

(No Model.)

3 Sheets—Sheet 1.

J. HOLMES & K. PETERSON.
MORTISING MACHINE.

No. 519,502.

Patented May 8, 1894.

Fig. 9.

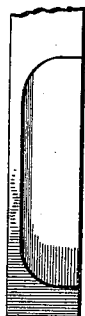
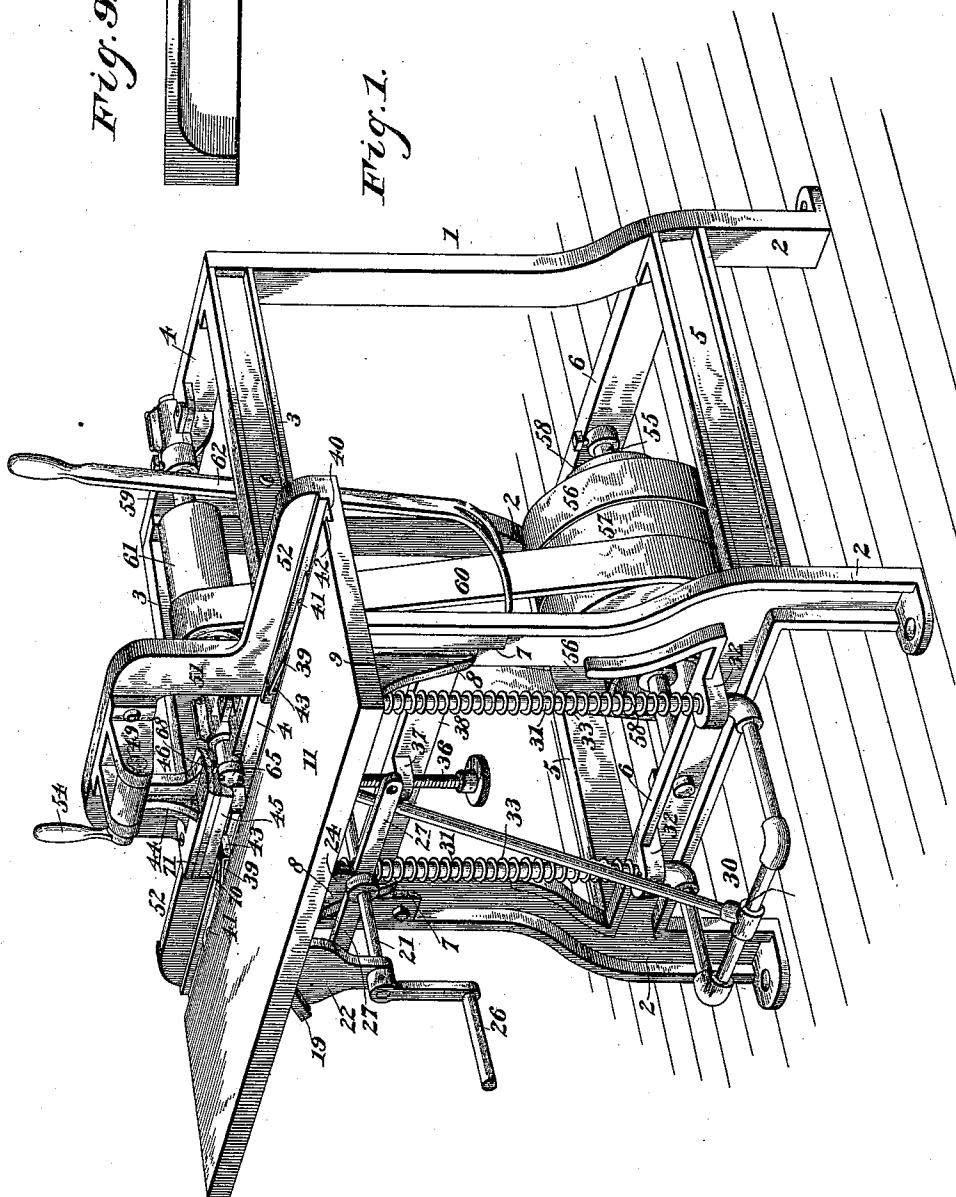


Fig. 1.



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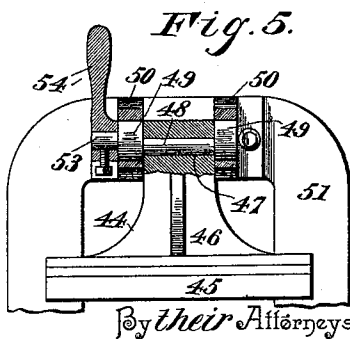
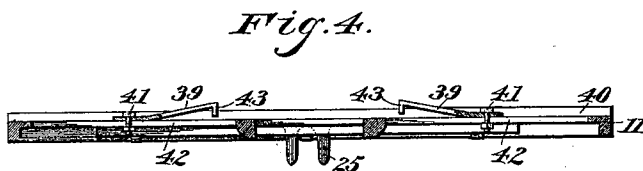
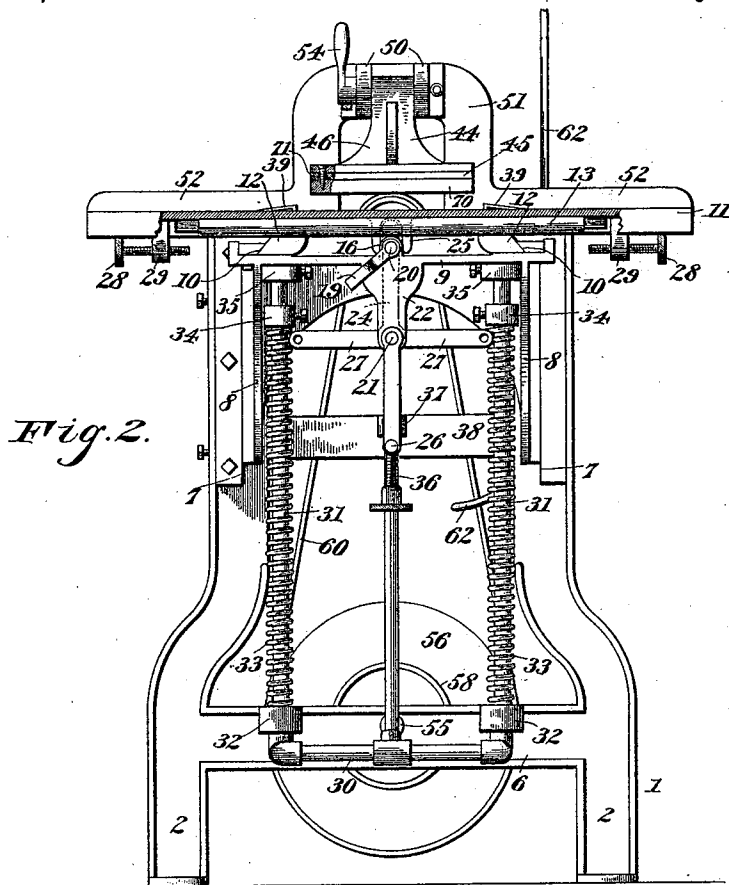
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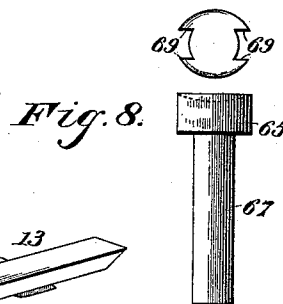
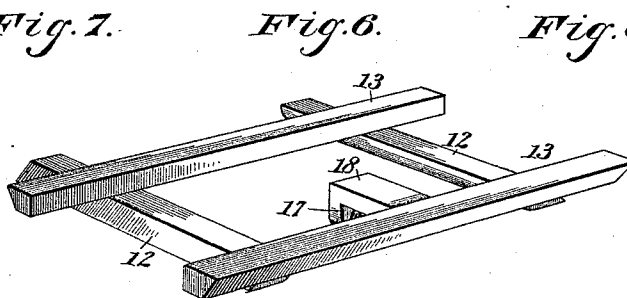
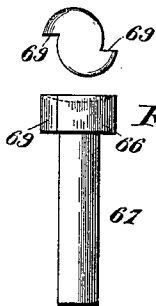
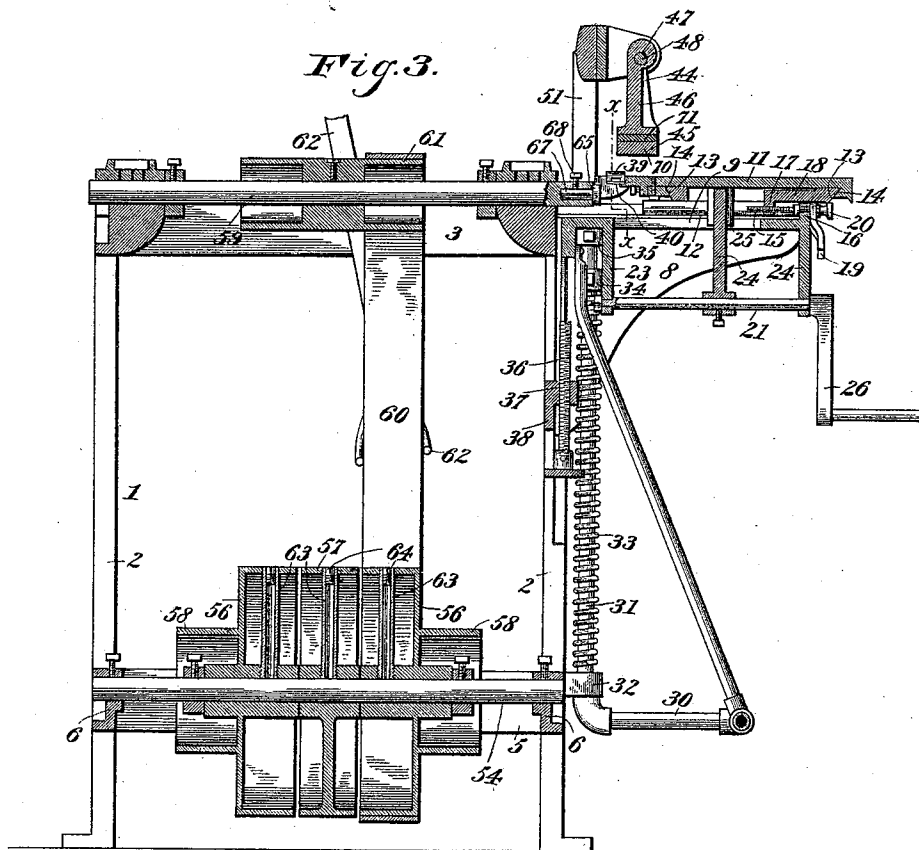
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UNITED STATES PATENT OFFICE.

JAMES HOLMES AND KARL PETERSON, OF JAMESTOWN, NEW YORK.

MORTISING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 519,502, dated May 8, 1894.

Application filed November 8, 1892. Serial No. 451,371. (No model.)

To all whom it may concern:

Be it known that we, JAMES HOLMES and KARL PETERSON, citizens of the United States, residing at Jamestown, in the county of Chautauqua and State of New York, have invented a new and useful Mortising-Machine, of which the following is a specification.

The invention relates to improvements in mortising machines.

The object of the present invention is to improve the construction of mortising machines, and provide one which will be comparatively simple and inexpensive in construction, and which will be adapted for cutting rapidly the mortises in doors and other work for butt hinges.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended.

In the drawings—Figure 1 is a perspective view of a mortising machine constructed in accordance with this invention. Fig. 2 is a front elevation. Fig. 3 is a central vertical longitudinal sectional view. Fig. 4 is a detail sectional view on line *x—x* of Fig. 3. Fig. 5 is a detail view of the clamp. Fig. 6 is a detail perspective view of the parallel longitudinally and transversely disposed slides for supporting the table. Figs. 7 and 8 are detail views of cutting tools. Fig. 9 is a detail view of a portion of one edge of a door illustrating the shape of the mortise.

Like numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a frame composed of corner posts or standards 2, and upper and lower horizontally disposed longitudinal and transverse pieces 3, 4, 5 and 6; and on the front of the frame are arranged opposite vertical ways 7, in which are arranged parallel sides 8 of a vertically reciprocating bracket 9. The bracket 9 is provided on its top with ways disposed horizontally, and arranged transversely of a table 11, but longitudinally of the machine, and having traversing in them transverse slides 12 to which are fixed longitudinal slides 13. The longitudinal slides are arranged in the ways 14 of the table 11, and the

latter traverses the slides 13. By this disposition of slides and grooves, the table and work that may be carried by the same is given a longitudinal and transverse adjustment, and the vertical ways of the frame provide a vertical adjustment of the table.

The transverse adjustment of the table is obtained by an adjusting screw 15 which is swiveled in a vertical projection 16 of the bracket 9, and which engages a threaded opening of a depending lug 17 of an arm 18 of the outer longitudinal slide 13. The transverse adjustment is very accurate, and the adjusting screw is turned by a wrench 19 engaging a polygonal portion of a cap 20 secured to the outer end of the adjusting screw, and adapted to prevent the wrench 19 becoming detached and lost.

The longitudinal movement of the table is effected by a rock shaft 21 journaled in suitable bearings of depending arms 22 and 23 of the bracket 9 and carrying an arm 24 which engages an inverted U-shaped lug 25 whereby when the rock-shaft is turned by a crank handle 26 at its front or outer end the table will be moved longitudinally. The approximately U-shaped lug consists of similar sides and forms a recess to receive the upper end of the arm of the rock-shaft. The rock-shaft also carries horizontally extending arms 27 to facilitate the attachment of a treadle (not shown) should such a means be preferred for turning the rock-shaft to the crank handle shown. The length of the longitudinal movement of the table is regulated by screws 28 mounted in threaded openings of depending projections 29 of the table and arranged to engage the bracket 9.

The table is depressed by means of a treadle connected by vertical parallel rods 31 with the bracket 9; the vertical parallel rods 31 are arranged in perforated ears 32 of the frame, and have disposed on them spiral springs 33 which have their tension adjusted by collars 34 arranged at their upper ends; and when the treadle is depressed by the foot of the operator to lower the table, the spiral springs are compressed, whereby when the treadle is relieved of the pressure of the foot, the spiral springs will return the table to its normal position. The collars 34 are secured

on the rods at any desired adjustment by set screws, and the upper ends of the rods 31 are secured in sockets 35 of the bracket 9 by means of set screws.

5 The vertical reciprocation of the bracket 9, and the table 11 is regulated by a vertically disposed adjusting screw 36 which is mounted in a threaded opening of a projection 37 of a cross-bar 38, and it is inverted and arranged
10 to be engaged by the bracket. The adjusting screw 36 is located below the bracket, and determines the width of the cutting, the length of the cutting being regulated by the screws 28 which are disposed longitudinally
15 of the table, and the depth of the cutting being governed by the transversely disposed screw 15.

The work is adjusted on the table so that the cutting may be done at the proper place,
20 by adjustable spring gages 39 located in a longitudinal groove 40 of the table near opposite ends thereof and secured at the desired adjustment by bolts 41 which are located in slots 42 of the table. The inner portion of each gage is inclined upward, and the inner end is bent downward to form a shoulder or stop 43; and when a door or other piece
25 of work is placed on the table from either end thereof, the nearer one of the gages is depressed into the groove, when the door moves over the smooth inner face of the same and the door is moved up against the shoulder or downwardly bent end of the other gage, and is securely held when so adjusted by a
30 clamp 44. The clamp consists of a clamping foot 45 having a shank 46 terminating at its upper end in an opening 47 in which is arranged an eccentrically mounted spindle 48, and the latter connects two bearing disks 49,
40 which are journaled in forwardly projecting arms 50 of an approximately U-shaped support 51 secured to the table at the inner edge thereof and extending longitudinally of the same, and provided with extensions 52. From
45 one of the disks 49 extends a pin 53 to which is secured a handle 54 by means of which the clamp is operated. The spindle 48 is arranged eccentrically of the bearing disks 49, and as the latter turn in their bearings the spindle is raised and lowered, thereby operating the
50 clamp.

In the lower portion of the frame 1 is secured a stationary longitudinal shaft 55, and mounted loosely on the latter are stepped
55 pulleys 56 and an intermediate pulley 57. The reduced portions 58 of the stepped pulleys 56 are designed to be connected by belting (not shown) with some suitable motive power; and by having one of the belts twisted,
60 and the other one straight, the pulleys 56 will rotate in opposite directions. Motion is communicated from the stepped pulleys to a cutter shaft 59 which is journaled in suitable bearings of the frame at the top thereof by a
65 belt 60, which is arranged on a pulley 61 of the longitudinally disposed cutter shaft, a belt-shifter 62 being provided to move the

belt 60 from the stepped pulleys 56 to the pulley 57, and from the latter to either of the stepped pulleys according to the direction
70 in which the cutter shaft is to be revolved. When the belt is shifted from one of the stepped pulleys to the other the loose pulley 57, will prevent injury to the belt. Each of the pulleys 56 and 57 is provided with an oil
75 tube 63 extending from the hub to the ring, and having its outer end interiorly threaded, and provided with a screw plug 64 which serves as a stopper. These tubes are adapted
80 to contain the necessary lubricant, preferably oil, and take the place of an oil cup.

In Figs. 7 and 8 of the accompanying drawings are illustrated cutting tools 65 and 66, each of which is provided with a shank 67,
85 and is adapted to be secured in an opening or ball at the front end of the cutter shaft 59 by a set screw 68. The cutting tool 66 is adapted for rapid work, and may be employed to great advantage, but the reversible cutting
90 tool 65 is especially adapted for a finer class of work, and with it wood is less liable to split or splinter. Each cutting tool has its head provided with a regularly curved concave
95 outer front face with the peripheral or curved edges in the same vertical plane, and is provided at opposite sides with cutting edges 69 formed by recessing the head. The reversible
100 cutter or cutting tool is provided with similar oppositely disposed curved peripheral recesses of even depth forming a pair of opposite shoulders at opposite sides of the head.

The operation of the machine is as follows: The table is set by the various adjustments as above described to cut the size of mortise
105 desired, and the door is placed on the table in proper position by means of said gages and securely held by the clamp. The table is moved to the left, or back, previous to the placing of the door on the table, until the
110 screw 28 at the right hand end of the table strikes the bracket. The treadle is then depressed by the foot, carrying the bracket downward until it is stopped by the vertically disposed adjusting screw 36; and the
115 table is moved to the right by the leg of the operator pressing against the crank handle 26 until the adjusting screw at the left hand end of the table strikes the bracket. The
120 treadle is then released to permit the springs to raise the table, and the cut is complete, and is of the form illustrated in Fig. 9 of the
125 accompanying drawings, and is designed for butt hinges having rounded edges. The above is the operation when the cutting tool 66 is employed. When the other tool is used
130 the machine is reversed before the longitudinal movement of the table by shifting the belt from the stepped pulley nearer the table to the other one. The foot of the clamp is provided with a block or plate of wood 70,
135 and an intermediate layer of elastic material 71 such as rubber or the like; and this construction prevents the work clamped being bruised or otherwise injured by the clamp.

The clamp can be mounted on the table to clamp a door against the support edgewise on the table.

We desire it to be understood that changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

What we claim is—

1. In a wood-working machine, the combination of a frame, a bracket mounted for vertical reciprocation on the frame, a table carried by the bracket and mounted thereon for longitudinal and transverse movement, and a rock-shaft journaled on the bracket and disposed transversely of the table and having an arm engaging the latter to move the same longitudinally, substantially as described.

2. In a wood-working machine, the combination of a frame provided at its front with vertical ways, a bracket having opposite depending sides arranged in the ways and adapted to reciprocate therein, vertically movable rods mounted on the frame and having their upper ends connected to the bracket, a treadle secured to the lower ends of the rods, spiral springs disposed on the rods and interposed between the bracket and the frame, a table carried by the bracket and mounted thereon for longitudinal and transverse movement, and a rock-shaft journaled on the bracket and disposed transversely of the table and provided with an arm engaging the latter, substantially as and for the purpose described.

3. In a wood working machine, the combination of a frame, a horizontally disposed cutter shaft, a table provided on its lower face with ways disposed longitudinally of it, a bracket mounted for reciprocation on the frame, and provided with ways disposed transversely of the table, the parallel transverse and longitudinally disposed slides fixed together and arranged in said ways, and a rock shaft journaled on the bracket and having an arm engaging the table and arranged to move the same longitudinally, substantially as described.

4. In a wood working machine, the combination of a frame, a longitudinally disposed shaft journaled therein for carrying a cutting tool, a table provided with ways arranged longitudinally of it, a bracket mounted for vertical reciprocation on the frame and provided with ways disposed transversely of the table, the transverse and longitudinally disposed slides arranged in said ways, vertically movable rods mounted on the frame and having their upper ends connected to the bracket, a treadle secured to the lower ends of the

rods, spiral springs disposed on the rods and interposed between the bracket and the frame, a rock shaft journaled in the bracket and provided with an arm engaging the table and adapted to move the same longitudinally, and means for limiting the movements of the table, substantially as described.

5. In a wood working machine, the combination of a frame provided at its front with vertical ways, a table having on its lower face ways disposed longitudinally of it, a bracket having opposite depending sides arranged in the ways of the frame and adapted to reciprocate therein and provided with ways disposed transversely of the table, the parallel transverse and longitudinally disposed slides arranged in the ways of the table and the bracket and fixed together and provided with a depending lug having a threaded opening, a transversely disposed adjusting screw swiveled in the bracket and engaging the threaded opening of said lug, the longitudinally disposed adjusting screws carried by the table and arranged to engage said bracket, a vertically disposed adjusting screw located beneath the bracket and arranged to engage the latter, a treadle connected with the bracket and adapted to depress the same, springs for raising the bracket, a rock-shaft journaled in the bracket and having an arm engaging the table to move the latter longitudinally, and a crank handle arranged at the front end of the rock-shaft, substantially as described.

6. In a wood working machine, the combination of a frame, a horizontally disposed shaft, a table capable of vertical and longitudinal movement, and a cutting tool carried by the shaft, and arranged at the outer end thereof and having a regularly curved concave front face with the peripheral edges in the same vertical plane and provided with opposite peripheral cutting edges, substantially as described.

7. In a wood working machine, a cutter designed for cutting mortises in the faces of doors, windows, and the like, and having a concave front face and provided at opposite sides with curved peripheral recesses of equal depth forming a pair of similar cutting edges at opposite sides of the tool, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JAMES HOLMES.
KARL PETERSON.

Witnesses:

OLOF A. OLSON,
WM. O. PETERSON.