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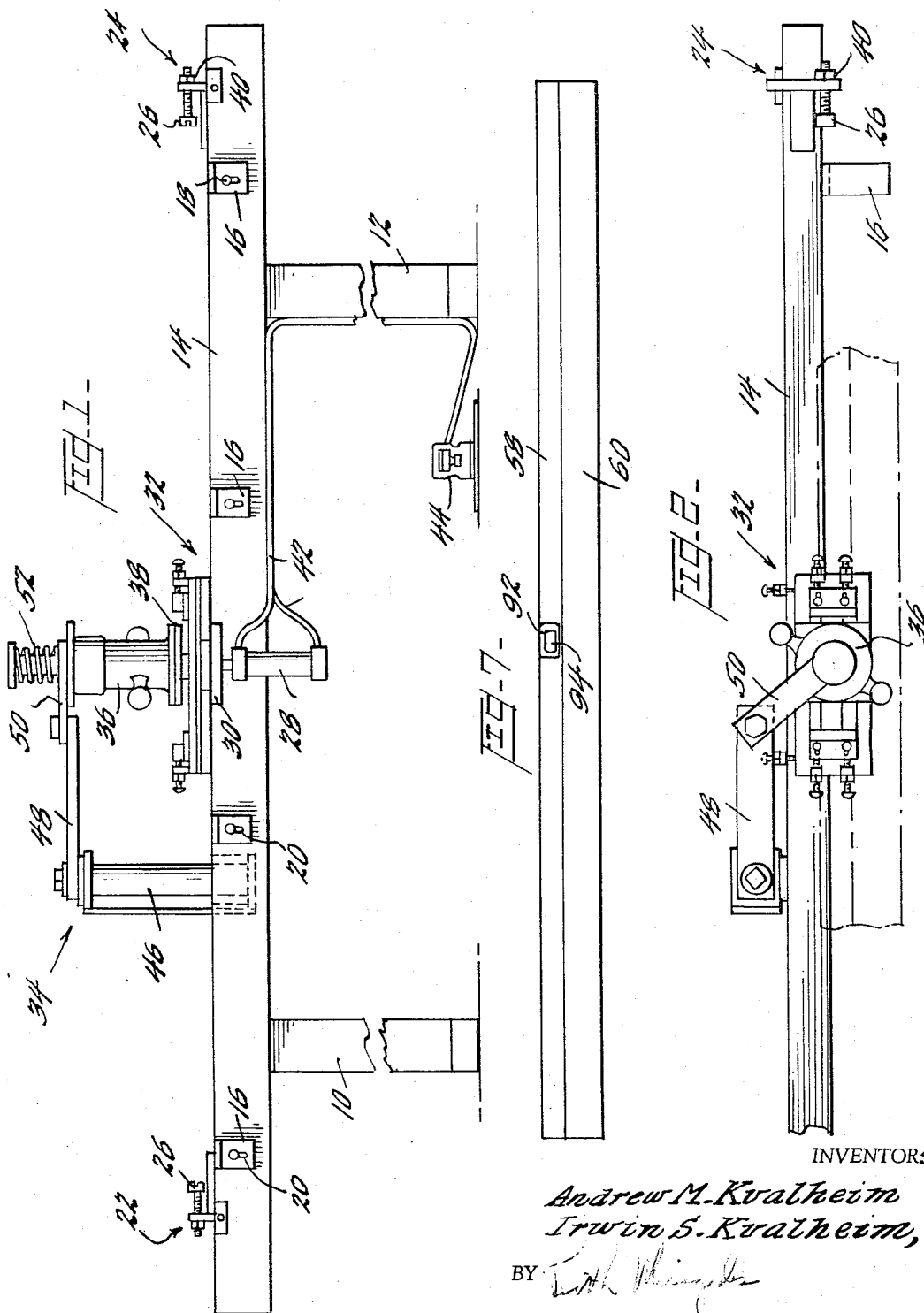
A. M. KVALHEIM ET AL

3,344,827

ROUTING DEVICE

Filed Oct. 12, 1965

2 Sheets-Sheet 1



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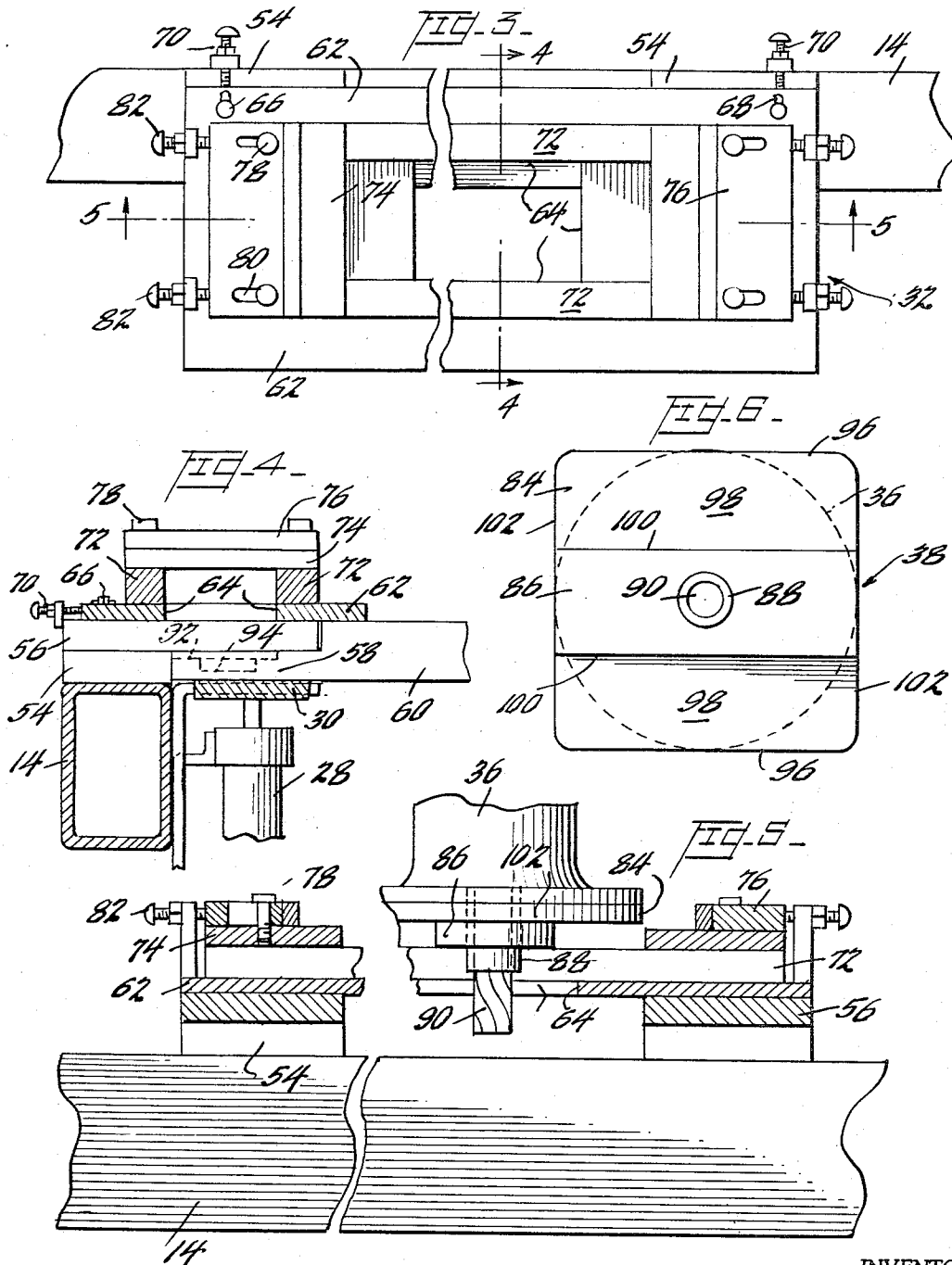
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ROUTING DEVICE

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The invention relates to wood boring mechanisms, and in particular to an apparatus for routing wood or like material to at least two depths.

The invention has particular utility for the preparation of strike jambs for doorways. In the construction of large apartments or office buildings, it is usually necessary to hang hundreds of doors or more, all such doors being of approximately the same dimensions. Alternatively, several different sets of doors might be hung, each set including a number of doors of similar dimensions. In the hanging of doors, it is important that the lock receiving portion of the strike jamb of the doorway be exactly and properly located with respect to the lock of the door. Generally speaking, the present invention comprises a frame and template apparatus having adjustable clamp portions thereon for receiving a long strip of wood in the form of a strike jamb and for holding a standard router which is guided in a routing operation by the template. Once the adjustable clamps are set, a large number of strike jambs may be prepared in a very short time, each said jamb being routed with a maximum degree of preciseness.

The present invention comprises a frame having an elongated beam thereon, means thereon for firmly securing the workpiece or strike jamb thereto, adjustable stop means for locating the workpiece longitudinally with respect to the beam, a unique template firmly secured to the beam, the template being constructed to permit routing to at least two depths, a universal arm support for a standard router, and a base for the router which cooperates with the template in the routing operation.

Therefore, it is a primary object of this invention to provide a routing apparatus including means to hold a workpiece and a template to guide the router.

It is another object of the invention to provide a routing apparatus having adjustable set means for varying the size and location of the area to be routed.

Yet another object of the invention is to provide a routing apparatus having a unique template which permits routing to at least two depths.

A further object of the invention is to provide a routing apparatus having a base for a standard router which cooperates with a novel template for bi-level routing.

Another object of the invention is to provide a universally movable support for a standard router.

Finally, it is an object of the invention to provide a router apparatus which is simple in design and thus low in cost of manufacture.

Further and more particular objects of the invention will be apparent by reference to the following drawings in which:

FIG. 1 is an elevational, side view of the invention;

FIG. 2 is a partial, plan view of the invention shown in FIG. 1;

FIG. 3 is an enlarged, partial plan view of the template of the invention;

FIG. 4 is a sectional view taken along lines 4-4 of FIG. 3;

FIG. 5 is another sectional view taken along lines 5-5 of FIG. 3;

FIG. 6 is a bottom, plan view of the novel router base guide of the invention; and

FIG. 7 is a plan view of the routed workpiece.

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Referring now to the drawings by reference character, and in particular to FIGS. 1 and 2 thereof, the invention is shown comprising a frame having support legs 10, 12, an elongated box beam 14 atop legs 10 and 12, a plurality of angled support brackets 16, each secured to box beam 14 by a threaded bolt 18 and slotted at 20 so as to permit vertical adjustability thereof, a pair of end stops 22, 24, each having a threaded member 26 therein for longitudinally adjusting the workpiece or strike jamb to be routed, a pressure clamp 28 having a vertically movable platen 30 thereon, a template assembly 32 rigidly secured to the box beam 14 and extending over movable platen 30, and a universal arm support 34 for supporting a standard router 36 having a base guide 38 thereon. The workpiece or unrouted strike jamb is placed upon brackets 16 with the face to the routed facing upwardly, brackets 16 being moved up or down depending on the thickness of the workpiece until the piece fits securely against the bottom of template assembly 32. Brackets 16 are secured firmly in place by tightening bolts 18. Lengthwise adjustment with respect to template assembly 32 is made by appropriate movement of threaded stop members 26, which may be locked in place by a locking nut 40. If the workpiece is too short, one or the other of end stops 22, 24, may be used alone by merely placing the end of the workpiece against stop member 26. It is apparent that support brackets 16 and one or the other or both of end stops 22, 24 may be adjusted and then clamped in place prior to routing a plurality of strike jambs which must each be of the same dimensions. Finally, that area of the workpiece to be routed is clamped firmly against template assembly 32 by platen 30 which is operated by pressure clamp 28. Pressure clamp 28 may be either hydraulically or air operated by feed lines 42 through foot-operated pedal 44 connected to source of hydraulic fluid or air under pressure (not shown). If desired, those portions of angle brackets 16, end stops 22, 24, template assembly 32, and platen 30 that contact the workpiece may be covered with felt or other suitable protective material to prevent marring of the workpiece.

Universal support 34 includes a vertical post 46, firmly secured to beam 14, a first horizontally pivoting arm 48, a second pivoting arm 50, secured to the free end of arm 48 and a resilient spring support 52 at the free end of arm 50 and to router 36, said support permitting limited vertical movement of router 36. Support 34 is not a necessary part of the invention and may be dispensed with, if desired.

The structure and operation of template assembly 32 and base guide 38 are best illustrated by FIGS. 3 through 6. Template assembly 32 includes a pair of spaced support brackets 54, 54, firmly welded to or otherwise suitably attached, to the top of box beam 14. A pair of support blocks 56, 56 are secured to brackets 54, 54 and extend laterally outwardly over portion 58 of workpiece 60 (FIG. 4), one to each side of platen 30. A movable template base 62 having central opening 64 therein is secured to blocks 56, 56 by a pair of bolts 66, 66 through slots 68, 68. A pair of incremental screw thread adjusters 70, 70 are provided, one to each block 56 for determining the lateral placement of base 62 with respect to portion 58 of workpiece 60, which is to be routed. Once proper placement is determined, by adjusters 70, 70, base 62 is firmly secured to blocks 56, 56 by tightening bolts 66, 66. A pair of longitudinal router base guides 72, 72 are secured one to each side of central opening 64 and parallel with beam 14. The inwardly facing sides of guides 72, 72 are coincident with the respective edges of opening 64, as shown in FIG. 4. A pair of fixed template blocks 74, 74 are secured one to each side of opening 64, on longitudinal guides 72, 72. Finally, a pair of movable template blocks

76, 76 are provided, one to each template blocks 74, and each secured thereto by bolts 78 through slots 80. Pairs of incremental screw thread adjusters 82, 82 are provided, one pair for each template block 76, adjusters 82 secured to base 62 and operating in the same manner as adjusters 70.

Referring now to FIG. 6, base guide 38 includes a first, generally square guide plate 84, a second, rectangular guide plate 86 secured to the bottom of plate 84, and a tube 88 for receiving router bit 90, mounted centrally through plates 84 and 86. FIG. 7 indicates a workpiece in the form of a door strike jamb which has been routed to one depth at 92 and to a second, interior depth 94.

In operation, the workpiece is secured to the apparatus in the manner hereinbefore described. Router 36 with base guide 38 is then placed upon template assembly 32 so that plate 86 is positioned laterally of central opening 64, on top of longitudinal guides 72, 72. First depth 92 is then routed out, the edges thereof being determined by contact of edges 96, 96 of plate 84 with the inwardly facing edges of movable template blocks 76, 76, and by contact of tube 88 with the inwardly facing edges of longitudinal guides 72, 72. When the first routing step is completed, router 36 with plates 84 and 86 therebeneath, is rotated 90 degrees so that portions 98, 98 of guide plate 84 rest upon longitudinal guides 72, 72. Second depth 94 is then routed out, the limits thereof being determined by contact of edges 100, 100 of plate 86 with the inwardly facing edges of longitudinal guides 72, 72, and contact of edges 102, 102 of plate 84 with the inwardly facing edges of fixed template blocks 74, 74. Once the second routing step is completed, router 36 is lifted up and away from template assembly 32, platen 30 is released from workpiece 60 by operation of pressure lock 28 and a new workpiece is inserted for routing.

It can be seen from the foregoing that we have invented a new and highly useful device in the art of wood-working, therefore, we are not to be limited to the exact construction as herein provided, except as may be deemed within the scope of the appended claims.

We claim:

1. An apparatus for routing a suitable workpiece to at least two depths comprising a frame, means for holding a workpiece on said frame, support means for a router, template means on said frame for guiding the router in a routing operation, and base guide means on said router for cooperating with said template means in a routing operation, said template having a central opening therein, a pair of longitudinal guides one on each side above the opening and end stops at each end of the opening above the longitudinal guides, said base guide comprising a first generally square guide plate and a second lower guide plate secured to the bottom of said first plate and having a length generally equal to the base of the first plate and a width substantially less than the internal spacing of said longitudinal guides, said second plate being contact with said longitudinal guides in routing to a first depth, said first guide plate being in contact with said longitudinal guides in routing to a second depth.

2. The device of claim 1 wherein said frame comprises upright support legs, an elongated box beam on said legs and a plurality of vertically adjustable brackets attached to one vertical side of said box beam, for supporting the workpiece.

3. The device of claim 1 wherein said means for holding the workpiece comprises a pair of end stops, adjusting means in said end stops for locating the workpiece in a selected position, longitudinally with respect to said frame, a vertically movable platen located beneath said template, and means moving the platen towards said template, to secure a workpiece thereagainst.

4. The device of claim 3 wherein said means for moving the platen comprises a fluid pressure device, operatively connected to said platen, feed lines for fluid under

pressure, and a foot operated pedal, for selectively feeding and releasing fluid under pressure to said pressure device.

5. The device of claim 1 wherein said support means for a router comprises a vertical post, rigidly secured to said frame, a first arm secured to the upper end of said post and movable therearound in a horizontal plane, a second arm, secured to the free end of said first arm and movable therearound in a horizontal plane, and connecting means at the free end of said second arm to said router.

6. The device of claim 5 wherein said connecting means to said router comprises a resilient spring support, secured to the upper end of said router, whereby said router is free to move vertically.

7. The device of claim 1 wherein said template means comprises a first pair of support blocks, mounted on the top of said frame, a second pair of support blocks, mounted on each of the first blocks and extending laterally outwardly of the frame, over the workpiece, a flat plate having said central opening therein selectively positionable on said second blocks laterally with respect to the frame, said longitudinal guides mounted thereon, each of said end stops comprising a first portion attached to the longitudinal guides and a second portion selectively positionable on said first portion lengthwise with respect to said frame.

8. The device of claim 7 wherein means are provided for selectively positioning said flat plate and each of said end-stop second portions, a first pair of means for said flat plate and a second pair of means for each of said second portions, each of said pairs of means comprising a lug, a threaded bore in said lug and a screw through said bore with its end abutting the flat plate and each of said second portions.

9. The device of claim 7 wherein said base guide is provided with a tube located centrally through said first and second plates, for receiving the bit of the router, said tube extending below the plane of the second plate, the horizontal planar limits of the first routed depth being determined by contact of the first guide plate with said second portions of said end stops and by contact of said tube with the inwardly facing sides of said longitudinal guides, the horizontal planar limits of the second routed depth being determined by contact of the long sides of said second guide plate with said inward sides of said longitudinal guides and by contact of the ends of said second guide plate with said first portions of said end stops.

10. In combination, a template and guide means for facilitating a routing operation to at least two depths, said template comprising a base structure having a central opening therein for receiving a router bit, raised longitudinal guides at each side of said opening and end stops at each end of said opening above said longitudinal guides, said guide means securable to the base of a router, and comprising a first, generally square plate, a second rectangular plate secured to the base of said first plate substantially equal in length to the base of said first plate and a width substantially less than the internal spacing of said longitudinal guides, said second plate in contact with the upper faces of said longitudinal guides in routing to a first depth, said first plate in contact with said upper faces in routing to a second depth.

11. The combination of claim 10 wherein each of said end stops includes a first portion secured to the longitudinal guides and a second portion selectively positionable lengthwise with respect to said longitudinal guides.

12. The combination of claim 11 wherein means are provided for selectively positioning, each second portion comprising a pair of bores threaded lugs on the outer end of said first portion, an adjusting screw in each said lug, abutting means defining the outer edge of said second portion, a pair of longitudinal slots in each second portion,

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and a bolt for each slot, through the second portion to the first rigid portion.

13. The combination of claim 11 wherein said first and second plates are provided with a tube therethrough, for receiving a router bit, said tube having a portion extending below the plane of the second plate, the horizontal planar limits of the first routed depth being determined by abutment of the edges of said first plate with the inward sides of said second portion of the end stops and by contact of the extended tube portion with the inward sides of said longitudinal guides, the horizontal limits of the second routed depth being determined by contact of the edges of

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said first plate with the inward sides of said first portions of the end stops and by contact of the long sides of the second plate with said inward sides of said longitudinal guides.

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