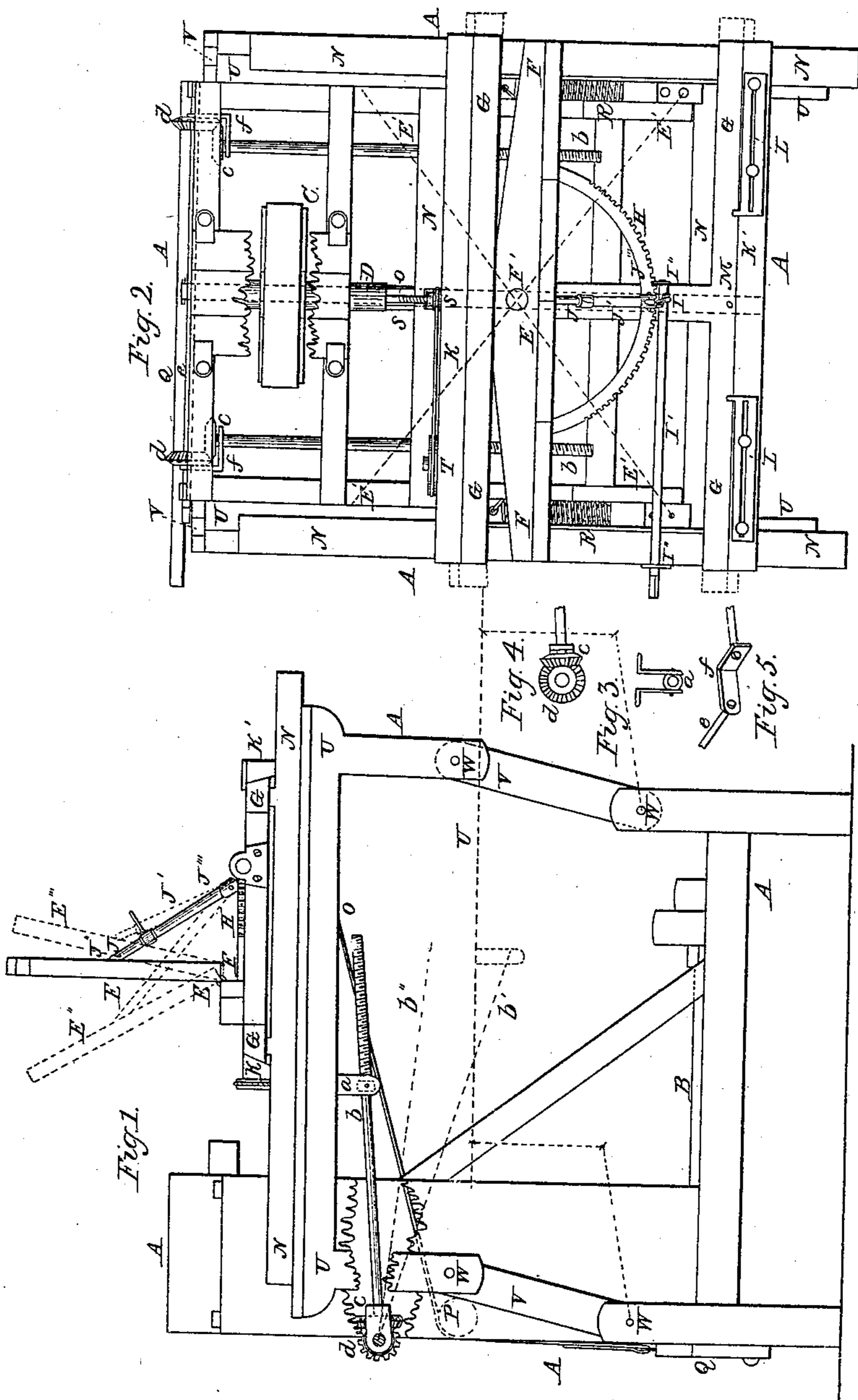


J. M. Jay,
Mortising Machine.
No 17,880. Patented July 28, 1857.



UNITED STATES PATENT OFFICE.

J. M. JAY, OF CANTON, OHIO.

MORTISING AND BORING MACHINE.

Specification of Letters Patent No. 17,880, dated July 28, 1857.

To all whom it may concern:

Be it known that I, J. M. JAY, of Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Boring and Mortising Machines; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved machine, and Fig. 2, a plan view. The other figures are detached sections which will be referred to in description.

A indicates a general view of the frame work of the machine, the proportion of which would vary, in accordance with the size of the machine, and the amount of labor to be performed.

B, Fig. 1, represents the driving shaft, provided with pulleys, in the ordinary manner, so as to drive the pulley C, Fig. 2, by means of a belt. The shaft of the pulley C, forms the stock for holding the bit, which is inserted in the end D.

This shaft revolves in boxes, in the ordinary manner. The bit for mortising or boring, revolves, although in some cases, if deemed expedient, the bit may be stationary for mortising. The staff to be bored or mortised is placed on the rack E. This rack moves upon hinge joints, at F, F, and upon a pivot joint at F', and by means of which it is connected to the slide frame G, by means of this pivot joint F', the rack may be turned at various angles, horizontal to the bit, as indicated by the red lines E'. This rack is turned by means of the segment wheel H, attached to the rack, and operated by the worm I, in the teeth of the wheel. The worm is on the shaft I', provided with boxes, I'', I''. A crank is applied to the outer end of the shaft, for the purpose of operating the rack, as before described.

The rack E, in Fig. 1, is shown as standing vertically at right angles to the bit stock at D, but this position may be changed to an acute or obtuse angle, as indicated by the red lines E'' and E'''. This is accomplished by means of the slide J, which slips in and out of the socket J'; this slide and socket forms a brace to support the rack E, which brace may be elongated or shortened as may be required by the position of the rack. At the upper end of the socket is a set screw, so as to hold the brace in any desired length. This

brace is connected to the rack E, and slide frame G, by pin joints, as indicated at J'', and J''', which renders the brace adjustable to the various angles which may be given to the rack. By the arrangement described, the rack E, may be adjusted to any angle vertical or horizontal to the bit, so that the stuff on the rack may be mortised or bored, at any angle, and besides this, the slide frame G, moves horizontally to the bit, and at right angles, as it slides on ways between the guides K, K'. On the guide K', are two gage plates L, L', secured in place by set screws; these gage plates may be so set as to determine the length of the mortise as the pin M, when brought in contact with either of the guides L, L', stops it, as the length of the mortise coincides with the distance between the gage plates and the pin M allows the frame G to slide only the distance between the gage plates.

The rack E, and the slide frame G, with their respective devices, rest upon and are connected with the slide table N, which moves upon ways or guides horizontal and parallel to the bit.

To the back part of the slide table is attached a strap O, which passes over the pulley at P, and is fastened to the lever Q. By pressing down the lever with the foot the slide table and rack are drawn up to the bit, and as soon as the lever is relieved from pressure, the rack, &c., is drawn back by the springs R, R, Fig. 2, as it is necessary that the rack should be nearer the bit sometimes than at others, owing to the size of the stuff to be worked, and as it is desirable to have the same tension of spring at all times, the springs may be adjusted accordingly, there being holes in a plate attached to the frame, into which the back end of the spring may be hooked, for the purpose of setting the springs.

For the purpose of gaging the depth of the tool, in mortising and boring, I attach the screw S, to the slide table, by the nut S'; this nut is belted to the wheel T, by this means the screw may be moved in or out; the end of the screw being arrested by a plate attached to the frame directly under the end of the shaft at D.

The slide table N rests upon the adjustable frame U, from which extend four arms; these arms, two on each side which are connected by parallel links to four posts below. Two of these links are seen at V, V, Figs. 1 and 2.

W, represents a pin joint, which forms the point of connection of the links. By means of these parallel links, the slide table will always be horizontal and parallel to the bit.

5 On the under side of the table is attached two swivel nuts, by a brace, one of which is seen at *a*, Fig. 1. The nut *a*, is between the braces, as seen in Fig. 3. The nuts receive the screws *b, b*, Figs. 1 and 2. At one end of
10 the screw-rod is keyed a bevel gear *c*, Figs. 1, 2, and in section Fig. 4. These gears mesh into the gears *d, d*. These gears are upon the shaft *e*. By turning the shaft *e*, the screws *b, b*, are operated so as to lower and
15 raise the table *U*, to *U'*, and the links correspondingly.

Each shaft *b*, works in one end, in an arm at *f, f*, seen in Fig. 5, the other end of the arm is loose upon the shaft *e*. By these adjust-
20 able arms, and the swivel nuts, the screws *b, b*, are adjusted to any position of the table, and to the various angles, the screws neces-

sarily assume, as indicated at *b', b''*, as the table is raised and lowered.

If the bit remains stationary, the rack may 25 be moved up to it, by the foot lever, and the slide frame *G*, with the connecting devices, may be operated as before described, so that the machine will mortise, whether the bit re-
30 volve or not, as may be required.

What I claim as new and my improvement and what I desire to secure by Letters Patent, is—

The arrangement of the rack *E*, adjustable brace segment slide rack *G*, and slide table 35 and in combination with the parallel linked table, screws *b, b*, swivel nuts *a*, and arms *f, f*, in the manner, and for the purpose described.

J. M. JAY.

Witnesses:

C. L. REIFSNEIDER,
M. B. DESHONG.