Jan. 22, 1957 E. L. GUERRANT 2,778,121

AUTOMATICALLY ADJUSTABLE EXPANSIBLE ROUTING TEMPLATE

Filed June 25, 1953

2 Sheets-Sheet 1

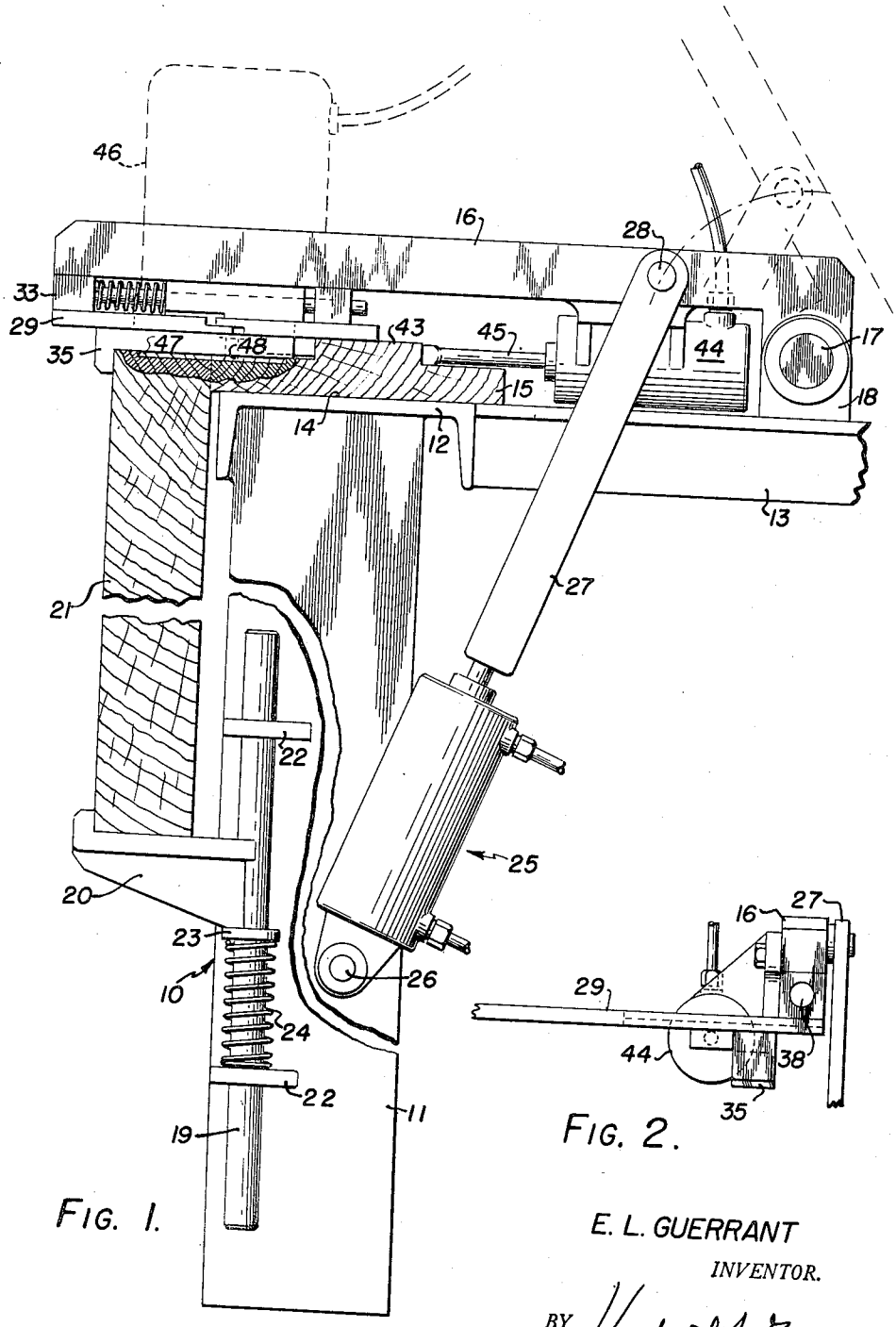


FIG. 1.

FIG. 2.

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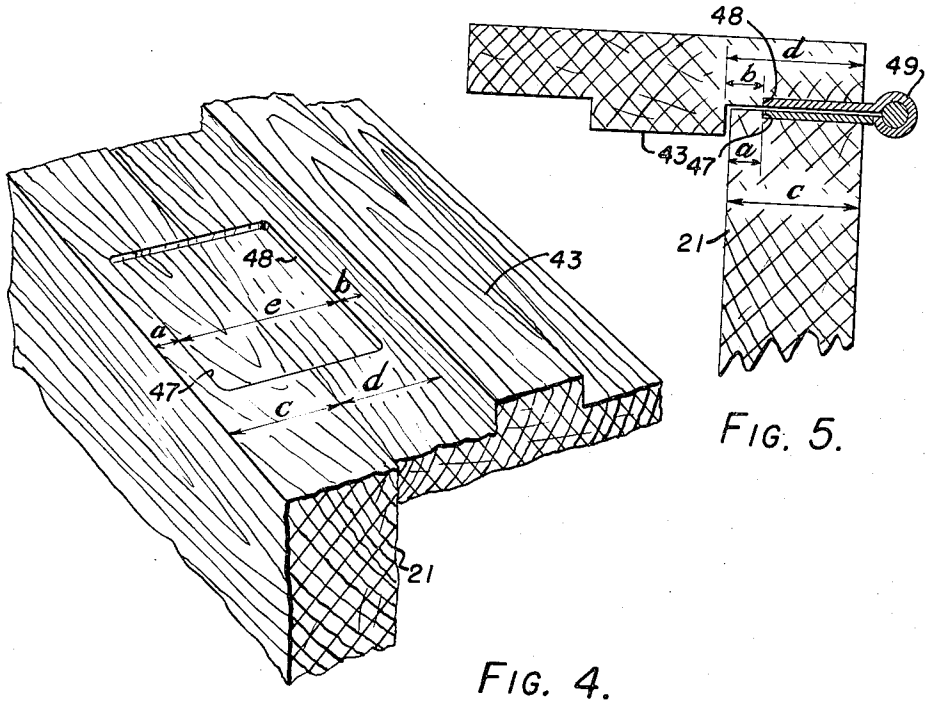


FIG. 5.

FIG. 4.

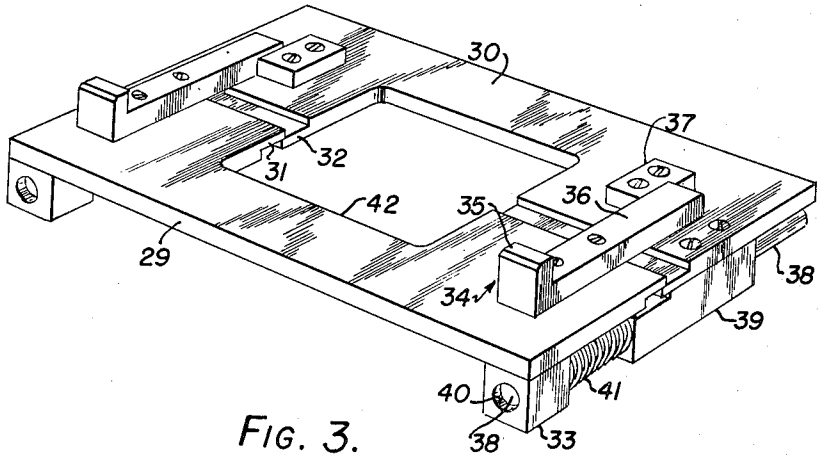


FIG. 3.

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AUTOMATICALLY ADJUSTABLE EXPANSIBLE ROUTING TEMPLATE

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Application June 25, 1953, Serial No. 364,076

5 Claims. (Cl. 33—197)

This invention relates to templates for simultaneously routing hinge receiving mortises in doors and jambs. Particularly, the invention is directed to apparatus for installing hinges in combined door and frame units such as described in U. S. Patent No. 2,489,029, issued November 22, 1949.

An object of the invention is to provide an adjustable routing template capable of automatically compensating for variations in door thicknesses and variations in door jamb dimensions, yet correctly locating the installed hinges.

Another object of the invention is to provide a self compensating adjustable template for the described purpose which will maintain a predetermined clearance between the side surface of the door jamb stop and the adjacent surface of the door when the latter is closed.

Another object of the invention is to provide adequate clamping means for firmly securing the jamb against the door during the routing operation, thus avoiding splintered edges between the two routed surfaces.

A further object of the invention is to provide routing template apparatus for the described purpose capable of accurately aligning the door relative to the jamb for carrying out the combined routing operation.

These and other objects of the invention will become apparent from the following description and the accompanying drawings, wherein:

Figure 1 is a broken end elevation of routing apparatus embodying the features of the present invention.

Figure 2 is a reduced broken front elevation showing approximately one-half of the apparatus illustrated in Figure 1.

Figure 3 is an inverted perspective view of one of the expansible templates forming a part of the invention.

Figure 4 is a broken perspective view of a door and jamb showing the relative positions of the same during the routing operation, and

Figure 5 is a transverse section of the jamb and door after the installation of the hinges and showing the door in its closed position.

The form of the invention shown includes a rectangular frame 10 having vertical legs 11, a horizontal frame member 12 across the front thereof, and horizontal cross members 13 secured to the horizontal frame member. The horizontal frame member 12 is secured, as by welding, on the upper ends of the legs 11, thus providing a long narrow supporting surface 14 on which the door jamb 15 rests during the routing operation.

Pairs of hinged arms 16 are provided for each routing operation location and are secured to corresponding cross members 13 by means of pivots 17 mounted in ears 18 secured to said cross members near the rear of the frame 10. As will become apparent, there is a separate template assembly for each hinge to be installed, and while the pairs of arms 16 shown are independent of each other, these may be secured relative to each other if desired. The two end legs 11 are provided with vertical supporting rods 19 having brackets 20 thereon for supporting the

side edge of the door 21 which is vertically positioned on its edge during the routing operation. The rods 19 are slidably mounted in ears 22 on the legs 11, and each rod includes an annular shoulder 23 for engaging the upper end of a compression spring 24 mounted around said rod and supported by the lower ears 22. The hinged arms 16 may be actuated by any suitable means, such as the air cylinder 25 shown in Figure 1. Each air cylinder 25 is pivotally connected, as by means of a pivot pin 26 mounted on the corresponding leg 11; and a connecting arm 27 is pivotally connected between the cylinder and one arm of the pair of arms 16 by means of another pin 28.

An expansible template assembly is secured to the outer lower surface of each pair of hinged arms 16 as shown in Figure 1 and includes a stationary plate 29 and a movable plate 30, and which plates are provided with overlapping shouldered extensions 31 and 32 so as to provide telescoping action therebetween. Thus, both plates 29 and 30 provide a single upper plane between their supporting pair of arms 16. Rectangular projections 33 are secured to the outer upper corners of the stationary plate 29 and are attached to the lower outer surface of the arms 16, as shown in Figure 1. Hook shaped locaters 34 having depending locaters 35 on the outer end thereof are secured to the lower surface of the stationary plate 29, and the lengths 36 thereof extend to and are in sliding contact with the lower surface of the movable plate 30. Additional locaters 37 are secured to the lower surface of the movable plate 30 and are in sliding contact with the side surfaces of the first referred to locaters 34. Parallel guide rods 38 are secured to relatively long supports 39 secured to the lower surface of the movable plate 30 near the ends thereof. Openings 40 through the projections 33 on the stationary plate 29 slidably receive the guide rod 38, and there is a coiled compression spring 41 around each said rod and between the related projections 33 and rod supports 39. Thus, the opening 42 of the assembled plates 29 and 30 is normally at its maximum width until the locaters 37 are acted upon in the manner to be described.

During the routing operation, the door jamb 15 to be routed is placed on the surface 14 of the horizontal frame member 12 with the jamb stop 43 on the top side thereof. An air cylinder 44 is secured to one of the arms of each pair of arms 16 and is arranged so that the piston rod 45 thereof contacts the side of the jamb stop 43 adjacent thereto.

In operation, the door 21 is vertically supported along its side by the resilient brackets 20, and the upper side is positioned against the front edge of the horizontal frame member 12. The arms 16 are lowered, as by means of the first described air cylinder 25, thus positioning the stationary depending locaters 35 around the upper forward edge of the door. The jamb 15 is placed on the horizontal surface 14 of the frame member 12 with the jamb stop 43 on the upper surface of the jamb. The second air cylinder 44 is then actuated causing the piston rod or ram 45 to move against the adjacent edge surface of the jamb stop 43, thus causing the opposite side surface of the stop to move against the spring loaded locaters 37 on the movable routing plate 30. Continued movement of the ram 45 moves the forward edge of the jamb 15 against the door moving the latter until the same is stopped by reason of the stationary depending locaters 35. The router 46, shown only by means of dotted lines in Figure 1, is then used in the usual manner for forming the mortises 47 and 48, as shown in Figures 1 and 4. The hinges 49 are installed after the door 21 and jamb 15 are removed from the described assembly.

As shown in Figures 4 and 5 the desired relative dimensions are maintained even though there may be variations in jamb dimensions and in the thickness of the door

between the ends thereof. Since the dimensions *a* and *b* are always constant, even though the dimensions *c* and *d* may vary, the necessary clearance between the opposing edge surface of the stop **43** and the opposing surface of the closed door **21** is maintained. While the dimension *e* may vary, it is pointed out that such variation does not affect the operation of the hinge **49**.

The invention is not limited to the specific construction herein shown and described, but may be made in many ways within the scope of the appended claims.

What is claimed is:

1. An expansible routing template for simultaneously forming a hinge mortise in a door and a door jamb when one face of the door is positioned against one edge of the jamb, and when the stop forming a part of the latter is positioned away from the door, said template comprising a pair of telescoping plates having a single routing opening formed therebetween, at least one projecting locater secured to one of said plates and arranged to engage the outer edge of said door, means fixedly securing the last said plate relative to said door, at least one projecting locater on the remaining movable plate and arranged to engage the side of said stop adjacent said door, and means moving said jamb and the last said locater toward said door and positioning the latter against its projecting locater.

2. In combination with an expansible routing template as defined in claim 1, the construction wherein said plates comprising said template are secured to at least one hinged arm having its pivot located on one side of said jamb and on the side thereof opposite said door.

3. In combination with an expansible routing template as defined in claim 2, means resiliently supporting said door and normally urging said door toward said template.

4. In an expansible routing template as defined in claim 1, means secured to said plates for aligning the same relative to each other during their expanding and contracting moments, and means normally urging said plates away from each other.

5. An expansible routing template as defined in claim 1, wherein said means moving said jamb include means movably applying a force against said jamb stop on the side thereof opposite the locater contacting the latter.

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