Payne & Pier,

Mortising Machine.

No. 13,759. Patented Nov. 6, 1855.

Witnesses:

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UNITED STATES PATENT OFFICE.

LOOMIS E. PAYNE AND ORRIS PIER, OF STOWE, VERMONT.

MORTISING-MACHINE.

Specification of Letters Patent No. 13,759, dated November 6, 1855.

To all whom it may concern:

Be it known that we, LOOMIS E. PAYNE and ORRIS PIER, of the town of Stowe, county of Lamoille, and State of Vermont, have invented a new and Improved Mortising-Machine; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 is a side elevation. Fig. 2 is a plan; Fig. 3, plan section taken in the plane passing in the line of the bottom of the table *d'*. Fig. 4 is plan of the contrivance for working the shaft.

In order to enable others skilled in the art to make and use our invention we will proceed to describe its construction and operation.

a, *a*, *a*, is the main frame; *b*, *b*, frame or bed for cutter carriage *c* which moves to and fro on the ways *d*; *e*, cutter driver; *f*, the cutter stock; *g*, the cutter; *h*, the reversing pulley; *i*, *i*, *i*, boxes in which the axles of driver *e* and pulley *h* revolve; *j*, *j*, standards and boxes in which the axle of the driving drum *k*, and pulley *l* of two wheels revolve; *m*, the main driving pulley; *n*, *n*, *n*, band passing from drum *k* to reversing pulley *o* (revolving at the tops of the standards *p*) to cutter driver *e*, to reversing pulley *h*, thence to drum *k*; *q*, band passing from conic pulley *l* to another one *r*, its axle having at its extremity a pinion *s*, which works into a large cog wheel *t*; on the other extremity of the shaft or axle of the wheel *t*, a double plated eccentric is placed, with a tightening screw and nut at its center *u*; from this eccentric the pitman *v* passes to the cutter carriage *c*.

w, *w*, are the boxes of the axle of the pulley *r*, and *x* *x* are the boxes of the axle or shaft of the carrying wheel *t* and the eccentric.

The whole of this machinery is fastened and secured to the three longitudinal beams or pieces *a'* *a'* *a'*. Secured to two of the top ties *a''* *a''* of the main frame is the frame and carriage upon which the timber to be mortised is placed. It consists of a frame *y* with four inclined planes, or half wedges *z* *z*. This frame is moved by a screw *a'''* moved by a crank *b'*. Upon this frame rests another *c'* which receives the adjusting table or bench, *d'*, carrying the timber. The end pieces of the frame *c'* are inclined on their under side and rest on the half wedges *z*; so when the frame *y* is moved either way the frame *c'* rises or lowers accordingly, as the motion of the frame *c'* is vertical alone and made so by pieces *e'* *e'* attached to it and descending from it, and having slots into which are passed the screws and nuts *f'* to make the frame firm when adjusted.

The table *d'* is moved forward on the ways *g'* on the frame *c'* by means of a rack *h'* and pinion *i'*, the former attached to the underside of the table, and the latter at the head of a spindle or upright shaft *j'* which revolves in a foot piece *k'* fixed to one of the longitudinal beams *a*, of the main frame. *l'* is a ratchet at the bottom of the shaft *j'*. Just above the ratchet a flat arm *m'* passes from the shaft onto a supporting rod *n'* bent at either extremity and secured in the beams *a''*. On the arm a pin is raised and the rod *o'*—having a slot *o''* in it—receives the pin. On the underside the catch *p'* and its spring *p''* are placed, working into the ratchet. The rod *o'* passes back and is received in a slotted arm *q'* fixed to a shaft *r'* and turned by a pinion *s'* gearing into the cog wheel *t*. About midway of the shaft *j'* a lever or arm *t'* passes out having its center under the near beam *a'*. This arm encircles the shaft, and when pushed to the left engages the pinion with the rack *h'*, and is held in this position by a bent rod *u'* which is also drawn to the left at the same time and catches against the left end of the piece *b'*. As soon as this rod is pushed out the spring *w'* draws the arm *t'* and disengages the pinion and rack. A slotted piece *x'* is secured to the underside of the table *d'* by a bolt. This has at its inmost end a projection extending downward, and when the rod *u'* is forced into the engaging position its upper end is brought in a line with this projection. The object of this arrangement is to act as a gage to the mortise. On the top of the table is an adjustable bar *y'*, an eccentric hold fast *z'*.

The cutter is set in motion by applying power to the main driving pulley *m*, and is thus communicated to drum *k*, and from said drum by band *n* to reversing pulley *o*, thence to cutter driver *e*, thence to reversing pulley *h* and back to drum *k*.

The cutter carriage, *c*, is moved to and fro by power applied to driving pulley *m* by band *q* passing around pulleys *l* and *r*, which latter has upon the extreme of its

axle a pinion *s*. This pinion meshes into the cog wheel *t* having on the other end of its shaft the double plated eccentric *u;* from this eccentric the power is conducted to the cutter carriage *c* by means of the pitman *v*.

The timber to be mortised is placed on the adjusting table *d'*, and is fixed in position by the adjustable bar *y'* and the eccentric hold fast *z'*. The timber to be mortised is raised or lowered by turning the crank *b'* which by means of a screw *a'''* moves the frame *y*, and the inclined planes *z* on this frame act upon the reversed inclined planes of the frame *c'*. This latter frame is regulated in its upward motion by a piece attached at each end, *e'*, *e'*, having slots and working up and down guided by pins attached to the main frame and passing through said slots.

What we claim as our invention and desire to secure by Letters Patent is—

A double semicircular mortise bit, or gouge, arranged so as to clear itself thoroughly in its action; and this in combination with the double eccentric plate to regulate the motion to and fro of said mortise bit; the whole being combined and operating substantially as is herein set forth.

LOOMIS E. PAYNE.
ORRIS PIER.

Signed in presence of—
J. W. BENNETT,
N. F. WHITE.