W. F. Spear,

Polishing Wood.

No. 97,823. Patented Dec. 14, 1869.

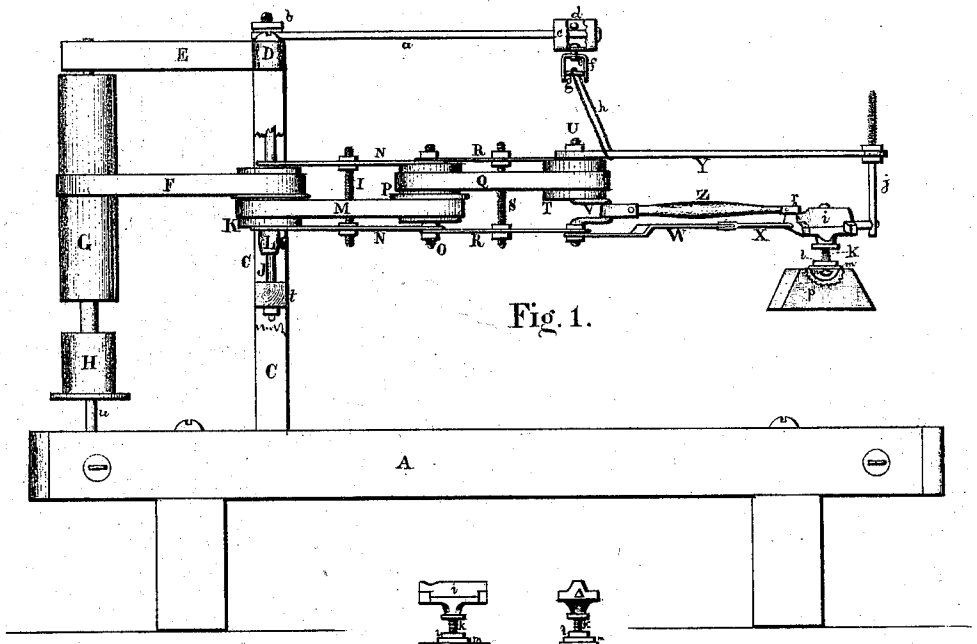

Fig. 1.

Figs. 3.

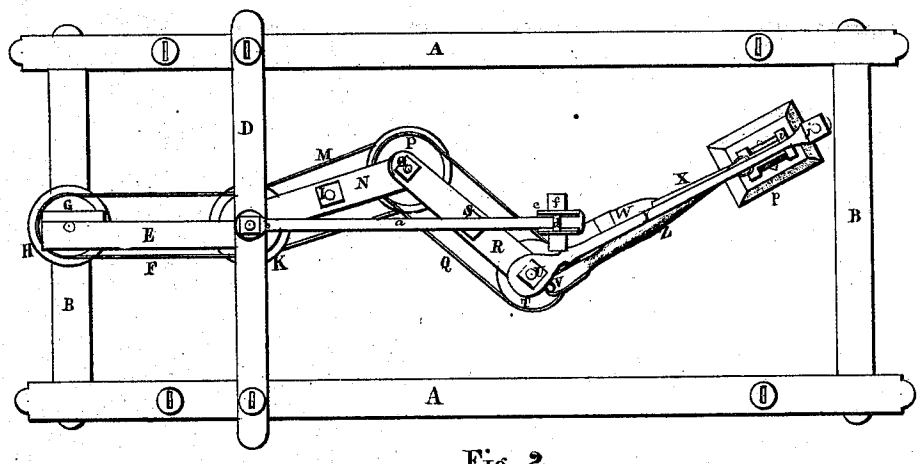

Fig. 2

A. O. McKinley
Rush K. Abbott } Witnesses.

Wm F. Spear Inventor.
by Jo babbott Attorney.

United States Patent Office.

WILLIAM F. SPEAR, OF WOOSTER, OHIO.

Letters Patent No. 97,823, *dated December* 14, 1869.

IMPROVEMENT IN MACHINE FOR POLISHING WOOD.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM F. SPEAR, of Wooster, in the county of Wayne, and State of Ohio, have invented certain new and useful Improvements in Rubbing and Polishing-Machines; and I do hereby declare that the following is a full, clear, and exact description of my invention, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon, of which drawings—

Figure 1 is an elevation of my improved machine.

Figure 2 is a plan of the same.

Figure 3 is a detail, side, and end elevation of the rubbing-block.

The nature of my invention consists in certain improvements in the construction of machines for rubbing and polishing cabinet-work, stone, marble, or any article requiring a continued rubbing over a large surface, either for the purpose of smoothing or polishing said surface, said improvements consisting in the novel combination of mechanism, by means of which I am enabled to rub the surface to be polished by a rubber moving in straight lines on any portion of said surface, and in any desired direction, thus avoiding the necessity of rubbing across the grain of the material, or of forming curvilinear scratches on the surface, which would be detrimental to the polishing, and saving the severe labor and heavy expense of the old mode of hand-polishing, besides performing the operation in a quicker and better manner.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, which represent one construction for my improved machine—

A A are the main side-pieces, which are united by cross-pieces B B, and are supported on legs, as shown.

The standards C C are secured in the pieces A A, and are united by the cross-pieces D *t*, as shown, and the arm E is fixed in the cross-piece D.

The shaft *u* is arranged in boxes in the cross-piece B and arm E, and on it is fixed the driving-pulley H, by which power is applied to the machine, and the long driving-drum G, by which the power is transmitted to the first pulley K.

The shaft J is fixed between the cross-pieces D and *t*, and on it is arranged the loose double pulley K, which receives motion from the belt F, passing around it and the drum G.

The arms N N are journaled on the shaft J, and are united, by the rod I, with jam-nuts at its ends, as shown.

The shaft O is fixed in the ends of the arms N N, and on it is journaled the loose double pulley P, which is driven by a belt, M, passing around it and the pulley K.

The arms R R are journaled on the shaft O, and are united by the rod S, provided with jam-nuts at its ends, as shown.

The crank-shaft U V is journaled in the ends of the arms R R, and on it is fixed the pulley T, which is driven by the belt Q, passing around it and the pulley P.

The arm W is secured by a nut at the lower end of the crank-shaft U V, and has the slide-rod X attached to its end, the outer end of said slide-rod being supported by the rod *j*, which is secured by jam-nuts in the arm Y, which is secured, by a nut, on the crank-shaft U V.

The arm *a* is held by a nut, *b*, on the shaft J on the cross-piece D, and the slide *c* is supported by a cross-pin, *d*, on said arm.

A rivet, *e*, connects the swivel *f* with the slide *c*, and a cord, *h*, passes around a pin, *g*, in said swivel and the arm Y, thus forming a support for the mechanism.

The slide *i* is arranged on the slide-rod X, and has a pin, *r*, at one end, on which is pivoted the connecting-rod Z, which unites the slide *i* to the crank V of the crank-shaft U V.

The rubbing-block *p* has the bolt-plate *m* fixed on its upper side, through which passes the bolt *k*, the head *n* of which works in a hole under the plate *m* in the block *p*, and on which is the adjusting-nut *l*.

The upper end of the bolt *k* is secured in the slide *i*, so that the reciprocating movement of said slide imparts a corresponding movement to the block *p*.

The clamp L is secured, by a set-screw, on the shaft J, under the arm N, and thus serves to support the mechanism K M P Q T V Z *i*, and, consequently, the rubbing-block *p*, at any desired height above the pieces A A, on which the article to be polished is laid, the belt F moving up or down the long drum G, as the pulley K is raised or lowered, as is readily seen.

From the foregoing description, it is evident that by applying the power by a belt over the driving-pulley H, a reciprocating movement will be communicated to the rubbing-block *p*, (the bottom of which may be covered with cloth, leather, or any suitable material,) and that by grasping the rod *j*, the block *p* may be turned in any desired position over the article to be polished.

By tightening the nut *l* on the bolt *k*, so as to bring the head *n* up to the plate *m*, the angular movements of the block *p*, with respect to the bolt *k*, may be limited as desired, to conform to the surface of the article being polished.

When my machine is to have a permanent position in the shop, the lower part A B A B could be dispensed with, the standards C C and end of shaft *u* being arranged in the floor, as is readily seen.

The drum G could also be dispensed with, and the

pulley K be clamped to the shaft J, which would then be arranged to revolve, and to which the power would be directly applied; but I consider the arrangement shown as the most desirable.

Where only a limited lateral movement of the rubbing-block *p* is required, the pulley P and arms R R could be dispensed with, the crank-shaft U V and pulley T taking the place of the shaft O and pulley P; or if a more extended range of movement were required, other pulleys P, with arms R R, could be introduced between the pulley P and crank-pulley T, shown in drawings, in a manner readily seen.

It is also evident that gear-wheels could be used in place of the pulleys K P T, said gears being either bevel or spur-gears, and communicating motion one to the other, through shafts secured on the intervening arms N R, in line with the shafts J O U, and having bevel-gears at their ends, or by spur-wheels, secured on said arms, according as bevel or spur-gears were used, in a manner easily understood by any mechanic; but I prefer the pulleys and belts to the gearing, as there is much less expense and weight in the machine, and less liability to accident, in case the rubbing-block meets with any obstruction.

Having thus fully described my invention, I do not claim therein as new the combining of three or more pulleys, by arms journaled on the shafts of said pulleys, for the purpose of obtaining an independent movement of the end pulley, nor do I claim the use of a long driving-drum, in combination with a sliding driving-pulley, except in the combination of mechanism here shown, nor do I claim the use of a crank and connecting-rod, in combination with a rubbing and polishing-block, as these features have been before shown; but

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

1. The combination of two or more pulleys or gear-wheels K P T, provided with a crank, V, on the shaft of the last pulley T, connecting-rod Z, and slide-block *i*, with rubbing-block *p* attached, the several parts being constructed, arranged, and operating substantially as and for the purpose specified.

2. The combination of the rubbing-block *p*, provided with the bolt-plate *m*, threaded bolt *k*, with head *n* and the adjusting-nut *l*, the several parts being arranged substantially as and for the purpose specified.

As evidence that I claim the foregoing, I have hereunto set my hand, in the presence of two witnesses, this 5th day of October, A. D. 1869.

WM. F. SPEAR.

Witnesses:

J. H. CARR,

S. R. BONENITZ.