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J. C. CALAHAN

3,211,026

WORK HOLDER, JIG HOLDER AND JIG ASSEMBLY

Filed May 13, 1963

2 Sheets-Sheet 1

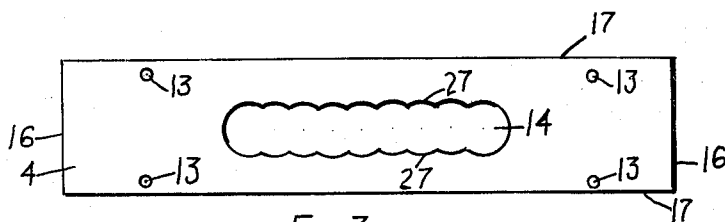


Fig. 3

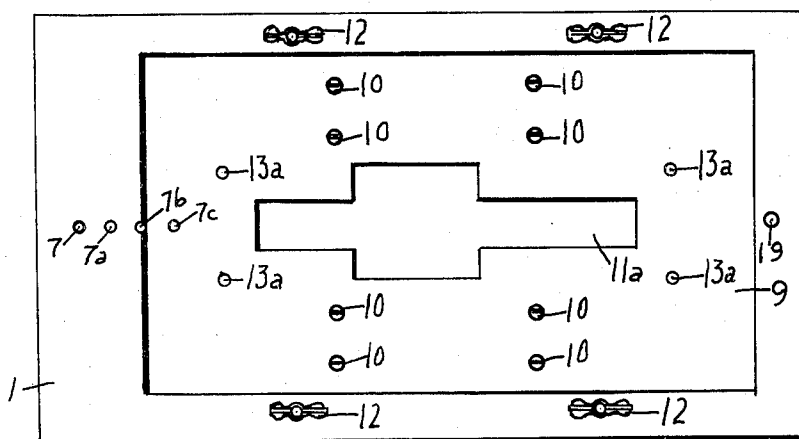


Fig. 2

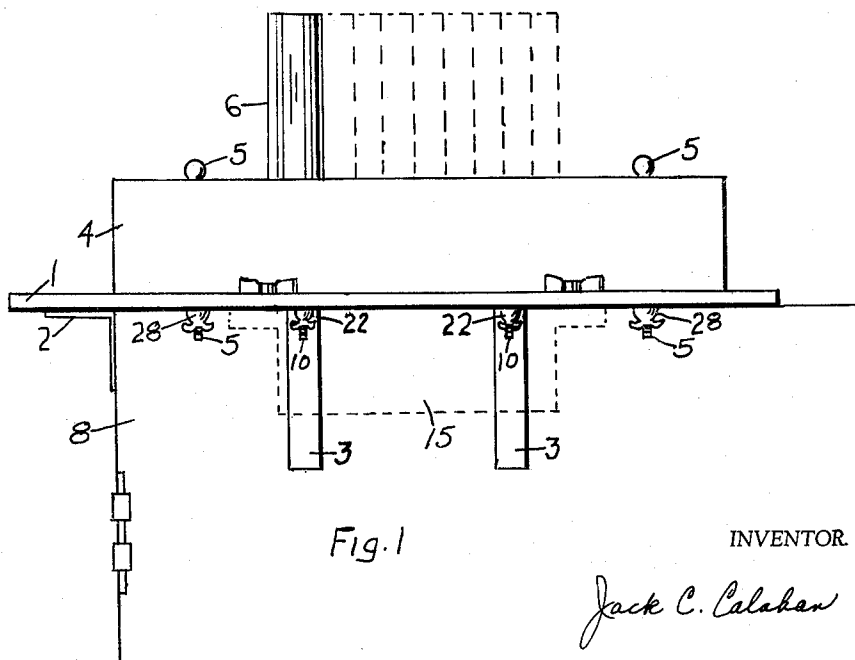


Fig. 1

INVENTOR.

Jack C. Calahan

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Fig. 7

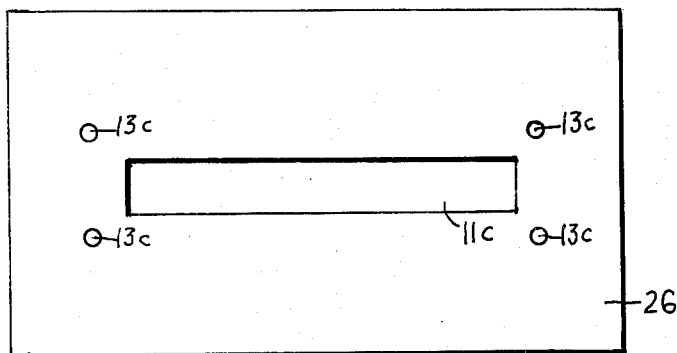


Fig. 6

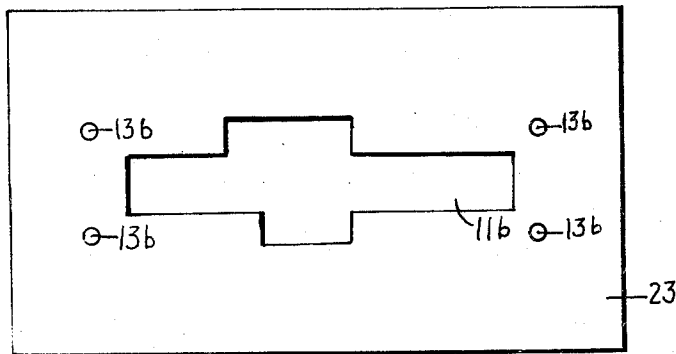


Fig. 5

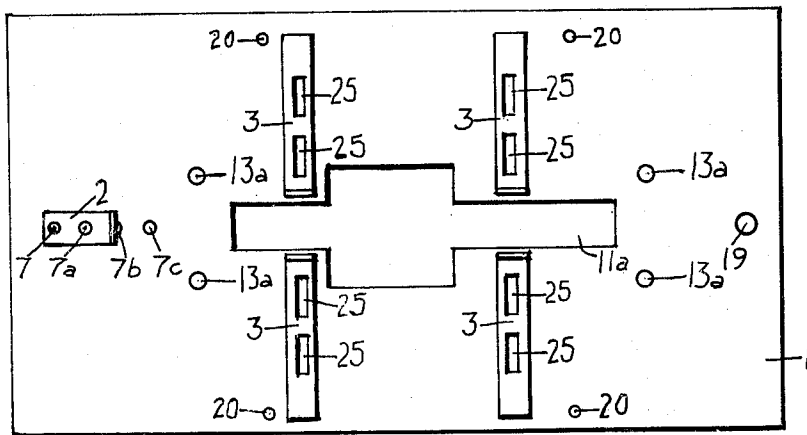
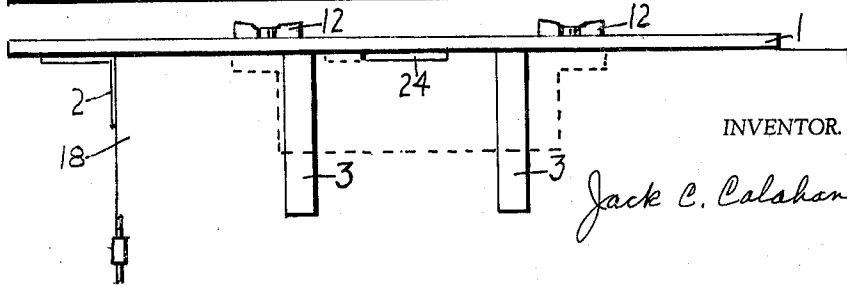


Fig. 4



INVENTOR.

Jack C. Calahan

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3,211,026 WORK HOLDER, JIG HOLDER AND JIG ASSEMBLY

Jack C. Calahan, 2200 Glenwood, Independence, Mo.
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My invention is a tool I have developed to meet the needs a craftsman finds when he installs concealed closers in wood doors. Said closers are made by several manufacturers. The closers for which my invention has been developed have several features in common and at least one difference in the arrangement of the arms of the closers. One feature said closers have in common is a housing for their power mechanisms, said housing must have a chamber provided for it in the door. Another feature said closers have in common is a flange at each end of said housing by which said housing is held in position. Said flanges must have seats precisely situated in said door. The difference, previously mentioned, in the arrangement of the arms of the closers is that in some makes of closers the space needed for the arm and the sweep of the arm at the door is taken in the jamb, while in other makes of closers the space is taken in the door.

Doors vary in ways to present problems which my invention meets. A door may be right or left handed. Doors also vary in thickness. The location of a door may present problems which limit the degree of opening. Some closers solve said problems by having arms of lengths applicable to any desired degree of opening. Other closers solve said problem by their position in relation to the hinge edge of the door.

My invention relates to jigs and a means of positioning them on a door and holding them for guiding drilling and routing operations.

An object of my invention is to provide a unique assembly of parts arranged for providing guidance to a drill used in drilling said door.

Another object is the provision for a structure arranged to have interchangeable parts and arrangements to provide a desired jig function for the routing of said door.

Another object is to provide flexibility in moving the structure longitudinally on said door.

Another object is to provide flexibility in adapting said structure to the thickness of said door.

Another object is the provision of a jig structure which provides both economy and efficiency in meeting the requirements for guidance in drilling and routing operations.

Still another feature of my invention is to provide a structure, clampedly secured to said door, which is simple in construction, rugged and long lasting, quite effective for its particular purposes, and obvious in its application to those skilled in the art to which it pertains.

Other objects and a fuller understanding of my invention may be had by referring to the following description and claims, taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a side elevation showing my invention as it looks when ready for the first step in installing a closer where the closer arm space provision is not in the door but in the door jamb as was described earlier, right hand door shown.

FIGURE 2 is a plan view of the work holder and jig holder.

FIGURE 3 is a plan view of the drilling jig utilized in my jig structure.

FIGURE 4 is a side elevation showing the work holder on a door where the closer arm space is taken in the door, right hand door shown.

FIGURE 5 is a bottom plan view of the work holder

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and jig holder showing the positioning devices and means of anchoring assembly and jigs.

FIGURE 6 is a plan view of a router jig plate which fits into the jig holder illustrated in FIGURE 2, showing the outline formed when the closer arm space is in the door. Said router jig plate is reversible for use on a left handed door.

FIGURE 7 is a plan view of a jig plate which fits into the jig holder illustrated in FIGURE 2, showing the outline formed where the closer arm space is in the door jamb.

Referring now specifically to the drawings, FIGURE 1 shows a jig assembly 1, preferably made of aluminum or other suitable materials, mounted on a door. A stop 2 positions the assembly 1 longitudinally and is secured thereto by means to be described later with FIGURE 2. The assembly is positioned laterally by two pairs of locating side bars 3 arranged to be positioned and manipulated within rectangular openings to be described with FIGURE 2. A drilling jig 4 is secured to assembly 1 by bolts 5, to be described with FIGURE 3. A bushing 6 within said jig 4 gives direction and acts as a stop for a drill as it cuts out material from said door. Said bushing 6 is hardened steep so that said drill can be driven through at the respective locations, indicated by broken lines, into the door without cutting the side of said jig 4.

The jig assembly 1 initially is placed in a fixed position on a door 8 according to said door's degree of opening required, and according to the thickness of said door, and according to the longitudinal axis of the chamber 15 as it relates to the face of said door. Said position is achieved longitudinally by a stop 2 adjustably secured to the assembly 1 by virtue of two axially aligned internally threaded like size openings 7 and 7a into which screws may be inserted. The use of 7 and 7a is characteristic of a preferred procedure. The use of openings 7a and 7b gives another degree of opening. The use of openings 7b and 7c gives still another degree of opening. Said fixed longitudinal position is further secured by the use of hole 19 through which a wood screw may be driven. Said assembly 1 is secured laterally by two pairs of locating side bars 3 depending from a base plate 9. The side bars 3 are secured to said assembly 1 by virtue of stud bolts 10 which freely extend through rectangular openings 25 arranged to be positioned and manipulated for securely biasing said locating side bars 3 against said door 8.

Said stud bolts 10 have flat heads which are seated in depressions in said base plate 9 extend through and are threadably engaged into wing nuts 22. FIGURE 2 also shows the manner in which one face of base plate 9 is recessed in the same dimensions and proportions as the router jig plate 23 of FIGURE 6 and router jig plate 26 of FIGURE 7, whereby said plates may be selectively received within the recess in plate 9. Said base plate 9 provides holes 13a through which bolts 5 pass, which will be explained in the description of FIGURE 3. The base plate 9 is provided with a master opening 11a which cooperates with all combinations of jigs included in my invention, said master opening 11a is also a jig for guiding a router tool, the router tool should be the normally portable electric type having handles and a control switch. The jig assembly 1 provides retainers 12 for holding router jig plates 23 and 26 in place.

Referring now to FIGURE 3 a drilling jig 4 is illustrated. A series of pivots 27 form an aperture 14 to house a bushing 6 which gives guidance to a drill. Accuracy and stability are achieved by means of bolts 5 which are, when passed through slightly larger holes 13 in said jig 4 and through holes 13a in base plate 9, threadably engaged in threaded wingnuts 28. Thus it is easily seen that said jig 4 accurately locates on the door with respect to the

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chamber required by a concealed door closer, such that a rotating drill may be positioned through the said drill bushing 6 to form chamber 15 in a door 8. Said aperture 14 thus is in exact alignment with the master opening 11a of base plate 9. Said drill jig aperture 14, of hardened steel periphery, formed by said series of pivots 27 each of which has a diameter with relation to outside diameter of said drill bushing 6 adapting said bushing 6 to fit slidably and snugly in said drill jig 4. Said drill jig 4 is formed in a bar, preferably made of aluminum or other suitable material, said jig 4 is a four sided structure having two opposite end walls 16 joined by two opposite side walls 17.

FIGURE 4 shows a door 18 processed to receive a concealed door closer of the type that takes the closer arm space in the door.

Referring now to FIGURE 5 illustrated is stop 2 secured by screws to two axially aligned internally threaded like size openings 7 and 7a. Tapped openings 7b and 7c in conjunction with stop 2 provide flexibility in moving assembly 1 to meet degree of door opening requirements. Said longitudinal position is further secured by the use of hole 19 through which a wood screw may be driven. Two pairs of locating side bars 3, in opposing positions depend from base plate 9, have rectangular openings 25 arranged to be positioned and manipulated for securely biasing the locating side bars 3 against a door 18. Tapped holes 20 are provided to receive threaded screws which depend from retainers 12.

Referring now to FIGURE 6 illustrated is a rectangular shaped router jig plate 23 with the same dimensions and proportions as the recess in base plate 9. Said jig plate 23 is used when space for a closer arm is taken in a door as illustrated in FIGURE 4 with the reference character 24. Said jig plate 23 is placed within the recess of base plate 9 of assembly 1. Said jig plate 23 is secured in place by retainers 12. Said jig plate 23 provides holes 13b because drill jig 4 is mounted on the jig assembly to begin the closer installation.

Referring now to FIGURE 7 illustrated is a rectangular shaped router jig plate 26 with the same dimensions and proportions as the recess in base plate 9. Said jig plate 26 is used when space for a closer arm is not taken in a door as illustrated in FIGURE 1. Said jig plate 26 is placed within the recess 9 of work holder 1. Said jig plate 26 is secured in place by retainers 12. Said jig plate 26 provides holes 13c because drill jig 4 is mounted on the jig assembly to begin closer installation.

My invention provides for desirable uses and flexibility in jiggling procedures. It is practical in that a work-

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man need not layout the configuration nor feel out the depth of the door closer on each door but rather the parts may be selected and assembled to obtain the desired drilling and routing results.

The present disclosure includes that contained in the appended claims, as well as that of the foregoing description. Further, since modifications and changes will occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

What is claimed is:

1. A jig assembly for mortising a door to receive a closer, said assembly comprising a base plate for attachment to one end of said door; adjustable opposed side bars depending from said base plate for engagement with opposed surfaces of said door adjacent said end whereby to prevent lateral displacement of said assembly; an adjustable stop depending from said base plate for engagement with an edge of said door whereby to prevent longitudinal displacement of said assembly, there being a recess formed in one face of said base plate and an opening formed within the confines of said recess and extending through said base plate; a router jig plate seated within said recess, there being an opening in said router jig plate corresponding substantially to the opening in said base plate; and a drilling jig supported upon said router jig plate, there being an aperture formed in said drilling jig, said aperture corresponding substantially to the opening in said base plate and said router jig plate, the aperture in said drilling jig being defined by a series of interconnected bores, there being a bushing selectively receivable within said bores, said bushing extending through said aperture, the opening in said router jig plate, the opening in said base plate and into engagement with said end of the door.

2. A jig assembly as set forth in claim 1, there being means interconnecting said drilling jig, said router jig plate and said base plate.

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WILLIAM W. DYER, JR., *Primary Examiner*.

DONALD R. SCHRAN, *Examiner*.