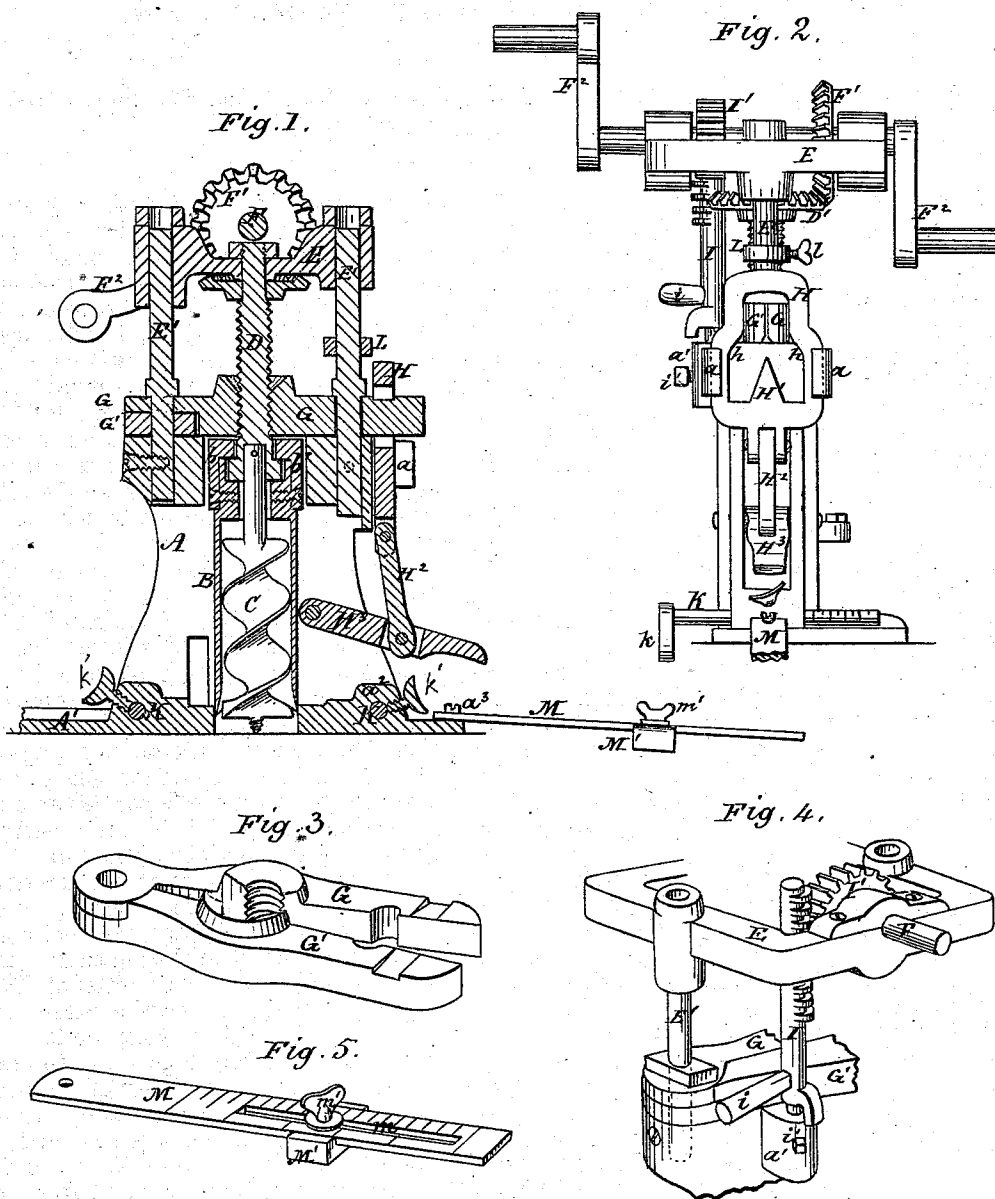


S. RYDBECK.
Mortising-Machine.

No. 159,456.

Patented Feb. 2, 1875.



Witnesses
H. O. Quinn
Wm. C. Chaffee

Inventor.
Sven Rydbeck
by *Edw. J. Cils*
his Att'y

UNITED STATES PATENT OFFICE.

SVÉN RYDBECK, OF RED WING, MINNESOTA.

IMPROVEMENT IN MORTISING-MACHINES.

Specification forming part of Letters Patent No. 159,456, dated February 2, 1875; application filed August 26, 1874.

To all whom it may concern:

Be it known that I, SVÉN RYDBECK, of Red Wing, in the county of Goodhue and State of Minnesota, have invented a certain Improvement in Mortising-Machines, of which the following is a specification:

This invention relates to that class of mortising-machines in which an auger operates within, and enters the wood slightly in advance of, a square hollow chisel, both being simultaneously operated by a screw-spindle; and its object is to furnish carpenters with a hand-tool of this kind which can be, without inconvenience, carried by the workman to and from his work, and readily applied.

My improvement consists, first, in such a construction and combination of elements that, after a mortise has been cut by a steady screw feed of the auger and chisel, the nut may be disengaged from the screw-spindle, and a rack-and-pinion feed brought into action, for the purpose of rapidly withdrawing the tools from the mortise; and, secondly, in certain novel hereinafter fully described details of construction, and the provision of gages, determining with accuracy the position and depth of the mortises when a series is to be cut in beams, joists, sills, and the like.

In the annexed drawings, Figure 1 is a vertical longitudinal section of my improved hand mortising-machine. Fig. 2 is a side elevation of the same. Figs. 3 to 5 are detail views, hereinafter more especially alluded to.

The same letters of reference are used in all the figures in the designation of identical parts.

The various elements of the machine are mounted upon, and act in conjunction with, the frame or stand A, which is provided with vertical guides for the reception of the square hollow chisel B, which, moving up and down between such guides, passes through a corresponding square aperture in the base-plate A' of the stand. The auger C is fitted within the hollow chisel, its shank projecting through the head of the latter, and both are connected to the screw-spindle D in the following manner: The foot of the spindle consists of an enlarged socketed collar, to which the shank of the auger, entering the socket, is firmly secured, so as to turn with the spindle. The collar of the spindle is confined between the sections *b* and

b' of a head, secured together by screws, and also, by the same screws, firmly united to the top of the chisel, so that the end motion of the screw-spindle will carry the chisel along with it. The auger protrudes a little from the hollow chisel, so as to cut a little in advance thereof. At its upper end the screw-spindle carries a cross-head, E, guided on vertical guide-rods E' E' as it moves up and down with the spindle. This frame or cross-head supports the driving-shaft F, which imparts rotary motion to the spindle by means of the bevel-gearing F¹ D', and is itself turned by winches F², fastened to its overhung ends. The nut in which the screw-spindle turns is composed of two sections, G and G', hinged at one end to one of the guide-rods E', and embraced at the other end by the yoke H, which is capable of either closing or opening the two sections of the nut. To this end its upper portion has a contracted opening, by which the sections of the nut are closed to cause its threads to engage those of the screw-spindle, while its enlarged opening at the lower end is provided with an upwardly-projecting wedge, H¹, to enter between and force apart the sections of the nut. The interior surface of the yoke at the junction of the enlarged and contracted openings is suitably curved, as at *h h*, to act like inclines on the sections of the nut in closing them. The yoke is connected, by a rod or pitman, H², to a lever, H³, by which it may be readily operated when required. The yoke slides in ways formed in projecting lugs *a a* of the frame.

During the descent of the auger and chisel—that is, while a mortise is being cut—the nut remains closed on the screw-spindle; but, in order to rapidly withdraw the tools from the mortise, the nut is disengaged from the spindle by opening its sections, which leaves the spindle and its connections in condition to be lifted without turning. To accomplish this lifting with expedition and ease I provide the shaft F with a spur-wheel, I', capable of engaging a vertical rack, I. The latter is erected on the frame A, within the cross-head E, resting in the elongated bearing *a*¹. By means of a handle, *i*, it can be turned in its bearing to be either thrown in gear or out of gear with the spur-wheel I'; and by a set-screw, *i'*, it can be held in either position. By this rack-

and-pinion feed a rapid up-and-down motion may be given to the tools to clean the sides of the mortise by the chisel.

Graduated gage-rods K, with downwardly-projecting arms *k*, are placed in transverse bearings *a*² of the frame, near the base-plate A', by means of which the tool can be accurately adjusted on the stuff to be mortised, so far as the distance of the mortise from the edge of the stuff is concerned, in manner very obvious. After adjustment the rods K are secured by set-screws *k'*.

To regulate the depth of the mortise I graduate one of the guide-rods E', and provide it with an adjustable collar, L, localized by a set-screw, *l*. Thus the descent of the cross-head, and consequently of the screw-spindle and tools, may be stopped at any point.

The distance between every two of a series of mortises can be regulated by the gage-rod M, which can be hooked to a projection or stud, *a*³, of the base-plate A', and carries an adjustable slide, M', clamped thereto by a thumb-screw, *m'*, passing through the elongated slot *m* in the rod. The distance between the several mortises having been determined, the slide M' is so adjusted that, when it is brought up against the edge of the mortise next adjacent to the one to be cut, the tool will be in proper position for such next mortise.

The machine is secured to the stuff to be mortised by a suitable clamp, such a one as

described in a patent of even date with this being preferred for that purpose.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the screw-spindle D, sectional pivoted nut G G', and adjustable yoke H *h h* H¹, substantially as and for the purpose specified.

2. The combination of the screw-spindle D, sectional pivoted nut G G', adjustable yoke H *h h* H¹, shaft F, gearing F¹ D', spur-wheel I', and adjustable rack I, substantially as and for the purpose specified.

3. The combination of the screw-spindle D, auger C, rigidly secured thereto, chisel D, and parts *b* and *b'*, all united substantially as specified.

4. The frame A and chisel and auger, in combination with the gage-rods K *k k'*, the heads *k* of which project downward to below the base A' of the machine, substantially as and for the purpose specified.

5. The frame A and chisel and auger, in combination with the gage-rod M, slotted at *m*, and carrying an adjustable slide, M' *m'*, substantially as and for the purpose specified.

In testimony whereof I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

Witnesses: SVÉN RYDBECK.

J. C. McCLURE,
OLOF PETERSON.