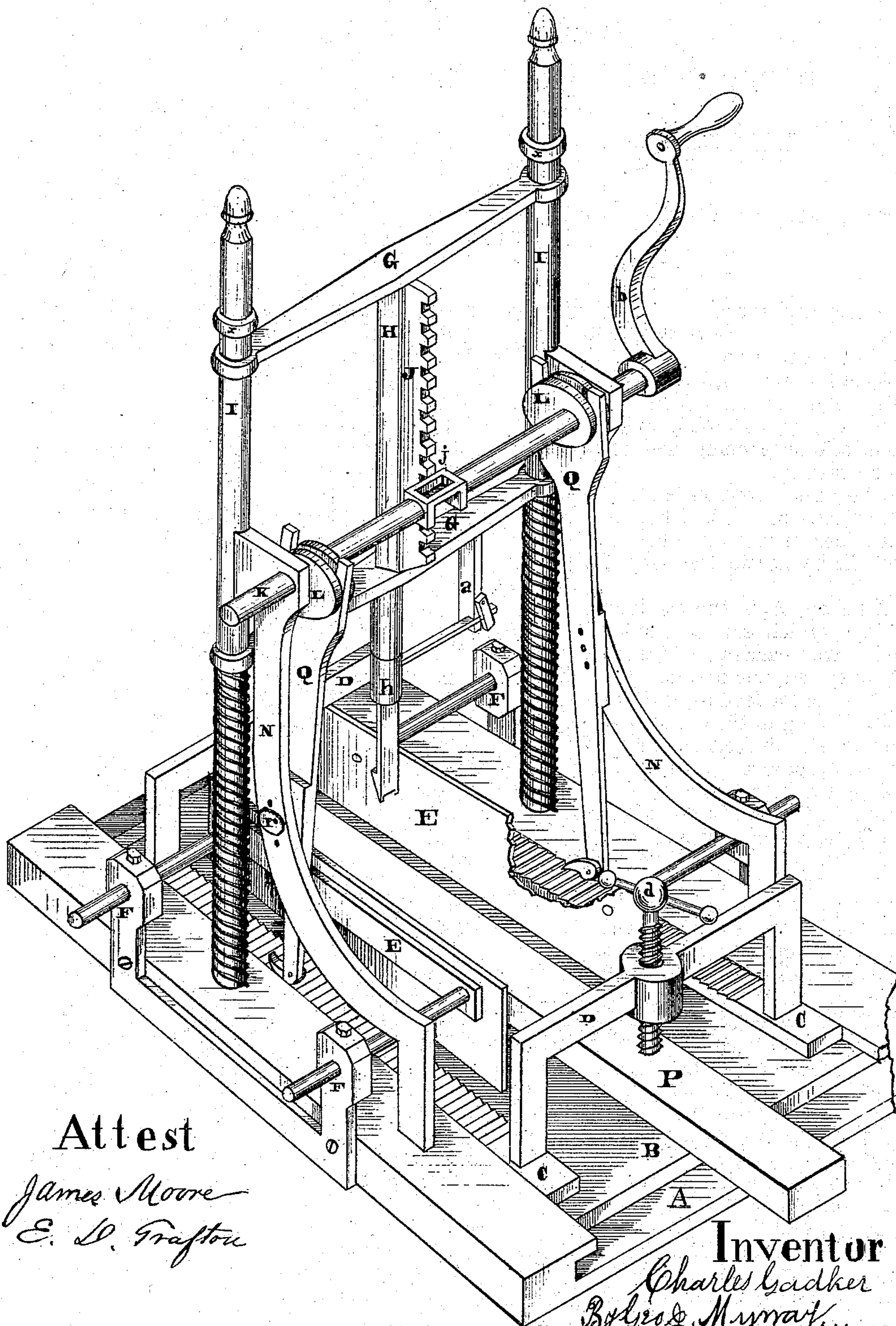


MORTISING-MACHINE.

No. 182,432.

Patented Sept. 19, 1876.



Attest

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UNITED STATES PATENT OFFICE.

CHARLES GADKER, OF COVINGTON, KENTUCKY.

IMPROVEMENT IN MORTISING-MACHINES.

Specification forming part of Letters Patent No. **182,432**, dated September 19, 1876; application filed February 25, 1876.

To all whom it may concern:

Be it known that I, CHARLES GADKER, of Covington, in the county of Kenton and State of Kentucky, have invented a new and useful Improvement in Mortising-Machines, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing.

The object of this invention is a self-feeding machine, that may be used either as a hand or power mortiser for mortising heavy or hard timbers, as will be hereinafter more fully described.

In the drawing, A is the stationary bed; B, the carriage, which carries the timber to be mortised. This carriage slides in grooves in the stationary bed, and carries upon its face two racks, C—one for feeding it forward, and the other for feeding in the opposite direction by means of pawls pivoted to the lower extremity of the lever-arm Q, the teeth of the racks C being set in opposite directions for this purpose. To this carriage is also secured the clamps D, for the purpose of holding the timber P firmly by screw *d* while it is being mortised. I I are upright columns firmly secured in the bed A. These guide the chisel-frame by means of the cross-yokes G, which are slipped over them. *x* are stops slipped on the columns I, above the chisel-frame, to regulate the stroke or adjust the frame to the different thicknesses of material to be mortised. Around these columns, and between the lower yoke G and the bed A, are coiled spiral springs for the purpose of throwing up the chisel-frame after its downward stroke has been completed. N are upright standards, also secured in the bed A. They serve the double purpose of furnishing journal-bearings for the driving-shaft K, and as bracket-supports for the columns I I. The chisel-frame is composed of the yokes G and upright brace H. The front of brace H has rack-teeth J, by which the chisel-frame is carried down through the pinion *j* on the driving-shaft K. This pinion I prefer to form out of the shaft K, as shown, and for all ordinary purposes it answers very well; but if more power be required the number of teeth may be increased, or a larger wheel may be used for giving a greater stroke. A portion of this pinion is

cut away, so that when the downward stroke is completed the rack-teeth will be released and permit the frame to be thrown up preparatory to another stroke. L L are grooved cams upon the shaft K. They are embraced by the forked ends of the rock-levers Q. They set eccentrically in opposite directions, so that one of the arms feeds forward, and the other in the opposite direction. *h* is the chisel-holder. It is pivoted so as to turn half around, and attached to it is the arm by which it is turned and locked in either position by the button on the standard *a*. In the standards N and levers Q are holes for the set-screw *r*, for regulating the feed of the carriage B. When the set-screw is in the lower set of holes the machine feeds the distance of one tooth on rack C; when in the middle holes two, and when in the upper holes the distance of three teeth. Instead of these holes the standard and levers may be slotted and marked to a regularly-graduated scale, so that the machine may be set to feed any distance required at each stroke of the chisel without changing the set-screws from one hole to the other. E E are side guides for regulating the distance the mortises are to be cut from the edge of the piece. They are regulated by set-rods, to which they are attached, said rods being guided in the standards F F, and set in the desired position by a set-screw.

In the drawing the machine has a hand-crank, *b*, on the driving-shaft. This is to be changed for a pulley to be operated by a belt when power is to be used.

The operation is as follows: The piece to be mortised being placed upon the carriage B and secured by the clamps D and screw *d*, the pawl that is desired to feed the carriage being placed in gear, the other thrown out of gear, the machine is started. When the chisel has cut as far in one direction as is desired, it is reversed, and the pawl that has been acting thrown out of gear, the carriage pushed or pulled to the position for the chisel to begin acting in the opposite direction, and the other pawl thrown in gear when the carriage begins to move in the opposite direction. If desired, both pawls may be thrown out of gear and the carriage fed by hand; and this is sometimes necessary, when the full feed is

used, to avoid cutting beyond the line, thus making the mortise too large.

I claim—

1. The combination of the chisel-frame guided vertically between upright columns, a rack and segmental pinion for driving said frame on its downward stroke, and springs acting upon said frame to return it to its elevated position, substantially as described.

2. In combination, the grooved cams, the levers, one end of which embraces said cams, the other end carrying pawls to engage with racks upon the sliding carriage, for the purpose of automatically feeding said carriage in

either direction after each stroke of the chisel, substantially as specified.

3. The combination of the grooved bed A, the carriage B, adapted to be fed automatically or by hand, the chisel-frame supported between columns secured to said bed, the driving-shaft and segmental pinion, and spirally-coiled spring, for operating said frame in the manner described.

CHARLES GADKER.

Witnesses:

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