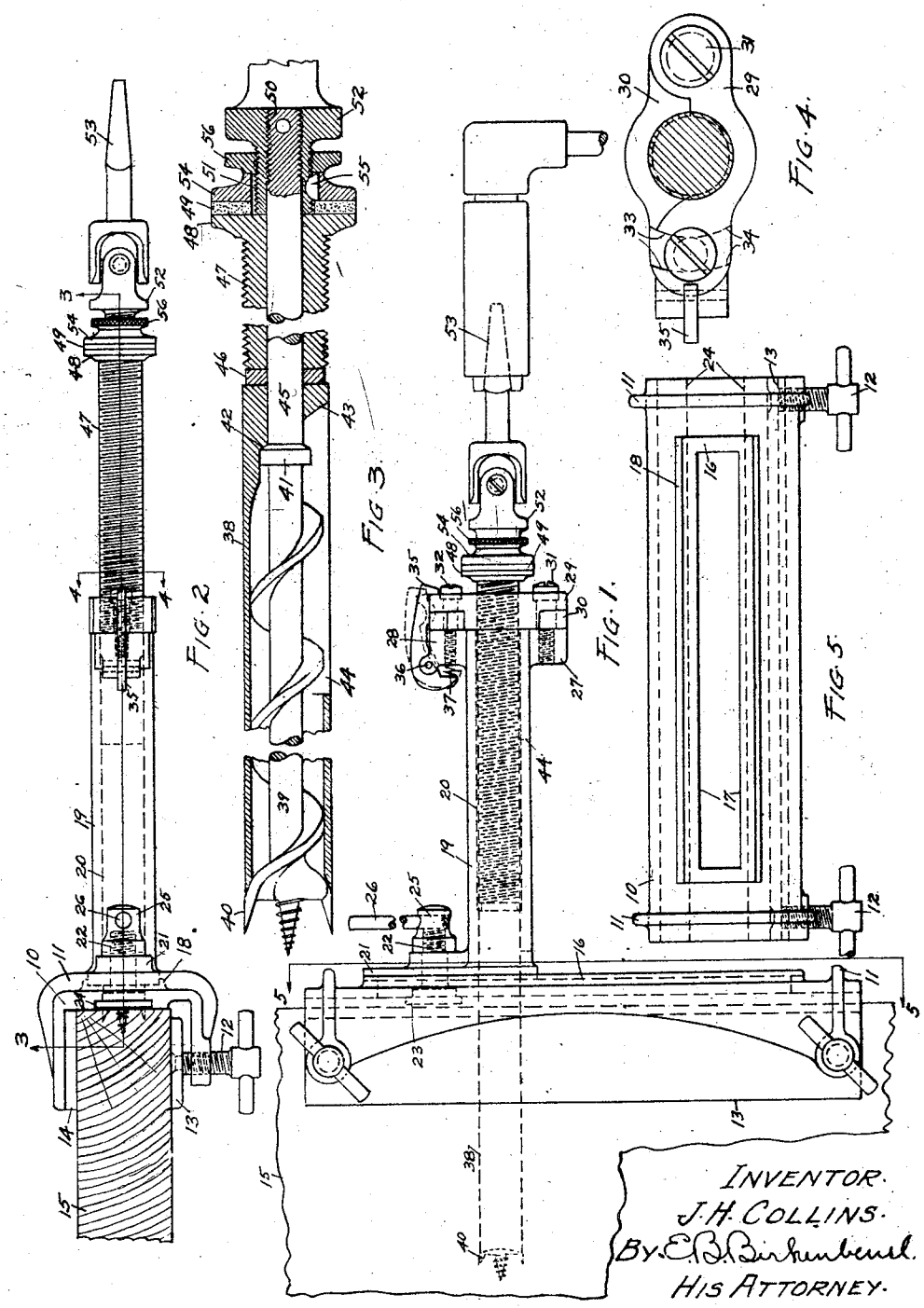
April 13, 1926. 1,580,412

J. H. COLLINS

MORTISING TOOL

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April 13, 1926.

1,580,412

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MORTISING TOOL

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2 Sheets-Sheet 2

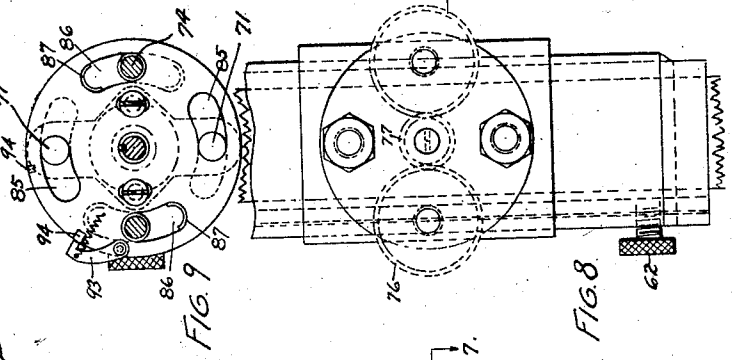


FIG. 9

FIG. 8

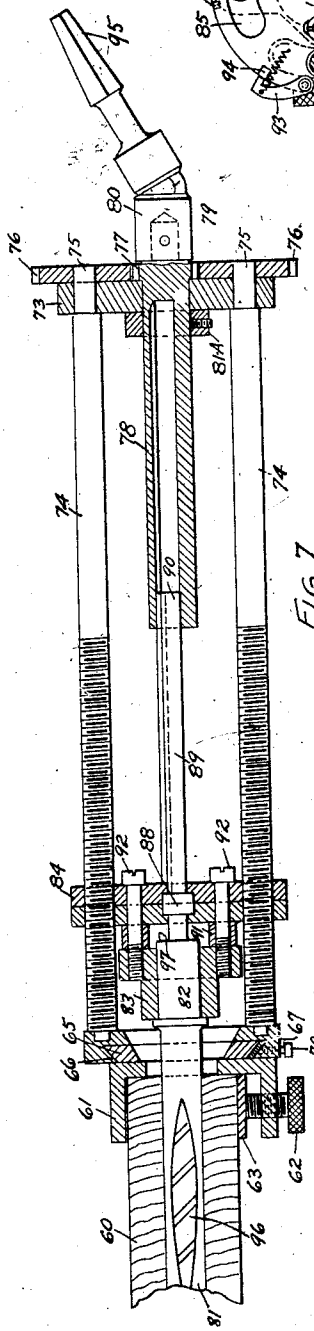


FIG. 7

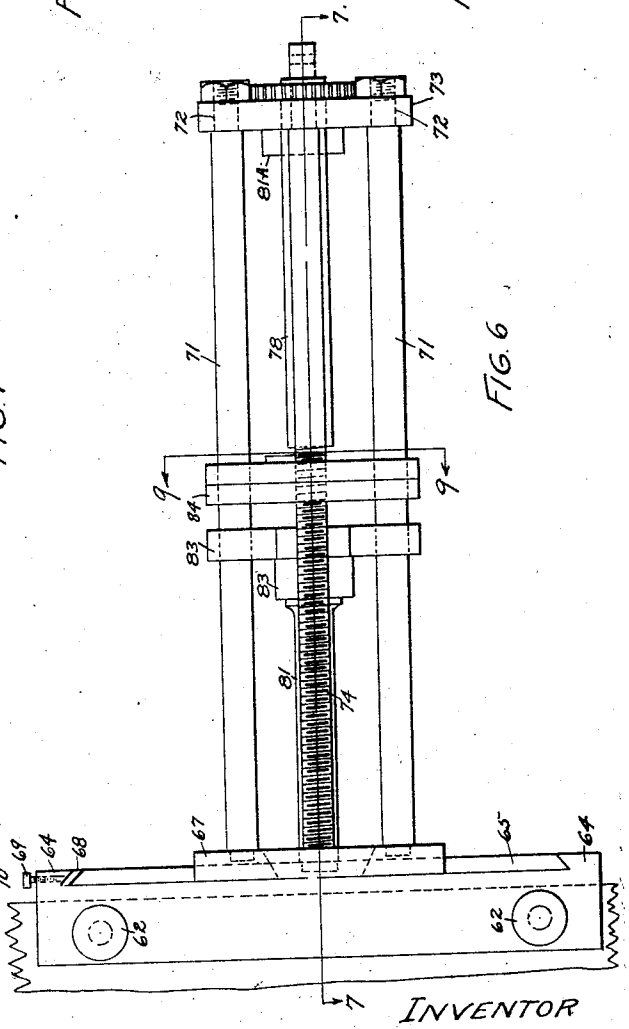


FIG. 6

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UNITED STATES PATENT OFFICE.

JOHN H. COLLINS, OF PORTLAND, OREGON.

MORTISING TOOL.

Application filed January 3, 1925. Serial No. 311.

To all whom it may concern:

Be it hereby known that I, JOHN H. COLLINS, a subject of the King of Great Britain, and a resident of Portland, in the county of Multnomah and State of Oregon (whose post-office address is 214 East 28th Street north), have invented a new and useful Mortising Tool, of which the following is a specification.

This invention relates generally to carpenters' tools and particularly to a tool for forming a mortise for door locks.

The object of this invention is the production of an exceedingly simple, efficient, light and inexpensive tool which can be operated by an ordinary carpenter's brace.

A second object is to greatly decrease the amount of time required to form a lock mortise in doors.

A third object is to reduce the liability of spoiling a door accidentally while forming this mortise.

A fourth object is to increase the accuracy with which these mortises can be formed.

These, and other objects, will become more apparent from the specification following as illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of the preferred form of this device showing same attached to a door. Figure 2 is a plan of Figure 1. Figure 3 is an enlarged section taken along the line 3—3 in Figure 2. Figure 4 is a vertical section taken along the line 4—4 in Figure 2. Figure 5 is a side elevation of the clamp member with the mortising attachment removed. Figure 6 is a side elevation of a modified form of this device of which Figure 7 is a horizontal section taken along the line 7—7 in Figure 6. Figure 8 is an end elevation of Figure 6 and Figure 9 is a transverse section taken along the line 9—9 in Figure 6.

Similar numbers of reference refer to the same parts throughout the several views.

Referring in detail to Figures 1 to 5 inclusive, the device consists of a channel shaped frame 10 provided with reinforcing ribs 11, clamping screws 12, a clamping jaw 13 and a spacer strip 14 adapted to center the frame 10 on a door 15. On the middle section 16 of the frame 10 is formed a slot 17 alongside of which are formed the guides 18.

Between the guides 18 is slidably mounted an auger housing 19 having a square central opening 20 and an upwardly extending base 21 through which passes a screw 22 whose square end 23 can slide in the slot 24 on the inner side of the frame 10. A nut 25 on the screw 22 is provided with a handle 26 by means of which the member 19 can be clamped in any desired position with relation to the member 10. On the outer end of the member 19 are formed the lugs 27 and 28. On the lug 27 are pivoted the halves 29 and 30 of a split nut which is attached to the lug 27 by means of the screw 31.

The screw 32 in the lug 28 passes through the slots 33 and 34 in the members 29 and 30 and hold the members 29 and 30 against end movement. A latch 35, which is pivoted on the pin 36 on the lug 28, is urged by the spring 37 in the lug 28 to latch the swinging ends of the members 29 and 30 together in a closed position, but makes it possible to easily release a screw which may be between the halves 29 and 30 whenever desired.

In the auger housing 19 is slidably placed a square hollow chisel 38 having rotatably placed therein an auger 39 whose cutting lips 40 flare out slightly past the sides of the chisel 38. A shoulder 41 is formed on the auger 39 and bears against a corresponding shoulder 42 on the sloping side 43 of the shank of the chisel 38. A slot 44 is formed in the under side of the shank for the escape of the chips.

On the shank 45 of the auger 39 is placed a thrust collar 46 and a feed screw 47 having an enlarged end 48 against which bears a friction washer 49. On the threaded end 50 of the shank 45 is secured the internally and externally threaded end 51 of the universal joint 52 whose shank 53 can be held by the chuck of an ordinary carpenter's brace.

On the threaded end 51 is slidably keyed the collar 54 by means of a key 55. A knurled nut 56 is placed on the threaded portion of the end 51 and is adapted to force the member 54 against the members 49 and 48.

The operation of this portion of the device is as follows: The machanic attaches the frame 10 to the door 15 in the correct position for the mortise having the auger in either the upper or lower position as seems most convenient. Rotation of the shank 53 by means of a manually operated brace, or by a power driven device, causes

the auger 39 to feed itself into the door in a plane parallel to the door itself, its lateral position, of course, having been determined by placing a spacer strip 14 of the correct thickness under the clamp.

As the round auger 39 works its way into the door, the square hollow chisel 38 is forced in behind same by means of the screw 47 which is frictionally driven through the washer 49 under the control of the nut 56, the adjustment of which may be varied to suit the particular kind of a door being operated upon. When the desired depth is reached the halves 29 and 30 of the screw holding nut are permitted to separate, and the square auger with its round auger may be pulled out bodily from the hole just formed. The screw 22 is now released and the auger containing housing is moved to the next position, when the nut is again permitted to close and the operation repeated, and so on until the desired length of mortise is attained.

Turning now to the modification shown in Figures 6 to 9 it will be observed that the same device is herein illustrated, except that the feed screw is back geared and the vertical and lateral adjustments of the relation between the door and the boring attachment are secured on dove tailed slides. This modification will be briefly described as follows: On the door 60 is placed a channel shaped frame 61 provided on one side with clamping screws 62 which bear against the clamping strip 63. On the upper and lower ends of the member 61 are formed the dove tailed guides 64, between which is slidably placed a plate 65 having its sides 66 dove tailed. Across the sides 66 is placed a base 67 adapted to slide on the member 65. A gib 68 and clamping screws 69 are adapted to fix the lateral relation of the members 61 and 65. Clamping screws 70 fix the relation between the members 65 and 67.

On the base 67 are mounted the two guide rods 71 across whose shouldered outer ends 72 is placed a circular plate 73. Feed screws 74 are rotatably mounted between the base 67 and the plate 73 and are provided on their projecting ends 75 with the gears 76 which mesh with a pinion 77 on the hollow shaft 78 on whose outer end 79 is pinned a universal joint 80. A collar 81^A is secured on the shaft 78 against the member 73.

The hollow square chisel 81 is provided with a round shank 82 which is mounted in the chuck 83. Across the screws 74 are placed a pair of rotatable disks 84 provided with slots 85 which receive the guide rods 71, and the slots 86 which receive the feed screws 74. The ends 87 of the slots 86 are threaded so that they will engage the feed screws 74 if turned in one direction and release them if turned in the opposite direction. The disks 84 are provided with a recess in their center to receive the shoulder 88 of the auger 89 whose splined end 90 is slidably carried by the shaft 78. Spacers 91 are placed between the chuck 83 and the disks 84, and united thereto by means of the screws 92. A latch 93 on one of the disks 84 is adapted to hold the disks 84 in their screw engaging relation when the notches 94 are in register. This same result, of course, could be accomplished in many other ways.

The operation of this modification of the device is as follows: The frame 61 is clamped on the door 60 and the member 65 is moved laterally until the chisel 81 is central with the door 60 and then clamped by means of the screws 69. The base 67 is then moved vertically to the starting point and clamped by means of the screws 70, after which rotation is applied to the shank 95 by means of a carpenter's brace, an electric motor or other convenient source of power, which causes the auger 89 to rotate and to feed itself into the door. At the same time the screws 74 are made to revolve thereby causing the disks 84 to advance along the screws 74 and force the chuck 83 with its auger 81 to follow the auger 89 into the door to the desired depth. The chips come out of the side opening 96 in the chisel 81 or out of the end 97 of the shank 82 between the chuck 83 and the nearest disk 84.

While this construction is somewhat more complicated than the one previously described it possesses the advantage of having a finer feed on the square auger without the employment of an extremely fine feed screw, and also that there is at no time an unsupported screw projecting from the device, as is the case in the first mentioned form.

Where extreme cheapness is desired it is preferable to eliminate the slide between the members 10 and 19 in the first form described, and to combine these two elements and utilize the door itself as a guide upon which the frame 10 can slide, which may very readily be done since the exterior of the door being operated upon is sufficiently accurate as a base line from which to construct the mortise desired.

I am aware that various forms of mortising machines have been constructed in the past but all of those with which I am familiar are either too heavy to be carried around by the mechanic with his kit of tools or are too expensive to be employed by the average workman, I therefore have directed by claims towards a special form of tool which can be operated either manually or by power having only those elements which are absolutely necessary for the production of a perfect mortise, namely the square auger itself and means for feeding this auger accurately into a door.

I claim:

1. A mortising tool having in combination,

a U shaped clamp adapted to be attached to a door; a slide mounted on said clamp having a hollow square guide formed thereon; a hollow square chisel in said guide; said clamp having a slot formed therein permitting said chisel to pass therethrough; an auger in said chisel; a head on said auger and driving connections between said head and chisel adapted to advance said chisel.

2. A mortising tool having in combination a U shaped clamp adapted to be secured to the edge of a door over the location for a mortise, said clamp having its side over the door-edge slotted; a slide mounted over said slot; a slide holding clamp between said door clamp and said slide; a hollow square guide projecting from said slide; a split nut on the end of said guide; a screw in said nut; a hollow chisel in said square guide projecting through said clamp and rotatably attached to said screw; an auger in said chisel extending through said screw; a friction feed between said screw and auger and a shank on said friction feed adapted to receive the chuck of a carpenter's brace.

JOHN H. COLLINS.