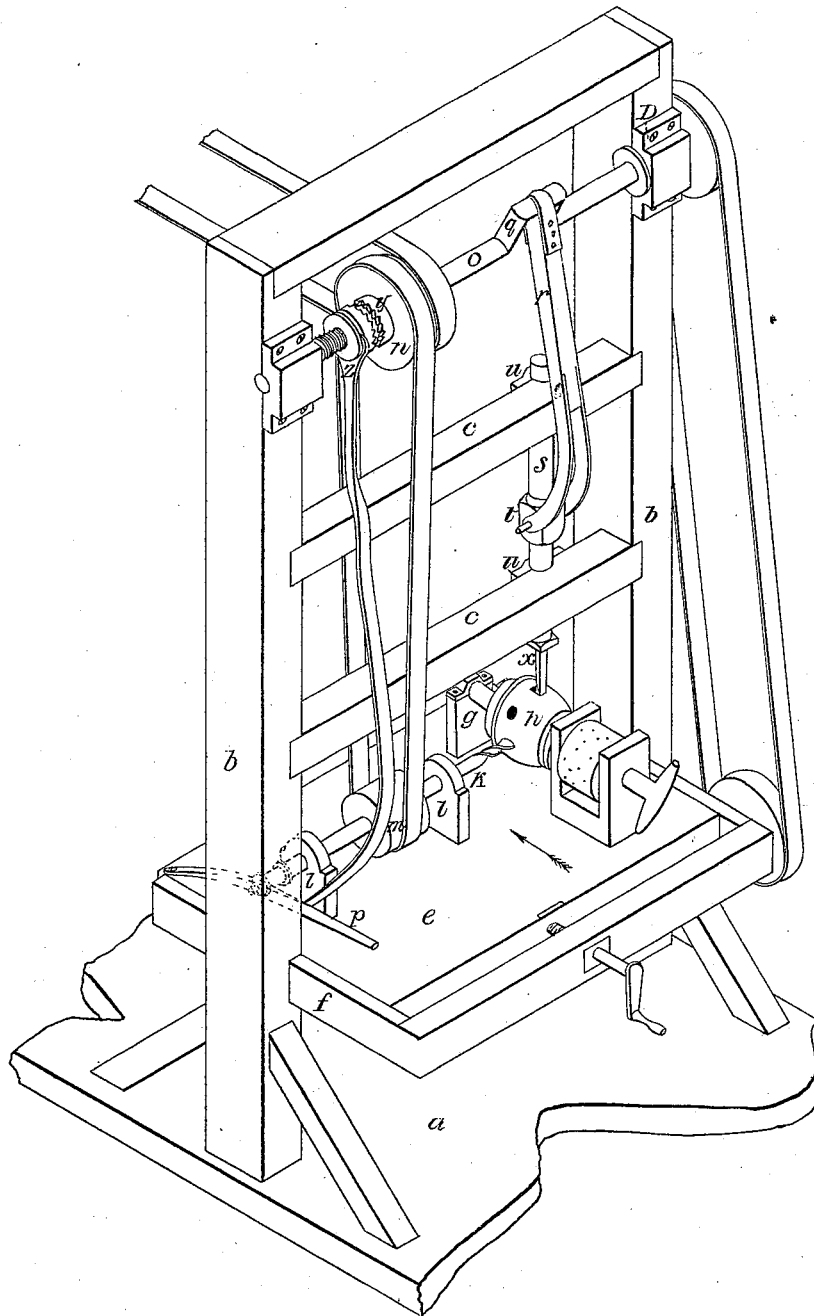


J. J. Greenough,
Mortising Machine,
No. 4,565, Patented June 13, 1846.



UNITED STATES PATENT OFFICE.

J. J. GREENOUGH, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO GEO. NICHOLS, OF BRIDGEPORT, CONNECTICUT.

MACHINE FOR BORING AND MORTISING HUBS.

Specification of Letters Patent No. 4,565, dated June 13, 1846.

To all whom it may concern:

Be it known that I, J. J. GREENOUGH, of the city of Washington, in the District of Columbia, have invented a new and useful
5 Improvement in Machinery for Mortising and Boring Hubs, &c., and that the following is a full, clear, and exact description of the principle or character thereof, which distinguishes it from all other things before
10 known, and of the manner of making, constructing, and using the same, reference being had to the accompanying drawing, making part of this specification, which represents the machine in isometrical projection.

15 The nature of my improvement consists in connecting an auger with the carriage on which the hub is fixed so as to move with it and bore into the hub at the same time the
20 chisel is mortising, said auger or bit being driven by the same shaft that moves the chisel, so that both operations can be conducted at the same time by which the work can be greatly facilitated.

25 The construction is as follows: Upon a suitable stand or platform (*a*) is erected a frame consisting of two side posts (*b*) connected by two cross ties (*c*) between the posts (*b*), a carriage (*e*) is made to slide,
30 either on ways fastened directly upon the platform or properly sustained at a sufficient distance above it, as shown at (*f*) in the drawing. On the carriage (*e*) are erected puppet heads (*g*) of the usual construction
35 for sustaining the mandrels on which a hub (*h*) is placed; on said mandrel is the usual index (*i*), for spacing the mortises to be made in the hub. The hub, as will be seen
40 in the drawing, is placed with its axis parallel with the line of motion of the carriage indicated by the arrow and at right angles thereto, an auger or bit (*k*) suitable for boring the hub is placed pointing toward the center or axis of the hub, having its bearings
45 (through which it can slide back and forth, as well as turn in) in standards (*l*) attached to and moving with the carriage; on the shaft of the auger there is a small pulley (*m*) which is driven by a band from a large
50 pulley (*n*) on a shaft (*o*) at the top of the

posts (*b*) which is the crank shaft, and receives its motion from the driving power in any ordinary way. The shaft of the auger is slid back and forth by a lever (*p*) of the second order bearing against its end at right
55 angles to and so connected with it as to move it either way, as clearly shown in the drawing, by means of a common swivel. This lever is worked by hand, and the distance to which it can be forced forward is regulated
60 by a collar on the shaft.

On the crank shaft (*o*) above named there is a small crank (*q*) connected by a pitman (*r*) with an upright rod (*s*) by means of a collar (*t*) that surrounds said rod, and in
65 which it can be turned; this rod slides up and down in boxes (*u*) affixed to the cross ties (*c*) of the frame and is directly over the center of the hub and at right angles to the auger. The lower end of the rod (*s*) has a
70 docket on it in which is inserted a chisel (*x*) with which the mortise is made; the crank shaft can be made to turn with the pulley (*n*), or not, by being connected or disconnected by a common clutch (*y*); this clutch
75 is disconnected as the auger comes through at the center so as to stop the chisel by means of a lever (*z*) connected with the clutch that is struck by lever (*p*) as it
80 moves up.

The carriage is moved along carrying the hub under the chisel as the mortise progresses, and at the same time the auger which is boring the hole moves with it. It
85 will be obvious that two hubs can be mortised at the same time by duplicating the parts for that purpose; in this case, the cranks that move the chisels should be at right angles with each other to equalize the
90 power.

Having thus fully described my improvement, what I claim therein as new and desire to secure by Letters Patent, is—

The combination of the mortising and boring apparatus in the manner and for the
95 purpose set forth.

J. J. GREENOUGH.

Witnesses:

AUGUST JENNINGS,
A. P. BROWNE.