

H. B. Smith,
Mortising Machine,
Nº 17,701, Patented June 30, 1857

Fig. 1.

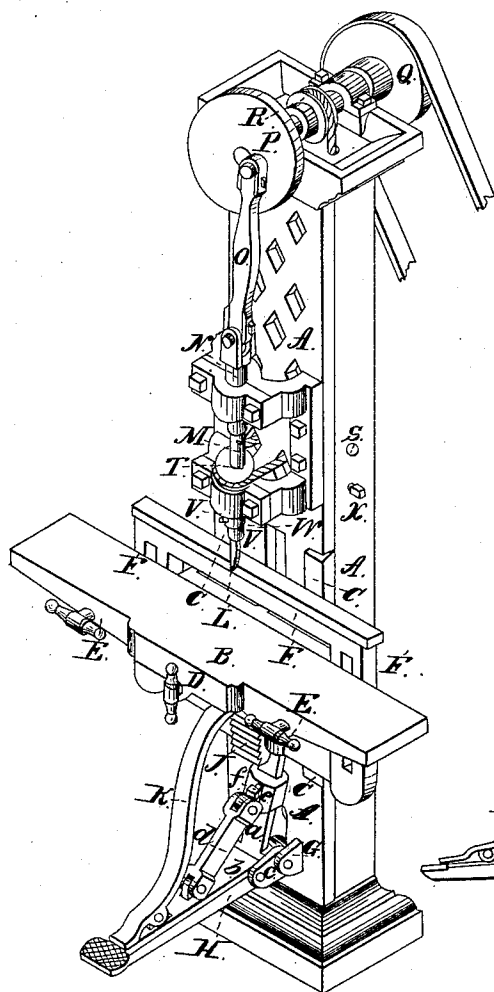
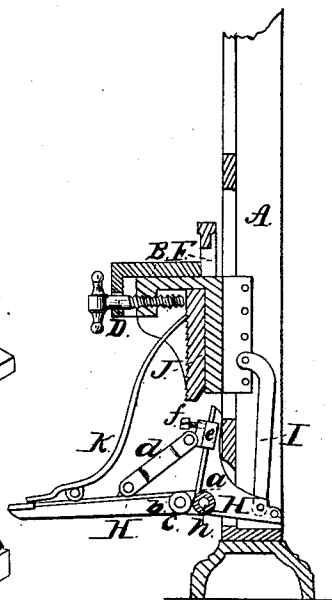


Fig. 2.



UNITED STATES PATENT OFFICE.

H. B. SMITH, OF LOWELL, MASSACHUSETTS.

MORTISING-MACHINE.

Specification of Letters Patent No. 17,701, dated June 30, 1857.

To all whom it may concern:

Be it known that I, HEZEKIAH B. SMITH, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Power Mortising-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Similar letters of reference in each of the two figures, indicate like parts.

Figure 1, represents a perspective view of a power mortising-machine with my improvements embraced. Fig. 2, is a vertical section through the frame and table; showing more particularly the means of raising and holding the table up to the chisel.

A represents a cast-iron frame.

B is the table for holding the wood to be mortised.

C C are ways, up and down, which the table B slides.

D is a screw for adjusting the table in or out.

E, E, are screws for securing the guide F to the table. Guide F is situated at the back side of the table, and is intended to serve as a gage to regulate the distance of the mortise from the edge of the stuff. Consequently it is adjustable. At each end of the guide F is a wing F' which extends downward, having a slot made throughout its whole length. The slots in these wings are made to receive the screw bolts E, E, which extend through them and have nuts on their ends. When the bolts are loosened, the slots allow the guide to be raised or lowered any desired distance, and when tightened up, secure it firmly to the table. When the table is moved in or out by means of the screw D, it carries the guide with it, and as the chisel is always in the same place, the guide is thus made to regulate the position of the mortise in the stuff.

H is an adjustable compound treadle, supported in bearings G attached to the frame, and connected to the table B by means of the rod I. This treadle H is composed of two parts, the bent lever or knee (a) and the treadle lever (b). These parts are connected by a joint at (c) and by the adjusting link (d). One end of the adjusting link (d) is secured to the treadle lever (b) by a joint. The other end is secured to the up-

right part of the knee (a) by means of an adjustable grooved block (e), which is jointed to the link (d) and held to the knee (a) by means of the set screw (f). If the block (e) is secured near the top of the knee (a) it brings the end of the treadle higher from the floor, and insures more of a rise in the table B than when it is fastened lower down. Consequently, when a shallow mortise is to be made, it will be easier to the workman to have his treadle dropped near the floor and save the discomfort of lifting his foot so high, as is necessary in making a deep mortise.

Another thing which conduces to the nicety of the work as well as the comfort of the workman is the means I have invented of making the table self-supporting. In ordinary machines the foot upon the treadle is the only support to the table, and when the foot is taken off the table falls. Now, it is very tiresome for a workman to hold the table up to the chisel for any length of time, especially when he is mortising hard wood. In my machine this labor is almost entirely saved. J is an upright ratchet fastened to the face of the bed piece of the table B. K is a pawl hung by a joint to the treadle H. One end plays freely in the ratchet and the other terminates near the foot hold of the treadle. Now, when the table is raised by pressing with the foot upon the treadle, the pawl slips over each tooth of the ratchet, and when the foot is removed the table is prevented from falling by the pawl, which strikes into the teeth of the ratchet, and thus keeps the treadle and table from approaching each other (which action they must perform when the table falls). To release the table so that it may fall, the workman presses with his foot upon the end of the pawl and thus throws it out of the ratchet; and by holding his foot gently on the pawl, it will be kept out of the ratchet until the table descends to its place.

The upper part of the machine which carries and operates the chisel, is similar to what is described in Letters Patent issued to me tenth day of January, A. D. 1854.

L is the chisel fastened in the lower end of the upright sliding spindle M. The upper end of this spindle is supported in the sliding tube N, which is jointed to the connecting rod O and by means of the crank pin in wheel P is made to move up and down as rapidly as the wheel is revolved. A belt on

the pulley Q is intended to give motion to the wheel P. On the same shaft with wheel P is a grooved pulley R, a band from which extends downward and makes a quarter turn
5 around two pulleys on shaft S, and then passes in front of the machine around the reversing cylinder T. The lower end of the spindle M slides in this reversing cylinder and is connected with it by means of a
10 spline. In the lower end of the reversing cylinder are two projecting pins V V' placed diametrically opposite each other. One of these pins, by the action of the band slipping
15 on the reversing cylinder, is kept in contact with the dog W and thus the chisel is held in one position as long as needed, but when the face of the chisel is to be turned in the opposite direction, the table must be dropped, which will cause the back end of the treadle
20 to act on a connecting rod attached to it, and to one end of a lever on the fulcrum X. The other end of the lever, to which the dog

W is attached, will thus be raised so as to allow the reversing cylinder to make one-half of a revolution; when the opposite pin 25 V' will be brought against the dog W and thus reverse the chisel. ~

Having thus described my improvements, what I claim as new, and desire to secure by Letters Patent, is— 30

1. The adjustable compound treadle H, when used in combination with a mortising machine, for the purpose and substantially as described.

2. The pawl K or its equivalent in combination with the table B, to prevent the 35 action of the chisel from jarring the foot, not intending by this to confine myself to the exact form represented, but adopting any other, substantially the same.

H. B. SMITH.

Witnesses:

C. E. MACK,

O. E. CUSHING.