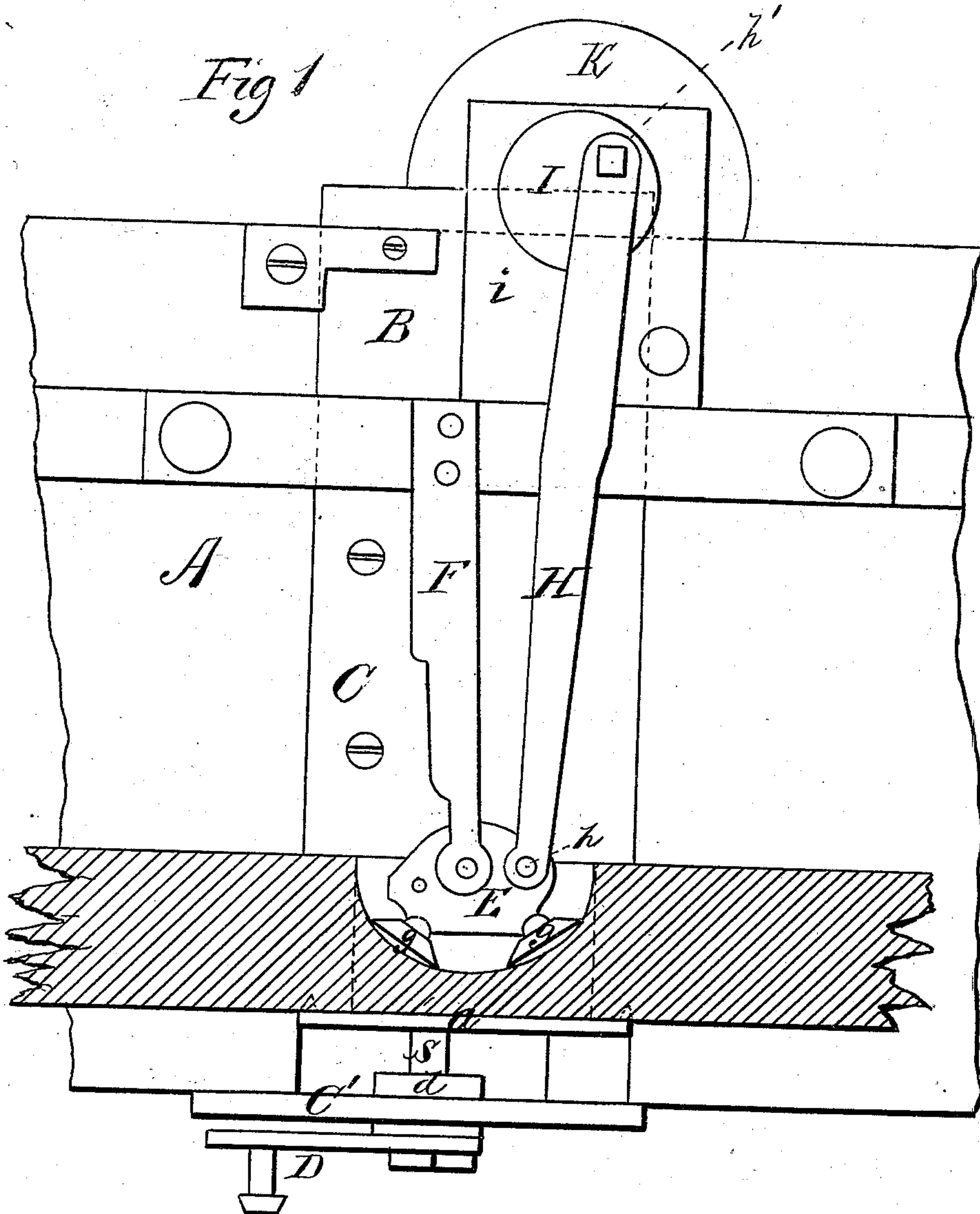


J. DOYLE.
RECTANGULAR MORTISE-CUTTER.
No. 171,109. Patented Dec. 14, 1875.



WITNESSES
E. H. Bates
A. J. Clasi

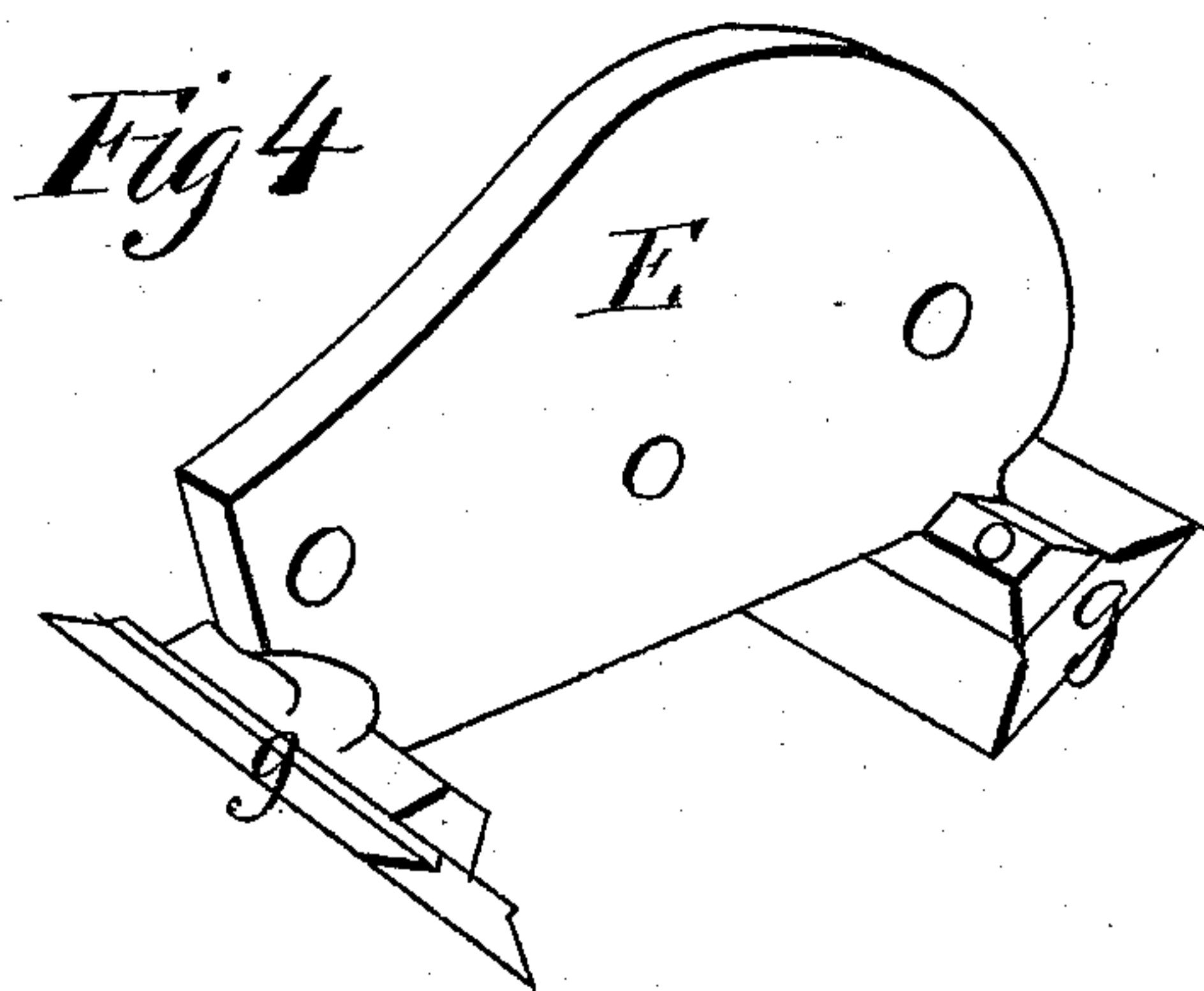
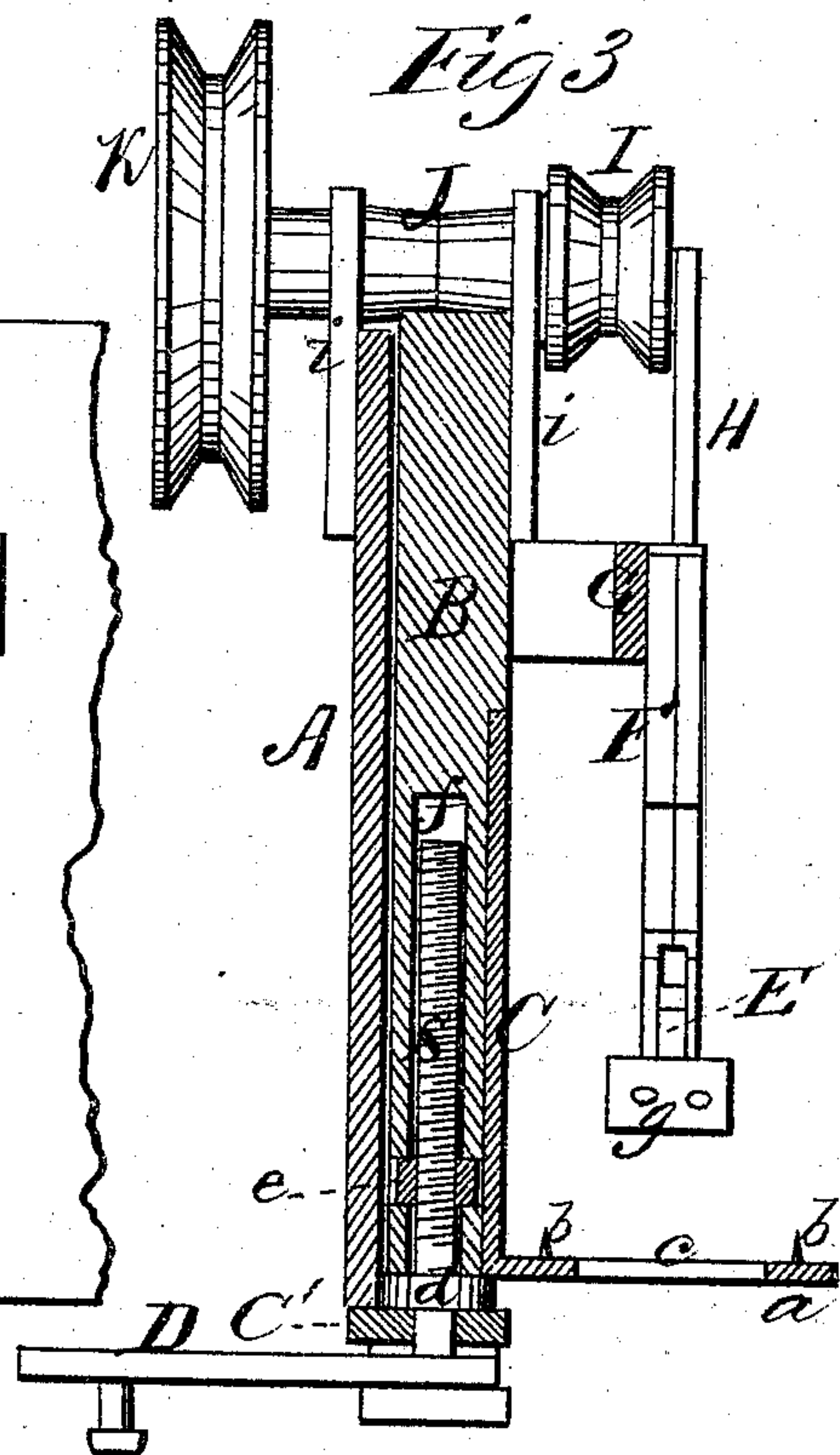
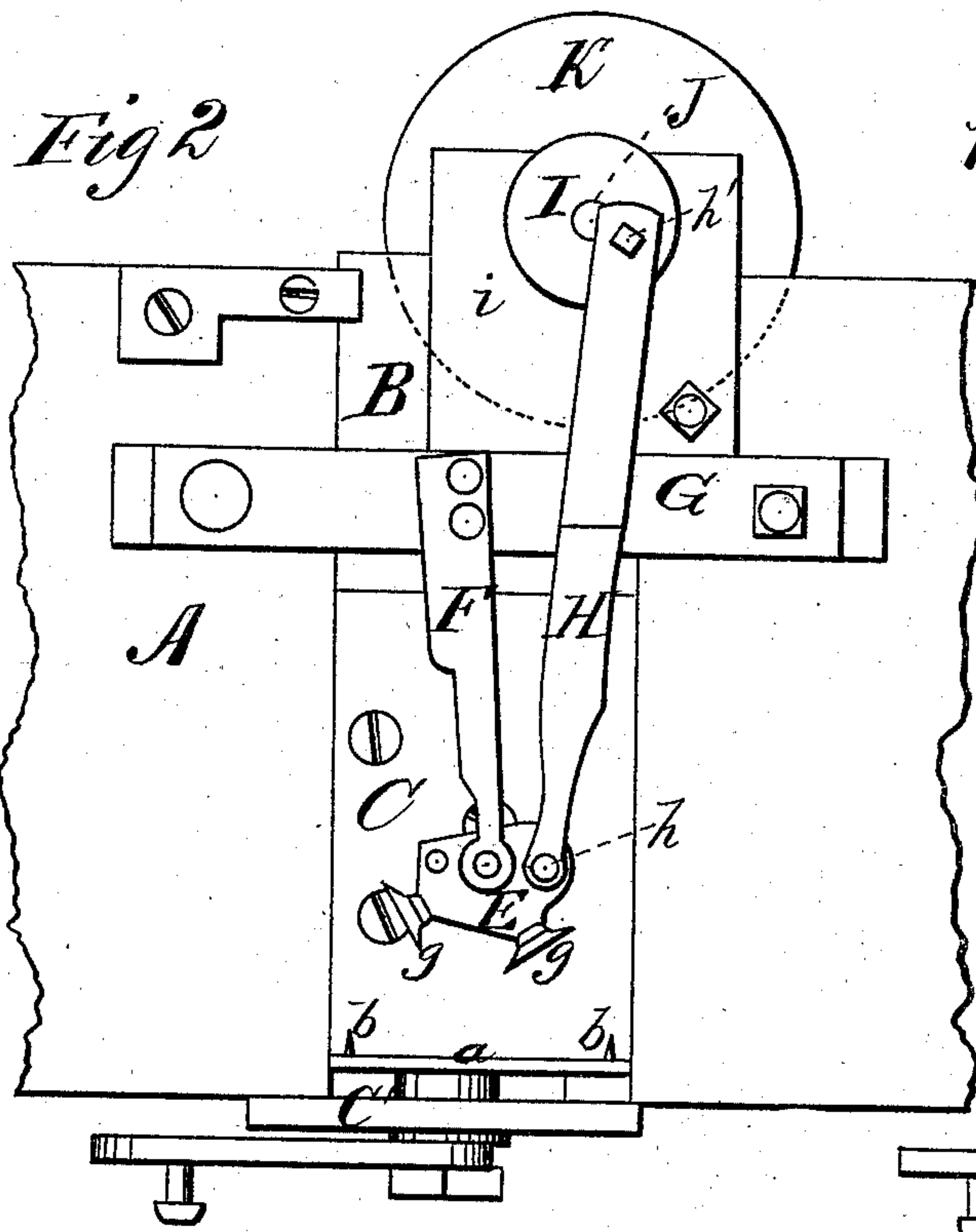
INVENTOR
John. Doyle
Chipman Fossum & Co.
ATTORNEYS

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INVENTOR

John Doyle
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UNITED STATES PATENT OFFICE.

JOHN DOYLE, OF HOBOKEN, NEW JERSEY.

IMPROVEMENT IN RECTANGULAR-MORTISE CUTTERS.

Specification forming part of Letters Patent No. **171,109**, dated December 14, 1875; application filed August 7, 1875.

To all whom it may concern:

Be it known that I, JOHN DOYLE, of Hoboken, in the county of Hudson and State of New Jersey, have invented a new and valuable Improvement in Rectangular-Mortise Cutters; and I 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.

Figures 1 and 2 of the drawings are representations of front views of my rectangular-mortise-cutting machine, and Fig. 3 is a transverse vertical sectional view thereof. Fig. 4 is a perspective view of the oscillating plate and cutters.

This invention has relation to improvements in boring devices.

The object of the invention is mainly to devise a machine which will produce a square or rectangular mortise when properly actuated in a beam, timber, or other like article; and the nature of the invention consists in the arrangement, novel construction, and co-relation of the various devices used and employed, whereby very useful results are obtained, as will be hereinafter more fully explained and claimed.

In the annexed drawings, the letter A designates the body or frame of my improved machine, which is designed to be rigidly secured in a vertical position to a suitable support, and which is provided with an endwise-movable and vertically-adjustable sash-slide, B, to the lower end of which a rectangular bracket, C, is rigidly secured, which bracket is designed to receive and hold against downward displacement the beam or other article to be mortised. The table *a* of this bracket is provided with gripping-points *b*, which serve the purpose of holding the beam against endwise or other displacement, and with a central rectangular opening, *c*, the object of which will hereinafter appear.

Sash-slide B is moved vertically up and down, for the purpose of raising the timber to be mortised up to the cutting-tool, and of lowering it for the purpose of disengaging it from the said cutting-tool when the mortise is made, in the following manner, to wit: A strong metallic

plate, C', is rigidly secured upon the lower edge of frame A, subtending, as it were, the opening in which slide B works. Through this plate is passed a suitable screw, S, which is held against downward displacement, in relation to plate C, by means of a collar, *d*, applied thereon above the said plate, and which is passed through a screw-threaded nut, *e*, arranged in a fixed position in a recess, *f*, of suitable depth in the said slide. When the said screw is operated by means of a suitable crank-arm, D, in a given direction, the effect will be to raise the slide, and with it the table, thus carrying up the timber as it is cut away in making the mortise, and holding it in contact with the cutting-edge of the mortising-tool, a reversal of this movement having the effect of lowering the slide, and with it the table and timber, thus withdrawing the latter from the tool, and disengaging the latter from a completed mortise in the latter. E represents a disk or plate of suitable metal, which is pivoted to oscillate vertically in the lower bifurcated end of an arm, F, rigidly secured to a metallic bar, G, in the nature of a bridge, spanning the space in frame A in which slide B moves. This plate is provided with rectangular-cutting blades *g*, arranged in a position at right angles to its plane, and nearly, if not quite, at right angles to each other, which plate is endowed with a vertically-oscillating movement by means of a connecting-rod, H, pivoted by means of a wrist-pin, *h*, to cutter-blade-bearing plate E, and by means of a wrist-pin, *h'*, to a crank-wheel, I, keyed or otherwise rigidly secured upon the end of a shaft, J, rotating in suitable bearings *i* on frame A. Shaft J is actuated by means of an endless belt through the medium of a belt-pulley, K, operated by a suitable mechanical motor; or it may be rotated by hand through the medium of a crank-arm.

It is evident, if this shaft be rotated, that an oscillatory or rocking motion will be imparted to plate E, thus causing its cutting-blades to cut out a segmental shaving alternately from one end of the mortise and from the other, so long as the timber is held in contact with the cutting-blades; also, that the said blades being rectangular, and their cutting-edges at right angles to their lateral edges, the

sides and ends of the mortise will be vertical to the longitudinal axis of the beam, and at right angles to each other; consequently the mortise will be square or rectangular, according as the cutting-edges of the blades and their lateral edges are of equal length, or the latter are longer than the former.

In practice, plate E will be detachable, so that a variety of cutter-bearing plates may be used in connection with the same mechanism, holding blades suited to cutting every variety of mortise, whatever be its shape or dimensions.

In practice, also, where heavy timbers are to be mortised, I may elect to have the table *a* stationary, and the oscillating cutter-bearing plate adjustable to or from the timber. By this latter contrivance the necessity of raising ponderous beams will be obviated.

What I claim as new, and desire to secure by Letters Patent, is—

1. The oscillating cutter-head E, eccentrically pivoted to the stationary arm F, in combination with the pitman H, eccentrically pivoted at its lower end to the cutter-head, and operated by a crank, substantially as described, and for the purpose set forth.

2. The oscillating cutter-head E, having the rectangular transverse cutter-blades *g* pivoted thereto, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOHN DOYLE.

Witnesses:

GUSTAVUS GEORGE,
WILLIAM H. DEVLIN.