

R. L. NELSON.

Machine for Boring and Mortising.

No. 114,183.

Patented April 25, 1871.

Fig. 1.

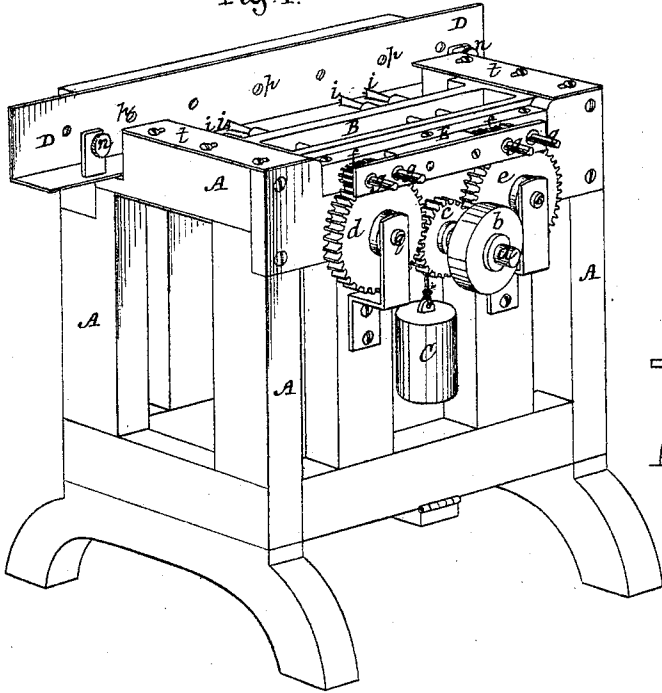


Fig. 2.

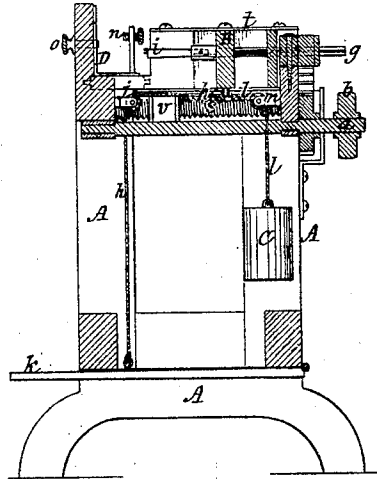


Fig. 3.

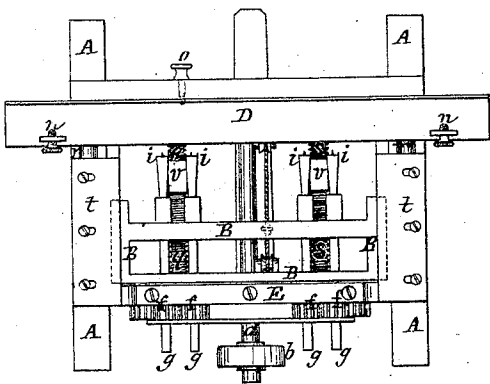
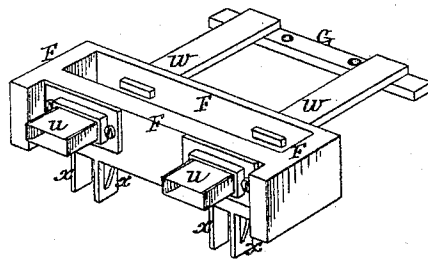


Fig. 4.



Witnesses.
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RICHARD L. NELSON, OF ORANGE COURT HOUSE, VIRGINIA.

Letters Patent No. 114,183, dated April 25, 1871.

IMPROVEMENT IN MACHINES FOR BORING AND MORTISING.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, RICHARD L. NELSON, of Orange Court House, in the county of Orange and State of Virginia, have invented certain new and useful Improvements in Machines for Boring or Mortising Wood; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents the machine in perspective as arranged for boring wood, as, for instance, fence-posts.

Figure 2 represents a section through the same.

Figure 3 represents a top plan.

Figure 4 represents in perspective a frame and chisels, which are substituted for the boring mechanism when mortises are to be cut.

My invention relates to a convertible machine for boring and mortising wood, as will be explained.

A represents a main frame, in which is supported a shaft, *a*, having a pulley, *b*, thereon by which said shaft may be driven through a belt and from any ordinary first-moving power.

On the shaft *a* is a pinion, *c*, which gears into and drives the two cogged wheels *d e*, one on each side of it.

The gears *d e* each drives a pair of spur-gears, *f*, arranged respectively by a slot and feather on the shanks *g g* of a pair of augers, *i i*, so that said shanks, while they are revolved by their respective pinions, may move longitudinally to or through or toward the wood to be bored.

The augers *i i i i* are supported and turn in a frame, B, which can move on the main frame A in suitable ways or guides thereon.

To the frame B there may be attached a cord or chain, *h*, which, passing over a pulley, *j*, extends down and is fastened to a hinged foot-lever, *k*, by which said frame and its augers may be drawn up to the wood that is to be bored.

Another cord or chain, *l*, may be fastened to said frame B and passed over a pulley, *m*, and have upon its lower end a suspended weight, C, which, when the foot-lever is released, will draw said frame and its boring-tools back away from or out of the wood.

At the back of the machine there is a rest or support, D, for holding the piece of wood to be bored, and wherein it may be clamped and held by the clampscrews *n n*.

This rest or support D can be moved and adjusted longitudinally on the main frame by a pin, *o*, and series of holes, *p*, so that the wood, while clamped in the rest, may be moved to suit the holes to be bored into or through it; and to facilitate the moving of the slide, rest, or support, and the piece to be bored on it, it may run on friction-rolls *r r*.

The gears *d* and *e* are respectively arranged upon screw-shafts *q s*, which screw-shafts, however, are only

actively employed when the machine is converted from a boring to a mortising-machine, as follows:

By taking the screws out of the plates *t t* and those in the bar E the frame B, augers, and their driving-pinions may be lifted off.

The frame F (fig. 4) may be placed on the main frame, occupying the position of the frame B, or rather the place that said frame B worked in when the machine was fitted up for boring.

This frame F carries mortising-cutters *u u*, and upon the under side thereof there are brackets, studs, or projections *x x*, which take in and hold the nuts *v v*, through which the screw-shafts *q s* pass, and by means of which and the projections on said nuts the carriage F is moved by a positive motion to and from the wood to be mortised, as the case may be; and when moved toward the wood the cutters *u u* may take out the wood left between the previously-bored holes.

There is connected to this frame F, or works with it, a bar, G, which is fastened to the main frame, where the bar E of the boring-frame is placed when that is used.

This bar G, which is stationary and permanently fixed on the main frame, has upon it two clearers, *w w*, one for each of the mortising-cutters *u u*, and so arranged that, when the mortises are cut and the cutters and their frame moved back to prepare for another succeeding similar operation, these cutters, which are hollow, pass over the clearers, and the latter will push or force out any chips or wood that may cling to them.

For boring and mortising fence-posts this machine is peculiarly applicable, but may, of course, be used for boring and mortising other pieces of wood or timber.

The augers and chisels may be of any size, shape, and form, as also in greater or lesser numbers than that shown; and one kind, size, or form may be substituted for another, according to the particular kind of holes or mortises that are to be made.

Having thus fully described my invention,

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

In combination with the main frame, having the movable adjustable clamping or holding-rest D and the recess and ways for receiving and guiding either of the removable and interchangeable sliding frames B and F, with their appliances for boring and mortising, when combined, arranged, and operating in the manner and for the purpose herein described and represented.

RICHARD L. NELSON.

Witnesses:

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