J. ANDERSON.

MORTISING TOOL.

APPLICATION FILED JUNE 22, 1906.

912,523.

Patented Feb. 16, 1909.

2 SHEETS—SHEET 1.

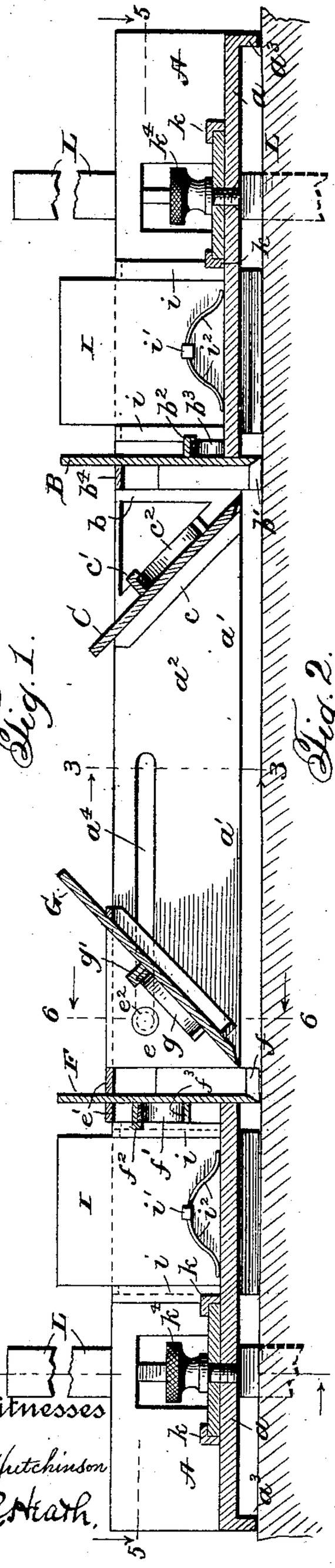

Fig. 1.

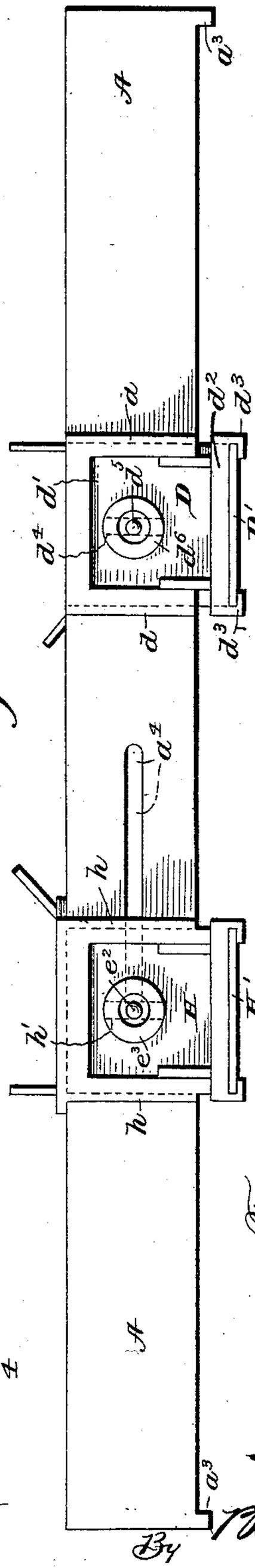

Fig. 2.

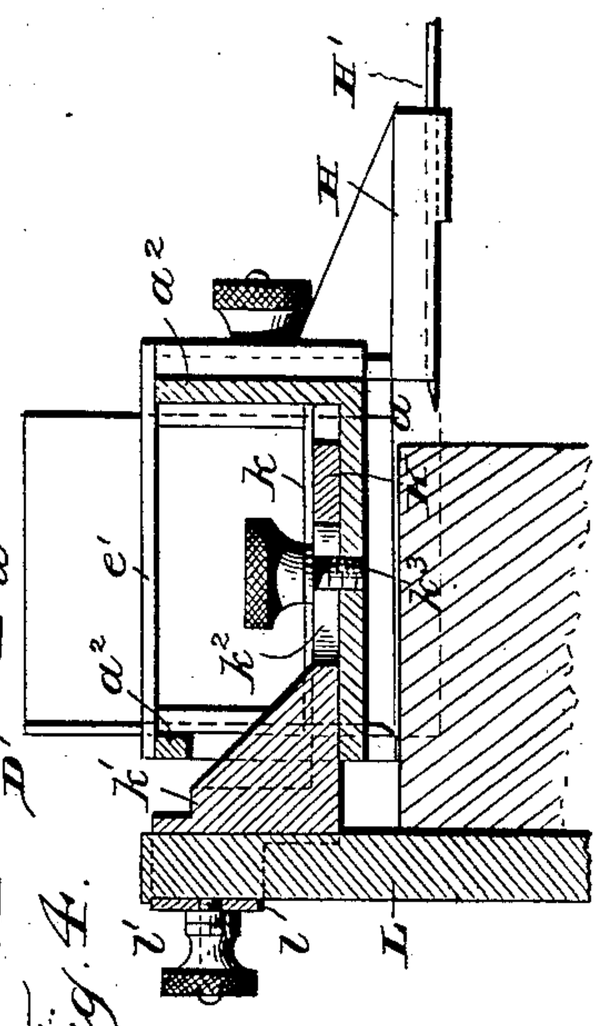

Fig. 4.

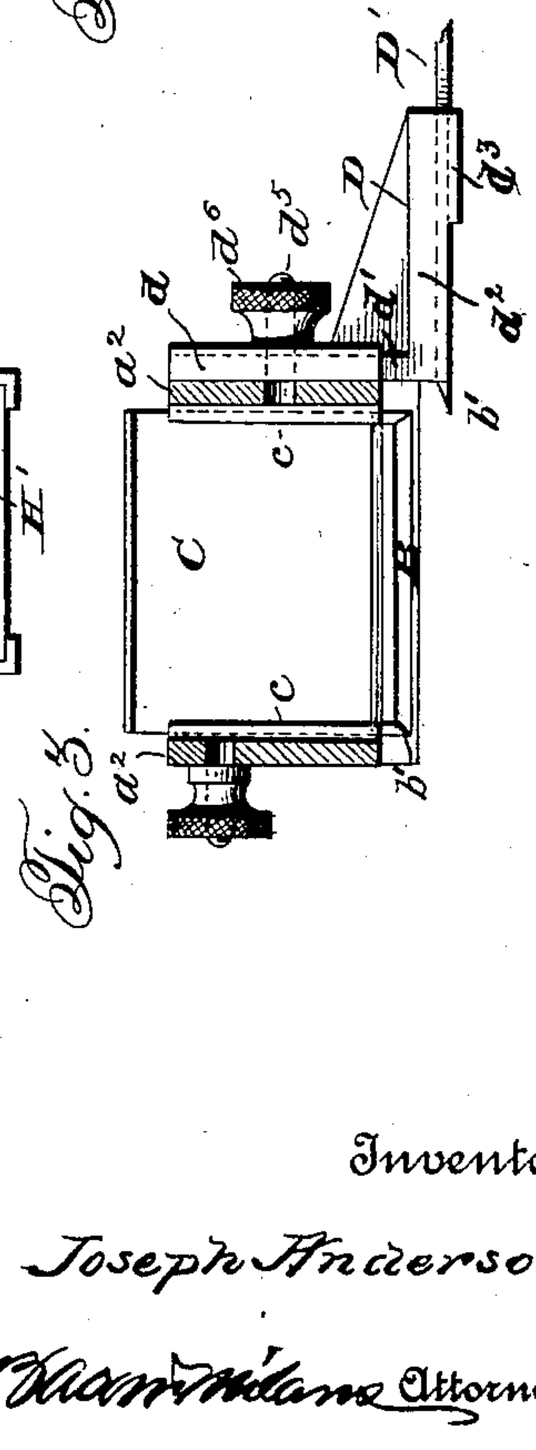

Fig. 5.

Witnesses

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2 SHEETS—SHEET 2.

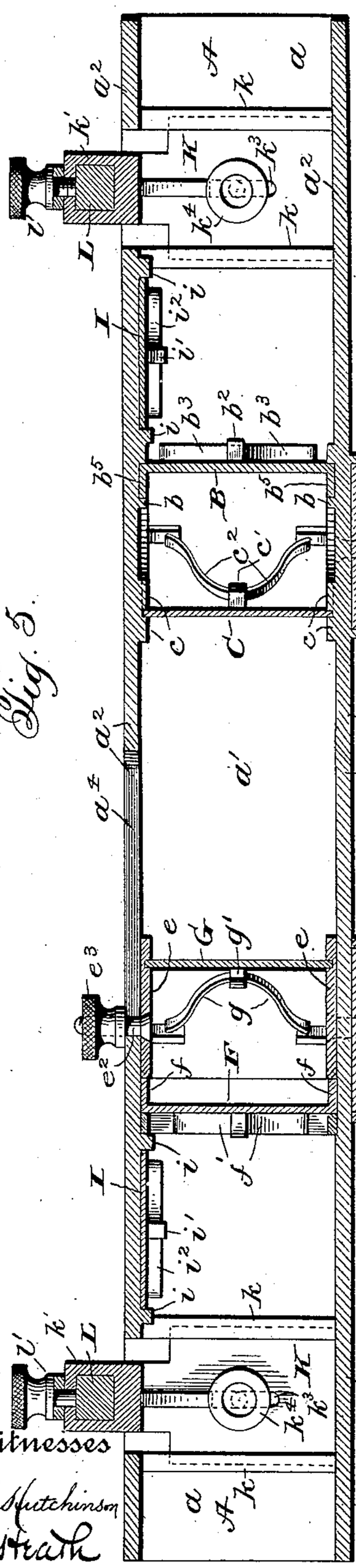

Fig. 5.

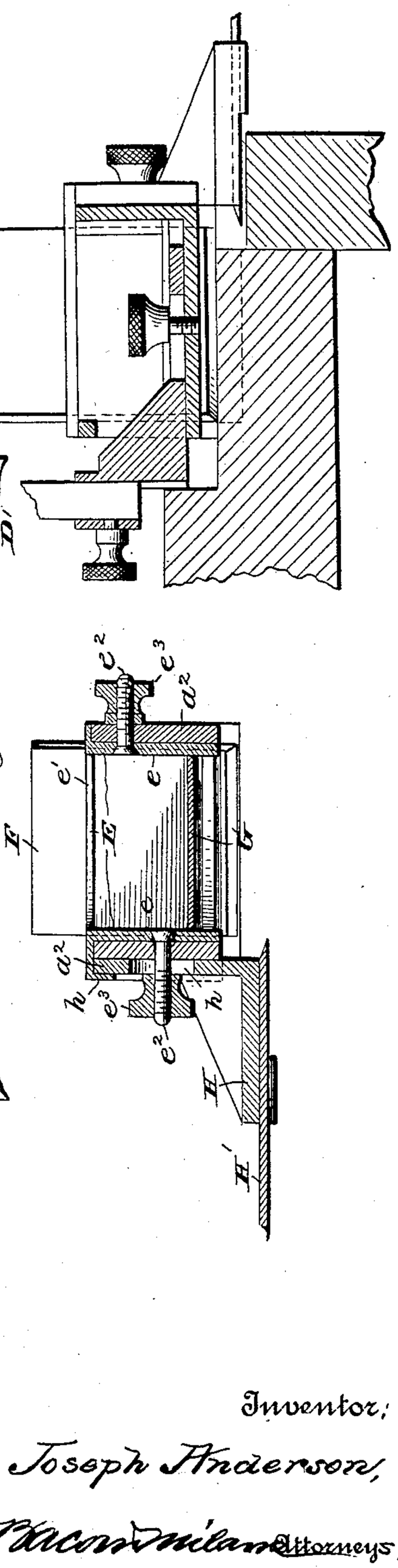

Fig. 7.

Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

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MORTISING-TOOL.

No. 912,523. Specification of Letters Patent. Patented Feb. 16, 1909.

Application filed June 22, 1906. Serial No. 322,894.

To all whom it may concern:

Be it known that I, JOSEPH ANDERSON, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Mortising-Tools, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to an improvement in mortising tools and more particularly to a mortising tool designed for use in forming hinge seats in doors, door jambs and the like.

The object of the present invention is the provision of a tool of this character which may be readily adjusted for cutting hinge seats of various dimensions.

Other objects of the invention will be apparent from the detailed description hereinafter when read in connection with the accompanying drawings forming a part hereof, wherein a preferable embodiment of my invention is shown, and wherein like letters of reference refer to similar parts in the several views.

In the drawings, Figure 1 is a longitudinal section of my improved mortising machine. Fig. 2 is a side elevation. Fig. 3 is a section on line 3—3 of Fig. 1. Fig. 4 is a section on line 4—4 of Fig. 1. Fig. 5 is a section on line 5—5 of Fig. 1, and Fig. 6 is a section on line 6—6 of Fig. 1.

Referring now more particularly to the drawings, A designates the frame of my improved tool, which comprises a base a, the central portion of which is cut away as at a', and the walls a^2 extending upwardly from the sides of the base a. The extremities of the base a of the frame A are provided with downwardly projecting lugs a^3 extending transversely thereof, which form supports for the frame so that the same may be moved readily longitudinally over the work.

The walls a^2 of the frame are provided on their inner surfaces adjacent one end of the opening in the base a of the frame with vertically disposed guides b and slidably mounted in said guides is a vertically disposed cutting bit B, the body portion of which extends transversely of the frame A and is adapted to cut one end of the hinge seat when actuated. The bit B is provided with portions b' extending substantially at right angles from the sides thereof and the lower edges of said extensions b' are sharpened to form cutting edges which extend from the ends of the cutting edge of the bit proper and form a continuation thereof, so that the actuation of said bit will insure the hinge seat being cut with a square corner. the forward face of the bit B is provided with a lug b^2, which is adapted to engage a spring b^3 which is supported upon the base a of the frame of the tool, said spring serving to normally maintain the bit in an elevated position with the cutting edge thereof positioned above the plane of the lower edges of the lugs a^3 at the ends of the tool so that when the tool is placed upon the work the bit will not contact therewith until properly actuated. The upper ends of the portions b' of the bit B are adapted to abut against the under side of a cross bar b^4 connecting the upper portions of the walls a^2 of the frame and thereby limit the upward movement of the bit B in the guides b.

The inner faces of the walls a^2 of the frame of the tool are provided at one side of the guides b with the inclined guides c, in which is movably supported a bit C, the cutting edge of which is adapted when the bit is moved downwardly in its guides to be brought into proximity to the cutting edge of the bit B to cut out the chip previously scored thereby, as will be hereinafter pointed out. The upper surface of the bit C is provided with a lug c' which is adapted to engage a spring c^2 which is supported in any suitable manner, said spring serving to normally maintain the bit C in an elevated and inoperative position above the work. The upper ends of the guides c are closed to form stops against which shoulders on the bit C abut to limit the upward movement thereof.

The front wall of the frame of the tool is provided on its outer face adjacent the bit B with a pair of vertically disposed guides d in which is slidably secured a tool carrier D. The tool carrier D comprises a vertically disposed portion d' which is slidably secured between the guides d and a horizontally disposed portion d^2 which projects outwardly from the lower end of said vertically disposed portion. The horizontally disposed portion d^2 of the tool carrier D is provided on its under side with a pair of guides d^3 extending lengthwise thereof, in which is slidably secured a cutting bit D'. The vertically disposed portion d' of the tool carrier

D is provided with a vertically extending slot d^4 therein, through which projects the threaded end of a bolt d^5, which is secured in the front wall of the frame of the tool. The projecting end of the bolt d^5 has threaded thereon a thumb nut d^6 and from this construction it will be apparent that the tool carrier D can be readily adjusted and locked in any desired position in the guides d to vary the depth of the mortise desired to be cut.

E designates a head which is slidably secured between the walls a^2 of the frame and is adjustable towards and away from the cutting bit B. The head E comprises side walls e, which are designed to fit snugly against the inner faces of the walls a^2 of the frame, and the top plate e', which is arranged to rest upon the upper edges of the walls of the frame. Secured in the side walls e of the head E and projecting outwardly therefrom are bolts e^2, the threaded ends of which project through longitudinal slots a^4 formed in the walls a^2 of the frame of the tool and have threaded thereon suitable thumb nuts e^3, so that the head may be clamped in any desired position of adjustment in the frame.

Slidably secured in the head E is a vertically disposed cutting bit F which is provided with portions extending at right angles from the edges thereof, the lower edges of which are sharpened to form a continuation of the cutting edge of the bit proper, said bit being similar in construction to the bit B hereinbefore described. The bit F is normally held in its elevated position by a spring f' interposed between a lug f^2 secured to the front thereof and lugs f^3 projecting from the sides of the frame E. The upward movement of the bit F in its guides is limited by the upper edges of the portions f thereof coming into contact with the under side of the top plate e' of the frame E.

Slidably secured in inclined guides formed on the inner surface of the side walls e of the frame E is a bit G, which is similar in construction to the bit C hereinbefore described and is designed to coöperate with the bit F in the same manner in which the bit C coöperates with the bit B. The bit G is held in its elevated or inoperative position by a spring g which is supported in any suitable manner upon the head E and engages a lug g' projecting from the top surface of the bit G.

The top plate e' of the head E has depending from one edge thereof a pair of vertically disposed guides h, which are designed to lie along side of the outer surface of the front wall of the frame of the tool, and slidably secured in the guides h is a tool carrier H, which is similar in construction to the tool carrier D hereinbefore described. A horizontally disposed bit H′ is slidably secured in the tool carrier H in the same manner in which the bit D′ is secured in the tool carrier D. The vertically disposed portion of the tool carrier H is provided with a vertically extending slot h' through which one of the bolts e^2 hereinbefore referred to extends, from which it will be apparent that the same thumb nut e^3 which serves to lock the head E in its adjusted position also serves to lock the tool carrier H in any desired position of adjustment.

The inner face of the rear wall a^2 of the frame of the tool is provided on opposite sides of the opening in the base thereof with two pairs of vertically disposed guides, in which are slidably mounted the cutting bits I, the lower ends of which project through suitable slots formed in the base a of the frame of the tool. The outer faces of the bits I are provided with lugs i' which engage springs i^2 supported in any suitable manner upon the base a of the frame of the tool, said spring serving to normally maintain the bits I in their elevated or inoperative position. The guides i are closed at their upper ends to form stops which cooperate with shoulders on the blades i to limit the movement of said blade in said guides.

The bottom plate a of the frame of the tool is provided beyond the bits I with two pairs of guides k extending transversely there across and slidably secured between the guides k are two plates K. the rear ends of which project through suitable openings formed in the rear wall a^2 of the frame of the tool and terminate in the upwardly extending portions k'. The plates K are locked in any desired position of adjustment by means of thumb screws k^4 provided with threaded shanks k^3 which project through slots k^2 extending longitudinally of the plates K and engage threaded openings in the base a of the frame of the tool.

The upwardly extending portions k' of the plates K are provided adjacent their upper ends with vertically disposed sleeves l in which are loosely mounted the vertically extending gage bars L. The sleeves l are provided with suitable set screws i' for holding the gage bars in various positions of adjustment therein. The vertically extending portions k' of the plates K form a straight edge which extends at right angles to the base of the frame of the tool so that when the gage bars L are clamped thereto, they will also extend at right angles to the base of the frame of the tool.

Having described the construction of my improved tool, I will now set forth the manner of using the same:

The door is first fitted to the jamb and both door and jamb marked to indicate the position of the hinge seats which are to be cut therein. To cut the hinge seats in the

jamb, the head E is adjusted in the frame A until the distance between the bits F and B is equal to the length of the hinge seat which is to be cut. The tool carriers H and D are then adjusted according to the depth of the mortise which is to be cut. The gage bars L are then elevated so that no part thereof projects below the sleeves *l* and are secured in this position. The tool is then placed in the rabbet of the jamb with the backs of the upwardly extending portions *k'* of the plates K abutting against the edge of the rabbet. The thumb screws *k*⁴ are loosened and the frame of the tool is adjusted relative to the plates K until the proper width for the mortise is obtained, when said thumb nuts are tightened. To cut each mortise or hinge seat, place the tool on the jamb with the bits F and B overlying the lines which have been marked to indicate the ends of the particular hinge seat which is to be cut, and with the tool in this position strike on the bits F and B, which as has been previously pointed out have been adjusted to give the proper length to the mortise; then strike the bits C and G to cut out the chips previously scored by bits F and B; then move the tool longitudinally of the jamb in either direction a slight distance at a time, and in each position to which the tool is shifted strike first whichever one of the perpendicular bits F and B that still remains within the lines of the mortise to be cut and then on the proper inclined bit to remove the chip which has been scored by the perpendicular bit. According to whether the bit F or B is struck will of course depend upon the direction in which the tool is shifted on the jamb. The fact that either bit may be utilized, however, is of importance, inasmuch as frequently the hinge seats are placed so close to the bottom and top of the door jamb that it would be possible to move the tool on the jamb in one direction to a limited extent only.

In cutting the mortise the longitudinal movement of the frame on the jamb may be continued in one direction until the entire length of the mortise has been cut, or until about one-half of the mortise has been cut. In the latter case, the frame is first moved back to its original position and then moved longitudinally in the opposite direction to different positions on the jamb, the other of the vertically disposed bits F and B, together with its corresponding inclined bit being utilized to cut the mortise. After the mortise has been scored by either or both of the bits F and G and their corresponding inclined bits, in the manner above described, the back of the mortise is scored by the actuation of either of the back bits I, the frame being first moved to bring the desired bit into proper position. After the mortise has been scored and the back cut in the manner above described, the frame of the tool is then shifted to bring either of the horizontal bits H' and D' into position to remove the chips previously scored. Generally, but one of the back bits I and one of the horizontal bits H' or D' are utilized to cut the back of the mortise and to remove the chips scored, but, as has been heretofore pointed out, it frequently happens that in cutting mortises in jambs, the longitudinal movement permitted the frame of the tool in one direction is insufficient to permit the entire mortise to be traversed by a single bit, in which case, the frame can be moved longitudinally in the opposite direction and the other bit of the same character brought into position to cut the remainder of the mortise. The hinge seats on the door are cut in exactly the same manner except that the gage bars L are lowered and secured in the sleeves *l* so that the inner faces thereof will engage with one side of the door and serve to support the tool in the proper position thereon as is shown in Fig. 4 of the drawing.

I do not desire to limit myself to the precise form and construction shown in the drawings, as it is obvious that many minor changes might be made thereto without departing from the spirit of the invention as defined in the appended claims.

I claim:

1. In a mortising tool, a frame comprising separated parallel side bars, a vertically disposed bit slidably secured between the side bars of said frame and an inclined bit slidably secured between the side bars of the frame adjacent said first-mentioned bit.

2. In a mortising tool, a frame, a vertically disposed bit slidably secured therein, and an inclined bit slidably secured in the frame adjacent said first-mentioned bit and adapted to coöperate therewith.

3. In a mortising tool, a frame comprising separated parallel side walls, a vertical movable end bit slidably secured between the side walls of said frame, a head mounted between the side walls of the frame and adjustable longitudinally of the frame, and a vertically movable end bit carried by said head.

4. In a mortising tool, a frame, relatively fixed vertically and horizontally movable bits mounted therein, and vertically and horizontally movable bits secured in said frame and adjustable towards and away from said first mentioned bits.

5. In a mortising tool, a frame, relatively fixed vertically and horizontally movable bits secured therein, a head adjustably mounted in said frame, and horizontally and vertically movable bits mounted in said head.

6. In a mortising tool, a frame, a vertically disposed bit movably mounted therein, an inclined bit movably mounted in the

frame adjacent said first mentioned bit, a head adjustably secured to the frame, and vertical and inclined bits movably supported in said head.

7. In a mortising tool, a frame, a vertically movable bit slidably mounted therein, an inclined bit slidably mounted in the frame adjacent said first mentioned bit, a head secured to the frame and adjustable longitudinally thereof, a vertically disposed bit slidably secured in said head, and an inclined bit slidably secured in said head adjacent said vertically disposed bit.

8. In a mortising tool, a frame, opposed vertically movable angular bits supported therein, and adjustable to vary the distance therebetween and a horizontally movable bit supported therein.

9. In a mortising tool, a frame, oppositely disposed vertically movable angular bits secured therein, and adjustable to vary the distance therebetween and a vertically adjustable horizontally movable bit supported in said frame.

10. In a mortising tool, a frame, opposed vertically movable angular bits supported therein, and adjustable to vary the distance therebetween, a vertically adjustable tool carrier secured to the frame, and a horizontally movable bit secured in said tool carrier.

11. In a mortising tool, a frame comprising separated parallel side walls, vertical movable end bits mounted between the side walls of said frame and adjustable to vary the distance therebetween, a vertical adjustable tool carrier secured to one of the side walls of the frame, and a longitudinally movable bit mounted in said tool carrier.

12. In a mortising tool, a frame, a relatively fixed vertically movable end bit secured therein, a head adjustably mounted in said frame, a vertically movable end bit mounted in said head, a vertically adjustable tool carrier secured to said head, and adjustable therewith and a horizontally movable bit mounted in said tool carrier.

13. In a mortising tool, a frame comprising separated parallel side walls, a vertically movable end bit slidably mounted in guides carried by the side walls of the frame, a head adjustably mounted between the side walls of the frame, a vertical movable end bit mounted in said head, a tool carrier secured to the head and adjustable therewith, a horizontally movable bit mounted in said tool carrier, and means for adjusting said tool carrier relative to said head.

14. In a mortising tool, a frame comprising separated parallel side walls, a vertically movable end bit mounted between the side walls of the frame, a vertically movable bit extending at right angles to said first-mentioned bit mounted on one of the side walls of the frame, a tool carrier secured to the other side wall of the frame, and a horizontally movable bit mounted in said tool carrier.

15. In a mortising tool, a frame comprising a body adapted to be supported upon the work, a pair of opposed cutting bits of angular cross section movably supported in the body of the frame and adjustable to vary the distance therebetween.

16. In a mortising tool, a frame, a plurality of bits movably supported therein, a pair of laterally adjustable plates secured to and projecting beyond said frame, said plates terminating in vertically disposed sleeves, and gage bars adjustably supported in said sleeves.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH ANDERSON.

Witnesses:

H. L. GILL,

CHRISTIAN MURDOCH.