2 Sheets—Sheet 1.

A. BRIDGMAN & J. L. PERRY.

Wood-Polishing Machine.

No. 226,273. **Patented April 6, 1880.**

Fig. 1.

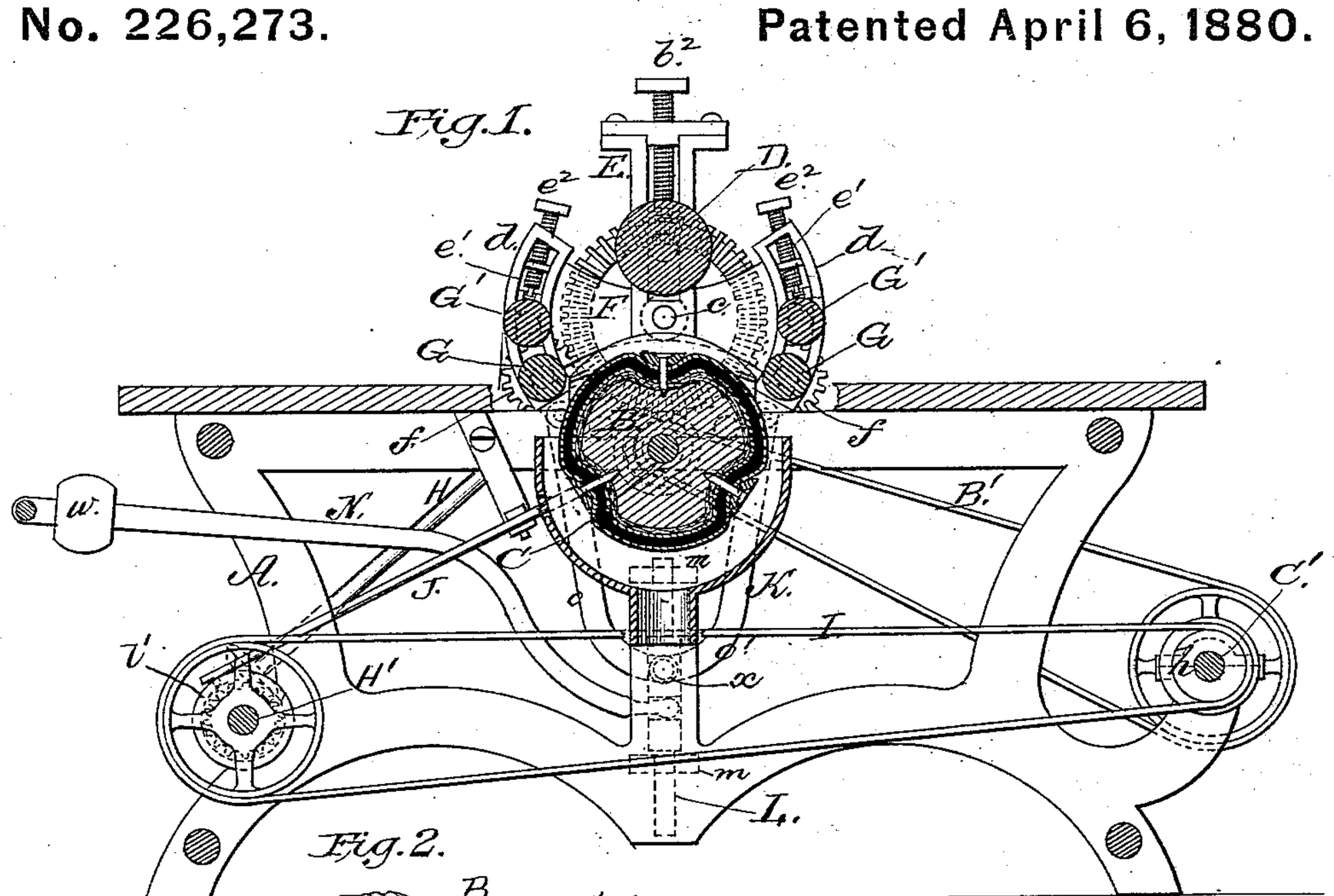


Fig. 2.

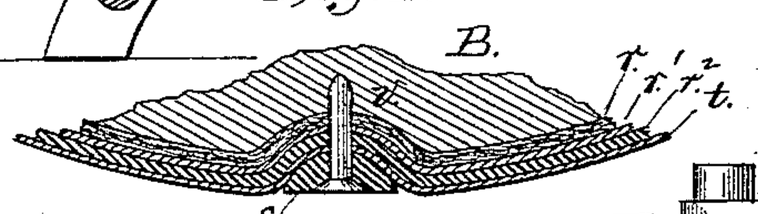
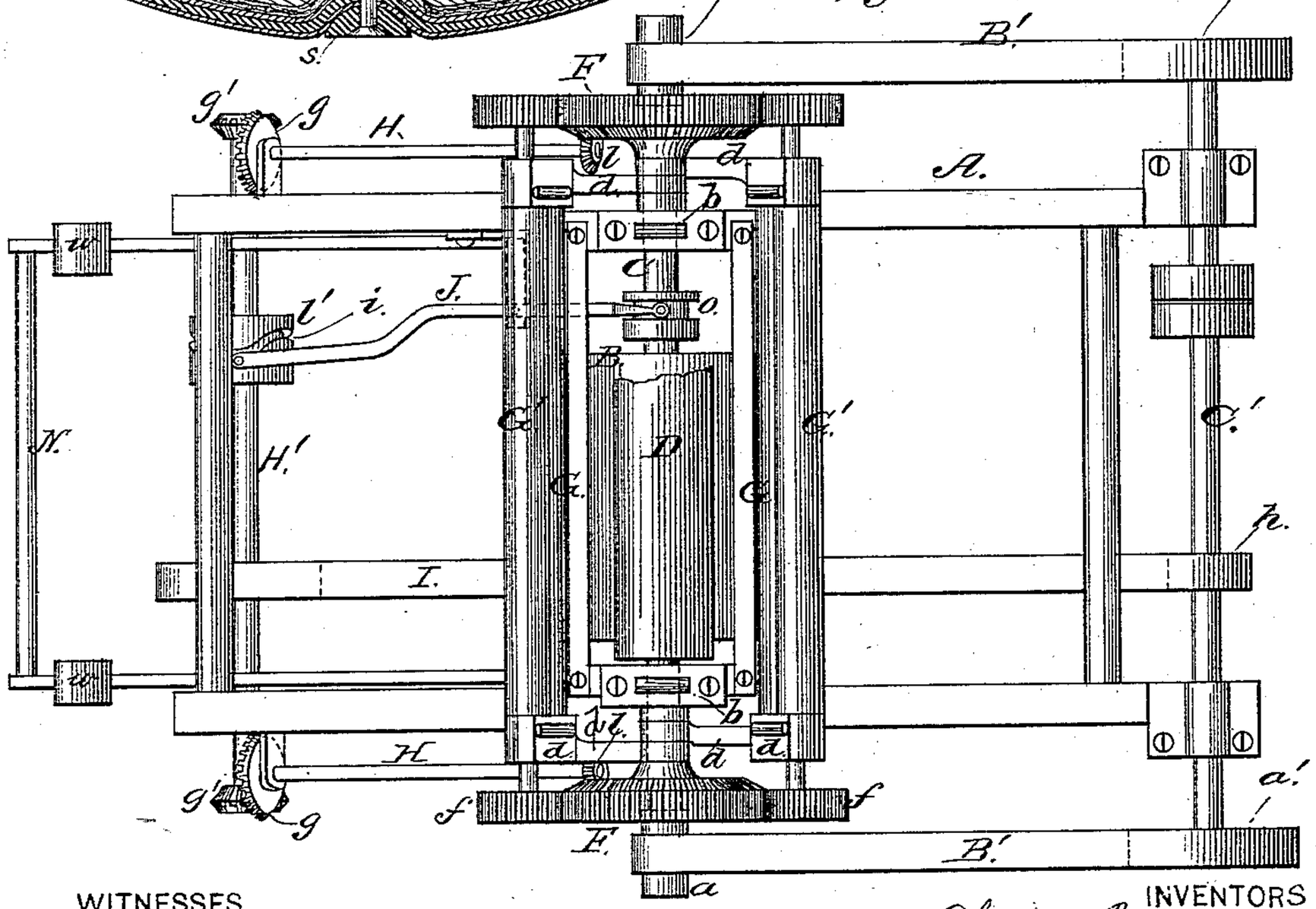


Fig. 3.



WITNESSES

John A. Ellis.

Francis J. Mason.

INVENTORS

Almon Bridgman

James L. Perry,

by E. W. Anderson

their ATTORNEY

2 Sheets—Sheet 2

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Wood-Polishing Machine.

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Fig. 4.

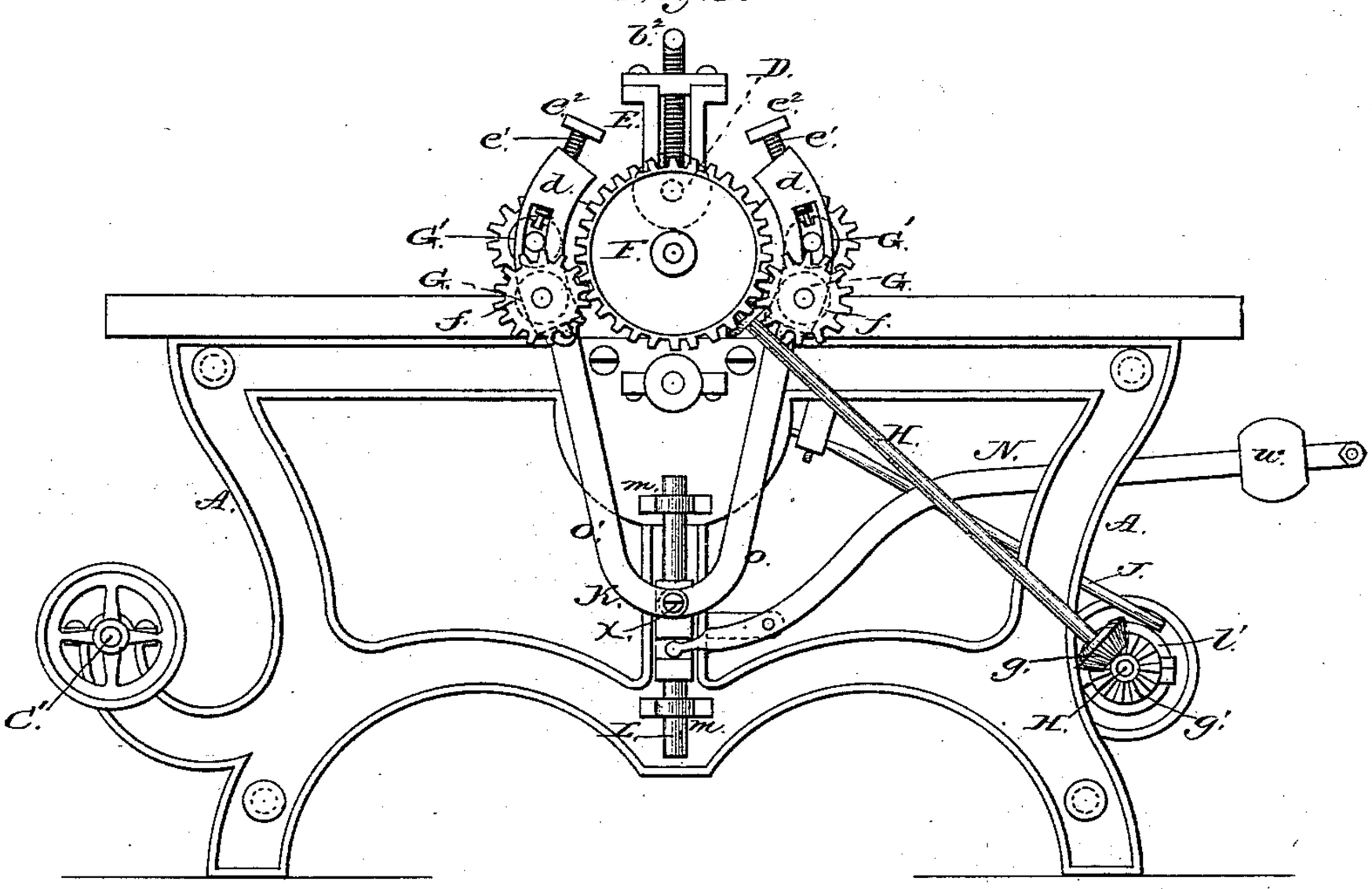
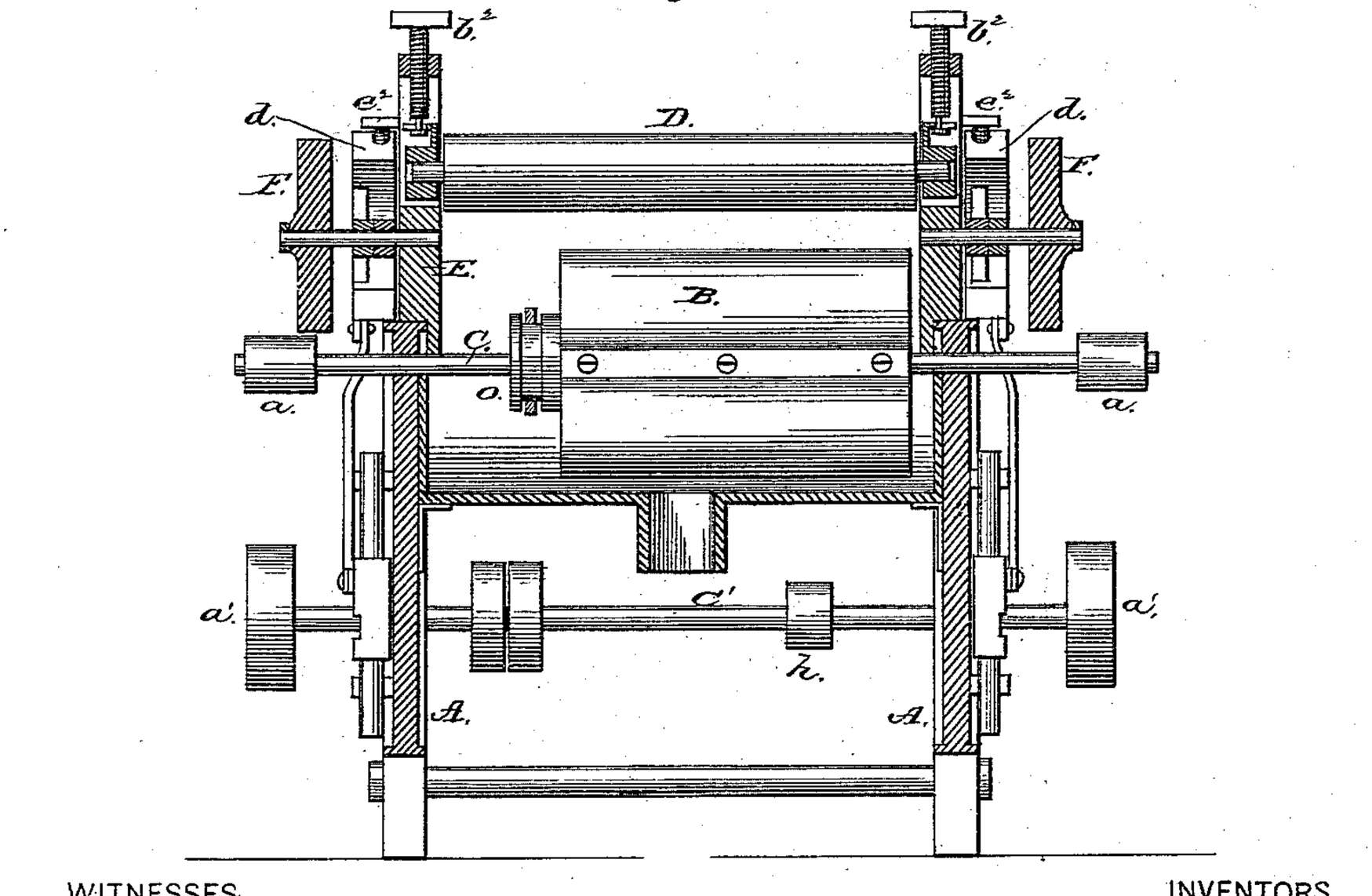


Fig. 5.



WITNESSES

John A. Ellis.

Geo. C. Dunton

INVENTORS

A. Bridgman

J. L. Perry,

by E. W. Anderson

his ATTORNEY

UNITED STATES PATENT OFFICE.

ALMON BRIDGMAN AND JAMES L. PERRY, OF BERLIN, WISCONSIN, ASSIGNORS OF ONE-THIRD OF THEIR RIGHT TO CHARLES A. MATHER, OF SAME PLACE.

WOOD-POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 226,273, dated April 6, 1880.

Application filed February 7, 1880.

To all whom it may concern:

Be it known that we, ALMON BRIDGMAN and JAMES L. PERRY, of Berlin, in the county of Green Lake and State of Wisconsin, have invented a new and valuable Improvement in Wood-Polishing Machines; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a longitudinal vertical section of our machine. Fig. 2 is a detail section of the polishing-roller, and Fig. 3 is a top view of the machine. Fig. 4 is a side elevation. Fig. 5 is a transverse section.

This invention has relation to improvements in wood-polishing machines.

The object of the invention is principally to devise a sure and reliable means for preventing the surface of the wood from being channeled by imperfections in the sand-paper, and to improve such machines generally.

The nature of the invention will be fully set forth hereinafter.

In the annexed drawings the letter A designates a strong (preferably metallic) rectangular frame, affording bearings at its middle portion to the polishing-roller B, the construction of which will be hereinafter fully described. The shaft C, upon which roller B is secured, has endwise movement in its bearings, and is rotated by means of an endless belt, B′, extending around a pulley, *a*, upon the end of shaft C and a pulley, *a′*, upon the corresponding end of a shaft, C′, having its bearings in the end of the frame. Above roller B is a pressure-roller, D, having its bearings in journal-blocks *b*, arranged in the vertically-slotted uprights E, extending upward from the sides of the frame. These blocks are vertically adjustable, to adapt the pressure-roller to boards of different thicknesses, by means of thumb-screws b^2, extending through a threaded perforation in the ends of the said upright. Extending out from the uprights E horizontally are the spindles *c*, upon which vibrate vertically the sector-shaped bearings *d*, and rotate the bevel-gear wheels F. In the lower ends of these bearings are journaled the rollers G, and above said rollers are similar rollers G′, having their bearings in blocks arranged in curved slots *e′*, and adjustable to or from rollers G by means of the screws e^2. The rollers G G have on the ends of their spindles the gear-wheels *f*, that engage the gear-wheels F on the spindles *c*, and are at all times engaged therewith, whatever be the position of the sector-shaped bearings aforesaid. The gears F are actuated, thus operating the feed-rollers G G, by means of an inclined rod, H, at each side of the frame, having at their lower ends a bevel-gear, *g*, engaging a similar gear, *g′*, on a shaft, H′, deriving motion through an endless belt, I, from a pulley, *h*, upon shaft C′, and at their upper ends the bevel-gear *l*, engaging the wheels F aforesaid.

Upon the shaft H′ is keyed a cam-wheel, *l′*, having in its cylindrical perimeter a zigzag groove, *i*, in which the end of a lever, J, is received. This lever is fulcrumed on the frame, and its forked end is engaged with a grooved collar, *o*, on the shaft of the polishing-roller, so that when the shaft H′ is rotated the cam causes the lever J to be rapidly vibrated, and imparts to the polishing-roller endwise reciprocation at the same time that it receives rotary movement from the shaft C′.

The lower ends of the sector-shaped bearings *d* are pivoted to the upper ends of a V-shaped lifter, K, formed in two sections, *o′*, and vibrating vertically upon a pin, *x*, extending out from a vertically-arranged endwise-movable rod, L, arranged in guides *m* upon the sides of the frame. These rods are simultaneously raised or lowered, thus raising or lowering the sector-shaped bearings *d*, that carry the rollers G G′, by means of a vertically-vibrating ⊔-shaped lever, N, having its fulcrum on the frame extending beyond its end and provided with sliding weights *w* on its power-arms. By throwing these levers down the feed-rolls G G′ are adjusted to correspond to the adjustment of the pressure-roll.

The polishing-roller is a right cylinder, usually made of wood and iron, and provided with

a number of longitudinal grooves, *v*. It has stretched around it one or more thicknesses of carpeting, *r*, over which is placed one or more thicknesses of paper felting, *r'*, which is in turn overlaid by a single thickness of rubber, r^2. The rubber is in one continuous strip, drawn down into the grooves and secured by suitable tacks.

The sand-paper *t* is stretched over the rubber and drawn down into the grooves tightly by means of the wooden or metallic strips *s*. These are semicircular on their under sides, and are received into the grooves *v*, being drawn down into the same, carrying the paper along by means of the fastening-screws, when their outer surfaces will be within the abrading-faces of the roller, and will not come in contact with the wood. The roller thus constructed presents a firm but elastic face to the wood being smoothed or polished, and imparts to it a finish of exceptional beauty.

What we claim as new, and desire to secure by Letters Patent, is—

1. In a wood-polishing machine, the combination, with the frame A and the endwise-movable polishing-roller B, journaled therein, and having the pulley *a* and grooved collar *o*, of the shaft C', having pulley *a'*, an endless belt passing around said pulleys, the shaft H', having cam *l'*, and a lever, J, engaged at one end with the cam and at the other with the collar on the shaft of the polishing-roller, substantially as specified.

2. The combination, with the rotating and endwise-movable polishing-roller B, having a grooved collar, *o*, upon its shaft, of the shaft H', having the cam-wheel *l'*, and the lever J, fulcrumed on the frame, engaged with the cam, and having its forked end engaged with the annularly-grooved collar aforesaid, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

ALMON BRIDGMAN.
JAMES L. PERRY.

Witnesses:
J. M. HAWLEY,
E. M. BUELL.