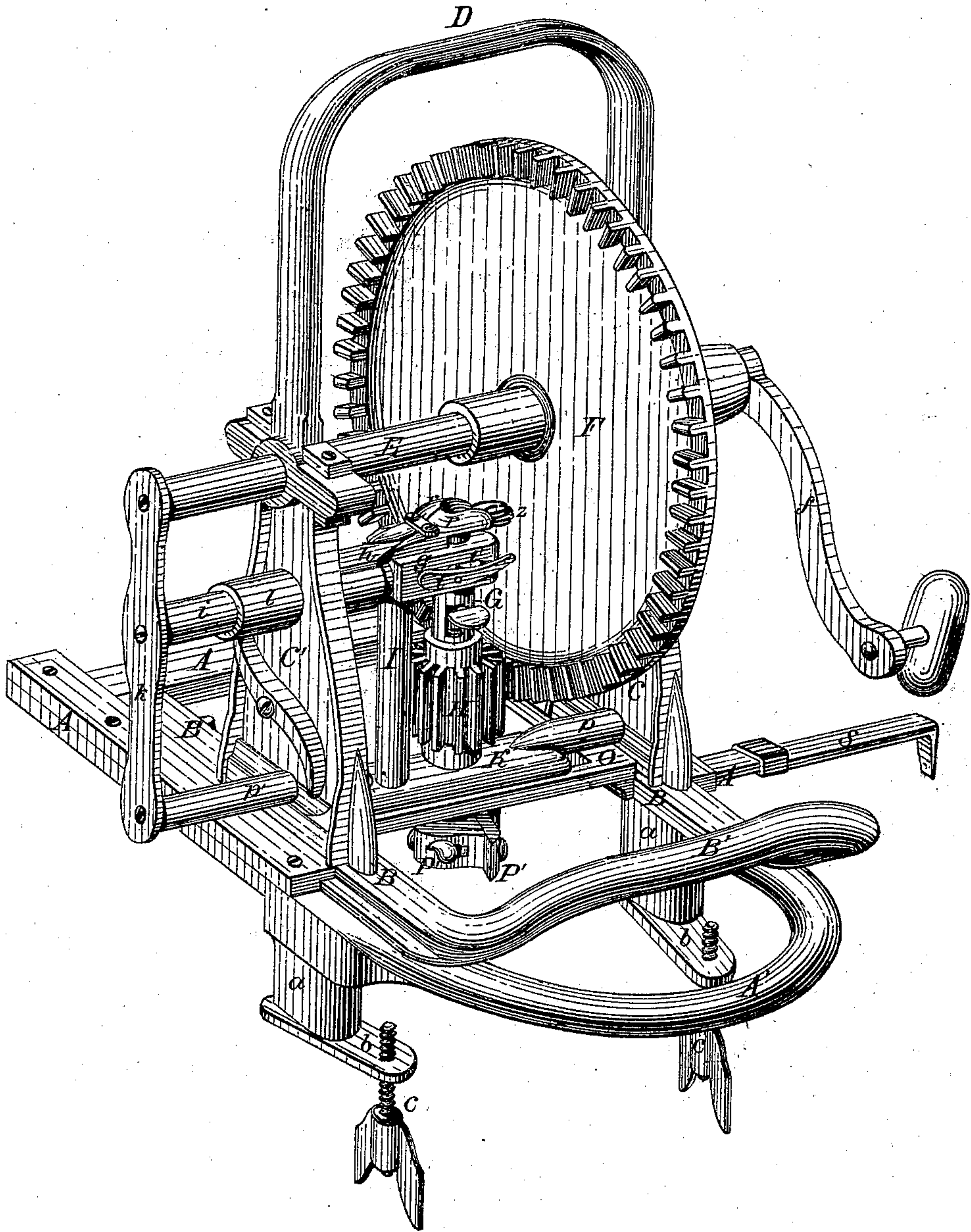


J. J. BERGER.  
MORTISING-MACHINE.

No. 171,261.

Patented Dec. 21, 1875.

Fig. 1.



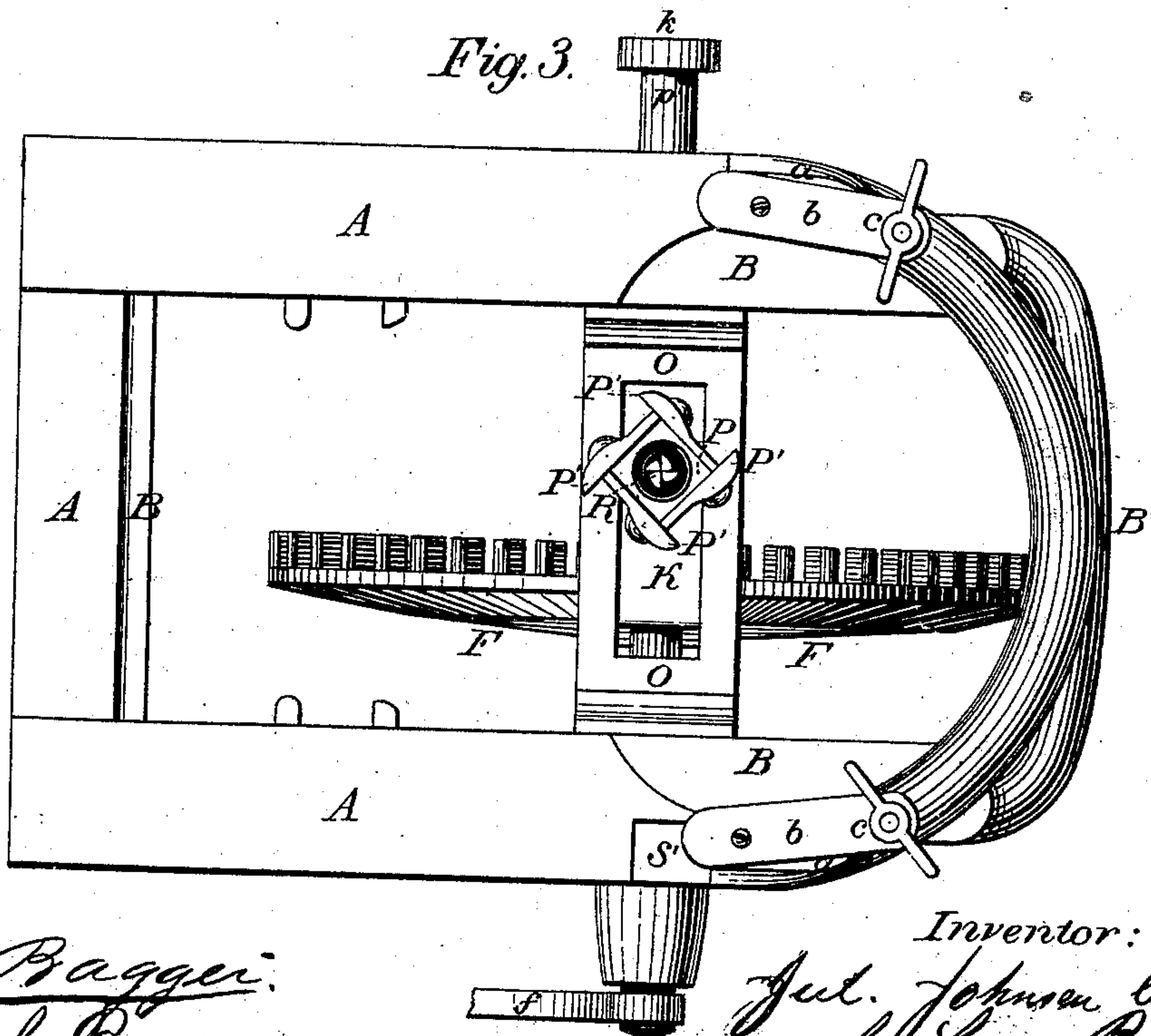
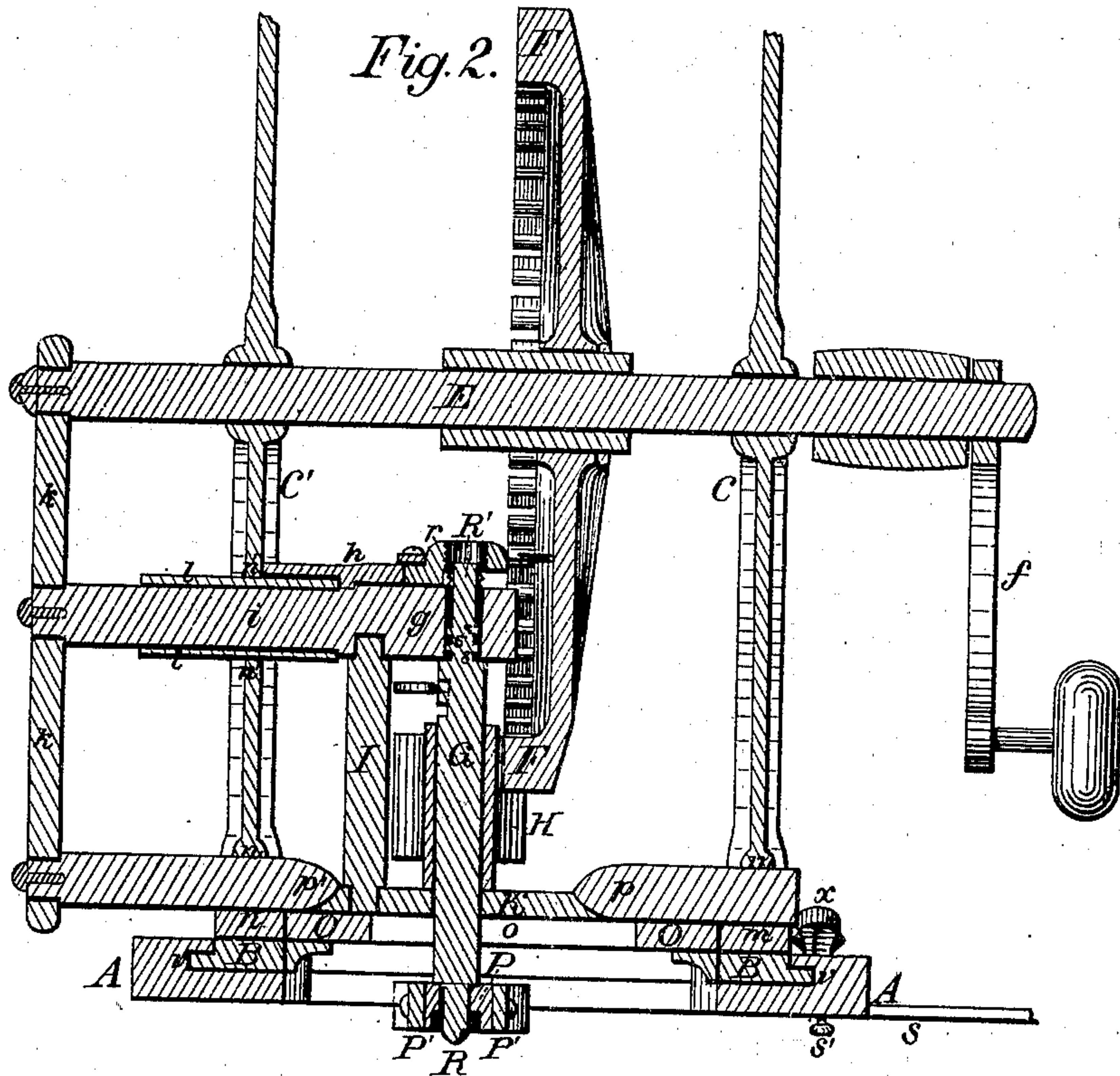
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# UNITED STATES PATENT OFFICE.

JUL. JOHNSEN BERGER, OF CANNON VALLEY, MINNESOTA.

## IMPROVEMENT IN MORTISING-MACHINES.

Specification forming part of Letters Patent No. **171,261**, dated December 21, 1875; application filed June 19, 1875.

*To all whom it may concern:*

Be it known that I, JUL. JOHNSEN BERGER, of Cannon Valley, in the county of Goodhue and State of Minnesota, have invented certain new and useful Improvements in Mortising-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a perspective view. Fig. 2 is a transverse vertical section, and Fig. 3 represents the under side of my improved mortising-machine.

Similar letters of reference indicate corresponding parts in all the figures.

This machine is mainly intended for making the gains for hinges in doors, folding tables, &c.; but it may also be used for making the recesses for the insertion of locks in bureau-drawers, &c., or for any other purpose to which it may be found applicable. It consists in the construction, arrangement, and combination of parts, substantially as hereinafter set forth, and pointed out in the claims.

In the drawing, A is a square frame, made of iron or other metal, which has two downward projections, *a a*. To these are pivoted the two swinging brackets *b b*, having screw-holes for the insertion of set-screws *c c*, by which the machine is secured to the board in which the gains are to be made. Into the guides *v* of frame A is inserted another metallic sliding frame, B. This has two upright standards, C C', united by the curved cross-piece D. The uprights C C' form bearings for the horizontal sliding shaft E, having the cog-wheel F and crank *f*, by which motion is imparted to the machine. In the slot *o* of the horizontal cross-piece O, secured to frame B between the upright C C', slides a plate, K, having the projecting guides *p p'*, that slide in the perforations *m* and *n* in the uprights C and C'. Plate K is united by a standard, I, with the shaft *i*, that slides in the tube *l*, inserted into a perforation, *n'*, in the upright C'. The shaft *i* has a head, *g*, that forms one of the bearings for the vertical tubular shaft G,

which has its other bearing in the plate K. Shaft G has a pinion, H, that engages with the cog-wheel F on the horizontal sliding shaft E. The shaft G terminates under the cross-piece O in a square head, P, to which are adjusted, by set-screws or otherwise, four slotted steel cutters, P' P' P' P'. These may be adjusted so as to cut a large or smaller mortise or gain, as required. A steel bit or drill, R, is inserted into the tubular shaft G, as shown. It is so shaped that it, when required, can cut sidewise, as well as the cutters P' on the cutter-head P of shaft G. It has a screw-thread, R', that engages with a corresponding interior screw-thread in the clamps *r r* (which are pivoted to the head *g* of horizontal shaft *i*) whenever these are pressed together by the wedge-shaped projection *h*, secured upon the guiding-tube *l*. The sliding shafts or rods E, *i*, and *p'* are securely united by the vertical handle *k*, by which the entire machinery may be moved sidewise, while it may be moved lengthwise by the handle B' of the frame B.

The mode of working and operating my improved mortising-machine is as follows: The board which is to be mortised first being secured to the bench-vise, the machine is adjusted thereto by means of the set-screws *c*. A marker or gage, S, adjusted to the machine at S', assists in marking out the proper position of the machine. The vertical shaft G, which has two circumferential slots, *s s'*, is then lowered until the spring-catch *t*, which is pivoted on the outside of the head *g* of the shaft *i*, catches into the upper of these, *s*. This brings the cutters P' on a cutting-level with the board. The machine (which may be worked either by hand, by turning the crank *f*, or by any other suitable means) is then started, and the frame B, with the entire machinery, is pushed forward upon the guiding-frame A, the cutters P' cutting their way into the board, making a gain, the length of which may be regulated by a spring-catch, *x*, pivoted to frame A, catching into holes provided for the purpose in frame B. The mortise or gain thus cut may be widened sidewise by pulling the shafts or rods E, *i*, and *p'*, and the gearing attached thereto, simultaneously to the left by means of the handle *k*. A double catch, *y*, pivoted to the side of upright C', and catch-



ing into holes provided for the purpose in the rods or shafts *i* and *p'*, serves to regulate the width of the cut. When the handle *h*, with the gearing attached thereto, is pulled to the left as far as it will go, the wedge *h* will force apart the pivoted clamps *r r*, mentioned above, which are held together by the action of a spring, *z*. The opposite ends of the clamps *r* will thus be forced together, forming a nut for the screw-thread upon the bit *R*, which will now, when the crank is turned and the machine operated, be bored down into the wood, so as to make another deeper gain in the one already made by the cutters *P'*; or it may be used to cut, in the edge of the board, a recess to accommodate the joint of the hinge which is to be inserted. A catch, *t*, sliding in a slot, *t'*, provided with two or more offsets, *t''*, in the vertical tubular shaft *G*, regulates the depth at which the bit *R* is to cut.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of the cog-wheel *F*, pinion *H*, vertical tubular shaft *G*, bit *R*, having the screw-thread *R'*, and cutter-head *P*, having the cutters *P' P' P' P'*, substantially as and for the purpose hereinbefore set forth.

2. The combination of the bit *R*, having a screw-thread, *R'*, with the clamps *r r* and wedge *h*, substantially as and for the purpose hereinbefore set forth.

3. The combination of the slotted cross-piece *O* with the sliding plate *K*, united by the standard *I* with the sliding shaft *i*, to the head of which, *g*, is pivoted the clamps *r r*, substantially as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JUL. JOHNSEN BERGER.

Witnesses:

A. G. KINGSTON,  
E. M. HITCHCOCK.