

H. CARTER.
MORTISING-MACHINE.

No. 191,109.

Patented May 22, 1877.

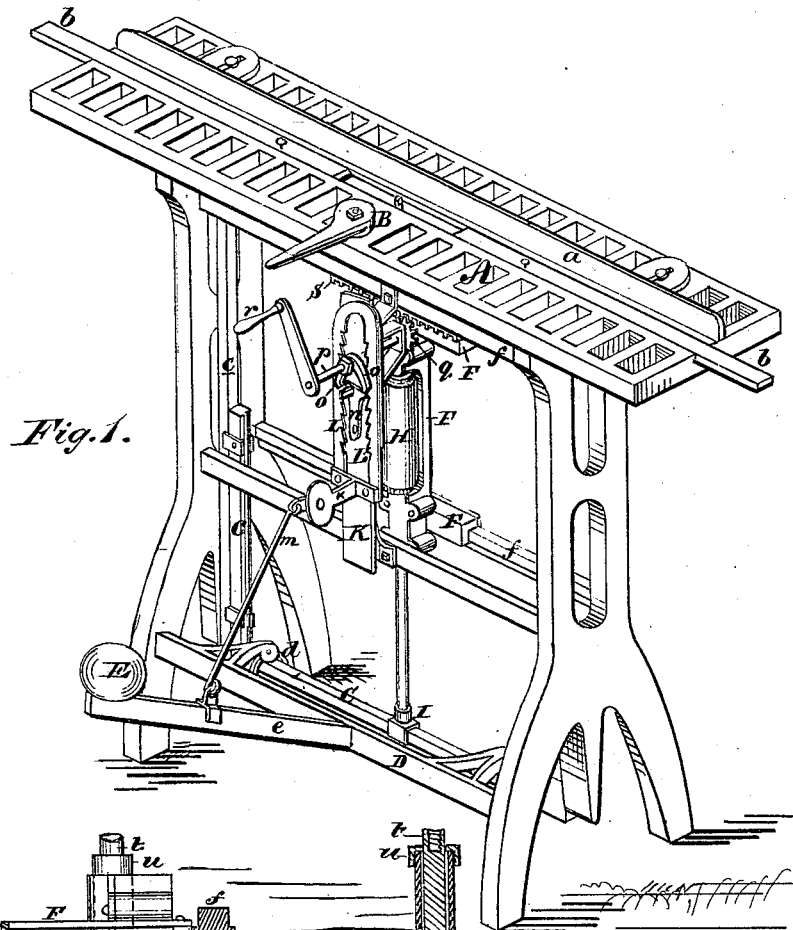


Fig. 1.

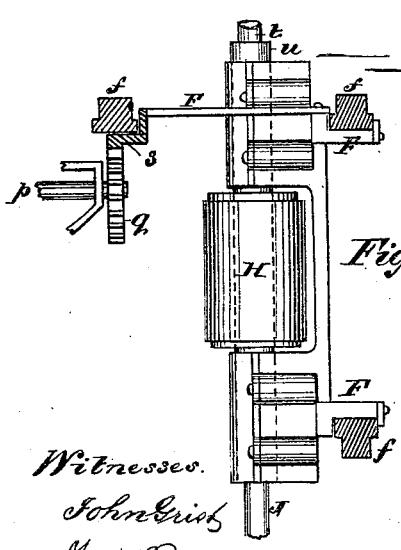


Fig. 2.

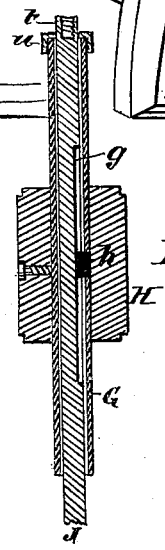


Fig. 3.

Witnesses.
John Grist
G. J. Ross.

Inventor
Henry Carter
By John Grist
Attorney.

UNITED STATES PATENT OFFICE.

HENRY CARTER, OF AYLMEER, ONTARIO, CANADA, ASSIGNOR OF ONE-HALF HIS RIGHT TO DANIEL STEWART, OF SAME PLACE.

IMPROVEMENT IN MORTISING-MACHINES.

Specification forming part of Letters Patent No. **191,109**, dated May 22, 1877; application filed March 24, 1877.

To all whom it may concern:

Be it known that I, HENRY CARTER, of Aylmer, in the county of Elgin, in the Province of Ontario, in the Dominion of Canada, 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 of the same.

This invention has for its object to cut mortises by a vertical bit, rotating to and fro of the length of the mortise to be cut, and boring vertically to a limited extent at each change of lateral cut, the chips falling from the mortise so soon as they are cut; and it consists—

First, in a mortising-machine, of a gate having vertical movement, and a frame having horizontal movement, carrying a rotary bit-holder, whereby the bit in the same is caused to bore vertically to a limited extent, and then, by movement of the frame, to cut horizontally the mortise from end to end laterally, until the depth of the mortise is attained, by a to-and-fro motion.

Second, in a mortising-machine, a gate operated by a pivoted frame having connection with a double ratchet-bar, and a pawl to give it vertical movement step by step, and a revolving bit-holder, to which a horizontal movement is given by a rack and pinion, operated by a rock-shaft having adjustable calipers engaging with the pawl, whereby a vertical movement is given to the gate, alternating with a horizontal movement imparted to the bit-holder for cutting a mortise, first by the penetrating action of the bit, and, secondly, by its lateral cut intermittently to and fro in the mortise to the length and depth required.

Third, in a mortising-machine, a gate connected to a pivoted frame, having a weighted arm connected to a sliding double ratchet-bar on a fixed frame, having a rock-shaft provided with adjustable calipers, engaging with a pawl on said frame, and within the ratchet-bar, whereby, by a rocking motion of the shaft, the gate is elevated step by step.

Fourth, in a mortising-machine, in combination with a gate actuated and operating as set forth, a rotary bit-holder having horizontal motion imparted thereto by a rack-bar on

a frame carrying the bit-holder, and a pinion on a rock-shaft actuating the ratchet and pawl, whereby a to-and-fro motion is given to the bit-holder between each intermittent motion of the gate vertically.

Figure 1 is a perspective view of my mortising-machine. Fig. 2 is a transverse section of the bit-holding frame. Fig. 3 is a longitudinal section of the bit-holder.

A is the table of the machine, on which the material to be mortised is placed between an adjustable guide-bar, *a*, and a cam, B, for clamping the same. *b* are slides on the top of the table, to gage the adjustment of the material to the longitudinal position required. C is the gate retained to slide vertically by strips *c*, secured to the ends of the main frame of the machine. D is a tilting frame, pivoted to the ends of the machine, and connected by stirrups *d* to the lower bar of the gate C. The frame D has a projecting arm, *e*, which carries a counterpoise-weight, E. F is a frame sliding horizontally on upper and lower race-bars *f*, whose ends are secured to the ends of the frame of the machine, and to said frame F is attached a hollow shaft, G, provided with a belt-drum, H, by which the machine is driven by means of a belt. The shaft G incloses the bit-holder J, which is stepped to rotate in a slide-box, I, bearing on the lower rail of the gate C. The shaft G has a projection, *h*, engaging in a longitudinal slot or groove, *g*, in the bit-holder J, whereby it slides vertically by the motion of the gate, and rotates by the motion of the drum H and shaft G.

K is a plate fixed to the main frame of the machine, on which plate slides vertically a double ratchet-bar, L, having connection with the arm *e* of the frame D of the gate C by means of an arm, *k*, secured to the bar, and a connecting-rod, *m*, attached to a slide-box on the arm *e*. *n* is a pawl pivoted to the plate K, to engage with the ratchets of the bar L, and which pawl is vibrated by calipers *o* on a rock-shaft, *p*, when said shaft is rocked by its handle *r*, which rocking has the effect of causing the ratchet-bar to drop step by step, and allow of the depression of the weighted arm *e*, thus lifting the gate C, and elevating

the bit-holder and boring-bit, and causing the latter to penetrate the material to be mortised.

On the rock-shaft *p* is a cog-pinion, *q*, which meshes with a rack-bar, *S*, for operating the frame *F* horizontally to the required length of the mortise, intermittently with the penetrating action of the boring-bit, thus causing the bit to cut laterally, and with a to-and-fro motion in the mortise to the extent of the required depth of mortise.

The calipers are held adjustably on the rock-shaft by a nut and collar, and they are set to any desired extension to operate the pawl, to allow the pinion sufficient rotation to move the frame *F* to the distance corresponding to the length of the mortise to be cut.

By the bit boring upwardly the chips cut fall from the mortise, and hence leaves the mortise clear to the cutting action of the bit, either vertically or horizontally. After each mortise has been cut the ratchet-bar will have fallen to the distance corresponding to the depth of the mortise; it is then slid upwardly by hand before commencing another cut.

The boring-bit screws into the top of the bit-holder, which is provided with a screw-socket, *t*, for such purpose, and the head of the shaft *G* is fitted with a screw-cap, *u*, having a central aperture through which to pass the bit, the object of such screw-cap being to assist in steadying small bits.

I claim as my invention—

1. In a mortising-machine, a gate, *C*, having vertical movement, and a frame, *F*, having horizontal movement, each alternately operating a rotary bit-holder, *J*, whereby the bit is caused to bore vertically and cut horizontally, intermittently with its penetration, as set forth, for cutting a mortise.

2. In combination with a bit-holder in a frame, *F*, moving horizontally, a gate, *C*, connected to a tilting frame, *D*, operated by rod-connection *m*, with a ratchet-bar, *L*, pawl *n*, and a rock-shaft, *p*, provided with adjustable calipers *o*, whereby the gate is dropped step by step intermittently with the horizontal movement of the frame *F*, as set forth.

3. In combination with a gate, *C*, having an intermittent motion vertically, a frame, *F*, carrying a rotary bit-holder, *J*, having reciprocal motion horizontally, operated by a rock-shaft, *p*, pinion *q*, and rack-bar *S*, as set forth, whereby the frame is moved horizontally at each intermittent motion of the gate, as described.

4. In combination with the frame *F*, having horizontal motion, and the gate *C*, having vertical motion, the hollow shaft *G*, provided with belt-drum *H*, and inclosing a bit-holder, *J*, having sliding motion therein, by means of the slot *Q* and projection *h*, as set forth.

HENRY CARTER.

Signed in the presence of—

A. J. ELLIOTT,
JAMES TURNER.