

# A. Broughton, Polishing Stone.

No. 11,886.

Patented Nov. 7, 1854.

Fig. 1.

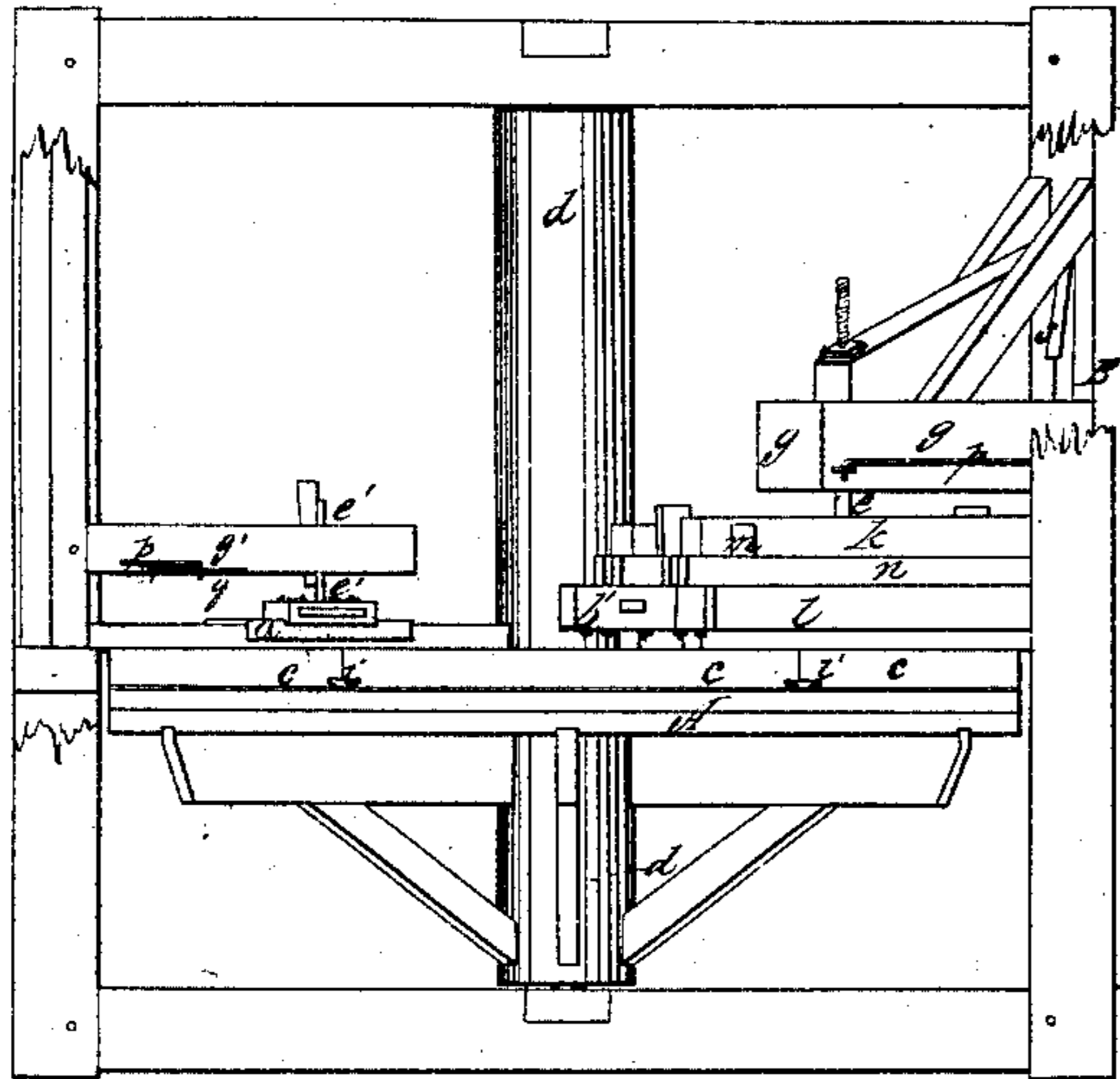


Fig. 4.

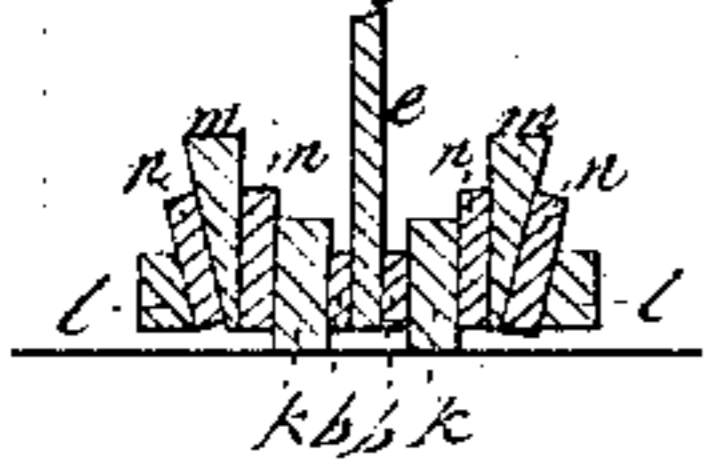


Fig. 3.

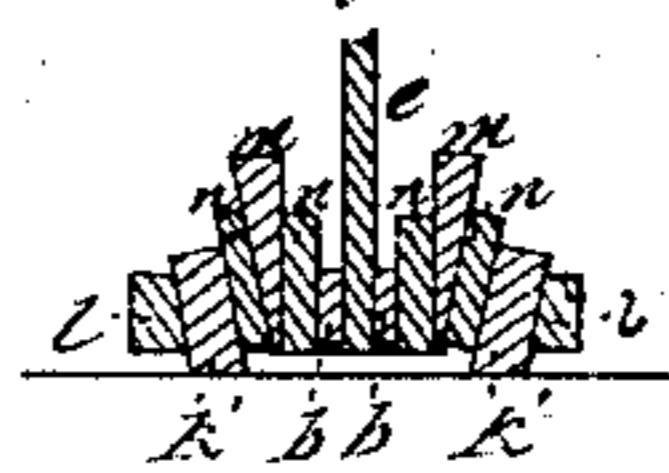


Fig. 7.

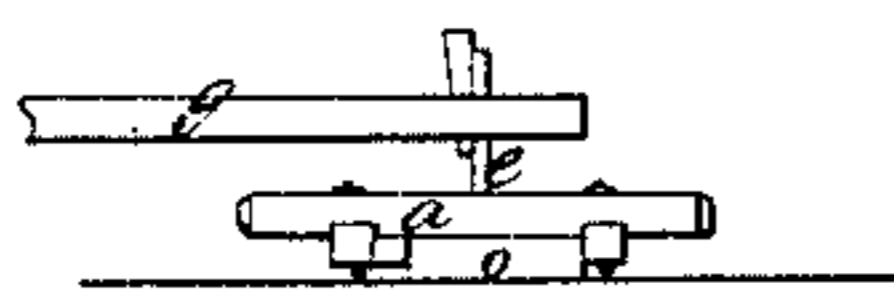


Fig. 6.

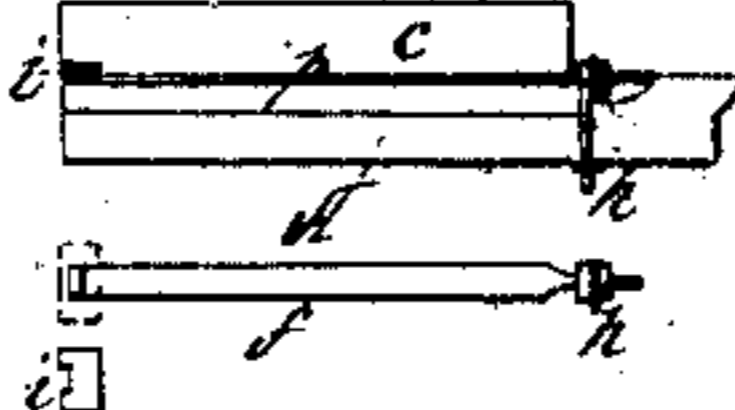
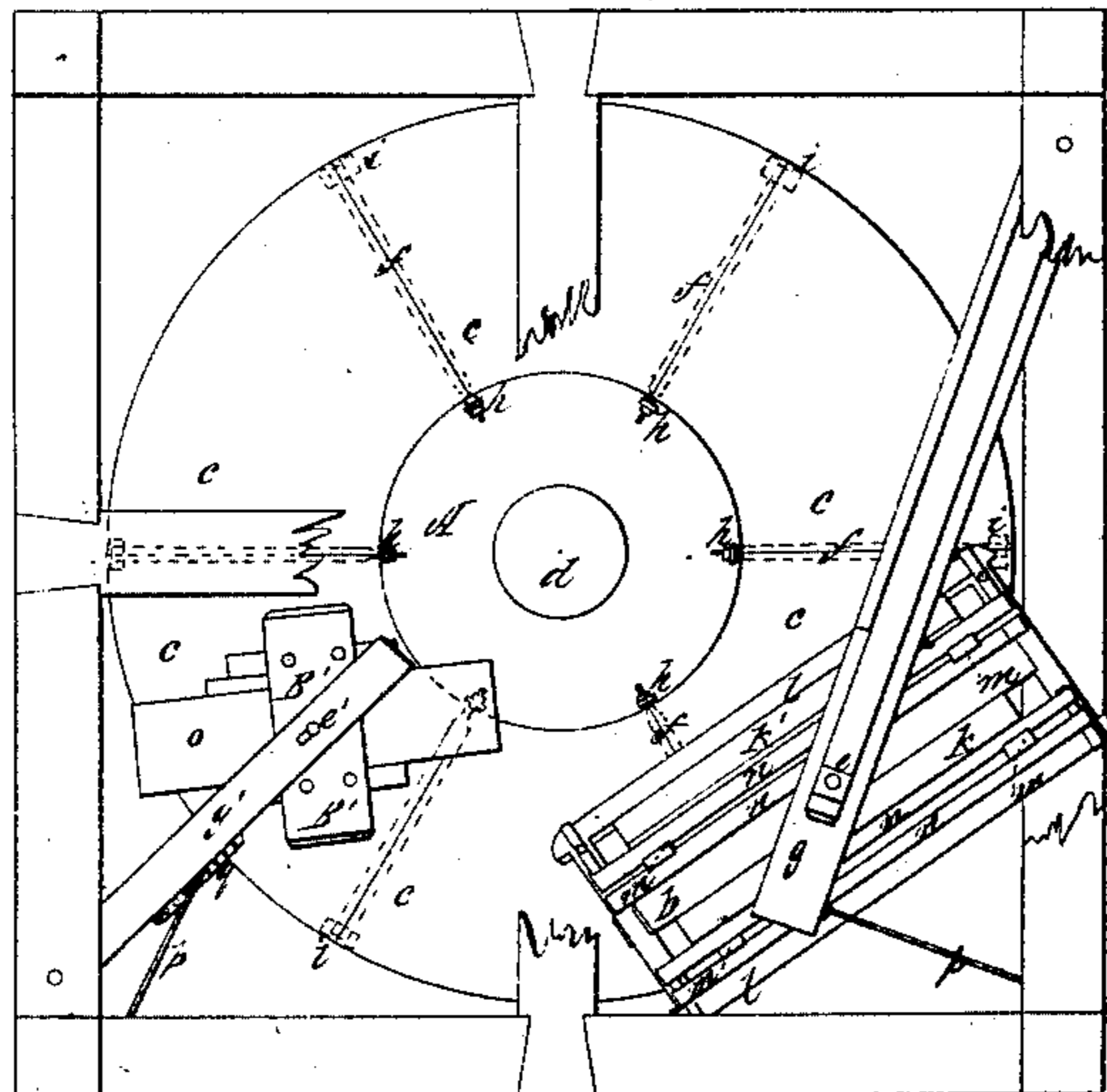


Fig. 5.



Fig. 2.



Witnesses:  
Albert Hobbs  
Thomson Packer

Inventor:  
Albert Broughton.

# UNITED STATES PATENT OFFICE.

ALBERT BROUGHTON, OF MALONE, NEW YORK.

## MACHINERY FOR POLISHING STONE.

Specification forming part of Letters Patent No. 11,886, dated November 7, 1854; Antedated October 24, 1854; Reissued October 24, 1854, No. 350.

*To all whom it may concern:*

Be it known that I, ALBERT BROUGHTON, of Malone, in the county of Franklin and State of New York, have invented a new and Improved Method of Polishing the Surfaces of Stones; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, Figure 1 being an elevation of my improved polishing machine; Fig. 2 a plan, with some of the parts removed; and Figs. 3, 4, 5, 6, and 7 are views showing various parts of the machine in detail.

Similar letters indicate like parts in all the figures.

The nature of my invention consists in polishing the surfaces of stones by means of a horizontal rotating plane of stone, or other suitable material, combined with apparatus for holding the stones, while their surfaces are being polished, arranged in such a manner that the polishing friction exerted by the rotating plane upon the surfaces of the pieces of stones, will cause them to rotate upon the axes of the frames that receives them, substantially as hereinafter set forth.

The polishing plane employed by me, I usually construct of stone segments *c, c*, placed upon and properly secured to a wooden wheel A, which is immovably secured in a horizontal position to a vertical shaft *d*, that is supported in suitable bearings, and driven by any power that may be thought most expedient.

Fig. 6 represents the manner of bedding, adjusting and securing the stone segments *c, c*, to each other and to the wheel A; viz: the segments rest upon tension bars *f, f*, which are placed under their angles; the outer ends of said bars, are turned up against the outer surfaces of the segments, or against plates *i, i*, which are let into recesses in the segments; the inner extremities of the said bars have screws formed upon them which pass through staples *h, h*, whose shanks are let into the wheel A. Nuts placed upon the screws at the ends of said tension bars, bear against the inner sides of the staples *h, h*, as they are turned, and consequently draw the tension bars inward, and thereby so act upon the segments as to closely and securely unite them to each other and to the wheel A; and in such manner that they can be ad-

justed to a true annular position whose center is the axis of motion; and also in such manner that any one of the said segments can readily be withdrawn and replaced by another.

The frames for holding the pieces of stone during the polishing process, may be of such a shape as to best adapt them to the reception of the description of the pieces to be operated upon. Each of said frames has a spindle *e*, passing through its center, which descends from a crane *g*, or other equivalent device, arranged in such a position that the polishing friction exerted upon the stone or stones, placed in said frame, will impart a rotary motion to the frame and the stone or stones placed therein. A frame *b, b', l, l*, for securing flat stones in proper positions for polishing their edges, either beveling or at right angles to their sides, is shown in Figs. 1, 2, 3, and 4. Fig. 3 shows the arrangement of the parts *m, n, n*, of said frame for securing a couple of flat stones *k', k'*, in a position for polishing their oblique edges; and Fig. 4 represents the respective parts of said frame in a position for polishing the right angular edges of the stones *k, k*. Fig. 5 is an end view of the said frame *b, b', l, l*, representing the stone *k'*, in a position for polishing its oblique edge, and the stone *k*, in a position for polishing its right angular edge; but I find that when thus arranged, the action is not so perfect as when the stones are arranged in the manner represented by Figs. 3 and 4. For the reason that the surfaces to be polished should be distributed as near as possible, equidistant from the axis of the receiving frame, for the purpose of causing the polishing friction to impart a rotary motion to said frame. The spindle *e*, which passes through the afore-said frame *b, b', l, l*, descends from the crane *g*, which projects from the pivoted post B, and is properly secured by braces. The said frame is retained in a proper position upon the polishing plane, by means of the brace *p*. The spindle *e*, may be secured to the stone holding frame, in such a manner that the frame and its contents can be swung on to, or off from the polisher, by means of the crane *g*; or a separate crane may be employed for that purpose, and the crane *g*, and spindle *e*, be employed merely for pivoting the said frame during the process of polish-

ing. In Figs. 1 and 2, B', represents a flat stone in a position for polishing one of its sides, together with the spindle *e'*, crane *g'*, and brace *p'*, for retaining said stone in the proper position.

In my practical experiments in the polishing of stones, I have found that when either the stones operated upon, or the polishing surface employed, are allowed to remain stationary, or nearly so, that it is impossible to produce a smooth surface. For the reason that the cutting sand used in said process, will gather into ridges, and, when a rotary motion is employed for producing the polishing friction, creases will be formed in the surfaces of the stones very similar in appearance to those produced by the action of a wide set circular saw in soft wood. But, by employing a rotating polishing plane, and placing the stones to be polished in pivoted frames, so arranged that the polishing friction will cause the stones operated upon to rotate around the axes of their receiving

frames, a perfectly smooth and straight surface is invariably produced.

It is presumed that this method of polishing, may be employed in the polishing of metals and other substances, as well as of stone.

I am aware that a planetary motion has been given to a polisher, and also that distinct rotary motions have been given to the polishing and the polished surfaces, by separate and distant mechanical means, but

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

Causing the stones polished to be rotated around their own axes, or the axes of their receiving frames, by the polishing friction produced by the rotating polishing surface upon said stones, substantially as herein set forth.

ALBERT BROUGHTON.

Witnesses:

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