

May 25, 1954

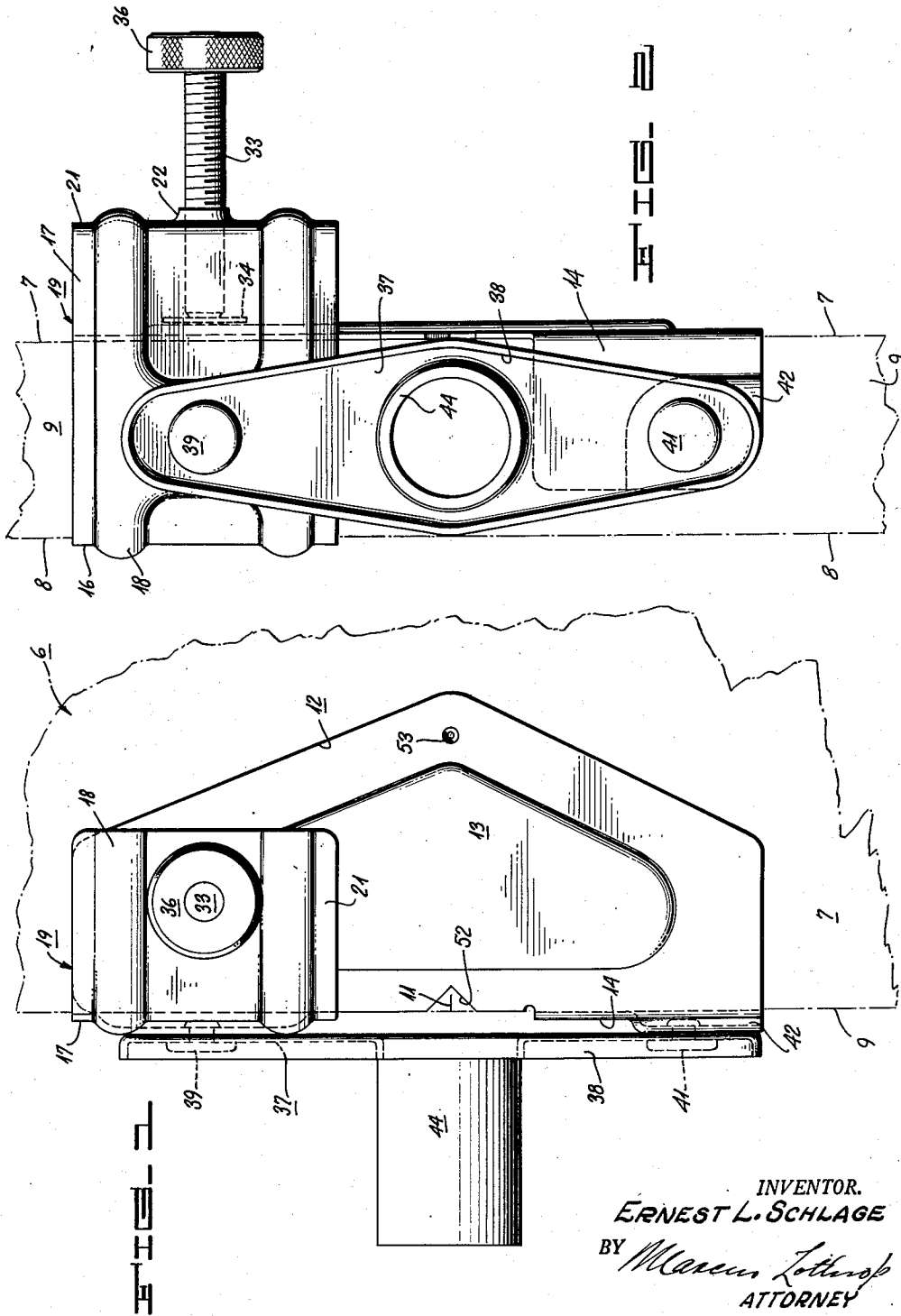
E. L. SCHLAGE

2,679,174

BORING JIG

Filed Sept. 15, 1950

3 Sheets-Sheet 1



INVENTOR.
ERNEST L. SCHLAGE
BY *Marcus Lottkopf*
ATTORNEY

May 25, 1954

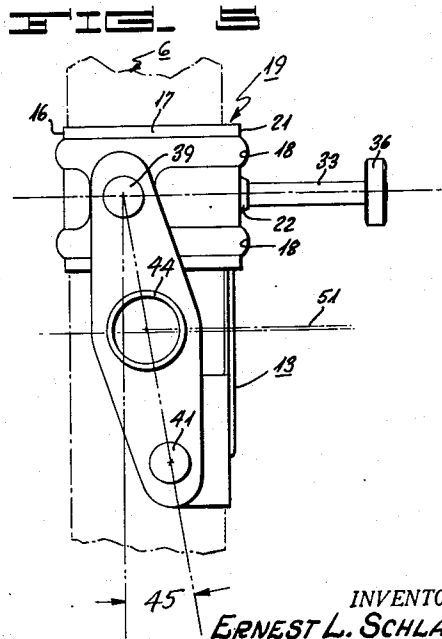
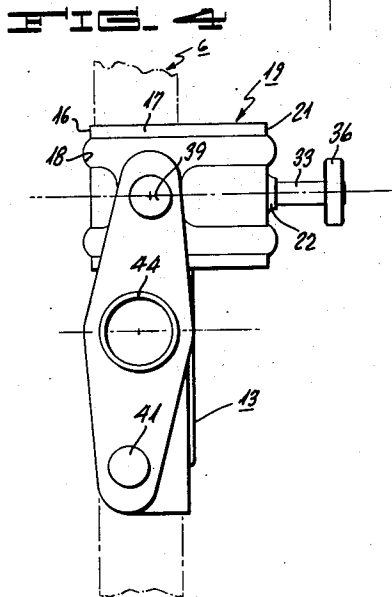
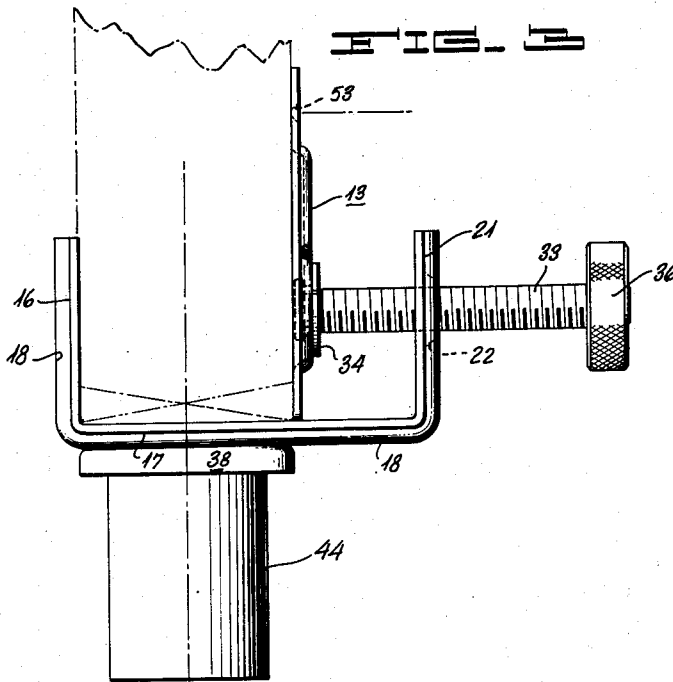
E. L. SCHLAGE

2,679,174

BORING JIG

Filed Sept. 15, 1950

3 Sheets-Sheet 2



INVENTOR.
ERNEST L. SCHLAGE
BY *Maxim Lothrop*
ATTORNEY

May 25, 1954

E. L. SCHLAGE
BORING JIG

2,679,174

Filed Sept. 15, 1950

3 Sheets-Sheet 3

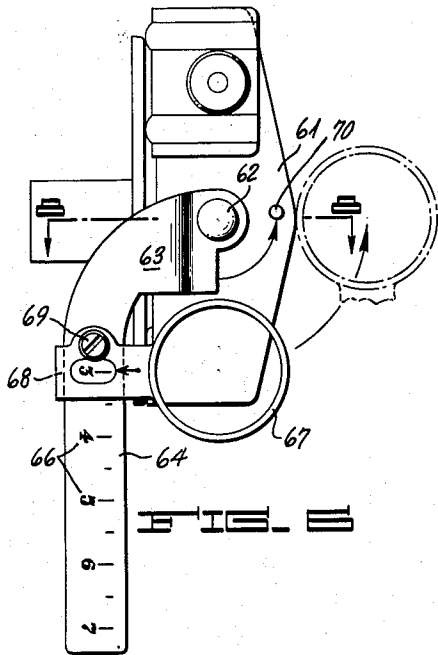


FIG. 1

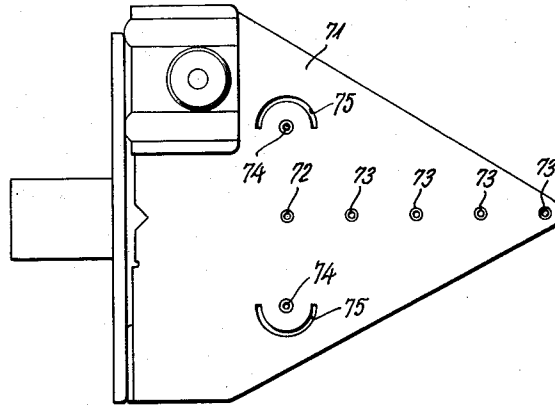


FIG. 2

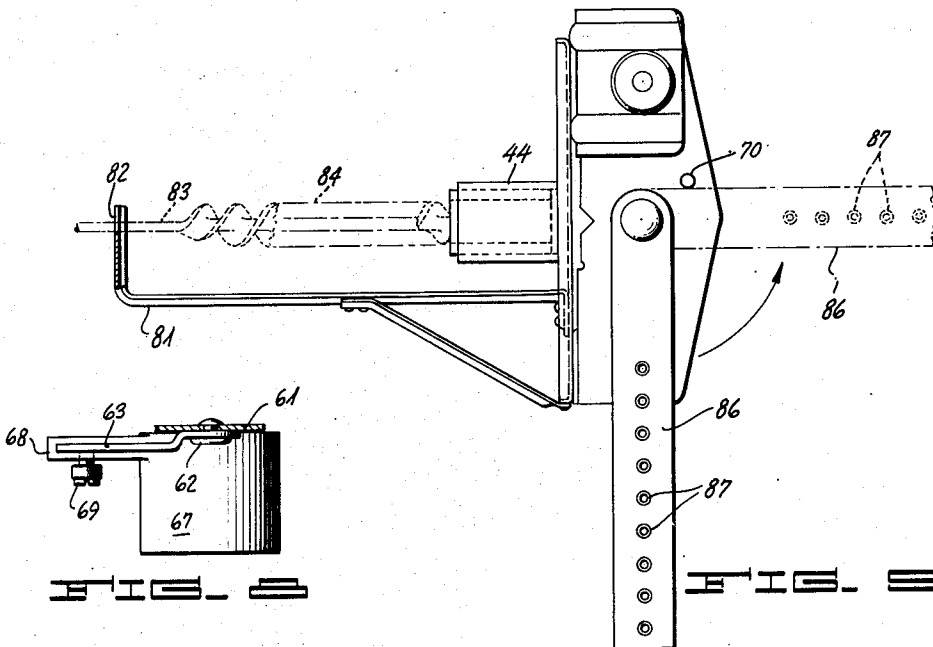


FIG. 3

INVENTOR.
ERNEST L. SCHLAGE

BY *Marcus Lothrop*
ATTORNEY

UNITED STATES PATENT OFFICE

2,679,174

BORING JIG

Ernest L. Schlage, Burlingame, Calif., assignor to
Schlage Lock Company, a corporation

Application September 15, 1950, Serial No. 185,018

5 Claims. (Cl. 77-62)

1

My invention relates to auxiliary tools for use by a workman such as a carpenter, in preparing a door for the installation of a cylindrical lock. It is the usual practice in installing cylindrical locks to bore two holes into the door. One of these holes is bored through the edge of the door and parallel to the planar sides of the door in a generally horizontal direction with its axis at a given height above the bottom of the door. An intersecting hole, not always but usually of considerably larger diameter, is bored through the door and is also disposed at a selected height above the bottom edge of the door with its axis horizontal. If the heights of the two holes are the same, their axes intersect and preferably do so at a right angle. A lock of any of various types may be installed in the holes so provided. The appropriate working of the lock in a large measure depends upon the care and accuracy with which the mounting holes are cut in the door. When this is done by a carpenter on the job, it is customary for him to utilize wood boring bits or expansion bits of the usual kind but it is difficult for him to make a careful installation in a short time.

It is therefore an object of my invention to provide a device for helping a workman to use his regular tools in boring a door to make two holes at the proper locations and with their axes appropriately disposed.

Another object of my invention is to provide a boring jig which can be utilized on a door of any thickness normally encountered.

A still further object of my invention is to provide a boring jig which will be helpful enough so that a workman will use it by preference.

A still further object of my invention is to provide a sturdy and serviceable boring jig that can be inexpensively made and sold.

A still further object of my invention is to provide a boring jig which locates holes with a high accuracy.

A still further object of my invention is to provide a boring jig which is generally an improvement over other mechanisms for the same purpose.

Other objects, together with the foregoing, are attained in the embodiment of the invention described in the accompanying description and illustrated in the accompanying drawings in which

Figure 1 is a side elevation of a boring jig constructed in accordance with my invention and in position for use.

2

Figure 2 is a front elevation of the boring jig in position for use on a door of average thickness.

Figure 3 is a plan of a boring jig in position on a door of average thickness.

Figure 4 is a front elevation of the boring jig as it appears when used with a thin door.

Figure 5 is a front elevation showing the boring jig used on a thick door.

Figure 6 is a side elevation of a modified boring jig especially designed for use in cross boring a door for a lock having a long backset dimension.

Figure 7 is a side elevation of a further modified form of boring jig showing a special side plate for use with extra long backsets.

Figure 8 is a detail showing the slider of Figure 6 in plan, certain portions being in section and other portions being broken away to reduce the size of the figure.

Figure 9 is a side elevation of a still further modified form of my boring jig for use with a lock having an extremely long backset.

The boring jig is usually used with a standard door 6 fabricated of wood and having a side face 7, another side face 8 and an edge face 9 either at right angles to the parallel faces 7 and 8 or inclined thereto to provide a bevel in either direction. The door may be initially provided with a mark 11 at a fixed distance from the bottom edge of the door to indicate the height at which the lock is to be installed. The boring jig itself includes a generally planar side plate 12 preferably fabricated of relatively light but sturdy metal of approximately triangular or pentagonal outline and having an embossed portion 13 to add to its stiffness. The side plate 12 adjacent its lower portion is bent to provide an ear 14 extending from the rest of the plate at approximately a right angle to overlie the edge face 9 of the door. If the door edge is planar, the ear 14 lies against it and if the door edge is beveled, the ear 14 abuts one corner.

Adapted to lie against the other side 8 of the door is one side wing 16 of a clamp 17 formed of relatively light, sturdy sheet metal and having embossed ribs 18 to add to its stiffness. The central portion 19 of the clamp 17 connects the side wing 16 to a second side wing 21 so that in plan the clamp, as shown in Figure 3, is U-shaped and includes three portions connected substantially at right angles. The side wing 21 is formed with a boss 22 internally threaded to receive a clamp screw 33 having a rotatable connection with an abutment disc 34 for contacting the side plate 12. The screw 33 is provided with a knurled thumb wheel 36 so that upon rotation of the

screw the clamp 17 and the plate 12 are tightly gripped to the intervening door. Since the plate 12 is large, the unit pressure is low and no damage is done to the material of the door. This arrangement secures the clamp 17 and the side plate 12 in whatever relatively spaced relationship is necessary to grip the door.

To provide a locating member for centrally positioning and guiding the workman's bit in the edge boring operation, a link 37 is provided to overlie the edge face 9 of the door. The link is preferably formed of light sheet metal having flanged edges 38 to add to its stiffness. Near its opposite ends, the link is connected to the clamp 17 and to the ear 14. A pivot pin 39 passes through one end of the link and is preferably riveted in position in the central portion 19 of the clamp. The axis of the pin 39 is a predetermined distance from the inner face of the wing 16. Adjacent the other end of the link a pivot pin 41 is riveted to the ear 14, there being an offset portion 42 in the ear to accommodate the rivet. The axis of the pin 41 is the same predetermined distance from the inner face of the plate 12. The remaining part of the ear 14 and the central portion 19 of the clamp are co-planar so that the plane of the link 37 is parallel with the edge face 9 in a vertical direction. The pivot pins are so mounted that they form journals or freely rotatable connections between the various parts.

Clamping the boring jig on a door of any thickness is effective to position the center of the link 37 midway between the side faces 7 and 8 of a door or half-way across the edge face 9, the axes of the pins 39 and 41 being equally distant from the clamping faces of the wing 16 and of the plate 12. At its center I provide on the link 37 an up-standing concentrically located tubular guide 44 of an appropriate interior diameter to receive a boring bit. Bushings of different sizes can be put in the guide 44 to accommodate bits of different sizes. The length of the sleeve 44 is such that it guides the boring bit by contact and holds it substantially normal to the plane of the link 37 and therefore parallel to and midway between the side faces 7 and 8. Despite the thickness of the door there is afforded a guide for a boring bit effective to locate the boring bit with its axis normal or perpendicular to the plane of the edge face 9 (considered unbeveled) and midway between the side faces 7 and 8 of the door.

No matter what the thickness of the door on which the jig is clamped and no matter whether the jig is upright or inverted, in every instance the link 37 swings on its pivot mountings in such a way as to bisect the net dimension between the door abutting faces of one side 16 of the clamp and the inside of the plate 12. Since the pins 39 and 41 are as near vertical alignment as possible on the vertical door edge and are always symmetrical about a vertical line, and move near the top and bottom of a circular path, the swinging movement 45 is productive of the minimum lifting and lowering of the center of the guide sleeve with variations in door width, as indicated by the exaggerated dimension 51 in Figure 5. The pin 41 is in lifted position for both the thickest and the thinnest doors and is at its lowest for a door of median thickness. This variation in position is small even for doors at both extremes and is even less for intermediate doors. In practice, the variation is virtually insignificant.

In the use of this structure, the mark 41 is normally available and a notch 52 is provided in the side plate 12 so that the mark is readily visible

from the side. The bottom of the notch 52 then corresponds in height with the axis of the guide 44. At a selected, predetermined or standard distance from the edge face 9 of the door, a distance corresponding to the normal backset distance, there is provided in the side plate 12 an aperture 53 disposed in the horizontal plane of the bottom of the notch 52. The workman makes a punch mark located by the aperture 53 in the material of the door so that after the boring jig is removed, he can bore the transverse hole at a set height from the bottom and at a set distance from the edge of the door, and to intersect the bore from the door edge in the desired way.

While normally it is possible for the workman to bore the transverse hole with reasonable accuracy as indicated by a punch mark, it is sometimes advisable, particularly where the backset is great, to afford an assisting mechanism. For that reason there is shown in Figure 6, the main body of a structure generally similar to the one described, but having a side plate 61 provided with a pivot pin 62 supporting a distance arm 63. The arm is curved to merge with a linear scale 64 bearing indicia 66 indicating distances from the door edge. Sliding on the scale 64 is a guide ring 67 supported on a clamp 68 having a securing screw 69. In the use of this structure, the boring jig is mounted on a door as usual and to determine the appropriate backset, the slide 68 is moved along the scale to the desired dimension and the thumb screw 69 is clamped. Then the arm is swung into a position against a stop 70 so that the center of the guide 67 is at the proper height and the transverse boring bit is then utilized, being positioned, guided and directed by the ring 67.

As an alternative to mark a deeper backset, a structure as shown in Figure 7 is provided. In this arrangement the main part of the device is as before but the side plate 71 is an extended triangular shape and has not only one marking aperture 72 therein but has a series 73 of such apertures all in line at the same elevation. For some styles of locks, the transverse hole is not at the same elevation as and its axis does not necessarily intersect that of the edge bore. Consequently, special center marking apertures 74 are also provided. Further, marking arcs 75 are cut from the plate to serve as bit size or mortising guides. The use of this structure is the same as previously described except that the workman selects the particular arc or arcs 75 or the particular one or ones of the apertures 72, 73 or 74 that he needs as a guide or guides for punch or pencil marks.

For doors with extremely deep backsets the structure shown in Figure 9 is provided. This device is substantially like the others except that the guide 44 is supplemented by an extended bracket 81 secured to the link 37 and having a V-notch 82 to serve as a support for the shank 83 of the bit 84. In addition, the backset is marked by a swinging link 86 having a plurality of apertures 87 at appropriate intervals. The link 86 is lifted into position against a stop 70 and an appropriate aperture is selected for punch marking of the subjacent door.

What is claimed is:

1. A boring jig for a door having a pair of opposite faces and a side edge comprising: an elongated link provided with a bit guide intermediate its ends, a first member adapted to engage one face of said door and a second member adapted to engage the other face of said door,

5

means on said members respectively extending oppositely inwardly of said side edge and spaced apart along the length thereof for pivotally supporting the opposite ends of said link, and means for mounting said members as a unit on said door along said opposite faces whereby said link extends generally along the length of said side edge with said guide between said faces.

2. A boring jig for a door having a pair of opposite faces and a side edge comprising: an elongated link provided with a bit guide intermediate its ends, a first member adapted to engage one face of said door and a second member adapted to engage the other face of said door, means on said members respectively extending oppositely inwardly of said side edge and spaced apart along the length thereof for pivotally supporting the opposite ends of said link, and means for mounting said members as a unit on said door along said opposite faces whereby said link extends generally along the length of said side edge with said guide between said faces, said last mentioned means including a screw device connecting said members for urging them toward each other into clamping relation with said opposite faces respectively.

3. A boring jig for a door having a pair of opposite faces and a side edge comprising; an elongated link provided with a bit guide intermediate its ends, a first member adapted to engage one face of said door and a second member adapted to engage the other face of said door, means on said members respectively extending oppositely inwardly of said side edge and spaced apart along the length thereof for pivotally supporting the opposite ends of said link, and means for mounting said members as a unit on said door along said opposite faces whereby said link extends generally along the length of said side edge with said guide between said faces, each of said opposite ends of said link being provided with a circular hole, and said means for pivotally supporting said opposite ends including pins received in said holes for so pivotally supporting said opposite ends.

4. A boring jig for a door having a pair of opposite faces and a side edge comprising: an elongated link apertured at its opposite ends and provided with a bit guide centrally between

6

said apertures, a first member having a side adapted to engage one face of said door and a second member having a side adapted to engage the other face of said door, said members including integral portions extending oppositely inwardly of said side edge and provided with pivots equidistant from said sides respectively and spaced apart along the length of said side edge, said pivots being received in said apertures for swingably supporting the ends of said link, means for urging said sides into clamping engagement with said faces for supporting said members as a unit on said door whereby said link is positioned along the length of said side edge with said bit guide centrally between said faces.

5. A boring jig for a door having a pair of opposite faces and a side edge comprising: an elongated link apertured at its opposite ends and provided with a bit guide centrally between said apertures, a first member having a side adapted to engage one face of said door and a second member having a side adapted to engage the other face of said door, said members including integral portions extending oppositely inwardly of said side edge and provided with pivots equidistant from said sides respectively and spaced apart along the length of said side edge, said pivots being received in said apertures for swingably supporting the ends of said link, means for urging said sides into clamping engagement with said faces for supporting said members as a unit on said door whereby said link is positioned along the length of said side edge with said bit guide centrally between said faces, said first member including an extension integral with said portion and adapted to extend alongside said other face, and said last mentioned means including a screw extending between said extension and said second member for so clamping said sides on said door.

References Cited in the file of this patent

UNITED STATES PATENTS

45 Number	Name	Date
664,910	Voight	Jan. 1, 1901
1,161,479	Kelley	Nov. 23, 1915
1,166,968	Carter	Jan. 4, 1916
2,033,072	Harp	Mar. 3, 1936