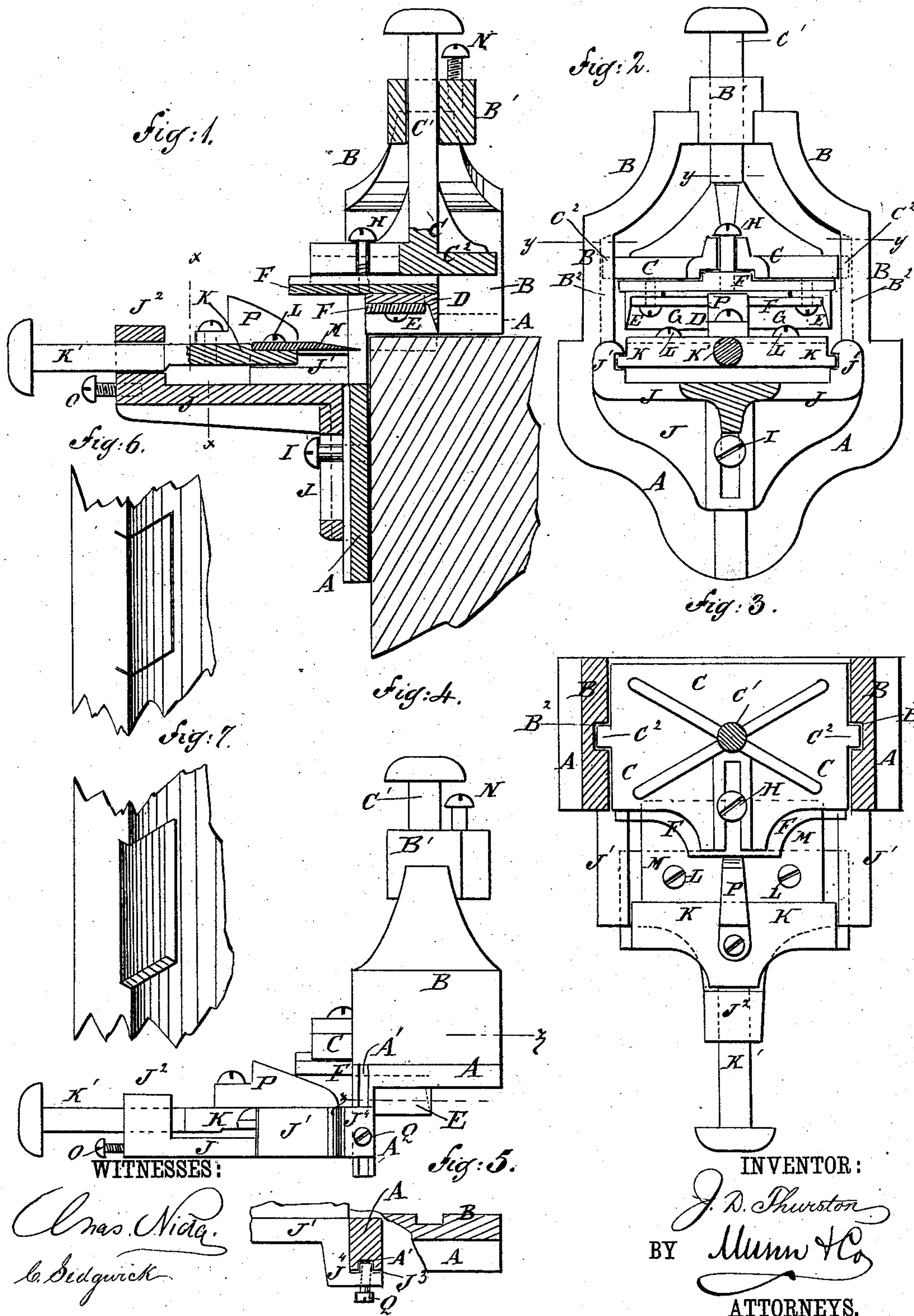


(No Model.)

J. D. THURSTON.
HINGE MORTISE MACHINE.

No. 302,058.

Patented July 15, 1884.



UNITED STATES PATENT OFFICE.

JOSEPH D. THURSTON, OF SOUTH UNION, MAINE.

HINGE-MORTISE MACHINE.

SPECIFICATION forming part of Letters Patent No. 302,058, dated July 15, 1884.

Application filed November 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH D. THURSTON, of South Union, in the county of Knox and State of Maine, have invented certain new and useful Improvements in Machines for Cutting Hinge-Mortises, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of my improvement. Fig. 2 is a rear elevation of the same, partly in section, through the line *xx*, Fig. 1. Fig. 3 is a plan view of the same, partly in section, through the broken line *yy*, Fig. 2, and parts being broken away. Fig. 4 is a side elevation of a modified form of the same. Fig. 5 is a sectional plan view of a part of the same, taken through the broken line *zz*, Fig. 4. Fig. 6 is a perspective view of a piece of timber after the side and ends of the mortise have been cut. Fig. 7 represents the same after the chip has been cut out.

The object of this invention is to facilitate the making of mortises to receive the plates of butt-hinges.

The invention consists of the several combinations and arrangements of parts, substantially as hereinafter fully set forth and claimed.

A represents a right-angled plate to fit upon the angle of the timbers in which the hinge mortise or seat is to be cut. The middle part of the plate A is cut away, as shown in Fig. 1, to allow the cutters to come in contact with the timber.

Upon the upper arm of the plate A is formed a bracket, B, the middle part of which is cut away, leaving two posts connected at their upper ends by an arched bar.

In the inner sides of the posts of the bracket B are formed longitudinal grooves *B²*, to receive the tenons *C²*, formed upon the ends of the sliding plate C.

Upon the center of the sliding plate C is formed, or to it is attached, a stem, *C'*, which passes through a guide-socket, *B'*, formed upon the center of the arched bar of the bracket B. The stem *C'* has a head formed upon its outer end to prevent it from being battered by the blows of the mallet.

D E E are cutters, the shanks of which are

bent at right angles, and are clamped between two bars, F, by two screws, G, so that the said cutters will be kept in their proper relative positions, and can be put in and taken out together. The upper clamping-bar, F, has a transverse rib upon its upper side to enter a transverse groove in the under side of the plate C, so that the cutters will be held firmly and steadily in place by a single screw, H. The plate C is slotted from its forward edge to receive the screw H, so that the bars F F can be readily moved forward and back to adjust the machine for cutting wider and narrower mortises.

To the other arm of the angle-plate A is secured, by a screw, I, the flanged base of a bracket, J, the base-flange of which is slotted to receive the screw I, so that the said bracket J can be readily adjusted to cause the machine to cut a deeper or shallower mortise, as the thickness of the hinge-plate may require.

Upon the arm of the angle-plate A is formed a rib to enter a groove in the base-flange of the bracket J, to keep the said bracket in proper position, and prevent the said bracket from turning upon the screw I.

Upon the side edges of the bracket J are formed upwardly-projecting flanges *J'*, which are grooved upon their inner sides to receive the ends of the sliding plate K.

To the center of the outer edge of the plate K is attached, or upon it is formed, a stem, *K'*, which passes out through a socket, *J²*, formed upon or attached to the upper side of the center of the outer edge of the bracket J.

Upon the outer end of the stem *K'* is formed a head to prevent the said end from being battered by the mallet.

To the upper side of the sliding plate K is secured, by screws L, a cutter, M, for cutting out the chip of the mortise.

With this construction, when the machine has been adjusted in place, a blow or two with a mallet upon the stem *C'* will cause the cutters D E E to cut the side and ends of the mortise, and a blow or two upon the stem *K'* will cause the cutter M to cut out the chip, and thus form the mortise. The depth to which the cutters D, E, E, and M enter the timber is limited by set-screws N O, which enter screw-holes in the sockets *B' J²* in such positions that the heads of the stems *C' K'*

will strike against them, and thus stop the forward movements of the said cutters.

To the forward middle part of the upper side of the plate K is attached an inclined block, P, the forward end of which projects above the rear part of the cutters M into such a position that the said block P, when the sliding plate K is forced forward, will strike against the lower side of the rear edge of the plate F, raising the said plate C and withdrawing the cutters D E E from the timber before they can be struck by the cutter M, so that the said cutters cannot come in contact and be dulled and broken when using the machine.

In the modification shown in Figs. 4 and 5 the base-flange of the bracket J is omitted, and the lower arm of the angle-plate A has its lower part cut away and grooves A' formed in its ends to receive tongues J³, formed upon the inner sides of the flanges J¹, formed upon the forward parts of the side edges of the bracket J, and projecting across the ends of the said lower arm of the angle-plate A.

The flanges J¹ are secured in place, when adjusted, by set-screws Q, so that by loosening the said screws Q the bracket J can be readily moved up and down to adjust the machine to cut shallower or deeper mortises.

If desired, the tongues J³ may project from the inner end of bracket J and work in grooves A', formed in the face of the bracket B, to which the bracket may be held by the screw Q, substantially as above described.

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

1. In a mortising-machine, the combination, with the angle-plate having a slot and a bracket, of the sliding plate or tool-carrier having a stem extending up through a guide-socket of said bracket, said carrier also having perpendicular cutters, of which two are arranged parallel to each other and at right angles to the third, substantially as and for the purpose set forth.

2. In a mortising-machine, the combination, with the angle-plate having a slot, and a bracket having the guide-socket provided with the adjustable stop, of the sliding plate or tool-carrier having a stem provided with a head and extending up through the aforesaid guide-socket,

said carrier also having cutters, of which two are arranged parallel to each other and at right angles to the third, substantially as and for the purpose set forth.

3. In a mortising-machine, the angle-plate having brackets—one upon its horizontal surface and the other upon its vertical surface—and having a right-angled slot, said brackets having guide-sockets, in combination with the sliding plates or carriers, one of the latter having perpendicular cutters, of which two are arranged parallel to each other and at right angles to the third, and the other plate or carrier having a single cutter, substantially as and for the purpose set forth.

4. In a mortising-machine, the angle-plate having on its horizontal surface a vertical bracket provided with a guide-socket, said plate also having a right-angled slot, and on its vertical surface a horizontal bracket having a guide-socket and vertically adjustable, in combination with the sliding handled plates having cutters, and one disposed to move at right angles to the other, together with means to limit their movements, substantially as and for the purpose set forth.

5. In a mortising-machine, the angle-plate provided with a slot and on its horizontal surface with a vertical bracket having a guide-socket, in combination with the vertically-sliding handled plate provided with a horizontal adjusting-slot, and a plate having a guiding-shoulder fitting in a groove in the under side of the handled plate, and having an adjusting-screw projecting through the slot of said handled plate, and knives applied to the plate adjusted to the handled plate, substantially as and for the purpose set forth.

6. In a mortising-machine, the vertically-sliding handled plate carrying knives or cutters and adjusted in a vertical bracket of the angle-plate, in combination with the horizontally-sliding handled plate carrying cutters or knives, and supported in a horizontal bracket of the angle-plate, and the beveled block affixed to the latter handled plate, and adapted to elevate the former handled plate, substantially as and for the purpose set forth.

JOSEPH D. THURSTON.

Witnesses:

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