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HINGE SEAT MORTISING TOOL

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2 Sheets-Sheet 1

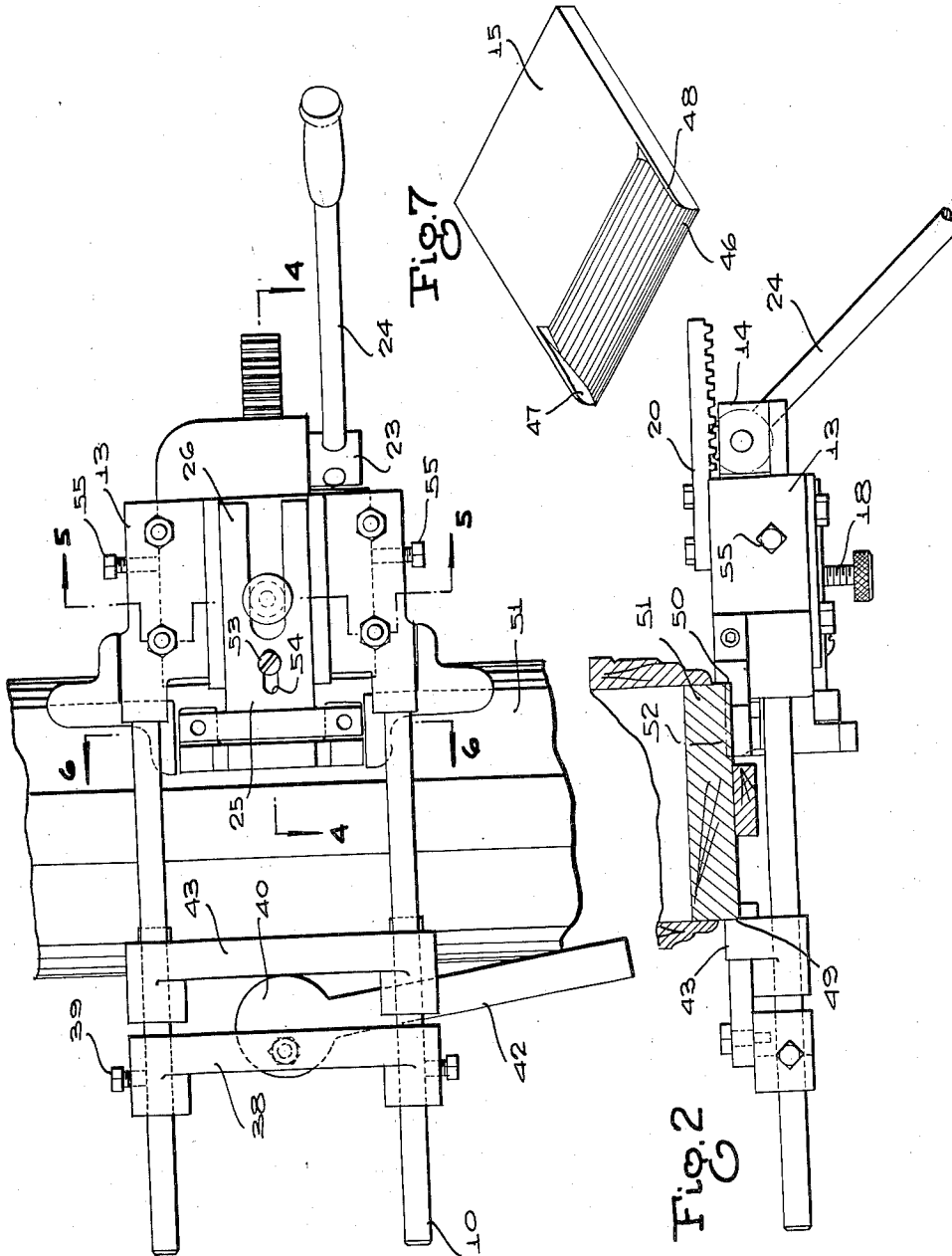


Fig. 1

Fig. 2

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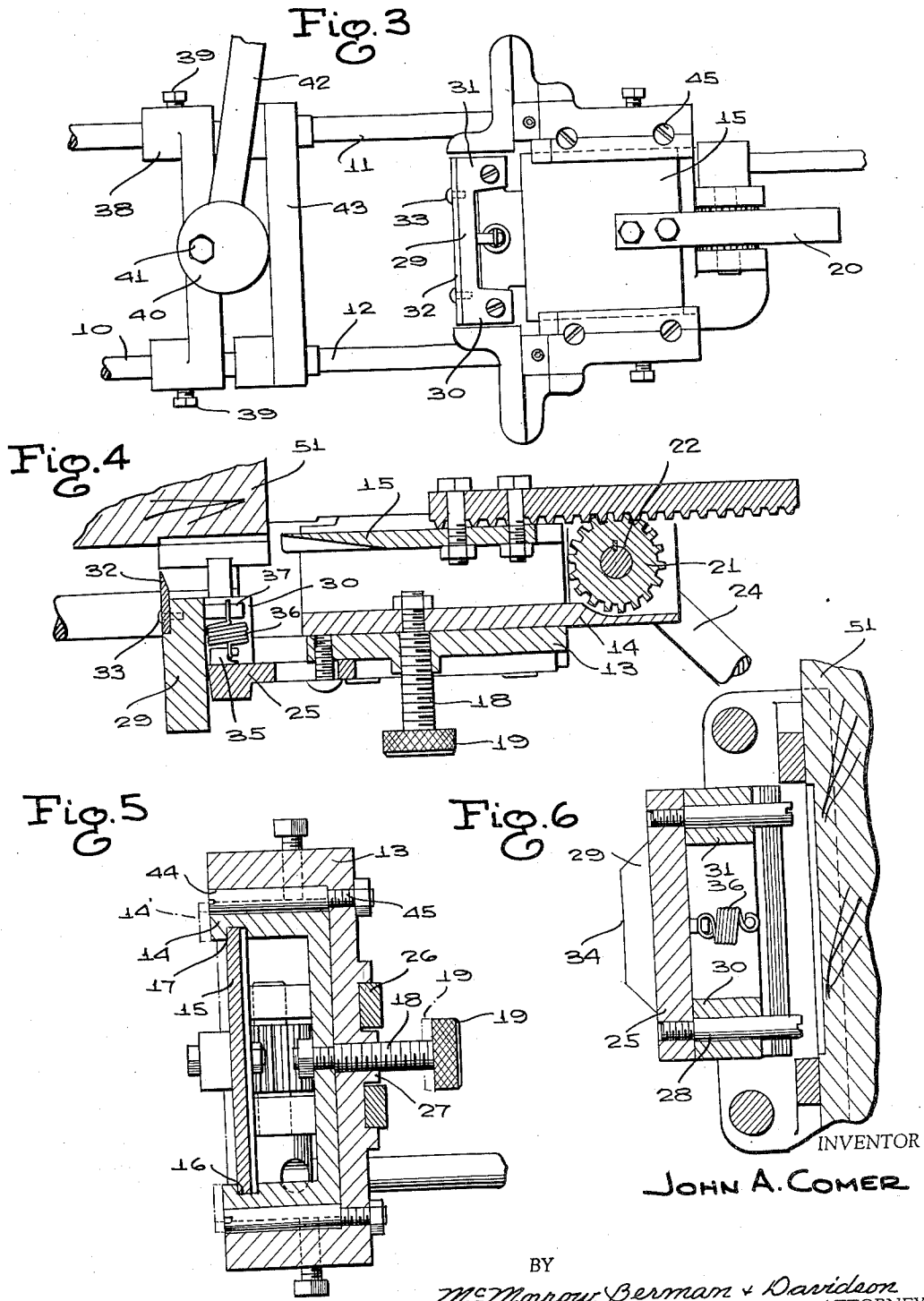
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HINGE SEAT MORTISING TOOL

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3 Claims. (Cl. 144-27)

The present invention relates to wood working machines and in particular to a mortising tool for forming mortises in doors and door jambs.

The primary object of the present invention is to provide a new and improved mortising tool for forming mortises in doors and door jambs quickly and easily, and one having a single blade cutting the bottom and sides of the mortise simultaneously.

Another object of the present invention is to provide a mortising tool which is quickly adjusted and clamped upon the door or door jamb and one which may cut mortises of all sizes either by replacing the single side and bottom cutting blades or by moving the blade along the door to cut mortises of greater length.

A further object of the present invention is to provide a mortising tool of sturdy and foolproof construction, one economical to construct, and one having a minimum of parts to get out of adjustment or alignment.

These and other objects and advantages of the present invention will be fully apparent from the following description, when taken in connection with the annexed drawings, in which:

Figure 1 is a side view in elevation of a machine of the present invention attached to a door jamb,

Figure 2 is a vertical view of the present invention,

Figure 3 is a top plan view,

Figure 4 is a vertical view in cross-section on line 4-4 of Figure 1,

Figure 5 is an end view in cross-section on line 5-5 of Figure 1,

Figure 6 is a further end view on line 6-6 of Figure 1, and

Figure 7 (Sheet 1) is an isometric view of the particular cutting blade of the present invention.

Referring in greater detail to the drawings in which like numerals indicate like parts throughout the several views, the invention consists of a frame 10 formed of a pair of bar members 11 and 12 spaced apart from each other in parallelism. A blade carrying base 13 extends between and is connected to the bar members 11 and 12. The base 13 is of U-shape in cross section, as seen most clearly in Figure 5 and has within it the carriage 14 which is slidable within the base 13 and carries with it the demountable blade 15.

The carriage is also of U-shape in cross section and has a slot on each of its legs, as indicated by the reference numerals 16 and 17, in which the side edges of the blade 15 fit so that the blade is movable relative to the carriage 14.

A bolt 18 having a knurled end 19 is threadedly engaged in the base 13 and operates to move the carriage 14 toward and away from the base 13 so that the depth of the mortise may be varied to suit the thickness of a hinge leaf.

A rack gear 20 is secured to the back end of the blade 15 and projects outwardly therefrom and is in mesh with

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a spur gear 21 journaled at the rear end of the carriage 14. The shaft 22 to which the spur gear 21 is keyed has an enlarged one end 23 provided with sockets into which fits the one end of the operating handle 24, as seen most clearly in Figure 1.

A plate 25 is secured to the forward end of the base 13 and has a bifurcated one end 26 the legs of which extend one on each side of a boss 27 projecting upwardly from the bight portion of the base 13.

From the underside of the plate 25 a pair of pins 28 (Fig. 6) project, being threadedly received by their one end in threaded holes in the plate 25, the pins 28 forming guides for a blade carrying block 29, also of U-shape in cross section and having legs 30 and 31 provided with apertures through which the pins 28 extend.

A vertically extending blade 32 (Figure 4) is secured by means of the bolts 33 to the front face of the block 29, the top of which, as seen in profile in Figure 6, is provided with an anvil face 34 which is struck with a mallet or hammer to drive the blade 32 into the door jamb or door to cut the end of the mortise.

A hook 35 projects from the underside of the plate 25 and receives one end of a spring 36, the other end of which is fastened to a pin 37 projecting from the rear face of the block 29 in order to bias the blade 32 upwardly away from the wood of the door jamb or door.

A work piece engaging clamping member 43 is carried by the bar members 11 and 12 for sliding movement toward and away from the base 13. A bar 38 is arranged transversely of the bar members 11 and 12 and on the side of the clamping member 43 remote from the base 13 and spaced from the clamping member 43 and is slidably movable on the bar members 11 and 12. An element or set screw 39 is movably carried by the bar 38 and is engageable with the adjacent bar member 11 or 12 for securing the bar 38 in any position of its sliding movement to the bar members 11 and 12. A cam 40 is rotatably carried by the bar 38 intermediate its ends as by being eccentrically mounted on a bolt 41 carried by the bar 38 (Figure 3), and engages the clamping member 43, the cam 40 being provided with a handle 42 by means of which the sliding movement of the clamping member 43 is effected. As seen most clearly in Figures 3 and 5, the legs of each of the base 13 and the carriage 14 are formed with confronting grooves 44 in which are positioned the guide pins 45 for guiding the carriage 14 toward and away from the base 13 when adjusted by the bolt 18. In Figure 5 the dotted line position of the base 14 is indicated by the reference numeral 14' showing the blade has been extended to cut deeper into the door or door jamb, the position of the knurled end of the bolt 18 being indicated by the reference numeral 19'.

Referring to Figure 7, the blade 15 is shown in detail, having a cutting edge formed along the front edge portion of one face and being formed with a pair of cutting edges 47 and 48 projecting perpendicularly from the one face of the blade 15 along each of its side edges adjacent to and being contiguous with the cutting edge 46.

As seen in Figure 2, both the clamp member 43 and the base 13 are provided with shoulders indicated by the reference numerals 49 and 50, respectively, against which is positioned the wooden piece 51 forming part of a door jamb construction for the purpose of making a mortise cut indicated by the dotted lines 52. In use, the tool is brought to the proper position upon the wooden piece 51 or upon a door (not shown) and the set screws 39 permit the bar 38 to be moved on the frame 10 so that the clamp member 43 can engage the wooden piece 51 on the one side with the other side engaged by the base 13.

A screw 53 operating in the slot 54 in the plate 25 per-

mits the adjustment of the blade 32 which cuts the end of the mortise as shown in Figure 4.

When the bolt 18 has been adjusted to position the blade 15 upwardly or downwardly so as to cut a narrow or deep cut, depending upon the thickness of the hinge leaf, the set screws 55 (Figures 1 and 2) are tightened so that the carriage 14 is held immovable with respect to the base 13.

In use, after the blade 15 has been adjusted toward or away from the base 13 to make a deeper or shallower mortise, swinging movement of the operating handle 24 will advance the rack gear 20, moving the blade through the wood of the door jamb or door with the cutting edge 46 making the bottom cut and the pair of side cutting edges 47 and 48 cutting the sides of the mortise.

A hammer blow upon the anvil face 34 then makes the end cut in the mortise completely severing the piece of wood, which is removed when the tool has been unclamped from the door jamb or door.

While only a single embodiment of the present invention has been shown and described, other embodiments may be made and practiced within the scope of the appended claims without departing from the spirit of the invention.

What is claimed is:

1. A mortising tool comprising a base, a pair of bar members disposed in parallel spaced relation extending from one side of said base, a work piece engaging clamping member carried on said bar members for sliding movement toward and away from said base, a bar arranged transversely of said bar members and on the side of said clamping member remote from said base and spaced from said clamping member and slidably movable on said bar members, an element movably carried by said bar and engageable with the adjacent bar member for securing said bar in any position of its sliding movement to said bar members, a cam rotatably carried by said bar intermediate its ends and engaging said clamping member for effecting the sliding movement of the latter member, said base being formed with a work piece engaging shoulder disposed opposite to said clamping member, a blade carriage positioned within said base and connected to said base for movement toward and away from the latter, means carried by said base and engageable with said carriage for holding said carriage in any selected position of its movement relative to said base, a blade positioned on said carriage and connected to the latter for movement into and out of engagement with a work piece held between said clamping member and said shoulder, said blade being formed on one face and at the one end normally adjacent said shoulder with a mortise bottom cutting edge and being formed on each of its side edges adjacent said mortise bottom cutting edge with a mortise side cutting edge.

2. A mortising tool comprising a base, a pair of bar members disposed in parallel spaced relation extending from one side of said base, a work piece engaging clamping member carried on said bar members for sliding movement toward and away from said base, a bar arranged transversely of said bar members and on the side of said clamping member remote from said base and spaced from said clamping member and slidably movable on said bar members, an element movably carried by said bar and engageable with the adjacent bar member for securing said bar in any position of its sliding move-

ment to said bar members, a cam rotatably carried by said bar intermediate its ends and engaging said clamping member for effecting the sliding movement of the latter member, said base being formed with a work piece engaging shoulder disposed opposite to said clamping member, a blade carriage positioned within said base and connected to said base for movement toward and away from the latter, means carried by said base and engageable with said carriage for holding said carriage in any selected position of its movement relative to said base, a blade positioned on said carriage and connected to the latter for movement into and out of engagement with a work piece held between said clamping member and said shoulder, said blade being formed on one face and at the one end normally adjacent said shoulder with a mortise bottom cutting edge and being formed on each of its side edges adjacent said mortise bottom cutting edge with a mortise side cutting edge, and a mortise end cutting blade disposed transversely between said tubular members and adjustably connected to said base for movement into and out of engagement with a work piece held between said clamping member and said shoulder.

3. A mortise tool comprising a base, a pair of bar members disposed in parallel spaced relation extending from one side of said base, a work piece engaging clamping member carried on said bar members for sliding movement toward and away from said base, a bar arranged transversely of said bar members and on the side of said clamping member remote from said base and spaced from said clamping member and slidably movable on said bar members, an element movably carried by said bar and engageable with the adjacent bar member for securing said bar in any position of its sliding movement to said bar members, a cam rotatably carried by said bar intermediate its ends and engaging said clamping member for effecting the sliding movement of the latter member, said base being formed with a work piece engaging shoulder disposed opposite to said clamping member, a blade carriage positioned within said base and connected to said base for movement toward and away from the latter, means carried by said base and engageable with said carriage for holding said carriage in any selected position of its movement relative to said base, a blade positioned on said carriage and connected to the latter for movement into and out of engagement with a work piece held between said clamping member and said shoulder, said blade being formed on one face and at the one end normally adjacent said shoulder with a mortise bottom cutting edge and being formed on each of its side edges adjacent said mortise bottom cutting edge with a mortise side cutting edge, a mortise end cutting blade disposed transversely between said tubular members and adjustably connected to said base for movement into and out of engagement with a work piece held between said clamping member and said shoulder, and spring means normally biasing said mortise end cutting blade out of its work piece engaging position.

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