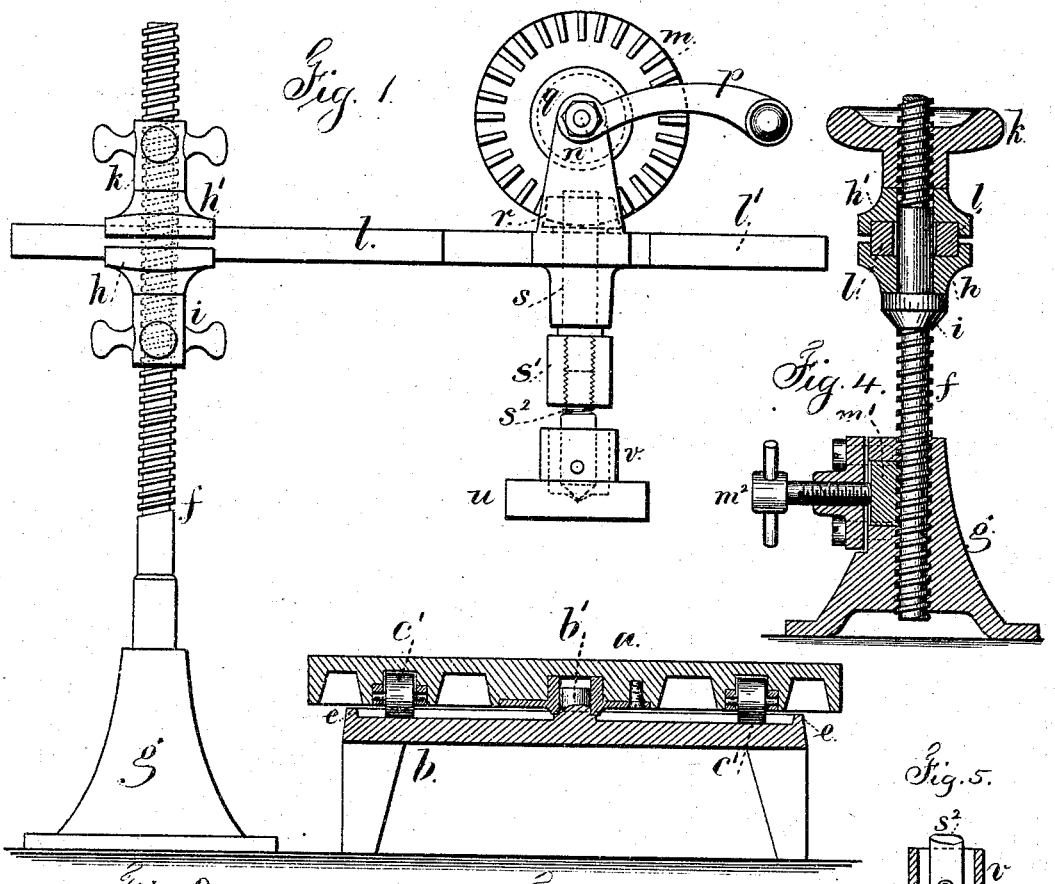
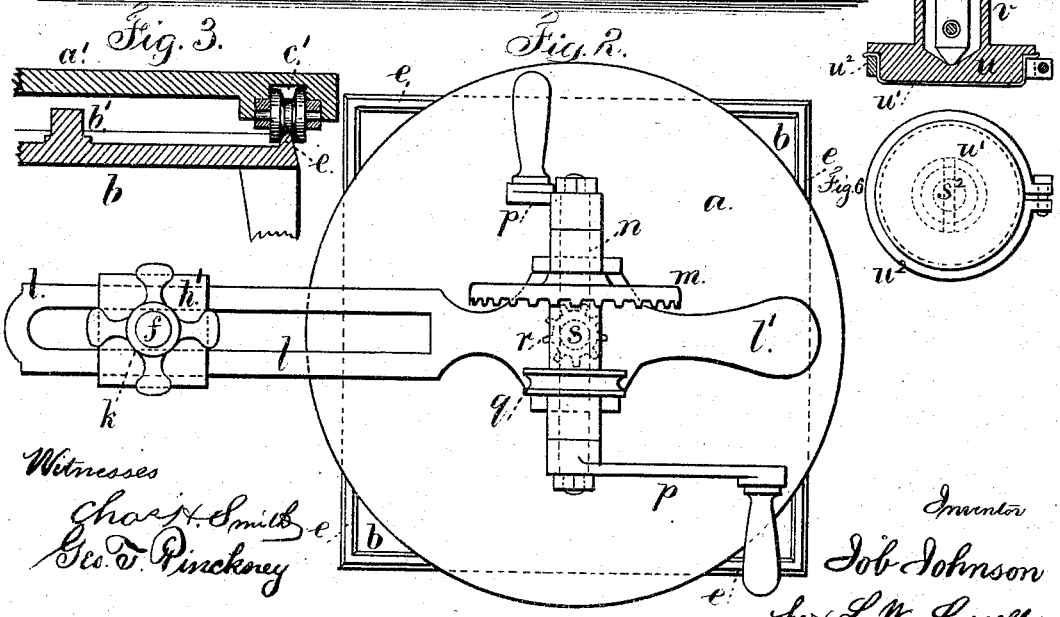
J. JOHNSON.

POLISHING-MACHINE.

No. 182,830. Patented Oct. 3, 1876.





Witnesses

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UNITED STATES PATENT OFFICE.

JOB JOHNSON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN POLISHING-MACHINES.

Specification forming part of Letters Patent No. **182,830**, dated October 3, 1876; application filed June 9, 1876.

To all whom it may concern:

Be it known that I, JOB JOHNSON, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Surfacing and Polishing Machinery, of which the following is a specification:

My invention relates to a means for surfacing wood, marble, or other materials, or drilling the same. In connection with this device I employ a bed that supports the material that is being bored or polished.

I make use of a vertical screw-standard, upon which are supporting-jaws that are variable in height, and are adapted to receive a slotted arm that carries at its outer end a vertical spindle or shaft, which is revolved by a cross-shaft and bevel-gearing. The vertical spindle receives and revolves the surfacing instrument or the drill. A handle is provided by which the attendant moves the arm by swinging it upon the vertical column, or sliding it back and forth through the jaws in order to surface off the article operated upon to a true plane level surface, or to position the drill correctly upon the article to be bored.

In the drawing, Figure 1 is an elevation of the machine with the bed in section. Fig. 2 is a plan of the machine. Figs. 3 and 4 are sectional views of modifications of parts of the machine. Fig. 5 is a vertical section, and Fig. 6 is an inverted plan, of the polishing-tool.

The article to be drilled or surfaced is placed upon a truck, *a*, that is supported upon a base, *b*. This truck is either circular or rectangular. If circular, it is held in place by the central stud *b'*, and there are rollers *c'* upon the under side of the truck *a*, that rest upon the flat surface of the base *b*, so that the truck *a* can be revolved, as required, for presenting the article to be operated upon.

If the square bed *a'*, Fig. 3, is made use of, its rollers *c'* will rest upon the rails or longitudinal ribs *e*, that run at the edges of the base *b;* hence, either a rotary or a reciprocating bed can be made use of upon the same base in sustaining the article to be operated upon, according to the character of the article and the work to be done.

The vertical standard *f* is fixed in a rigid foot or base, *g*, by screws or bolts, and is made with a screw-thread upon its upper portion, and the supporting-jaws *h h'* are made with openings fitting upon the screw-standard. There is either a nut or a collar, *i*, below the jaws *h h'*, and a nut, *k*, above said jaws.

If both *i* and *k* are nuts, then the jaws *h h'* can be raised or lowered as occasion requires. If there is a collar, *i*, as in Fig. 4, then the standard *f* will be raised or lowered by screwing it up or down in the foot *g*, which construction may be employed; but I prefer the device shown.

I provide the slotted arm *l*, the side bars of which pass through the jaws *h h'* at each side of the standard *f*, and the mortises in such jaws *h h'* are adapted to such bars, so that the arm *l* may be slipped endwise in the jaws, or turned with the jaws between the nut *k* and the nut or collar *i*, or be clamped firmly by tightening the nut *k*, and at the outer end of this arm *l* is a handle, *l'*, by means of which it may be moved. A frame upon the outer end of the arm *l* carries the cross-shaft *n* and bevel-gear *m*, which are revolved by the crank-arms *p*, or by a belt to a pulley, *q*, and the wheel *m* gives motion to the bevel-pinion *r* upon the vertical shaft or spindle *s*, that passes through and extends below the said arm *l*. Upon the spindle *s* the drill stock or chuck s^1 is screwed to receive drills or surfacing-tools. I have shown a surfacing-tool, *u*, which is secured to the stock s^1 by a universal joint formed by a stud, s^2, formed with or screwed into the socket s^1, and passing loosely into the socket *v* in the top of the tool *u*, and the pointed end of s^2 presses against the bottom of the socket *v*, and there is a cross-pin passing loosely through a mortise, so that the surfacing-tool can be rotated; but the face of the same will remain level, and be free to conform itself to the surface upon which it rests, to grind or polish said surface.

If the grinding or polishing tool *u* is to be used on wood, it may be of cast-iron or emery, or other suitable material with a roughened surface, so as to grind away, by its rapid revolution, the inequalities in the surface of the article; and this may be done either dry or in the presence of water.

Sand-paper may be confined to the surfacing-tool *u*, as at u^1, Figs. 5 and 6, by a spring

or clamping-ring, w^2, around its periphery; or leather or other material may be similarly confined and receive the polishing-powder or other material with which the machine is used in grinding or polishing marble, wood, or other substances.

The lateral and longitudinal movement of which the arm l is capable allows the surfacing-tool to be moved over all parts of the surface to be operated upon.

In Fig. 4 is shown a vertical section of the standard as fitted to screw up and down in the foot g. When used in this manner, it is generally preferable to clamp the standard to the base g after it is adjusted to the proper height. I provide for this purpose the clamp m^1, which is a segment of a screw coinciding with the threads on the standard f. This clamp m^1 is in a vertical slot in the foot g, and is pressed against the standard f by a screw-pin, m^2, to clamp the standard, as aforesaid. When the screw-pin m^2 is retracted, there is sufficient looseness of the clamp m^1 to allow the standard f to be raised and lowered. By this device the threads upon the standard f are not injured by the clamp.

I claim as my invention—

1. The vertical screw-standard f, nuts or collars i k, and jaws h h', in combination with the slotted arm l, shaft n, bevel-gears m and r, and spindle s, substantially as set forth.

2. The base b, with the central stud b' and longitudinal ribs e, adapted to receive either the circular bed a or the rectangular bed a', and rollers c', substantially as set forth.

3. The surfacing-tool u, with a socket, v, in combination with the pointed stud s^2, fitting loosely in the socket v, and the cross-pin passing through a mortise in the stock, substantially as set forth.

4. The slotted arm b and clamping-jaws through which such arm can be slid, and upon which it can be swung, in combination with the surfacing or boring tool and bevel-gearing for revolving the same, as set forth.

5. The surfacing-tool u, socket v, and pointed stock s^2 and cross-pin, in combination with the ring w^2, for retaining the surfacing material, as set forth.

6. The clamping device, consisting of the segment of a screw, m^1, combined with the foot g, standard f, and screw-pin m^2, substantially as set forth.

Signed by me this 2d day of June, A. D. 1876.

JOB JOHNSON.

Witnesses:
GEO. T. PINCKNEY,
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