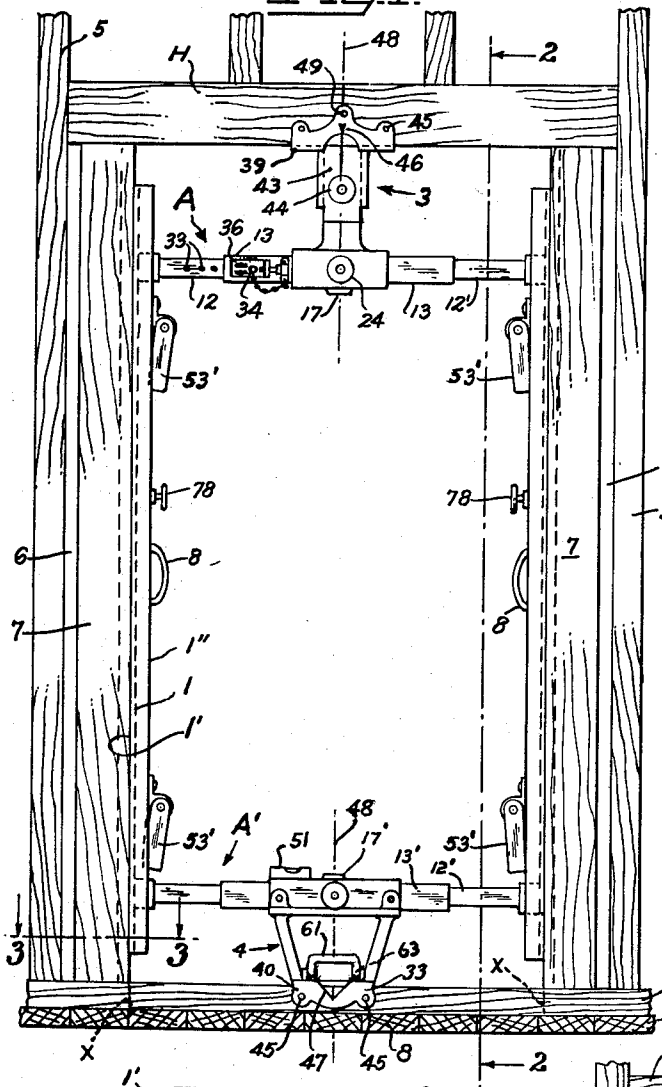
Nov. 27, 1962 A. W. PATTIANI 3,065,550

DOORWAY STUD FRAMING AND CONSTRUCTION FRAME

Filed Sept. 16, 1959 2 Sheets-Sheet 1

Fig. 1.



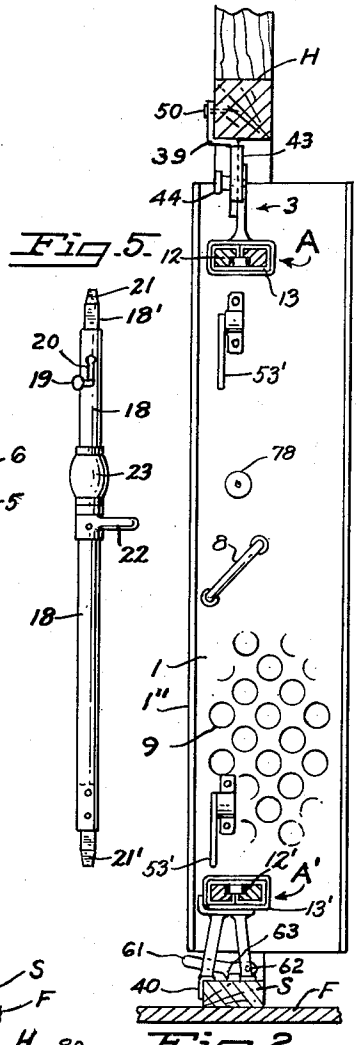


Fig. 2.

Fig. 5.

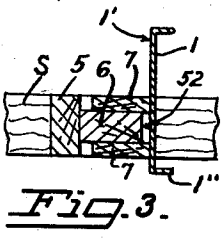


Fig. 3.

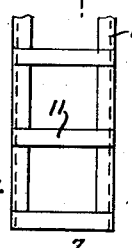


Fig. 4.

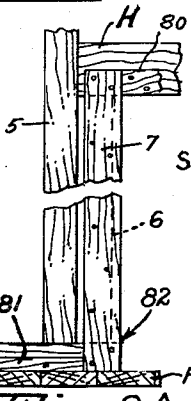


Fig. 8A.

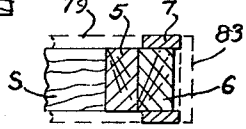


Fig. 8.

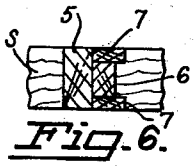


Fig. 6.

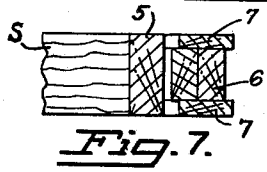


Fig. 7.

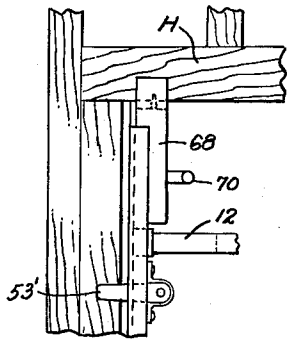
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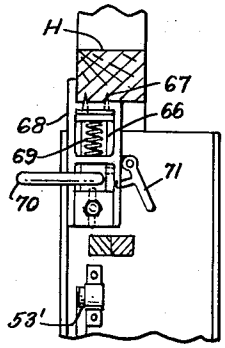
Alois W. Pattiani

Nov. 27, 1962 A. W. PATTIANI 3,065,550

DOORWAY STUD FRAMING AND CONSTRUCTION FRAME

Filed Sept. 16, 1959 2 Sheets-Sheet 2





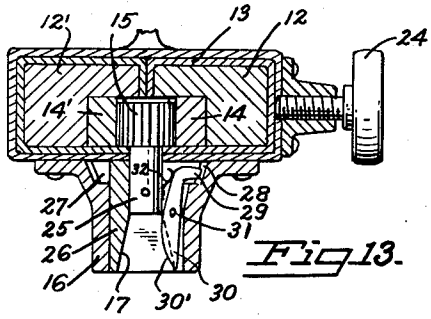


Fig. 13.

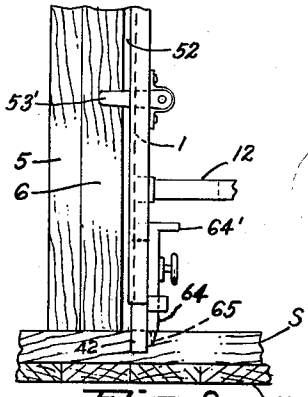


Fig. 9.

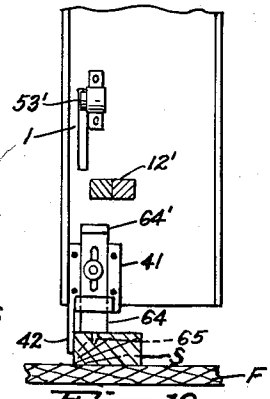


Fig. 10.

Fig. 16.

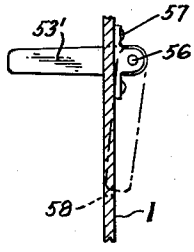
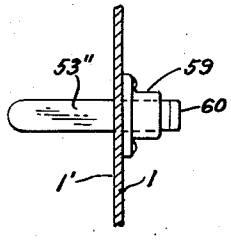


Fig. 17.



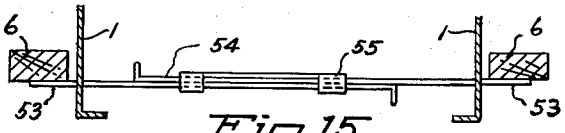


Fig. 15.

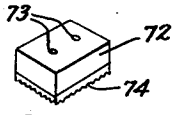


Fig. 11.

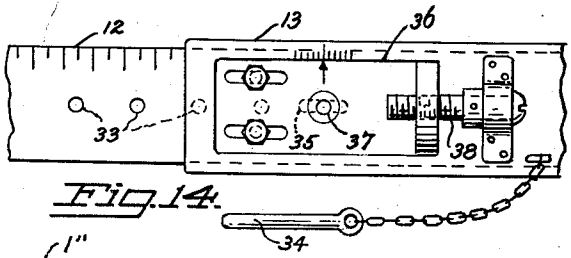


Fig. 14.

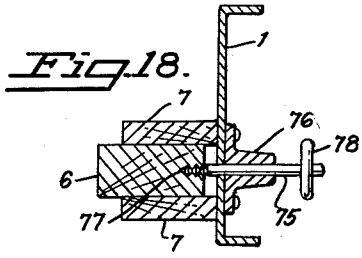


Fig. 18.

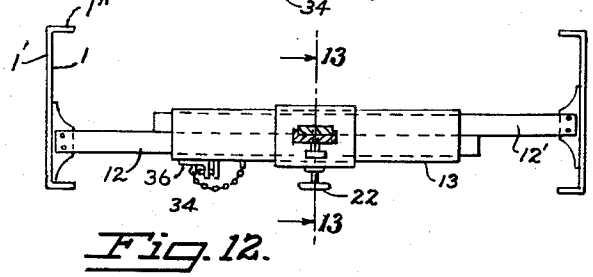


Fig. 12.

INVENTOR.

Alois W. Pattiani

United States Patent Office 3,065,550 Patented Nov. 27, 1962

3,065,550
DOORWAY STUD FRAMING AND CONSTRUCTION FRAME

Alois W. Pattiani, 3375 Hagen Road, Napa, Calif.

Filed Sept. 16, 1959, Ser. No. 840,415
13 Claims. (Cl. 33—194)

This invention relates to improvements in wooden framing of doorway openings in building walls, and has for its objects improved methods of arranging the studding and framing adjacent the roughly framed doorway opening to finish the opening to directly receive a finished door frame, with or without its door and casing in place.

Another object of the invention is a doorway opening constructed according to the method, in somewhat varying forms.

Another object of the invention is the provision of a special aligning and construction frame-device, against which the studding or opening framing is aligned while nailing in place, yet which construction frame-device, while adjustable for various widths and heights of doorway openings, will permit the free passage of a workman through it while it is in place, so that he can work on both sides of the wall as required.

A further object of the invention is such a construction frame-device as above mentioned which will not only align the framing of a doorway opening vertically, but also at right angles transversely of and through the doorway opening.

A still further object of the invention is such a construction frame-device which, though adjusted for a particular doorway opening, may be contracted and freely removed after the wall doorway opening has been framed therewith, without losing the size adjustment of the construction frame-device so that it can be used on successive doorways of the same size by a simple restoring action or operation.

Another object of the invention is to provide such a construction frame-device which may be adjusted to any width desired, by the operation of one manually operated adjusting device.

Another object of the invention is to automatically lock said construction frame-device at any point of its size adjustment.

Other objects and advantages of the invention will appear in the following description and in the accompanying drawings.

FIG. 1 is an elevation of a doorway opening in a wooden stud wall framed in accordance with one form of my invention, and with my special aligning construction frame-device as being still in place, just before removal.

FIG. 2 is a vertical section of FIG. 1 taken along line 2—2 thereof.

FIG. 3 is a cross section of FIG. 1 taken along the line 3—3 thereof and showing the relation of the studs and wall framing to the construction frame-device.

FIG. 4 is a broken off portion of a modified form of the vertical side aligning members.

FIG. 5 is an elevation of the manually operated wrench-bar for simultaneously expanding or contracting the width of the construction frame-device.

FIG. 6 is a cross section of a slightly modified form of a doorway stud framing as made with my special construction frame-device.

FIG. 7 is a cross section of another modified form of a doorway stud framing as made with my special construction frame-device.

FIG. 8 is a cross section of still another slight modification of a doorway stud framing as made with the aid of my special construction frame-device.

FIG. 8A is an elevation of FIG. 8 showing the extension of the plaster thickness gaging strips.

FIG. 9 is a vertical elevation of one side aligning member only of my construction frame-device showing a modified form of the top and bottom means of securing the frame-device in place.

FIG. 10 is a vertical view of FIG. 9 showing the right or inner side of the aligning member.

FIG. 11 is a perspective view of a friction pad or block for the lower securing means of FIG. 9 for use with a concrete floor or one where spikes can not be used.

FIG. 12 is a plan view of the upper pair of extensible arm mountings connecting the vertical side aligning members or channels of the construction frame-device.

FIG. 13 is a central cross section of FIG. 12 taken along the line 13—13 showing the rack-and-pinion extensible arm control and automatic pinion gear locking arrangement, also the auxiliary hand operated clamping means to hold the arms for movement after being adjusted.

FIG. 14 is an enlarged detail of a fine or micrometer adjustment of the arms extension to determine any clearance desired or allowance for a known variation in the thickness of the mill-finished door frame jambs.

FIG. 15 is a plan view of one form of extensible frame aligning fingers used in setting up the construction frame-device in some situations.

FIG. 16 is a sketch showing another form of fingers which are pivoted to swing into projecting or withdrawn position.

FIG. 17 is another sketch showing a push in or out type of aligning finger.

FIG. 18 is a cross section of one side of the construction frame-device showing a hand applied locking screw pin, for holding the frame-device in aligned position.

Before going into the detailed description it should be noted that this invention does not relate to the aligning of a door frame in a stud-framed wall opening by means of cutting aligned seats on the studding or "cripples," or the insertion of blocks into any such seats, or the use of wedges or shingles to vertically align and fit the wall opening to a finished door frame, but the present invention does away with all such time consuming artifices and quickly produces a solidly framed stud opening ready to exactly fit and receive the finished door jambs for nailing in place, or a pre-fabricated finished door frame as received from the mill, either with or without its door in place with its hinges and locks on it, or the mortising therefore completed at the mill, all set-up or in knock-down condition, so that no such work at all need be done at the job.

With the above understanding kept in mind, the details of construction and operation will now be described.

In the drawings, with reference first to FIGS. 1 to 3 and 5, the vertical side aligning members of the frame-device are designated 1, the horizontal upper and lower connecting arms generally A and A', the upper and lower central securing brackets respectively 3 and 4, and which items broadly designate the frame-device shown in FIG. 1 as positioned within a timbered doorway wall opening, of which the last conventional stud is designated 5 (FIG. 3), a specially arranged final stud 6, both supported on a sill or plate S in turn secured to the floor F, and two vertical boards 7, 7, secured as by nails against the outer sides of the final stud with the boards extending inwardly (toward the doorway) beyond the stud 6, with their vertical straight edges in contact with and aligned both vertically and horizontally against the straight flat outer face 1' of the aligning member 1, to form the finished opening against which the outer sides of the finished door frame jambs are seated and secured. The aligning members are each preferably of channel shape with its flanges designated 1'' extending inwardly. The channel is of a breadth to extend entirely through and preferably beyond both sides of the widest wall encountered in regular frame doorway construction, say about 7 to 10 inches, all as indicated in the

drawing in FIG. 3, though there may be two or more sizes of the frame-device if desired, but their margins which project through the roughly framed doorway opening must be free and unobstructed to permit the placing of the vertical boards 7 and moving them into edge contact with the extending margins of the aligning members 1 and nailing in place to make the finished doorway opening, as shown in FIG. 3, to directly receive the door jambs thereagainst.

The aligning members 1 may be of any rigid stiff material but I prefer that it be of aluminum, magnesium, or alloys which are light in weight, and so with most of the other parts, all so that the complete frame-device may be easily carried about and positioned by a workman, and to facilitate which a pair of handles 8 are provided at the most convenient angle and height at the inner side of members 1 for carrying the frame-device upright.

In order to further lighten the frame-device, the channels may be perforated all over the webs as indicated at 9, in FIG. 2, or these side aligning members may be built of lattice work, as shown in FIG. 4, wherein the construction comprises a vertical pair of spaced stiff members 10, or angle bars, connected outwardly by spaced slats 11 and which slats form the flat outer aligning surface required. The length or height of the channels 1 should be a few inches less than the lowest normal door opening to clear the header H and sill S as shown in FIG. 1, and wherein the sill is supported on a floor F of any construction.

The connecting arms A and A' should be extensible to permit the frame-device to be adjusted for various widths of door wall openings and are shown as each being in two sections 12 and 12' slidably arranged side by side guided by a sleeve 13 of a length to permit the sections to collapse the side aligning members to accommodate about the smallest house door or to extend for the widest generally found in modern homes.

The outer ends of the arms are preferably rigidly secured to the inner wall of members 1, and each arm section within the sleeve 13 has secured to it or formed thereon, a rack-bar 14 in confronting relation to a similar rack-bar 14' on the opposite section (see FIG. 13) both engaged by a vertically disposed pinion 15 mounted in a bearing 16 and provided with a square socket 17 in vertical alignment with a duplicate socket 17' at the lower set of arms A' which have the same construction as described for the upper set of arms.

The two confronting sockets and their pinions are operated simultaneously by a square ended wrench-bar designated 18 in FIG. 5, which is removable from the sockets after being turned to secure the desired expansion or contraction of the side aligning members 1, by retracting the upper portion of the bar into the lower portion which is tubular, by means of a spring locking knob 19 the shank of which operates in a slot 20 and is connected to the upper slidable portion 18' of the bar and locks into an enlargement at either end of the slot to assure the alignment of the square ends 21 and 21' at all times, and thereby maintain the alignment of the square pinion sockets 17 and 17' of the upper and lower arms.

It is preferable that the proportions of the pinion be of a diameter to expand or contract the frame-device two inches upon a complete revolution of the pinion, and that the wrench-bar have a straight handle 22 extending out one or opposite sides to indicate by its position the expansion or contraction effected, and preferably also a circular hand grip 23 for turning the wrench-bar more quickly until close to the final position desired.

When the frame sides 1 have been expanded or contracted to the desired degree, the arms 12 and 12' are clamped together as by clamping screws operated by hand wheels 24 and after which the wrench-bar is contracted by pulling outward on the knob 19 and pushing it down the slot 20 to spring inward and lock itself at the lower end, in the enlarged portion of the slot.

In addition to the hand wheel clamp screw 24, it is

desirable for the pinion to be locked automatically as the wrench-bar is removed from the socket 17 and to accomplish this, the shank of the pinion extends downward into and is secured in a tubular extension 26 which is rotatably supported in the fixed bearing 16, and the lower end of the extension is formed into a tapered square socket 17 to fit the squared ends of the wrench-bar.

Bearing 16 is formed with annular depression 27 surrounding the upper end of the extension 26, and formed around the outer wall of the depression is a circular row of fine teeth 28 which are normally engaged by the matching outer edge 29 of a small spring urged lever 30 cross pivoted at 31 operating in a slot formed in the extension 26, and the lower rounded end 30' of which lever projects slightly into the square socket 17 so that upon inserting the end of the wrench-bar into the socket the lower end of the lever will be pushed outwardly and swing its upper end away and free from its engagement with the teeth 28 and thereby unlock the pinion 15 so that it may be turned when the wrench-bar is turned, and will instantly lock the pinion again when the wrench-bar is removed. The lever actuating spring may be a single steel wire 32 carried in a slot cut vertically in the side of the pinion shank and pressing with its upper end against the upper end of the lever. By careful reference to FIG. 13 the construction should be clear, also that if closer control is desired, a second locking lever may be similarly mounted at the opposite side of the extension member but spaced one-half tooth out of phase with the first one.

As the lower set of arms have the same construction as above described it is evident that both upper and lower arms will be locked and unlocked at the same time and at the same point of extension.

As standard door generally vary in width by two inches, such as 20, 22, 24, 26, 28, etc., the extensible arms may have a series of definite stops so spaced, and definite engaging means on the sleeve 13 cooperating with such stops, such definite spaced stops being shown in FIGS. 1 and 14 as holes 33 in the arm, and a pin 34 or its equivalent carried by the sleeve passing through a hole in the sleeve and the selected hole in the arm. But as any variation in the thickness of the door jambs from the standard from which the spacing of the holes was computed (to get the proper clearances) would have to be taken care of, the hole in the sleeve should be adjustable along the sleeve. However this requirement is met by having a slot 35 in the fixed sleeve 13, and a plate or block member 36 slidably mounted on the sleeve with a round hole 37 in it for the pin, normally positioned centrally over the slot in the sleeve below it, and the pin 34 passing through the hole 37 in the plate and into one of the round holes of the arm further below, screw means 38 being provided for micrometrically adjusting the block member lengthwise of the sleeve to vary, plus or minus, the nominal extension value of the spaced holes 33 in the arm 12 when aligned with the hole 37 of the block for the pin to pass through. Of course it will be evident without an additional drawing, that instead of holes and a pin, there may be a series of notches on the arm and a spring latch on the block to rise and fall into the notches to designate the positions, or any other equivalent arangement.

It should be noted that the micrometric adjustment placed on one side only of the upper (or lower) arm fixed sleeve will nevertheless control the other pair of arms, by reason of both pinions being operated by a rigid wrench-bar, which when withdrawn (after locking the arms with the hand wheels 24) leaves both sets of arms locked in the exact same position of extension.

The means for securing the frame-device, generally designated brackets 3 and 4 secured respectively to the upper and lower arm sleeves 13 and 13' are each provided with a shoe such as at 39 for the upper one and 40 for the lower one, formed to engage the header H and sill S respectively to align the frame-device in the

plane of the building wall, at least one of the brackets being vertically extensible as indicated for the upper bracket 3 by the sliding portion 43 secured at any extension by the clamp screw hand wheel 44.

Both upper and lower brackets are provided with nail holes 45 for temporarily holding them in place, and both are provided with a pointer 46 or its equivalent V notch 47 to align with a vertical center line 48 marked on the upper and lower existing woodwork before erecting the frame-device. Also, the upper bracket preferably, has a central hole or V notch as at 49 from which to first hang the frame-device up on a nail 50 previously driven into the header on said center line, and from which the frame-device, being symmetrical, will normally hang vertically before securing the lower end bracket in place, though one or more spirit level glasses may also be provided on the frame-device as at 51, at any convenient place, to insure the frame-device being vertical.

Preferably the frame-device should be centered in the doorway opening with a small clearance 52 (see FIG. 3) on both sides from the last or final stud 6 defining the "rough" doorway wall opening. Also, to more easily align the frame-device with the plane of the doorway or the wall there may be retractable or removable fingers 53 arranged on the aligning members 1 to project outwardly from the flat faces of said aligning members, to the position shown in FIG. 15, to engage the outer surfaces of studs 6 or 5 and which fingers are withdrawn after the frame-device has otherwise been secured in place.

The removable fingers are positioned inwardly from the outer edges of the aligning members 1 as indicated in FIG. 15, to insure the members 1 will project forwardly of the vertical plane of the studding for aligning of the vertical boards 7 against the flat faces 1' of said members, and which flat faces should also project at right angles through the doorway opening and beyond the opposite vertical plane of the studding, for aligning the boards 7 on the other side of the wall.

In FIG. 15, the fingers 53 are formed by the extreme ends of a pair of flat slidable bars 54 guided in loose bands 55 (or through a sleeve as described for the arms 12) so as to be extensible and retractable through slots in the webs of the side aligning members 1.

FIG. 16 shows a form of flat retractable finger 53' which is frictionally pivoted at 56 at one side of a bracket 57 secured to the inner wall of member 1 so as to permit the finger to swing through a slot 58 in member 1 from the extended position shown to the retracted position as dotted, and which may be down, or up, as desired.

FIG. 17 shows another form of removable finger 53'' which is slidable through a rigid socket 59 secured to the inner side of member 1, to project the finger outward as shown, or the finger may be shoved in part way from the outside of member 1 and left extending the required distance, and in either case, entirely pulled out by the bent over handle part 60 at one end, when no longer needed.

To more firmly secure the frame-device in place, either or both upper and lower brackets may be fitted with a spiked locking plate or bolt, operated manually, by foot or spring, and shown for the lower bracket in FIGS. 1 and 2 as a foot lever 61 pivoted to the bracket at 62 and fitted with spikes 63 which may be forced into the sill S by pressing down with the foot on the lever, or released by kicking the lever upward. The lower spike lock may take the form shown in FIGS. 9 and 10 wherein a vertically slidable bolt plate 64 is mounted on a guide or bracket 41 secured on the inner side of the aligning member 1 and with the upper end of the bolt plate 64' bent outward to permit operating by foot, or a hammer to drive its spike 65 into the sill, floor or header, as the case may be. The bracket 41 is formed with a shoe 42 for locating it on the sill S.

At the upper end of the aligning member 1 in the same FIGS. 9 and 10 is shown one design of a spring loaded spike bolt or plate 66 with spikes 67 projecting upwardly at its upper end. The plate is vertically slidable in a bracket 68 and normally urged upward by a coil spring 69, and may be pulled down by a handle 70, and locked by a trigger 71 which upon release will shoot the spikes into the header H, and the upward pressure of the spring will continue and force the lower end of the frame-device downward against its lower support or spike, if used.

In general, the sill S will extend on the floor F past the doorway until the doorway framing is completed and is then cut away in line with the vertical inner edges of boards or strips 7 as indicated by the arrow 82 in FIG. 8A, or the dotted lines X in FIG. 1, and in other cases the sill may not extend beyond the "final" stud, and in such cases there may be a smooth or concrete, or even metal flooring, where spikes could not be used to secure the frame-device in place at the lower end. In such event a short piece of sill may be temporarily secured between the two final studs, or a pad or block, formed with a rough frictional floor gripping underside, or its equivalent may be used, and which can be placed between the spikes and the floor. Such a block of friction material is shown in perspective in FIG. 11 at 72 and with two holes 73 on top, of a size to tightly fit the spikes of the spike plate, and the underside is indicated at 74 as formed with a rough gripping surface. It is desirable that the block be the same thickness as the sill it replaces so as to keep the frame-device at the same height as the sill would.

To further stabilize the frame-device against accidental displacement, as by a bump from a workman in going through it to work on the other side, one or more hand operated screw pins may be passed through holes in the webs of both members 1 and screwed directly into studs 6, or as shown in FIG. 18 wherein the pin 75, preferably about one-fourth to one-half inch diameter, passes smoothly through a hole in a boss 76 secured firmly to the inner side of member 1, and the outer end of the pin is formed with a sharp screw point 77, so that it may be driven in, and unscrewed by grasping a handle or wheel 78, the screw pin may be screwed very tightly into the wood, but as there is no shoulder on the screw pin shank it will not draw the member 1 out of place, but will effectively prevent displacement.

Some variations in wall doorway openings constructed in accordance with the present invention are shown in FIGS. 3, 6, 7 and 8 in all of which the last conventional wall stud at the roughly framed doorway is designated respectively in the figures as 5, and with 6 being the specially arranged or "final" stud or the one against the outer sides of which the vertical straight edged boards or strips 7 are nailed (after aligning their straight projecting edges against the outer flat sides 1' of the frame-device). In FIG. 3 both studs are 2 x 4 size, in FIG. 6 the wall stud 5 is 2 x 4, the final stud 6 is 2 x 3 with the boards 7 of a thickness to align with the outer planes of the wall stud 5, or extend beyond as desired. In FIG. 7 the wall stud 5 is 2 or 3 x 6 and a pair of final studs 6 are used, each are 2 x 4 with the four inch side extending crosswise of the wall, while in FIG. 8 both studs 5 and 6 are 2 x 4 with the vertical boards or strips 7 nailed to the outer sides of the stud to project outwardly beyond the width of the wall studding to also form plaster gaging strips to align with the finished plaster 79 or its equivalent.

FIG. 8A is an elevation of the finished framing in accordance with the cross section FIG. 8 showing the improved framing as including plaster thickness gaging members or strips 80 and 81 respectively nailed to the header H and sill S to meet the vertical boards or strips 7 which are, in this showing, of a thickness to align their outer surface with the outer surface of the plaster gaging strips 80 and 81, and extended to overlap both the header H

and the sill or plate S, and nailed thereto as well as to stud 6, to materially reinforce the structure. This figure also shows the sill sawed off at 82 vertically in line with the inner vertical edges of the strips 7.

In none of the drawings is any finished framing of the header shown as that is simply boxed in by the usual finished door frame head jamb and casings, not concerned with the present invention. It should be noted that while the two vertical edges of boards 7 are straight and true and aligned at right angles through the doorway, they are particularly adapted to form a rigid support, directly against which to seat and nail the finished jambs of a finished door frame if aligned as by contact with my construction frame-device when set for the particular door frame (the nails passing into the boards 7 and or into the stud between them). It is obvious that the value of the invention is in no way disparaged by the fact that by making due allowance in the width adjustment of the construction frame-device, an additional vertical board may be nailed or placed against the exposed vertical edges of boards 7 as shown dotted at 83 in FIG. 8, and the door jambs placed against this extra board. Or a heavy piece of building paper, or plastic, or metal could be interposed between the exposed edges of vertical boards 7 and the finished door jambs, and any such variations are intended to be included in the coverage of my appended claims, since such additions add nothing of importance.

Also to be noted that in this specification as well as in the claims where the words plaster, or plaster gaging strips, or equivalent are used, they are to be understood as also covering plaster board, wall board, or composition wall slabs of any kind now frequently used to form the wall covering in place of plaster.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A construction frame-device for completing the final framing of a roughly framed doorway wall opening, comprising two vertical rigid horizontally spaced side-aligning members connected adjacent opposite ends by rigid adjustable-in-length arms, said side-aligning members having straight, flat, outer faces of a total breadth to extend through and beyond opposite sides of a roughly framed doorway wall opening to be completed, and means for aligning and temporarily securing said frame-device in place in said doorway wall opening with the flat outer faces of said members extending at right angles through said doorway wall opening and vertically for the major portion of its heighth, and with the portions of the members outward of the wall free and clear of any obstructions, in the position desired for the width of the finished opening, and against which unobstructed straight, flat, outer faces of said side-aligning members the final framing members of the doorway wall opening are adapted to be freely placed in position and contacted and aligned thereby as they are nailed in place to the roughly framed wall members.

2. In a structure as set out in claim 1, said side-aligning members being rigid metal channels with their edge flanges projecting inwardly to preserve a flat unobstructed outer face.

3. In a structure as set out in claim 1, said arms being each in two mutually slidable sections and means provided for the simultaneous adjustment of the length of both upper and lower sets of arms to adjust the overall width of the frame-device to the finished doorway opening desired.

4. In a structure as set out in claim 3, means automatically locking both sets of arms at the identical various points of extension desired.

5. In a structure as set out in claim 1, a centrally positioned bracket for each set of arms slidably embracing and supporting the arm sections, and the upper and lower bracket provided respectively with an upward and a downward centrally disposed extension adapted for securing it to the existing rough doorway header, and to a floor sill member.

6. In a structure as set out in claim 5, wherein both bracket extensions are provided with a centering indicator to check respectively against a vertical center mark made on the header and sill member.

7. In a structure as set out in claim 5, wherein at least one of the bracket extensions is provided with means for its vertical extension, and the upper bracket is provided with a centrally disposed means adapted for hanging the entire frame-device from a centering pin projecting from the header.

8. In a structure as set out in claim 5, the lower bracket provided with a foot operated spike arranged to be forced down into a sill member to anchor the lower end of the frame-device.

9. In a structure as set out in claim 3, the means for simultaneously adjusting the length of both sets of arms, comprising a bracket for each set of arms centrally embracing the slidable sections, and gear means including a centrally operating pinion operably carried by the brackets with the pinions on a common vertical axis extending to both sets of arms, and a rigid operating bar arranged at opposite ends to engage said pinions for the manual turning of them simultaneously, said bar being removable from said pinions to provide a clear passage for a workman through the frame-device.

10. In a structure as set out in claim 9, means for automatically locking both upper and lower sets of arms in adjusted position as the operating bar is removed and unlocking them upon reapplying the bar.

11. In a structure as set out in claim 1, at least one spring-loaded spike carried by said frame-device arranged and trigger operable to be shot into engagement with a wooden fixed member to which the frame-device is to be secured.

12. In a structure as set out in claim 1, means for temporarily securing said frame-device in place including at least one hand-operated pointed screw pin slidably mounted on the inner side of each side-aligning member to project at right angles therethrough, spaced inwardly from the outer margins, operable freely and without any warping action or pressure against the said members.

13. In a structure as set out in claim 1, in which said side-aligning members are each provided with retractable fingers mounted on their inner sides adjacent a vertical margin and adapated to be extended and retracted laterally outward at right angles through the flat outer faces of the members at points well within their outer margins.

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