Nov. 27, 1956 H. E. BAKER 2,771,688

DOOR FRAMING JIG

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FIG_1

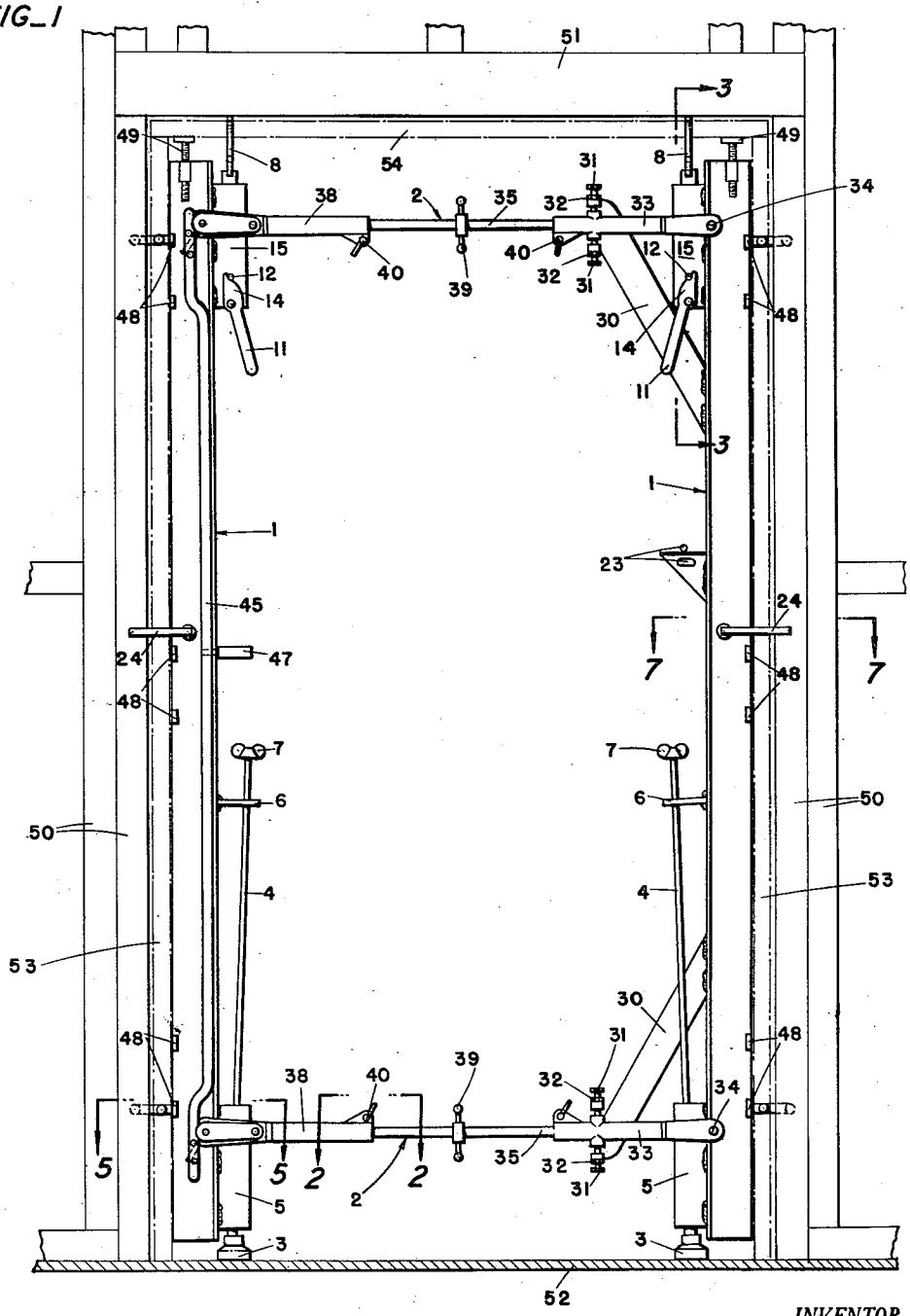
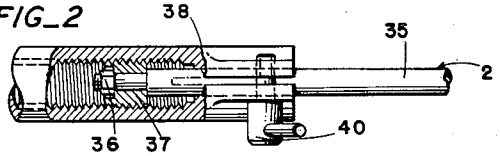


FIG_2



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FIG_3

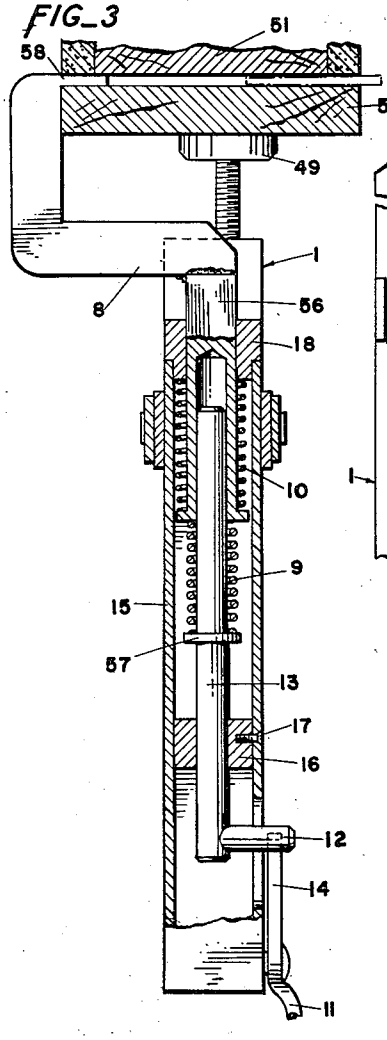


FIG_4

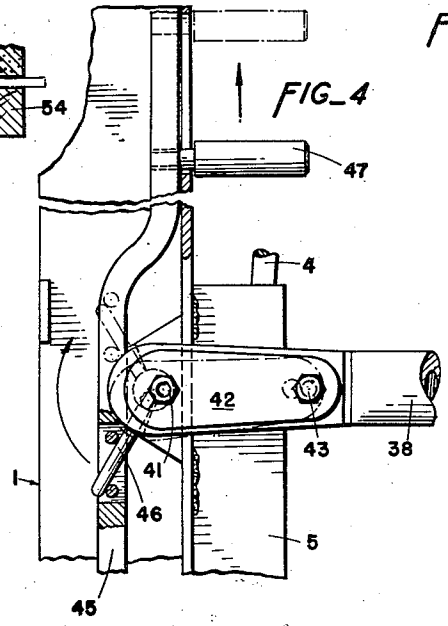


FIG_6

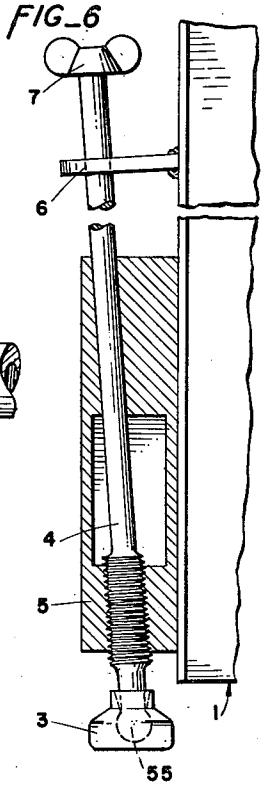


FIG_7

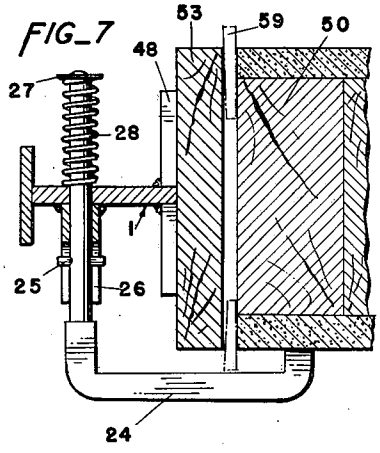
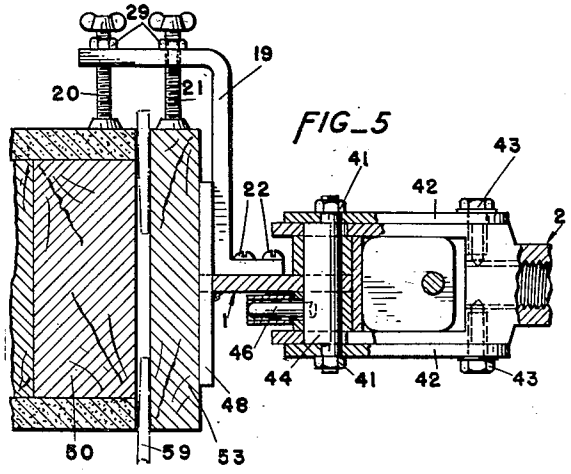


FIG_5



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DOOR FRAMING JIG

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5 Claims. (Cl. 33—194)

This invention relates to a door framing jig and has for one of its objects the provision of a means for gaging the quick and accurate setting of door jambs and similar frames.

In building practice, it is common to form a rough opening in a wall frame for a door or window during the construction of the wall. Into such rough opening must be inserted a finished frame, including head and side jambs, in which the window or door can be hung.

Because of the inaccuracy of such rough openings and the fact that doors are usually factory built to relatively close tolerances, it is usually necessary to shim the jambs away from the rough opening in order that the finished frame fit the door. Accurately setting the jambs by hand usually requires two men and is a tedious and time consuming job.

Heretofore, gages, guides, and the like have been used to aid carpenters in setting door frames, but such devices have either been complicated and costly or have been so simple as to provide little more utility than an ordinary hand level and square. Many of such devices are useless except with one predetermined size of door and therefore the workman must have at his disposal a number of different sizes of such devices on the ordinary job.

It is therefore an important object of this invention to provide a jig which may be accurately set and with relation to which a finished frame may be set in a rough opening.

Another object of this invention is the provision of a door framing jig which is extensible and retractable to fit various sizes of door frames.

It is still another object of this invention to provide a door framing jig which may be rigidly set in a rough opening for serving as a guide for setting a finished frame.

A further object of this invention is the provision of a framing jig which is relatively inexpensive to construct and simple to operate.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawings in which:

Fig. 1 is an elevational view of the jig of this invention in place in a rough opening in a portion of a stud wall;

Fig. 2 is an enlarged top plan view, partly broken away, of one of the cross braces as seen from line 2—2 of Fig. 1;

Fig. 3 is an enlarged sectional view taken substantially along line 3—3 of Fig. 1;

Fig. 4 is an enlarged elevational view of the lower portion of one of the main vertical members of the device of Fig. 1, showing details of the unlocking or retracting mechanism;

Fig. 5 is an enlarged sectional view taken substantially along line 5—5 of Fig. 1;

Fig. 6 is an enlarged elevational view, partly broken away, of the lower portion of one of the main vertical members of the device of Fig. 1, showing details of the adjustable foot thereof; and,

Fig. 7 is an enlarged sectional view taken substantially along line 7—7 of Fig. 1.

The device of this invention is adapted to be used in setting a finished door frame in a rough opening formed in a conventional stud wall by vertical studs 50 (Fig. 1), rough header 51, and floor or threshold 52. Because of the inaccuracies ordinarily present in rough framing work the opposite sides of such rough opening are ordinarily not parallel, nor are the adjacent sides normally at right angles. Before a conventional door can be hung, such opening must be provided with a finished door frame, usually comprising a pair of vertical side jambs 53 and a head jamb 54. It is for the purpose of setting said side jambs vertical and said head jamb at right angles thereto that the device of this invention was devised.

The framing jig of this invention is generally illustrated in Fig. 1, comprises a pair of similar, elongated, vertical members, generally designated 1, adapted to be placed in the rough opening where the finished door frame is to be fitted. Members 1 are supported in spaced, parallel, opposed relationship by adjustable horizontal cross braces 2, pivotally mounted on said members a short distance in from each end thereof.

Vertical members 1 and cross braces 2 form the major portion of the framing jig of this invention which is adapted to be placed in a rough opening and supported on floor 52. Means for resting said framing jig on the floor are provided by two ball and socket adjustable feet 3 (Figs. 1, 6). Feet 3 can be adjusted to any desired extension from the lower end of members 1 by an elongated rod 4 which is threaded through block 5, secured to the lower end of member 1 as by welding. Support for the upper end of foot adjusting rod 4 is provided by a bearing bracket 6 secured to member 1 at a point spaced upwardly from block 5. A winged handle 7, secured to the upper end of rod 4 is for the purpose of turning said rod so as to adjust foot 3. It will be noted that feet 3 are capable of resting flat on uneven surfaces because of their ability to swivel about balls 55 (Fig. 6) on the lower end of rods 4.

Cross braces 2 each generally comprise a central shaft 35, the ends of which are received in the inner ends of a pair of tubes 33, 38. The inner ends of said tubes are pivotally connected to members 1 by pins 34, 44, respectively, as will be later described.

For proper alignment of the framing jig in a rough opening, it is generally essential that adjustable cross braces 2 (Fig. 1) and vertical side members 1 be at right angles to each other. To accomplish this, diagonal braces 30 rigidly affixed to vertical member 1, as by welding, are provided. The outer extremity of each brace 30 ends in a fork, providing two bosses through which are threaded adjustable tangent screws 31. Lock nuts 32 are utilized to secure tangent screws 31 in proper position after adjustment. Bearing surfaces for tangent screws 31 are furnished by bosses integral with tubes 33. To provide for the adjustable spacing of vertical members 1, horizontal adjustable brace 2 is composed of the following parts: shaft 35 (Figs. 1, 2) ending in a reduced diameter portion at either end upon which is fastened, by means of nut 36, a threaded block 37 designed to engage internal threads in tubes 33, 38 (Fig. 2). Tubes 33, 38 at either end of shaft 35 are internally threaded with right and left hand threads respectively. Upon adjustment to proper spacing, by turning hand wheel 39 (Fig. 1), the split inner ends of the tubes may be tightened against shaft 35 by means of lock bolt 40

(Fig. 2), one end of which is threaded into lugs provided adjacent the slots of the tubes.

Tube 38 is mounted pivotally by means of nuts 41, draw plates 42, and bolts 43 to the eccentric portion of shaft 44 (Figs. 4, 5). Shaft 44 rotates about its concentric axis through bearings rigidly fixed to vertical member 1. This allows the two vertical members 1 to be drawn together, without turning shaft 35, by lifting the elongated vertical lever 45 (Fig. 1) which actuates pins 46 (Fig. 4) protruding from shafts 44. Both shafts 44 are thereby rotated and the release mechanisms of the upper and lower horizontal adjustable braces 2 are operated in unison. Means for manually operating lever 45 is provided by handle 47 mounted generally centrally of lever 45.

Once the correct spacing between members 1 is set and they are at right angles to cross braces 2, the framing jig may be set in the rough opening. In the event the floor 52 is uneven or out of level, feet 3 are adjusted by turning rods 4 until members 1 are correctly vertical, as indicated by spirit levels 23, mounted on one of said vertical members.

In order to securely wedge the framing jig in a rough opening when feet 3 are resting on floor 52, the upper end of each vertical member 1 is provided with a generally C-shaped element 8 (Figs. 1, 3). An upper support block 15 having a bearing 18 in the upper end thereof is secured to the upper end of each member 1 for the purpose of reciprocably supporting shaft portion 56 which depends from the lower arm of element 8. Element 8 is therefore reciprocable longitudinally of member 1 and is urged to its lowermost position by coil spring 10 which abuts bearing 18 and a flange on the inner portion of shaft portion 56 (Fig. 3). An element actuating rod 13 is telescopically slidable in the central bore in shaft portion 56 and is provided with a flange 57 intermediate its ends. The lower end of rod 13 is reciprocable in the bearing 16 secured within support block 15 by screw 17. A helical coil spring 9 surrounds rod 13 and abuts flange 57 and the lower end of shaft portion 56 so as to urge element 8 and rod 13 apart. The upper arm 58 of C-shaped element 8 is adapted to engage the lower side of header 51, and to move it to this position, rod 13 is provided with follower pin 12 which is engageable by a cam 14, having actuating handle 11 pivotally mounted on the lower end of support block 15. Upon rotation of handle 11 and cam 14 to the position shown in Fig. 1 follower pin 12 and therefore rod 13 are elevated and spring 9 yieldably urges shaft portion 56 and element 8 upwardly. The strength of spring 9 is sufficient to overcome the downward force of spring 10 so that upper arm 58 of said element is yieldably urged against rough header 51 (Fig. 3).

In this manner, vertical members 1 may be wedged into position between floor 52 and rough header 51 so as to withstand accidental displacement from the rough opening. It is obvious that reverse rotation of cam 14 allows spring 10 to return element 8 to a retracted position. Upper arm 58 of element 8 is relatively thin and may act as a spacing guide between rough header 51 and head jamb 54.

To provide for the proper placement of the plane of the framing jig with respect to the plane of the wall in which the rough opening is formed, for positioning brackets 19 (Fig. 5) are provided, two on either vertical side member 1. An adjusting screw 20 (Fig. 5) extends from the outer end of each bracket 19 into engagement with the surface of the wall adjacent the rough opening so as to adjustably position the framing jig therein. A second adjusting screw 21 provides a means for accurately positioning side jambs 53 with respect to the wall. Positioning brackets 19 are rigidly connected to the vertical side members 1 by means of screws 22. Lock nuts 29 (Fig. 5) secure adjusting screws 20, 21 in the desired positions.

Extending from the opposite side of each member 1, generally centrally thereof, is a spring loaded hook 24 (Fig. 7). Each hook 24 is journaled in a support bearing 26, rigidly secured to member 1, and is adapted to engage the wall surrounding the rough opening on the side opposite that engaged by adjusting screw 20 of positioning bracket 19. The outer end of support bearing 26 is provided with two pair of slots adapted to receive pin 25 which is mounted through the portion of hook 24 that reciprocates in said bearing. This portion of hook 24 extends through member 1 and is provided on its opposite end with helical spring 28 and flange 27. Hook 24 is therefore yieldably urged by spring 28 toward member 1 at all times.

Pin 25 residing in the slots in bearing 26 allows hook 24 to be turned about on its horizontal axis only when said hook is pulled outwardly against the force of spring 28 sufficient to remove pins 25 from their slots. From the position shown in Fig. 1 hook 24 may be pulled outwardly from member 1 and rotated 90 degrees to a position generally parallel to said member where pins 25 will enter the slots (not shown) that are 90 degrees removed from those shown in Fig. 7.

In positioning the framing jig in rough opening hooks 24 must be in the position just described. This allows the framing jig to be placed in the rough opening and screw 20 (Fig. 5) to be correctly adjusted. When in place, hooks 24 are again rotated 90 degrees so that they yieldably engage the wall to hold members 1 in the correct position.

In this position the framing jig is ready for use and the outer edges of each vertical member 1 provide an accurate guide for setting side jambs 53. Horizontal cross pieces or flanges 48 are provided at right angles to the framing jig along this outer edge for assuring the correct alignment of side jambs 53 normal to the plane of the wall.

To assure that head jamb 54 is horizontal, the upper end of each vertical member 1 is provided with an adjustable threaded pad 49 (Figs. 1, 3). Pads 49 may be screw adjusted to the same vertical height above the upper ends of members 1 and may be checked by a carpenter's level to assure that the tops thereof are horizontal. Pads 49 will also, of course, be set for the correct height for header 51 according to the size of the door being hung.

With side jambs 53 and head jamb 54 in place as described, a slight space should remain between them and the inner edges of the rough opening. Into this space are normally driven shims 59 (Figs. 5, 7). Short pieces of cedar shingles or other wedges are often used for said shims.

Once the finished frame, consisting of side jambs 53 and head jamb 54, has been securely shimmed against the guiding edges of vertical members 1 and pads 49, respectively, said side and head jambs may be securely nailed to studs 50 and rough header 51 until it is self supporting.

To remove the framing jig an operator then lifts handle 47 (Fig. 1), drawing the two vertical members together (by rotating eccentric pin or shaft 44), loosens pads 49 from head jamb 54 and rotates hooks 24 90 degrees. The framing jig may then be removed from the plane of the wall by pushing it horizontally in the direction of brackets 19 and element 8 to remove arm 58 from between head jamb 54 and header 51.

None of the dimensional adjustments of the framing jig have been altered in removal and said jib is immediately available to perform a similar duty on a new rough opening of similar dimensions. It is to be noted that the adjustability feature of cross braces 2 allows this framing jig to be used for varying door widths, from say two feet four inches to three feet.

Although the invention has been described and illustrated in detail, such is not to be taken as restrictive thereof since it is obvious that modifications could be

made therein without departing from the spirit and scope of the invention.

I claim:

1. A door framing jig comprising a pair of similar, elongated members, means for holding said members in spaced, parallel, opposed relationship, adjustable feet extending from the lower ends of said members and adapted to engage the floor for positioning said members vertically in a rough door opening, generally C-shaped elements extending from the upper ends of said members and mounted for reciprocation therefrom, and means for yieldably urging the upper arms of said elements into engagement with the header of said rough opening, and adjustable means mounted at the upper ends of said members for supporting a head jamb of a door frame whereby when said jig is so positioned in said rough opening the outer edges of said members and said adjustable means serve as accurate guides for the placement of the jambs of said door frame.

2. A door framing jig comprising a pair of similar, elongated members, means for holding said members in spaced, parallel, opposed relationship, adjustable feet extending from the lower ends of said members and adapted to engage the floor for positioning said members vertically in a rough door opening, generally C-shaped elements extending from the upper ends of said members and mounted for reciprocation therefrom, and means for yieldably urging the upper arms of said elements into engagement with the header of said rough opening, and adjustable means mounted at the upper ends of said members for supporting a head jamb of a door frame, and bracing hooks extending from said members and adapted to engage the sides of the wall in which said rough opening is formed for holding said members in the plane of said wall whereby when said jig is so positioned in said rough opening the outer edges of said members and said adjustable means serve as accurate guides for the placement of the jambs of said door frame.

3. A door framing jig comprising a pair of similar, elongated members, means for holding said members in spaced, parallel, opposed relationship, adjustable feet extending from the lower ends of said members and adapted to engage the floor for positioning said members vertically in a rough door opening, generally C-shaped elements extending from the upper ends of said members and mounted for reciprocation therefrom, and means for yieldably urging the upper arms of said elements into engagement with the header of said rough opening, and adjustable means mounted at the upper ends of said members for supporting a head jamb of a door frame, and bracing hooks extending from opposite sides of said members and adapted to engage opposite sides of the wall in which said rough opening is formed for holding said members in the plane of said wall, the hooks extending from one side of said members being yieldably urged into engagement with said wall and being rotatable to a position within the outer edges of said members whereby when

said jig is so positioned in said rough opening the outer edges of said members and said adjustable means serve as accurate guides for the placement of the jambs of said door frame.

4. A door framing jig comprising a pair of elongated members in parallel, opposed, spaced relationship, braces extending between said members and having one end secured to one of said members at spaced points, eccentric pins connecting the other end of said braces to the other of said members at spaced points for increasing and decreasing the distance between said members upon rotation of said pins, vertically adjustable feet extending from the lower end of said members and adapted to rest on the floor for positioning said members vertically in a rough opening, generally C-shaped elements extending from the upper ends of said members and mounted for reciprocation therefrom, and means for yieldably urging the upper arms of said elements into engagement with the header of said rough opening whereby when said jig is so positioned in said rough opening the outer edges of said members serve as accurate guides for the placement of the jambs of a door frame, and when said jambs have been secured to said rough opening, rotation of said pins permits rapid removal of said framing jig from said opening.

5. A door framing jig comprising a pair of elongated members in parallel, opposed, spaced relationship, horizontally adjustable cross braces extending between said members and having one end secured to one of said members at spaced points, eccentric pins connecting the other end of said braces to the other of said members at spaced points for increasing and decreasing the distance between said members upon rotation of said pins, clamping means for preventing accidental adjustment of said braces, vertically adjustable feet extending from the lower end of said members and adapted to rest on the floor for positioning said members vertically in a rough opening, generally C-shaped elements extending from the upper ends of said members and mounted for reciprocation therefrom, and means for yieldably urging the upper arms of said elements into engagement with the header of said rough opening whereby when said jig is so positioned in said rough opening the outer edges of said members serve as accurate guides for the placement of the jambs of a door frame.

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