my invention. Fig. 2 is a vertical longitudinal section taken through its center. Figs. 3 and 4 are side elevations. Fig. 5 is an  
15 elevation of the machine with the frames swung apart. Fig. 6 is a section of an elevation on line *y y* of Fig. 1; Fig. 7, a view in perspective of the movable bed. Fig. 8 is an end view of sand-paper cylinder; Fig. 9, a vertical section  
20 of sand-paper cylinder, taken on line *z z* of Fig. 8. Figs. 10 and 11 are details of the convex surfaces of sand-paper cylinders. Fig. 12 is a side elevation of the vibrator attached to my machine, with half the outer casing removed.  
25 Fig. 13 is a broken section of my machine. Fig. 14 is a side elevation of the vibrator. Fig. 15 is a vertical section through housing *e'*.

A is the main frame of my machine, and A' is an auxiliary frame, that is hinged to its front  
30 by pintles *a a'*. The sides of the frame A are connected by cross-pieces *b b*, and on the front corners guides B B project up from it at or near the corners of one side, and other guides, B' B', from it at or near the corners of the other  
35 side. In the upper edge of each side of the frame A, I form housings C c, and in the lower portions, *c*, of the said housings I place springs *d*, that bear upon the under side of lugs *d'*. The lugs *d'* project from the edges of a bed-  
40 piece, D, which I place in between the upper edges of the sides of the frame, and therefore as the lugs *d'* project into the housings C and rest upon the springs *d* the bed-piece D will be supported on an elastic bed that will per-  
45 mit it to rise and fall as pressure is applied to it. The bed D is slotted transversely, and the metal on each side of the slots is curved out to permit the peripheries of feed-rollers E E E,

as well as the peripheries of sand-paper cylinders E' E', to project up through it, and this  
50 bed-piece acts as a guard to hold off any stuff that may be passed through the machine, except when the pressure from above or the weight of the stuff is sufficient to overcome the force of the springs *d*.

D' is a fixed guard that extends from one  
55 side of the frame to the other, and projects beyond the front of the main frame.

Between the guides B B B' B', I place a frame, F, that carries the upper pressure and  
60 feed rollers, and I provide this frame with lugs F' F' on each side, that extend between the uprights of each of the guides B' B' on one side and B B on the other, and then through cross-pieces B<sup>3</sup> on top of each of the guides I  
65 extend a shouldered bolt, *g*, that turns loosely in a collar, *g'*, and is screw-threaded in its lower end to engage with a screw-threaded opening in the upper edge of the side piece or lug, F', of the frame F. There are four of these  
70 bolts, and each carries a horizontal bevel-wheel, *g*<sup>2</sup>, on its upper end, that engages with a vertical bevel-wheel on one of the shafts, G', that connects the bolts *g* on each side of the main frame with a similar bolt, *h*, on its side  
75 of the auxiliary frame A', which bolt *h* passes down into the small presser-frame H, that slides up and down between standards H<sup>2</sup>, that project up from the auxiliary frame, and then the bolts *g* and *h* are all connected by shafts  
80 G' and G<sup>2</sup> and intermediate bevel-gearing, so that by turning the wheel G<sup>3</sup> on one of the vertical shafts *h*, which shaft is extended high up above the other vertical shafts, as at *h'*, to receive it, I am enabled to raise or lower the  
85 four corners of the presser-frame F and both ends of the presser-frame H, all at the same time.

K K' K' are presser-rollers. The presser-roll K is journaled in the small frame H, and  
90 is suspended by the frame just over the first abrading-roll L, and just in front of the presser-roll K, I journal a feed-roller, *k*, its journals passing through slots *k'* in the ends of the frame H. I provide the frame F with similar  
95 feed-rollers, *k*<sup>2</sup> *k*<sup>2</sup>, at each of its ends, and in the



center of the frame F, I provide another feed-roller,  $k^3$ . This roller  $k^3$  is adjustable, as will be described farther on; but the bearings of rollers  $k^2$   $k^2$  are fixed.

5 Just in front of abrader L, I provide the frame A' with a table, L', that has a lug,  $l$ , projecting from each side, with housings  $l'$  in the frame, and these lugs are bored out to form bearings for the journals of a feed-roller,  $m$ , the  
10 periphery of which roller projects up through a rectangular aperture in the table. The table L' is provided with a straight flange,  $L^2$ , on each side, and to the lower edge of each flange  $L^2$ , I pivot a lever,  $L^3$ , that passes over a rod,  $L^4$ ,  
15 and carries a weight on its outer end. The rod  $L^4$  forms a fulcrum for levers  $L^3$ , and therefore the weighted arms of levers  $L^3$  have a tendency to drop, and of course as they do so, they raise their inner ends, and conse-  
20 quently the table, so that the table is always held up to its work by a pressure that is yielding. To prevent this pressure from carrying the table L' too high, I provide screw-rods  $l^2$ , that project loosely through the under side of  
25 the housings for lug  $l$ , and by screwing them in and out of lugs  $l$ , I shorten or lengthen them, and consequently limit the upward play of the table, and I regulate the degree of force exerted by the levers by moving the weight  
30 in and out. This table L' guards the approach to the abrader L, and the stuff, as it enters, must pass over it before it reaches the abrader L, and then the thickness of the cut is regulated by adjusting the frame H up and down  
35 to bring more or less pressure on the stuff through the feed-roll  $k$  and the pressure-roll K. I use a table, L', instead of a yielding roll, as it is necessary to support the stuff in a horizontal position as it is carried to first abrader,  
40 L, that it may take an even dress from one of its ends to the other. The journals of the abrader L pass through slots  $j$  in the lower side plate of frame A', and have their bearings in boxes J, that are slotted to receive bolts that  
45 secure them to the side plates of the frame and permit of their vertical adjustment by means of cams  $J'$  on shaft  $J^2$ , so that the abrader may be raised and lowered without disturbing the rest of the machinery. One end of the  
50 shaft of this abrader carries a pulley, O, that is belted to a large pulley, O', on the driving-shaft O<sup>2</sup>.

The journals of the sand-paper cylinders pass through slots in the upper portion of the side  
55 pieces of the frame A, and have their bearing in boxes P, that are slotted at  $p$  to receive bolts  $p'$ , by which they are adjustably hung to the frame A, and these bolts  $p'$  are assisted by other bolts,  $p^2$ , that, screwing through flanges  
60  $p^3$ , impinge against the side of the boxes; but I do not confine myself to this means of hanging the boxes to the frame, as there are many other ways for hanging them.

The feed-rolls E, as far as their adjustability  
65 is concerned, are integral with the bed-piece D, and the rise of this bed-piece is limited by bolts

$q$ , that pass up through housings  $c$  C and lugs  $d'$ , and screw into the boxes that form the bearings for the feed-rollers E.

The feed-rollers  $k$   $k^3$  are journaled in boxes  $k^4$   $k^5$ , respectively, and these are raised and lowered each by a bolt,  $k^6$ , that, passing down through the top of the housing  $k^7$ , screws into the box. These bolts  $k^6$  are screw-threaded nearly to their heads, and each carries a nut,  $k^8$ . The holes in the housings through which the bolts pass are not screw-threaded, and therefore when I want to raise one of the boxes  $k^4$   $k^5$ , I apply a wrench to the head of its bolt  $k^6$  and screw the bolt down into the box, thus  
70 shortening the bolt and lifting the box, and when the box is to be lowered a reverse turn of the bolt will give the desired result. The nut  $k^8$  merely serves as a collar to prevent the bolt from sliding up and down in the housing,  $k^7$   
75 and as the rolls are very seldom adjusted more than one-sixteenth of an inch either way, the nut  $k^8$  should be screwed up close against the housing, to be loosened only when such adjustment is to be made. The object of this adjust-  
80 ment is to get the rollers  $k$   $k^3$  in line with the rollers  $k^2$   $k^2$  and to allow for wear.

The journals of presser-roll K pass through the frame H and extra suitable boxes, (not shown,) and these journals are not adjustable;   
85 but the journals of presser-rolls K' K' pass through slots  $K^4$  in the side of frame F into boxes  $K^5$ , that slide up and down in housings  $K^6$ .

Q are bolts that are screw-threaded on their lower ends, and are provided on their upper  
90 ends with bevel-wheels Q', and just below the bevel-wheels Q' the bolts Q are collared loosely in the upper flanged edges of the frame F, their lower ends screwing each into a box,  $K^5$ . The bolts Q of each roll K' are connected by  
95 a shaft, R, having vertical bevel-wheels that intermesh with the bevel-wheels Q' and suitable hand wheels or cranks, so that both ends of the rollers may be raised or lowered simultaneously.  
100

The presser-rolls K K' K' are revolved merely by contact with the stuff as it passes through, and have no gearing.

The journal on one end of each of the upper feed-rolls projects out beyond its housing to  
105 take a pinion, 1, and between each of the pinions 1 I stud an idler, 2, to the frame F, by which all of the pinions are connected, and between the middle pinions, 1 and 2, I stud a  
110 pinion, 3, that forms the inner rim of the hub of a pulley, 4, and this pulley is driven by a belt, 5, that passes down under a tightener, 6, over an idler, 7, and under a pulley, 8, on the  
115 shaft of a pulley, 9, and this pulley 9 is connected with a pulley, 10, on shaft O<sup>2</sup> by a belt, 10. The tightener 6 is studded to a lever, 11, that is fulcrumed to the stud of pulley 7, and carries a weight which is adjustable on its  
120 outer end, and this weight always drawing upon belt 5 serves to keep it stretched, and at  
125 the same time permits it to yield with the rise and fall of the frame F, and therefore the speed  
130



of the feed-rolls will not be interrupted when the frame F is adjusted.

The lower feed-rolls are, like the upper feed-rolls, intergeared with each other, but on opposite sides of the machine, and the gearing is set in motion by a pulley, 15, gear-wheel 16, belt 17, pulley 18, and the shaft of pulley 9.

12 is the pinion that drives the feed-roller *m* in the table L', and this pinion is yoked to an idler, 13, and the pinion 14 of the first of feed-rollers *k*<sup>2</sup> by links S, so that it may rise and fall with the table L'.

T T' are the pulleys of the sand-paper cylinders E' E', and these are driven at the same rate of speed by a belt, T<sup>2</sup>, and pulley T<sup>3</sup> on shaft O<sup>2</sup>. I extend one of the journals of the fine sand-paper cylinder out far enough to receive a box, E<sup>2</sup>, and I provide it with a worm-thread, E<sup>3</sup>, for engagement with a cog-wheel, E<sup>4</sup>, that turns on an eccentric bolt, E<sup>5</sup>, and I connect this bolt by a bifurcated link, *f*, with the stationary box or bearing of the journal, all as fully described in Letters Patent No. 209,648, granted November 5, 1878, and then on top of this box I fix a lug, *f*', that projects up through one end of lever *f*<sup>2</sup>, that is pivoted near its center, at *f*<sup>3</sup>, on the box of the coarser roll E', and its other end is perforated to receive a lug, *f*<sup>4</sup>, on loose collar *f*<sup>5</sup>, on the journal of the abrader L, the journals of which, like those of the fine cylinder E', are adapted to slide in their boxes, and thus I connect these two abraders—for such they are—in such a manner that they will have both a rotary and reciprocating motion; but when this is not desirable I may easily disconnect them by removing the lever *f*<sup>2</sup>, after taking out the bolt *f*<sup>3</sup>. As a coarse abrader I prefer to have a series of drunken or wabble saws, I, strung on a shaft, *i*, as shown in Fig. 5, and I propose to place a circular saw, I', on one end of the shaft and separate all the saws by elliptical washers I<sup>2</sup>, clamping the whole together by nut I<sup>3</sup>; but I do not claim said abrader in this case, preferring to make it the subject of a separate future application. An abrader made in this way has about the same effect upon the stuff as very coarse sand-paper, and does not take under the grain of the wood and split it up, as the knives of a planer-head do, but reduces the stuff evenly over its entire surface and fits it for the action of the sand. The depth of the cut made by the abrader L may be regulated to the greatest nicety by adjusting the frame H up and down in its ways to cause the presser-roll K to bear with greater or less force upon the stuff.

The first sand-paper cylinders are made as follows: I make an open iron cylinder, U, composed of segments U', these segments being connected by the bifurcated ends V<sup>2</sup> of spokes or braces V, and the ends of the spokes form each a trough-like flange to receive a wooden strip, V<sup>3</sup>, that extends from one end of the cylinder to the other. I make a dovetailed groove, *v*, in the inner surface of each of the flanges V<sup>2</sup>, and these grooves extend through the

spokes or braces V in the form of V-shaped slots. I generally provide each roller with three wheels, W, each of which has a hub that fits on the central shaft, *w*, that forms the axis of the roller, and the spokes or braces project from these hubs radially, the spokes of each hub being parallel with those of the other hubs, and therefore I am able to pass a bar, W', through the slots or grooves *v* in each series of spokes or braces, and I provide the bar W' with screw-threaded openings to receive bolts *w*', that hold the binding-strip W<sup>2</sup> in place. To this point both of the sand-paper cylinders are alike, and I will now describe the covering for the coarse cylinder. I first cover the staves that compose the cylinder with Brussels carpet, X. Then I cover the carpet with a layer of paper or card-board, X'. I next cover the card-board with rubber canvas Y, and over this I place the coarse sand-paper Y'. I then place strips of iron, W<sup>2</sup>, over the sand-paper at points just over the concaved strips of wood V<sup>3</sup>, that lie in the bifurcated ends of the spokes or braces V, and I force screw-bolts *w*' down through the covering and the strips V<sup>3</sup>, and screw them into the screw-holes in the bar W' until they draw the sand-paper tight about the cylinder, the backing being nailed to bars V<sup>3</sup>. The finer cylinder has first one thickness of carpet, one of paper or card-board, then carpet, then rubber canvas, and then the sand-paper. In other respects it is just like the coarse roller.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a wood-polishing machine, an abrader journaled in the frame, in combination with a yielding table adapted to guide the stuff over the abrader, and mechanism for depressing the stuff and table to regulate the cut of the abrader, as set forth.

2. The yielding table adapted to work up and down in guides in the frame, in combination with a feed-roller journaled therein, as set forth.

3. The yielding table and its feed-roller, in combination with a weighted lever, L<sup>3</sup>, fulcrumed on a rod, L<sup>4</sup>, as set forth.

4. The combination of the yielding table, abrader L, presser-frame H, and its feed and presser rolls, as set forth.

5. The combination of frame A', having presser-frame, presser-roll, feed-rollers, table, and abrader, with the main frame carrying abraders, presser-rolls, and feed-rolls, as set forth.

6. The main frame having a yielding bed, and feed-rollers journaled therein, in combination with sand-paper rolls E' E', as set forth.

7. A frame carrying sand-paper rollers, and a yielding bed apertured to permit the peripheries of the sand-paper rollers to project up through it, in combination with a downwardly-acting presser-frame and its rolls, as set forth.

8. The combination of frames A A' with adjustable presser-frames connected by shafts



that adjust both presser-frames simultaneously, as set forth.

9. The sand-paper roll having journals that slide in their bearings, mechanism for reciprocating it, and a lever pivoted to the frame A, and connecting the roller E' with the abrader L, that also has sliding journals, whereby the lateral motion of the roller E' is imparted to the abrader L, as set forth.

10. The spokes or braces having bifurcated

and grooved ends, in combination with strips W', W<sup>2</sup>, and V<sup>3</sup>, the sand-paper and its backing and securing-bolts, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, this 11th day of 15 October, 1882, in the presence of two witnesses.

JAMES L. PERRY.

Witnesses:

STANLEY S. STOUT,

H. G. UNDERWOOD.