2 Sheets—Sheet 1.

A. BRIDGMAN & J. L. PERRY.

WOOD-POLISHING MACHINE.

No. 188,580. Patented March 20, 1877.

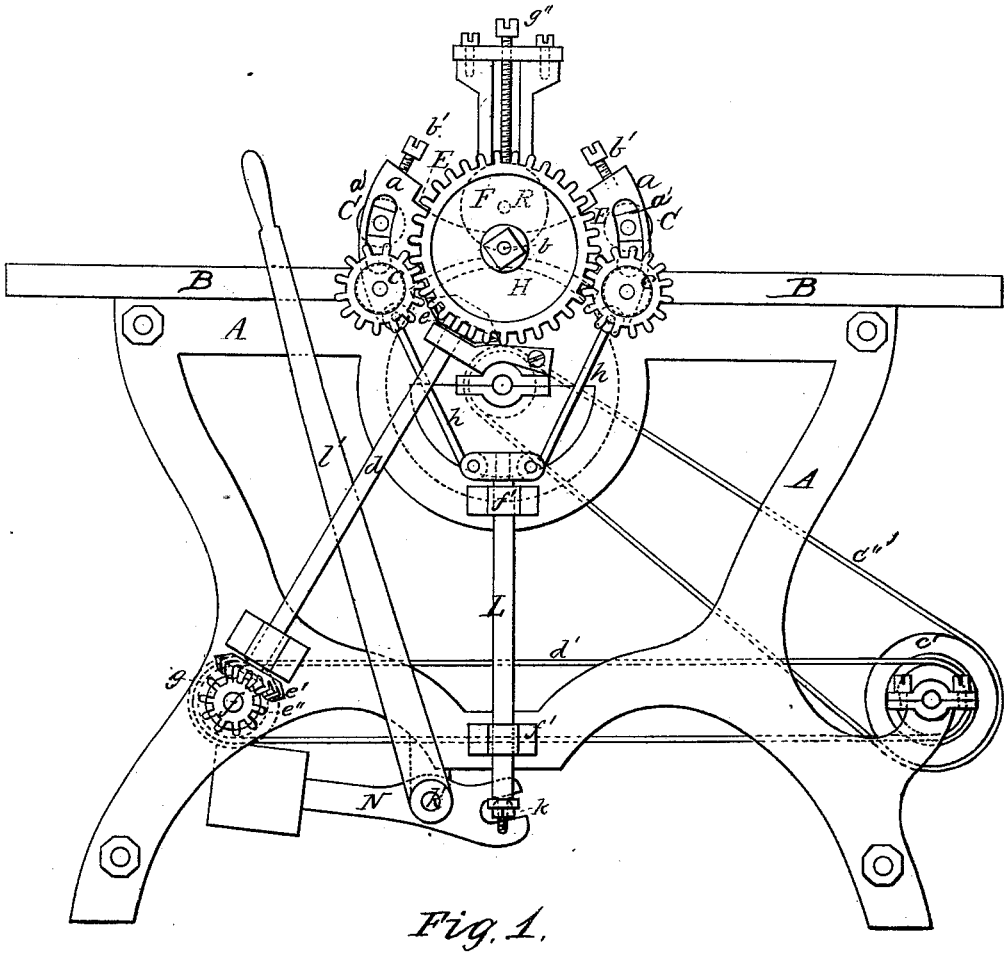

Fig. 1.

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Fig. 2.

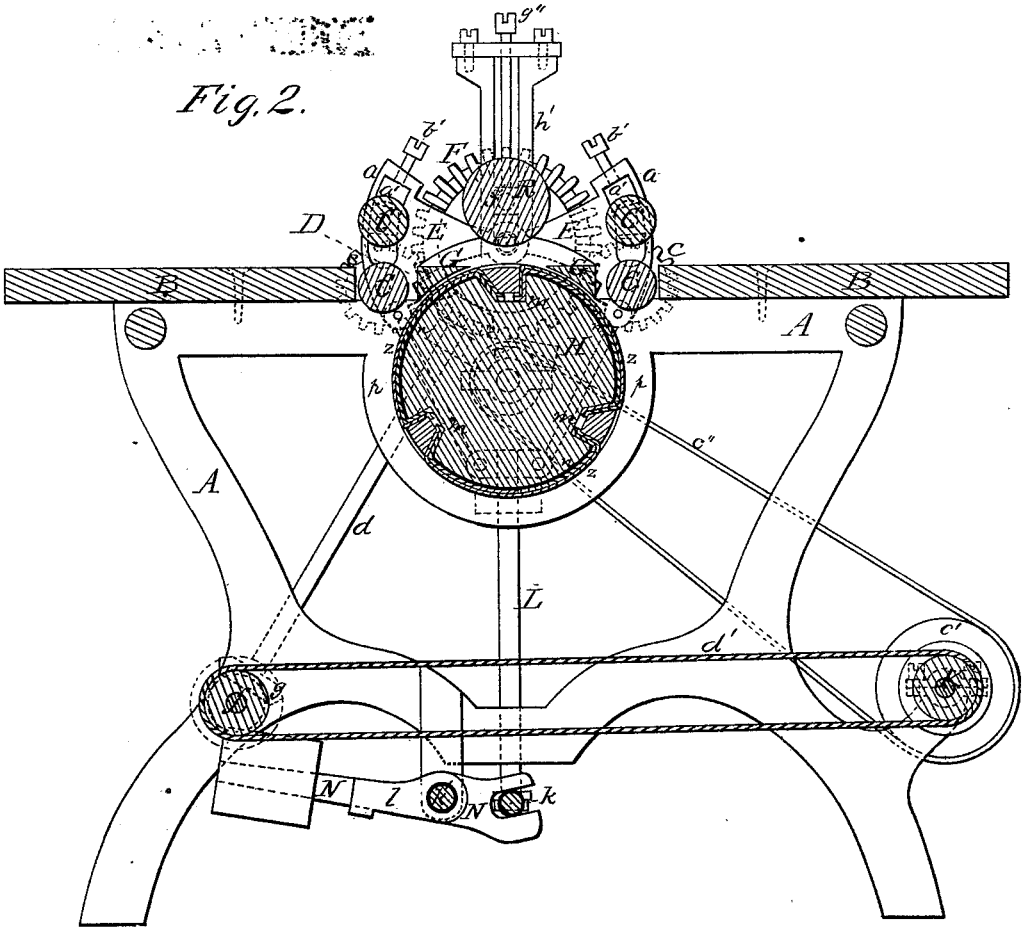
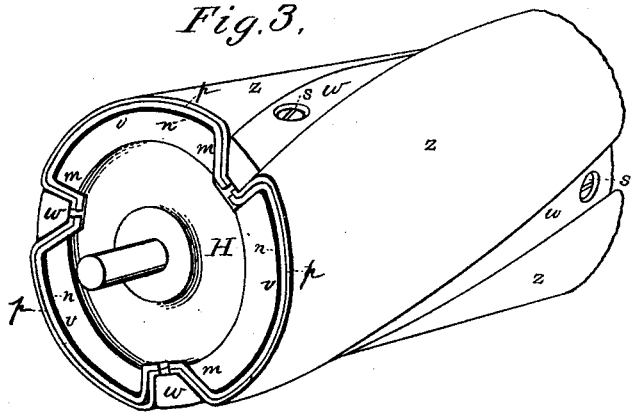


Fig. 3.



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UNITED STATES PATENT OFFICE.

ALMON BRIDGMAN AND JAMES L. PERRY, OF BERLIN, WISCONSIN.

IMPROVEMENT IN WOOD-POLISHING MACHINES.

Specification forming part of Letters Patent No. **188,580**, dated March 20, 1877; application filed January 13, 1877.

To all whom it may concern:

Be it known that we, ALMON BRIDGMAN and JAMES LYMAN 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 side view of this invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a perspective view of the sand-wheel.

This invention has relation to sandpapering-machines; and it consists in the construction and novel arrangement of the feed-rolls bearing away from the sand-wheel and toward a parallel bearing-roll; of the swinging arms, in which said feed-rolls have their bearing, and the guy-rod, levers, and weights, whereby said rolls are kept up to the work; and, finally, of the diagonal sand-paper sections, the layers under the same, and the diagonal grooves and wedges of the sand-wheel, whereby they are fastened thereto, as hereinafter shown and described.

The object of this invention is to provide a machine wherein the stuff will be fed away from the sand-wheel and against an opposite bearing-roll, and whereby smooth and even work will be produced, whether the board be straight, serpentine, or circular.

In the accompanying drawings, the letter A designates the frame of the machine, which should have a convenient rectangular form, and be provided with suitable bearings for the gearing and mechanism to be described.

B indicates the feed table or platform, having a transverse opening for the feed-rolls, guards, and sand-wheel. C C represent the feed-rolls, arranged in pairs, one pair on each side of the central opening D of the feed-table, and extending across the same, parallel with the axis of the sand-wheel. Each pair of feed-rolls has its journals seated in suitable bearings in the arc-shaped ends *a* of the swinging arms E, which are pivoted on the spindles *b* of the gear-wheels F, whereby the rolls are turned through the medium of pinions *c* on their ends. A pair of these swinging bearings is arranged at each side of the frame, and the gears F are operated by shafting *d* and pinions *e e' e''* from the shaft *f* of the belt-wheel *g*. In each pair the lower feed-roll is seated in bearings, which are stationary in the arms E, and has its upper surface, when in the raised position, somewhat above the level of the feed-board B. The bearings of the upper feed-rolls are adjustable, being cushioned against elastic blocks or springs *a'*, and provided, also, with adjusting-screws *b'*. The lower feed-roll is located in a transverse slot or space between the edge of the feed-board and a flat beveled guard-plate, G, the inner edge of which extends somewhat over the sand-wheel, and serves to prevent accidental contact of the work therewith while the same is being introduced into the machine.

H indicates the sand-wheel, the journals of which are seated in suitable bearings at each side of the frame, and, in the construction illustrated, below the surface-level of the feeding-table. The sand-wheel is usually designed to be rotated by means of pulleys *c'* and belting *c''* from the shaft, K, to which power is applied. A belt, *d'*, from a pulley on said shaft, connects with a pulley on the shaft *g*, whereby the feed-rolls are turned.

A guy-rod, L, is seated to reciprocate in suitable bearings *f'* at each side of the frame, and is provided with pivoted branches *h*, which extend obliquely upward, and are pivoted to the lower ends of the arc-bearings of the swinging arms E. The lower ends of these guy-rods are connected by a transverse rod-bearing, *k*, with which the inner ends of the weight-levers N are engaged. By means of these weight-levers the feed-rolls are held automatically upward, so as to bear constantly away from the sand-wheel toward a large bearing-roll, R, which is seated in adjustable bearings *g'* in slotted standards *h'* at each side of the frame, and, in the construction illustrated, is arranged above the surface level of the feed-table. The bearings *g'* are adjusted by screws *g''*.

A shaft, *k'*, is transversely arranged in bear-

ings at the side of the rod *k*, and forms the fulcrum of the weight-levers. It is provided with arms *l*, which engage under the long arms of said weight-levers when its handle *l'* is raised, and serve to raise the same, allowing the feed-rolls to fall.

In the operation of this machine the height of the bearing-roll R is adjusted according to the thickness of the stuff which is fed between the feed-rolls across the opening D of the feed-table. The feed-rolls, although holding the work upward against the bearing-roll, are depressed by it, and the operation of the sand-wheel upon the under side is rendered uniform and even.

The sand-wheel H is cylindrical in form, and provided with oblique longitudinal grooves *m*, in which are seated oblique wedges *w*, which serve to clamp the edges of the sections of sand-paper and the layers under the same, when secured by the screws *s*, which pass into the body of the wheel. Over the sectional surfaces *v* of the sand-wheel, between the grooves, are spread layers *n*, of wadding, which are confined by packings *p*, of rubber, over which the sections *z*, of sand-paper, are laid. In this manner an elastic surface is built up, which aids materially in securing uniform and even work, and prolongs the wear of the sand-paper. As the grooves run diagonally, an intermittent application of the sand-surface is avoided, such surface being always presented to the work. Should the sections of sand-paper wear unevenly, any of them can be easily detached and renewed.

In this machine, the principle of holding the work from the sanding-surface to a parallel bearing is designed to be practically carried out, and it is thought to be especially effective in the production of perfect work in smoothing with the grain. It is evident that the relative position of the sand-wheel and bearing-roll may be changed, so that the former will be above the table, corresponding alterations being made in the mechanism, and that other modifications of the construction may be effected by persons skilled in the art, without departing from the invention herein set forth.

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

1. The combination, with an adjustable bearing-roll, R, parallel with the sand-wheel, of the adjustable feed-rolls C C and their swinging bearings, automatically pressed, by suitable mechanism, toward said bearing-roll, substantially as specified.

2. The combination, with an obliquely spiral grooved sand-wheel, H, of oblique sections of sand-paper and spiral clamping-wedges *w*, substantially as specified.

3. The combination, with the feed-rolls C C and their swinging bearings, of the guy-rod L, its branches *h*, the rod-bearing *k*, and weighted levers N, substantially as specified.

4. The combination, with the weighted levers N and rocking fulcrum *k'*, of the lifting-arms *l* and handle *l'*, attached to said fulcrum, substantially as specified.

5. The beveled guards G, extending over the sand-wheel, between the same and the feed-rolls, substantially as specified.

6. In a sandpapering-machine, the combination, with the sand-wheel and the parallel bearing-roll, of feeding-rolls automatically pressed toward said bearing-roll, 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 LYMAN PERRY.

Witnesses:
NIELS JOHNSON,
H. P. MERRIAN.