

S. Spencer
Mortising Machine.

Patented Sept. 10. 1850.

No 7,635

Fig. 1.

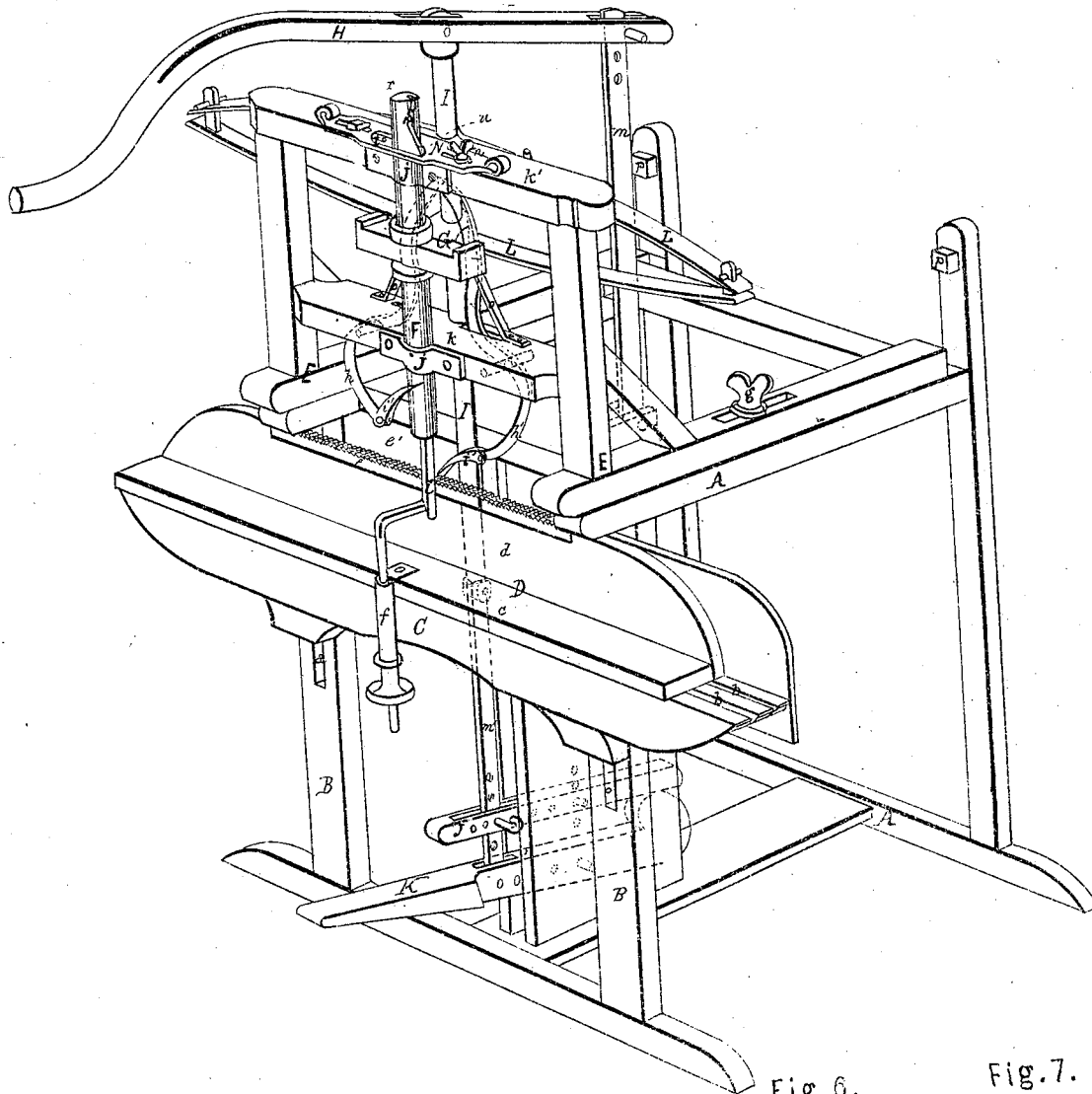


Fig. 6.

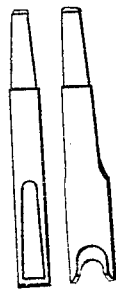
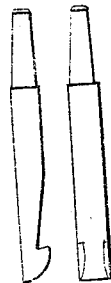
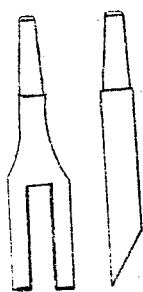
Fig. 7.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.



UNITED STATES PATENT OFFICE.

SMITH SPENCER, OF ANGELICA, NEW YORK.

IMPROVEMENT IN MORTISING-MACHINES.

Specification forming part of Letters Patent No. 7,635, dated September 10, 1850.

To all whom it may concern:

Be it known that I, SMITH SPENCER, of Angelica, in the county of Allegany and State of New York, have invented a new and useful Improvement in Machines for Mortising and Tenoning Lumber, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a view in perspective of my mortising-machine complete, and Figs. 2, 3, 4, 5, 6, and 7 are views on a larger scale of various mortising and tenoning chisels adapted thereto.

In my machine the lumber to be acted upon is supported on a carriage which is moved at each stroke of the chisel to feed the wood to the cutting-edge. The chisel also receives a turning motion as it enters the wood, which produces a drawing cut that facilitates its action upon the wood.

In the accompanying drawings, A is a strong frame composed of timbers suitably framed and braced, to which the remaining members of the machine are secured. The front legs B of this frame are pierced with vertical slots *a* to admit the bolts by which an adjustable bed C, on which the feed-carriage slides, is secured to the frame. The upper face of this bed is grooved longitudinally at *b b* to receive and guide a dovetailed feather secured to the bottom of the carriage D. The latter is composed of a bottom piece *c* and a back *d*, the upper edge of the latter being furnished with two reversed ratch-plates *e e'*. The bottom piece *c* is furnished with one or more clamps *f*, by means of which the lumber to be tenoned is secured to it.

A second frame E is mounted upon the first. It is arranged to slide forward or backward upon the main frame, and is secured to it in any desired position by means of bolts *g* passing through slots formed in the adjacent rails of the two. This adjustable frame supports the chisel-mandrel F and the levers *h h'* for operating the fingers *i i'*, by means of which motion is imparted to the feed-carriage D. The chisel-mandrel F is supported and guided in an upright position by boxes *j*, secured to the front sides of the horizontal rails *k k'* of the adjustable frame. A socket is formed in its lower extremity to receive the shank of the chisel *l*. The chisel-mandrel is depressed

and raised by means of an arm G, projected from an upright bar I, sliding in boxes secured to the hinder faces of the rails *k k'*. This bar is connected at its upper extremity with a hand-lever H, which projects in front of the machine, and is pivoted at its hinder extremity to a link-bar *m*, whose lower end is connected with the main frame. The lower extremity of the sliding bar I is connected by a link-bar *m'* with the front extremity of a false treadle J, pivoted to the lower part of the main frame and acted upon by a treadle K, whose front extremity projects at the front of the machine. By applying the hand to the lever H or the foot to the treadle K the sliding bar with its arm G and the chisel-mandrel F are depressed. The return motion or raising of these members of the machine is effected by a spring L, secured to the adjustable frame and acting upon a pin projected from the hinder side of the sliding bar I. Two upright bent levers *h h'* are pivoted near their centers to one of the rails *k* of the adjustable frame. The lower extremities of these levers are fitted with fingers *i i'*, which fall upon the teeth of the ratch-plates *e e'*. Their upper extremities are bent toward each other in such positions that as the sliding bar I ascends the arm G forces the upper extremities of the levers outward from each other and moves their lower extremities in the reverse directions. A spring *o* is applied to each lever, so that their upper extremities are returned toward each other as the arm descends. But one of the fingers is allowed to act at a time, the other being turned up, as represented in Fig. 1, and as the sliding bar I descends and rises the finger in action, alternately acting against the straight and the inclined faces of the ratchet-teeth, moves the carriage along, thus feeding the wood secured to it beneath the chisel *l*. The upper extremity of the chisel-mandrel is grooved longitudinally at its opposite sides with two grooves *r s*. The one *r* of these is straight and is parallel to the axis of the mandrel. The other *s* is zigzag. An adjustable plate N is secured to the top of the rail *k'*. This plate is perforated with an oblong hole, through which the chisel-mandrel passes. The opposite ends of this oblong hole are fitted with two tongues *t u* at such a distance apart that the chisel-mandrel can move freely between them without touching either. The

plate N is also pierced with two slots, through which screws *n* are passed, by which it is secured to the rail, and on which it can be slid to and fro to bring either one of the tongues into one of the grooves in the chisel-mandrel. The sliding plate is clamped in any required position by tightening one or both of these screws, which should be fitted with a broad head, as at *n*, by which it can be easily turned. When one of the tongues is in the straight groove *r*, the mandrel will be forced to move in an upright direction alone; but when one of the tongues is in the zigzag groove *s* the mandrel in rising and falling will be forced to oscillate upon its axis, and thus a drawing cut will be made by the curved chisel or gouge (see Fig. 5) as it acts upon the wood. The wood to be acted upon is secured to the carriage D by the clamp-screw *f*, and if a mortise is to be made the gouge, Fig. 5, should be fitted to the mandrel. The sliding or tongue plate is then clamped in such a position as will bring one of the tongues *u* into the zigzag groove of the chisel-mandrel, which is alternately depressed and raised by the action of the foot upon the treadle K and the spring L, while at the same time the wood is moved along at each stroke of the mandrel by means of the finger *i'* acting upon its appropriate ratch-plate. When the mortise has been roughed out by the gouge a sufficient distance in one direction, the tongue-plate N is unclamped and is moved sufficiently to draw the tongue *u* out of the groove. The mandrel is then turned half-way round. The tongue-plate is again moved to bring the other tongue *t* into the zigzag groove and is made fast by the clamp-screw. The finger *i'* is also raised and the other finger *i* turned down upon its ratch-plate *e*. The chisel-mandrel is again moved by the treadle, and the carriage

with the wood upon it is moved along at each stroke of the chisel in a direction the reverse of that in which it was first moved. When the mortise has been roughed out, a straight-edged chisel is substituted for the gouge, and the tongues of the plate are caused to act in the straight groove *r*. The chisel-mandrel then moves up and down without turning upon its axis, and the ends of the mortise are squared.

The machine thus described is applicable to mortising and tenoning of all descriptions, as the carriage can be raised and lowered and can be set at any required angle. It can also be shifted forward by removing it from the bed C and replacing it with the dovetailed feather in a groove farther from the legs of the frame. The movable frame can also be adjusted in any desired position. The machine is easily secured to the shop-walls by bolts *p* passed through its hinder legs. The drawing cut made by the round-edged chisel or gouge is of great advantage, particularly when mortising hard woods, as it enables the operator to force the chisel into the wood with a less expenditure of labor and less danger of breakage.

What I claim as new in the herein-described mortising-machine, and desire to secure by Letters Patent, is—

In combination with a device for giving the chisel a reciprocating motion, the device for giving it at the same time an oscillating motion, substantially as herein set forth.

In testimony whereof I have hereto subscribed my name.

SMITH SPENCER.

Witnesses:

E. S. BENWICK,
P. H. WATSON.