

No. 11,403,

*Patented July 25, 1854 -*



Fig. 5-

Fig: 6.

Fig: 4.

*Fig: 1.*



# UNITED STATES PATENT OFFICE.

BIRDSILL HOLLY, OF SENECA FALLS, NEW YORK, ASSIGNOR TO SILSBY, RACE & HOLLY.

## MORTISING-MACHINE.

Specification of Letters Patent No. 11,403, dated July 25, 1854.

*To all whom it may concern:*

Be it known that I, BIRDSILL HOLLY, of Seneca Falls, in the county of Seneca and State of New York, have invented a new and useful Improved Mortising-Machine, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known and of the usual manner of making, modifying, and using the same.

My invention consists, first, in the mode of working the chisel; second, in the mode of reversing the chisel; third, in the mode of holding and adjusting the chisel.

Figure 1 is front view of the mortising machine. Fig. 2, is a side view. Fig. 3 is a view of the reëntering belt and shaft by which it is worked. Fig. 4, the lever, &c., by which the chisel is reversed in its stock; Fig. 5 a detached view of the chisel and stock; Fig. 6 a view showing the reversed V shape of the end of the chisel.

Many parts of my machine are constructed in the ordinary manner of such machinery.

A is the frame; B the table; *c* the clamps; D the driving pulley; E the frame work for supporting the mechanism used in reversing the chisel in its stock, motion being communicated in any manner to the driving pulley D on the shaft F.

The operation of working the chisel is as follows: The operator places his foot upon the treadle G; this communicates by means of a strap *s*<sup>2</sup> with what I call the reëntering belt H and causes this reëntering belt H to hug closely the enlarged drum I Fig. 3 on the shaft F; this shaft in its rotation in the direction of the arrow Fig. 3, depresses the reëntering belt and therefore the frame K, which is connected with the belt by means of the vertical rod L, the cross rod M and the belts N passing through the cross rod and the reëntering belt. The frame K carries the chisel stock *x* and the chisel *x'*, as long as the friction between the reëntering belt and the drum on the shaft is kept up by the pressure on the treadle G, so long will the chisel be made to descend by the arrangement described above, the mortise can thus be made as deep as the operator wishes. When the foot is removed from the treadle the spring *s* raises the reëntering belt and with it the chisel from the mortise. To prevent any friction between the reëntering belt and the enlarge-

ment on the shaft where the chisel is not in immediate use, I have arranged a spring *s'* on or above the spring *s* to which it is fastened by bolts; to the spring *s'* is attached a belt *t* by passing the end of the spring in one of the holes in this belt; (see Fig. 1) the belt *t* is attached to the reëntering belt H, as seen in Fig. 3; when the reëntering belt is depressed by its connection with the shaft the belt *t* and the spring *s'* are also depressed, and when this connection ceases the spring *s'* resumes its normal position; and by means of it raises the reëntering part of the belt H and completely loosens it from the shaft as seen in Fig. 3.

To reverse the chisel in its stock, the arrangement is as follows: The stock *x* is firmly attached to a vertical shaft *o*, which turns freely in the frame K, on this shaft *o*, is a notched ring or pulley *v*, (see Fig. 4), into the notches of this ring works a tooth *v'* on a spring *i*; this spring is fastened to the chisel frame at P and is connected to a hinged bar *h* hinged at its lower end as shown in Fig. 2; to the hinged bar *h*, about its middle is connected a rod *d* which clamps a shaft P, at one end of this shaft is a pulley Q, around which is a friction belt R, which also passes around the ring *v* on the vertical shaft *o*, at the other end of the shaft P is a cog wheel *w*; the shaft P is supported by the frame E which supports also a shaft P' on which is a cog wheel *w'* and a pulley *s* (see Fig. 2); around the pulley *s* and the main driving shaft F, there passes a friction band T which communicates motion from the main shaft to the shaft P'. To reverse the chisel the operator draws toward himself the handle end of the lever *u* which is hinged to the main frame at *u'*; the opposite end of the lever *u* presses the hinged bar *h* back, and through the rod *d*, brings the cog wheel *w* into gear with the cog wheel *w'* motion is thus communicated to the cog wheel *w*, the shaft P, the pulley Q, and through the belt R to the ring *v* on the vertical shaft *o*. The backward movement of the hinged bar *h* has also carried back the end of the spring *i* and thus raises the tooth *v'* on this spring out of the notch in the ring *v*; the ring *v* in its revolution carries with it the shaft *o* and the chisel stock and chisel. When the chisel has gained its desired position the operator



releases the hand lever *u*, and the parts just described assume their former position by the action of the spring *i*, and the tooth *v'* drops into another notch on the ring *r'*.

5 My improved mode of holding and adjusting the chisel is effected by the reversed V ( $\Lambda$ ) shape which I give to this tool at its upper extremity and by the corresponding V shaped cavity in the part of the stock into  
10 which the end of the chisel fits. A side view of the upper end of the chisel is shown in Fig. 6, the chisel is adjusted and held in its holder *x* in the ordinary manner. By giving this particular shape to the end of  
15 the chisel and to the groove in the holder I have a greater lateral movement in adjusting the chisel than if its end was received in a square mortise; and when adjusted this connection holds the upper end  
20 of the chisel and assists to keep the tool firmly in its place.

What I claim as my invention is—

1. The mode of working the chisel as set forth, the same consisting in the reëntering belt or its equivalent in combination with 25 the spring (*s*) and hand or foot strap (*s*<sup>2</sup>) and in combination therewith I claim the tongue strap (*t*) with its spring (*s'*) for the purpose of keeping the belt loose upon the driving shaft. 30

2. I claim the mode of reversing the chisel or of keeping it in and out of gear the same consisting in the combination of the hinged bar (*h*) the spring (*i*) the notched ring (*v*) the treadle (*u*) or its equivalent and the 35 rod (*d*) connected with the gear wheel (*w*) on the pulley frame.

BIRDSILL HOLLY.

Witnesses:

T. CAMPBELL,  
P. NENNING.