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R. C. CERF, JR
LOCK INSTALLATION TOOL
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FIG. 1.

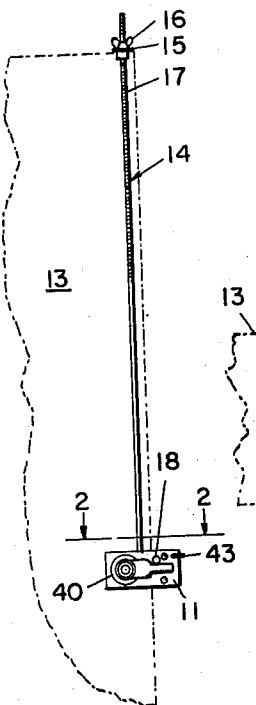


FIG. 2.

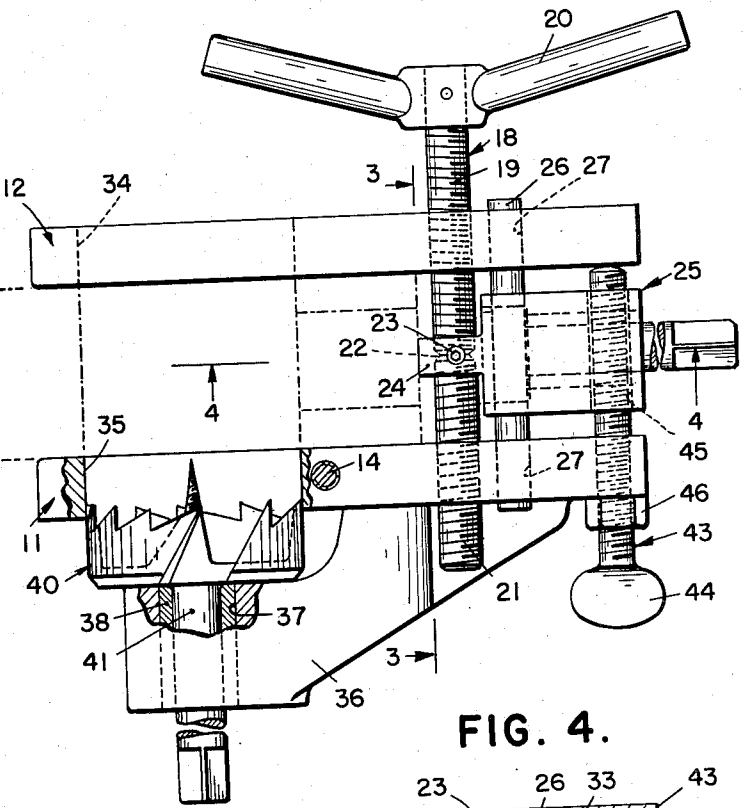


FIG. 3.

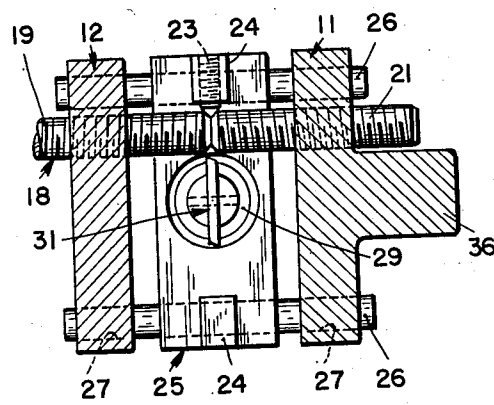
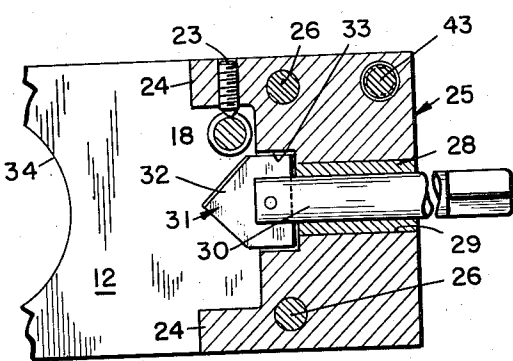


FIG. 4.



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LOCK INSTALLATION TOOL

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5 Claims. (Cl. 144—27)

This invention relates to a drilling tool designed to facilitate the installation of tubular or cylindrical locks in doors.

The principal object of the invention is to provide a drilling tool to facilitate fast and accurate installation of tubular or cylindrical lock sets in wooden doors. Another object is to provide a tool for lock installation on wooden doors which provides the side hole through the door and the edge-bored hole with a single setting of the tool. Another object is to provide a tool which facilitates re-drilling in different sizes or positions of holes used for previous lock installations. Another object is to provide a tool in which the backset dimension is taken from the midline position of the edge of the door which permits accurate positioning of the locks on bevel-edged doors. A further object is to provide a lock installation tool which is self-centering and readily adjustable to different thicknesses of doors. A still further object is to provide, in a lock installation tool, means for positioning the tool vertically on the door so that the elevation of the locks on several doors will be uniform.

These and other objects are attained by my invention, which will be understood from the following description, reference being made to the accompanying drawings, in which:

Figure 1 is a side elevational view of a lock installation tool as applied to a door in position to be drilled for the lock installation;

Figure 2 is a top plan view taken from the position 2—2 of Figure 1;

Figure 3 is a cross-sectional view taken on the line 3—3 of Figure 2;

Figure 4 is a cross-sectional view taken on the line 4—4 of Figure 2.

Referring to the drawings which show a preferred embodiment of my invention, the tool consists generally of clamping means consisting of a front clamp member 11 and a back clamp member 12, whose faces are in opposed relation and adapted to be clamped on the two sides of a wooden door 13 at a selected elevation. This elevation may be determined by the length of the positioning rod 14 which is attached to the top edge of the front clamp member 11, the rod being provided with a side arm 15 arranged to engage the top edge of the door 13, and being preferably adjustable as to effective length by a thumb nut 16 operable on the threads 17 of the upper end of the positioning rod 14. The front and back clamp members 11 and 12 are operatively connected in clamping relation by the clamp screw 18 which has right-handed threads 19 on the half portion of the screw adjacent the handle 20 and left-handed screw threads 21 on the other half portion of the clamp screw, said screw being provided with an annular groove 22 disposed intermediate the door-contacting faces of the front clamp member 11 and the back clamp member 12. The groove 22 is adapted to cooperate with cone-point screw 23 which projects from one of the two edge

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centering lugs 24, these edge centering lugs projecting from the top and bottom edge portions of an end block 25 which is disposed between the clamp members. The end block 25 is provided with guide rods 26 extending from opposite faces parallel to said clamp screw 18 which rods slidably engage the slide holes 27 in the front and back clamp members 11 and 12. These guide rods 26 and slide holes 27 are disposed adjacent the upper and lower edges of the clamp members, and are adapted to hold said clamp members in edge-parallel relation. The end block 25 is also provided at right angles to and between said guide rods 26 with a bearing hole 28 having therein a self-lubricating sleeve 29 which is adapted to axially support and guide the stem 30 of the edge boring bit 31. The edge boring bit 31 as shown consists of a single tapered end edge cutting blade 32 mounted on the end of the stem 30, this type being preferred to give easy release of the chips. A recess 33 is provided in the end block 25, concentric with the bearing hole 28, to provide space for the retraction of the edge boring bit 31 to clear the edge of the door 13 which is being drilled. The back clamp member 12 is provided adjacent its free end (away from the clamp screw 18) with a large cylindrical hole 34 corresponding in diameter to the cylindrical lock hole to be drilled in the door. The front clamp member 11 is provided with a corresponding large cylindrical hole 35. Said front clamp member 11 is also provided, preferably as an integral part, with the bracket arm 36, this arm being provided with a bearing hole 37 in which is fitted a self-lubricating sleeve 38, the arm 36 being of substantial thickness to provide rigid axial support for the multi-spur bit 40, whose stem 41 is adapted to fit within said lubricating sleeve 38. The arm 36 is disposed away from the hole 35 of the front clamp member 11 so that the multi-spur bit 40 may be retracted within the hole 35 prior to and after the hole is drilled.

In order to assure that the faces of clamp plates 11 and 12 remain parallel when clamped to the opposite sides of a door, a parallelizing screw 43 is threadedly mounted in the front clamp member 11 near the rear edge thereof, and adjacent the end block 25, there being a corresponding hole 45 in the end block through which the screw 43 passes to abut the back clamp member 12. The screw 43 is provided with a manually operable head 44 and a lock nut 46 is also provided.

The method of using my tool will be clear from the above description. The side arm 15 of the positioning rod 14 is adjusted to the selected elevation at which the door lock is to be installed. The clamp members 11 and 12 are then placed on the opposite faces of the door. The double-acting clamp screw 18 is turned by the handle 20 to bring the clamp members lightly against the opposite faces of the door. The parallelizing screw 43 is then turned to make contact with the back clamp member 12, following which the clamp screw is turned to tighten the clamp members securely against the faces of the door. The multi-spur bit 40 is then rotated manually or by an electric motor to bore out the main hole in the door for the cylinder lock to be installed. Because of the design of the multi-spur bit, and because of the holes 34 and 35 in the clamp members, there is no excessive splintering when the bit breaks through the wood into the hole 34 in the back clamp member 12. The multi-spur bit 40 is then withdrawn or retracted and the edge boring bit 31 is actuated by hand, or by portable motor, to drill the edge hole from the edge into the large hole previously drilled.

The use of the positioning rod at a preselected length assures that all door knobs will be at uniform elevations. The parallelizing screw 43 may be pre-set for doors of

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the same thickness so that this adjustment need not be made for each door. The door edge centering lugs 24 make contact with the door edge at the vertical median line, and permits the proper fixing of the back-set distance for the particular lock set to be installed. The bracket arm rigidly supports the multi-spur bit so that the hole is drilled accurately and at the position fixed by the front and back clamp members, thus preventing the "following" of grain, or any diversion of the axis of drilling due to previously drilled holes. The intersecting holes are accurately and quickly drilled. The use of my installation tool greatly reduces the labor time and cost of installing cylinder lock sets on doors.

I claim:

1. A door lock installation tool comprising a parallel clamping means including a pair of opposed elongated clamping plates adapted to engage a relatively large area of the opposite sides of a door, each of said plates being provided adjacent one end with large holes of the same diameter as the lateral hole to be drilled in said door, and also including an end block disposed between said clamping plates at the ends opposite said large holes; edge positioning lugs on said block for positioning said clamping plates in relation to the door edge; and a bracket arm attached to one of said clamping plates, said arm extending over the said large hole in said plate, and said arm being provided with a bearing hole for a large bit stem axially aligned with said large hole; said end block being provided with a bearing hole whose axis is directed to intersect the axis of said large hole at a point midway between said clamping plates.

2. A door lock installation tool comprising a parallel clamping means including a pair of opposed elongated clamping plates adapted to engage a relatively large area of the opposite sides of a door, each of said plates being provided adjacent one end with large holes of the same diameter as the lateral hole to be drilled in said door, and also including an end block disposed between said clamping plates at the ends opposite said large holes; edge positioning lugs on said block for positioning said clamping plates in relation to the door edge; a bracket arm attached to one of said clamping plates, said arm extending over the said large hole in said plate, and said arm being provided with a bearing hole for a large bit stem, axially aligned with said large hole; a stemmed large bit mounted in said bearing hole and adapted to drill a large hole of the same diameter as to the hole in said clamp plates; said end block being provided with a bearing hole whose axis is directed to intersect the axis of said large hole at a point midway between said clamping plates; and a stemmed small bit mounted in said end block bearing hole.

3. A door lock installation tool comprising a pair of opposed elongated clamping plates adapted to engage a relatively large area of the opposite sides of a door, each of said plates being provided adjacent one end with holes for guide rods, and at the opposite end with large holes of the same diameter as the lateral hole to be drilled in said door; double acting screw means adjacent one end of said pair of plates for securely clamping said plates on said door; an end block disposed between said clamping plates adjacent said screw means, said end block being provided with fixed guide rods disposed parallel to said

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screw means; means for maintaining said plates in parallel relation; edge positioning lugs on said block for positioning said clamping plates in relation to the door edge; means on said block cooperating with said screw means for automatically centering said edge positioning lugs relative to said clamping plates; and a bracket arm attached to one of said clamping plates, said arm extending over the said large hole in said plate, and said arm being provided with a bearing hole for a large bit stem axially aligned with said large hole; said end block being provided with a bearing hole disposed at right angles axially to said guide rods and parallel to the clamping faces of said clamping plates, and directed to intersect the axis of said bit stem bearing at a point midway between said clamping plates.

4. A door lock installation tool comprising a pair of opposed elongated clamping plates adapted to engage a relatively large area of the opposite sides of a door, each of said plates being provided adjacent one end with holes for guide rods, and at the opposite end with large holes of the same diameter as the lateral hole to be drilled in said door; double acting screw means adjacent one end of said pair of plates for securely clamping said plates on said door; an end block disposed between said clamping plates adjacent said screw means, said end block being provided with fixed guide rods disposed parallel to said screw means; means for maintaining said plates in parallel relation; edge positioning lugs on said block for positioning said clamping plates in relation to the door edge; means on said block cooperating with said screw means for automatically centering said edge positioning lugs relative to said clamping plates; a bracket arm attached to one of said clamping plates, said arm extending over the said large hole in said plate, and said arm being provided with a bearing hole for a large bit stem axially aligned with said large hole; a stemmed large bit mounted in said bearing hole and adapted to drill a large hole corresponding to the hole in said clamp plates; said end block being provided with a bearing hole disposed at right angles axially to said guide rods and parallel to the clamping faces of said clamping plates, and directed to intersect the axis of said bit stem bearing at a point midway between said clamping plates; and a stemmed small bit mounted in said end block bearing hole.

5. The door lock installation tool defined in claim 4, in which the means for maintaining the clamping plates in parallel relation consists of a parallelizing screw threadedly mounted in a hole in one clamping plate parallel to said clamping screw, said parallelizing screw being disposed at the end of said clamping plate and contacting said other clamping plate.

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