Oct. 21, 1969 D. O. NORMAN ET AL 3,473,265

PREFABRICATED FIRE-RESISTANT DOOR FRAMING ASSEMBLY

Filed May 23, 1967 3 Sheets-Sheet 1

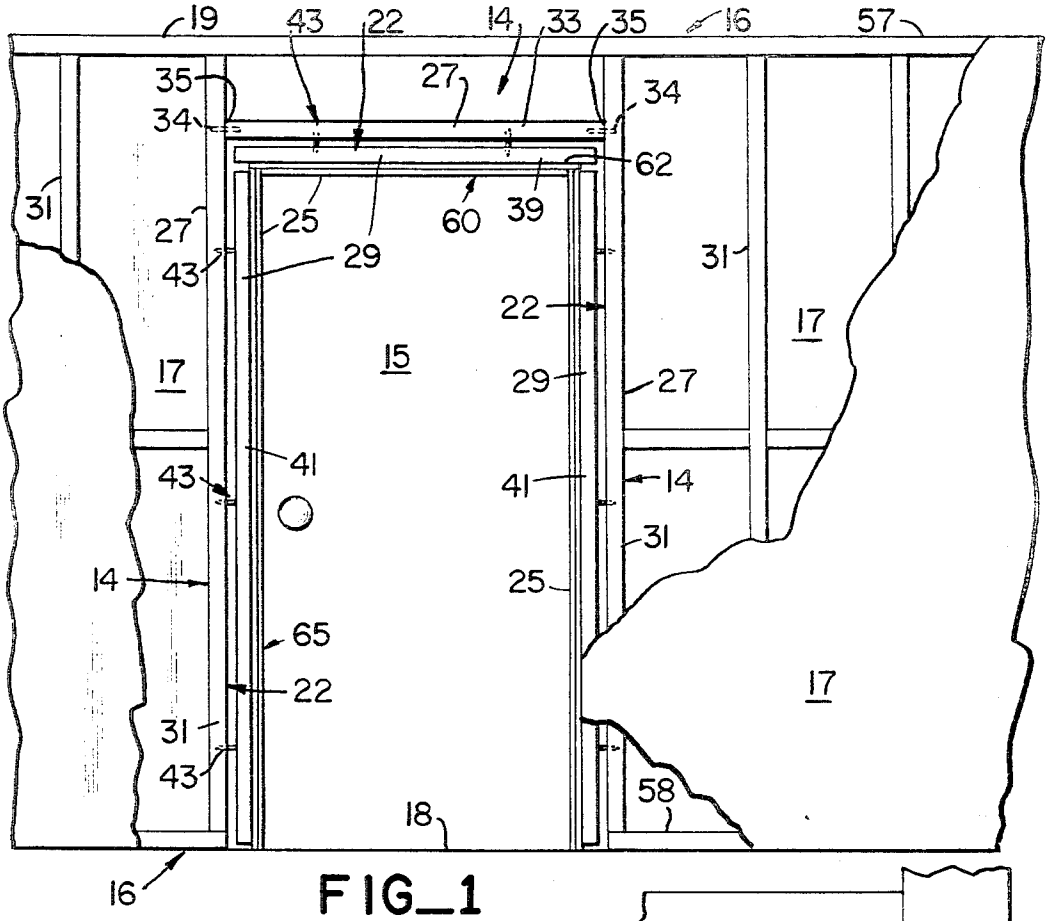


FIG_1

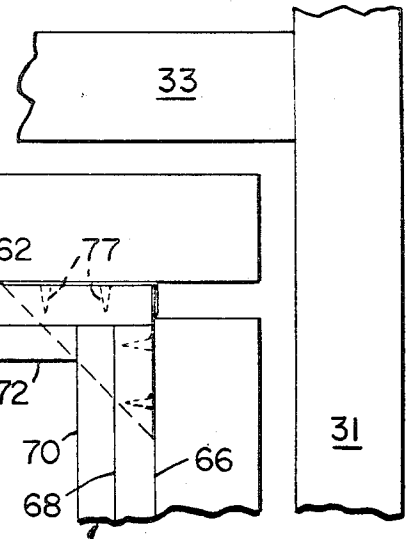


FIG_7

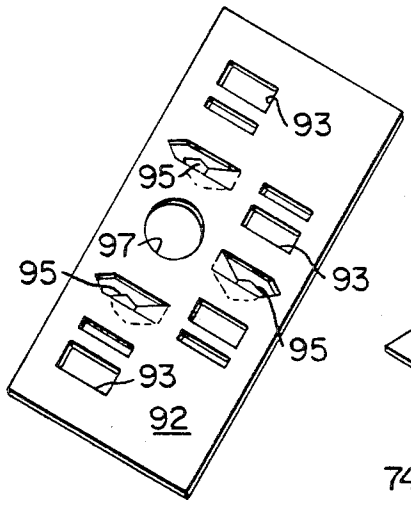


FIG_9

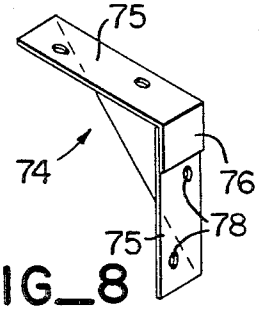


FIG_8

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PREFABRICATED FIRE-RESISTANT DOOR FRAMING ASSEMBLY

Filed May 23, 1967 3 Sheets-Sheet 2

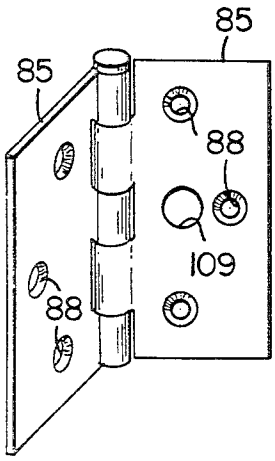


FIG_10

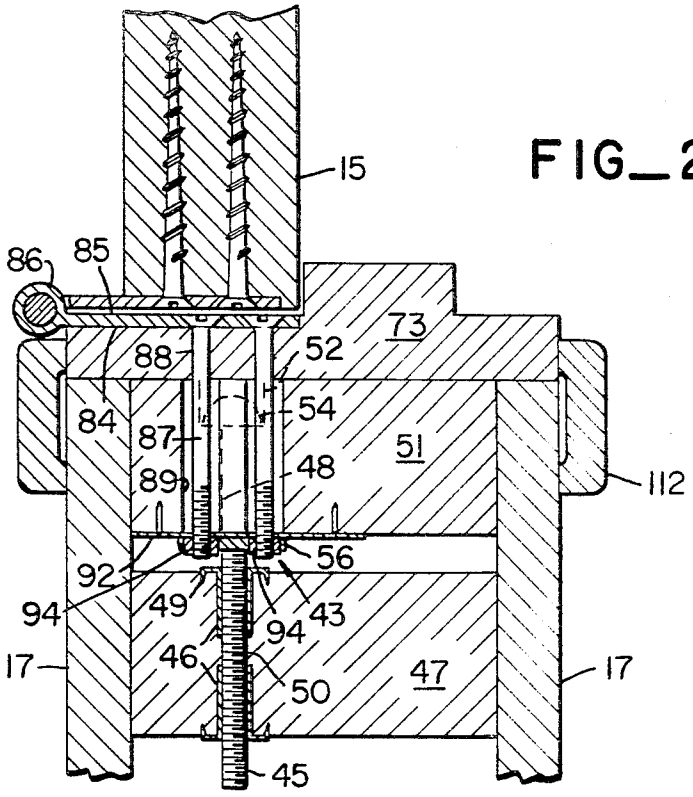


FIG_2

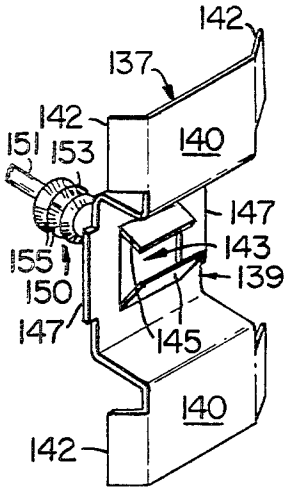


FIG_11

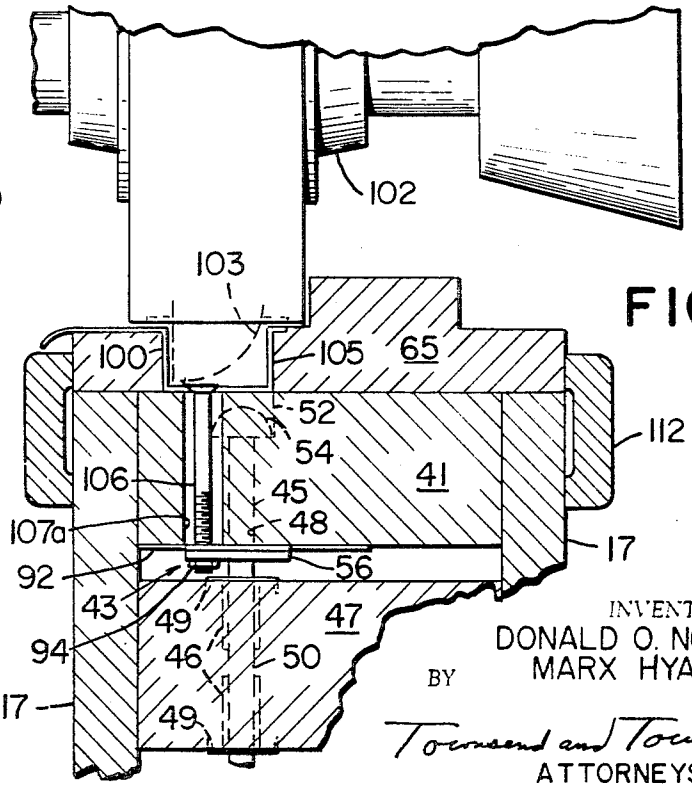


FIG_3

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PREFABRICATED FIRE-RESISTANT DOOR FRAMING ASSEMBLY

Filed May 23, 1967 3 Sheets-Sheet 3

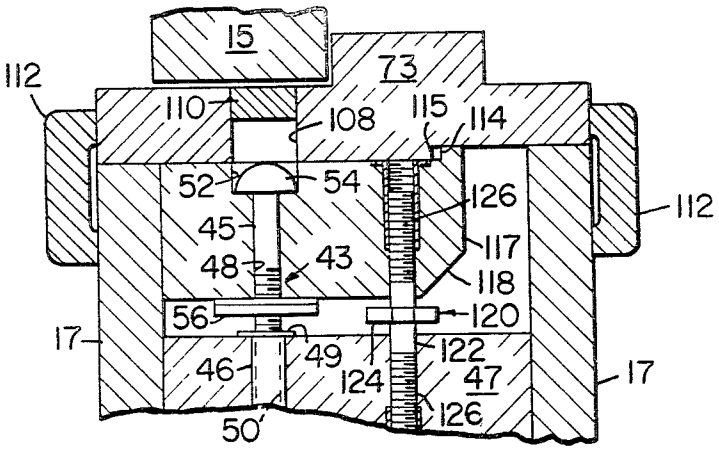


FIG_4

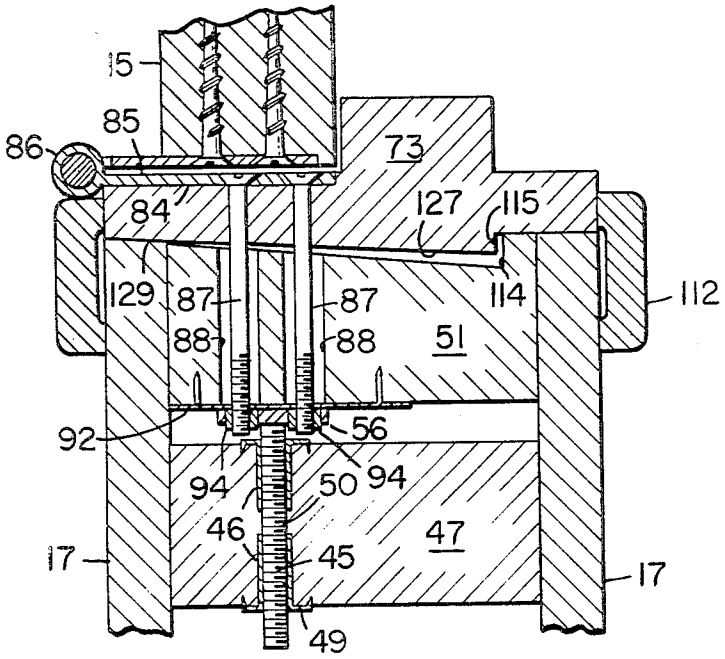


FIG_5

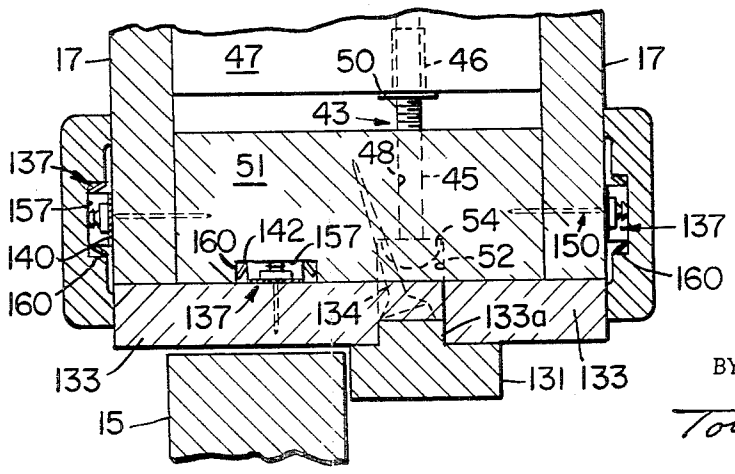


FIG_6

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United States Patent Office

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Patented Oct. 21, 1969



3,473,265

# PREFABRICATED FIRE-RESISTANT DOOR FRAMING ASSEMBLY

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Int. Cl. E06b 1/08
U.S. Cl. 49—504 12 Claims

## ABSTRACT OF THE DISCLOSURE

An adjustable prefabricated door framing assembly having a conformable buck assembly forming the structural support for a presized door frame which is assembled interiorly of the supporting buck. The buck comprises an outer ridged wall mounting assembly which forms a unitary part of the partition or wall into which the door framing is to be installed and an inner frame mounting which is capable of conforming to accommodate the presized door frame members. This accommodation of a presized door and door frame eliminates machining and sizing of these members at the place of installation and permits installation of the door hardware and finishing of the door and frame at the factory before transportaiton to the jobsite. The door frame, assembled interior of the buck, is constructed to shield the conformable buck from the adverse effects of fire. This shielding is achieved by constructing the frame from minimal quantities of fire-resistant material, using specialized joints for joining the respective members of the frame, and adding metal fire shielding to selected portions of the frame. The frame, in cooperation with the door, impedes fire penetrating between the door and frame by means of fire-deflecting surfaces. The disclosed frame is capable of rapid assembly by means of specialized mechanical connections which, while permitting ease of installation, insure unity of the buck, frame and door when a fire-resistant partition is required.

This invention relates to a door framing assembly and more particularly to a supporting conformable buck assembly which adjusts to accommodate a presized door frame. An object of this invention is to provide an adjustable buck having a wall mounting which forms a unitary part of the partition or wall being constructed, and an interior depending conformable frame mounted for supporting a presized door and door frame therein. The wall mounting is a rigid structural assembly capable of bearing loads as in a wall or, alternatively, merely supporting the door framing as in a partition. This structural assembly comprises two vertical studs supporting a horizontal fixedly connected lintel therebetween. The conformable frame mounting interior of the wall mounting is defined at the top by a head which extends approximately parallel to and immediately under the lintel slightly less than the width between the studs. The sides of the frame mounting are defined by jambs which are substantially parallel to the studs and extend approximately from the head to the floor adjoining the door opening. Both the head and the jamb are adjustable in distance and parallel relationship to the lintel and studs, respectively. This adjustment is provided by adjustable connections commonly in the form of specialized screws or bolts which allow movement of the top and sides of the frame mounting so as to conform the buck to fit a presized door frame and attached swingably mounted door. The door frame and door are subsequently attached interior of the frame mounting after installation of the buck and substantial completion of the partition.



An advantage of this invention is that the buck, door framing and door may be installed with the minimum of effort devoted to the sizing and proper fitting of the framing assembly. When the buck is installed interior of the partition, the wall surfaces will be adjacent thereto overlying the buck on either side. Both the size and the plumb of the buck will usually require some adjustment. Typically, this adjustment is first made at the hinge side of the buck. The buck member adjacent the hinges is roughly sized and made plumb or level to conform to a plane which is normal to the wall or partition and intersects the intended hinge axis. With this adjustment made, the frame member adjacent the hinge side is attached to the buck assembly. In this attachment, the frame member is adjusted to conform to a plane roughly parallel to the partition which intersects the intended hinge axis. The door is then swingably attached by hinges to the buck assembly with the frame member therebetween. The fastened door is thus swingably mounted to a hinge axis which is properly vertically aligned. The door is then swung to the closed position and the remaining portions of the buck adjusted relative to the suspended door leaving the desired interval for insertion of the remaining frame members. When the door is swung to the open position, these remaining members are attached to the door assembly. Similar to the attachment of the frame member adjacent the hinge side of the buck, the remaining frame members are plumbed or leveled first by adjustment of the buck and secondly by adjustment of the framing member when it is attached. The entire assembly is thus installed in a plumb and level relationship without machining or sizing of the individual frame members or the swingably attached door.

A further object of this invention is to provide a fire-resistant door framing assembly which, in cooperation with an interiorly mounted door, provides a barrier capable of insulating fire on one side of the wall or partition into which the framing assembly is mounted. This object is achieved by the expedient of providing a fire-resistant wood framing interior of a buck assembly. This wood framing in cooperation with the door impedes flame passing between the door and frame while at the same time shielding the buck interior of the wall or partition insuring that the door is held physically in place during prolonged attack by fire. Further, fire-resistant wood framing is a poor conductor of heat and, unlike metal framing, will not transmit the thermal energy of fire either through or internally of the door frame. Additionally, such fire-resistant wood does not bend or twist in the partition after prolonged exposure to flame and is relatively easy to fabricate, installs easily and provides a most attractive finished appearance.

Accordingly, the present invention discloses a fire-resistant wood head frame which extends the width of the top portion of the buck into abutment with the jamb or stud members on either side thereof. This head frame has a head adjoining surface which entirely covers the top under portion of the buck and extends over the adjacent wall surfaces on either side of the partition. Similar to the head frame, the sides of the buck are adjoined by fire-resistant wood jamb frame members which entirely cover the side portions of the buck and adjoin the wall surfaces on either side of the partition at jamb adjoining surfaces extending the length thereof. When the wall coverings of the partition are constructed from fire-resistant materials, such as mineral fiber-composed board and the like, these jamb frames and head frame, in cooperation with the wall coverings, shield the inner portion of the buck from the adverse effects of fire enabling the door to be held in place as part of the fire barrier, while at the same time, in cooperation with the door, arresting the passage of flame between the door and door frame.

An additional object of this disclosure is to set forth a unique attachment apparatus for effecting swingable affixture of a door interior of a door frame and buck assembly. More specifically, the present invention relates to connecting apparatus for fastening door hardward interior of frame and buck so as to resist to a large measure deterioration of such attachments during prolonged exposure of the door and frame to fire. This affixture is accomplished by attaching the hardware, such as hinges and strike plates, by elongate fastenings which engage such hardware, extend through the frame and buck assembly, and threadably engage noncombustible flat plates which adjoint surfaces interior of the buck. These plates transmit forces applied to the fittings through their mechanical connections to the flat comparatively broad surfaces of the plate adjoining the buck and thus resist the tendency of such connections to forceably disengage when surfaces immediately adjacent their length char under the thermal stress of fire.

Other objects, features and advantages of the present invention will become more apparent after referring to the following specification and attached drawings in which:

FIG. 1 is a front elevational view of the door framing assembly with the wall partitions shown partially broken away;

FIG. 2 is a cross section of the door assembly illustrated in FIG. 1 illustrating the configuration of the frame in the vicinity of the hinge;

FIG. 3 is a cross section of the door assembly illustrated in FIG. 1 showing the configuration in the vicinity of the strike plate;

FIG. 4 is a cross section showing an alternate embodiment of the frame mounting assembly;

FIG. 5 is a cross section showing an additional embodiment of the frame mounting assembly;

FIG. 6 is a cross section of the door framing assembly illustrating alternate attachment for the frame members;

FIG. 7 is an exploded view of the corner of the frame illustrating an attached fire shield with fire protective frame joint;

FIG. 8 is a perspective view of the fire shield illustrated in FIG. 7;

FIG. 9 is a perspective view of the backing plate used opposite the hinges and strike plate of this invention;

FIG. 10 is a perspective view of a modified hinge leaf having a frame adjusting aperture therein; and

FIG. 11 is a perspective view of an attachment clip for use in fabricating the door framing assembly.

With reference to FIG. 1, a framing assembly **14** with attached swingably mounted door **15** is shown mounted in wall or partition **16** extending between floor **18** and ceiling **19**. Framing assembly **14** has as its two integral parts adjustable buck assembly **22** and door frame **25**.

Adjustable buck **22** has a wall mounting **27** which serves as an integral portion of partition **16**, and a frame mounting **29** which is conformable to accommodate door frame **25**. Wall mounting **27** has two vertical studs **31** connected by lintel **33**. Studs **31** and lintel **33** are typically wood, although other materials may be used. Vertical studs **31** are sized off the job site at a length which typically exceeds the distance between floor **18** and ceiling **19**. Lintel **33** is fixedly attached between studs **31** typically by means of screws **34** at lintel joints **35**. In width, lintel **33** exceeds the width of door **15** to accommodate door frame **25** as will hereinafter become apparent.

Frame mounting **29** has head **39** defining the top portion thereof and two jambs **41** on either side. Similar to studs **31** and lintel **33**, the head and jambs are typically constructed of wood or other structural material. Head **39** has a width which permits slidable adjustment interior of wall surfaces **17** and has a length which spans almost the complete distance between studs **31** immediately under lintel **33**. The sides of wall mounting **27** are defined



by two jambs **41**, which similar to head **39**, are of a width permitting slidable engagement interiorly of wall surfaces **17**. Jambs **41** are of a length less than the distance between head **39** and floor **18** so as to permit adjustment of frame mounting **29** in height.

With reference to FIG. 2, 3 and 4, frame mounting **29** is attached to wall mounting **27** by adjustable fasteners **43** comprising bolts **45** and threaded sleeves **46** with outwardly extending flanges **49** at one end thereof. In a typical embodiment, adjacent wall mounting member **47** either studs **31** or lintel **33**) have bolt holes **48** drilled the width of members **47** at a diameter exceeding the width of bolts **45**. At either end of bolt holes **48** threaded sleeves **46** are frictionally inserted in holes **48** with flanges **49** limiting their penetration. A corresponding bolt hole **50** is drilled in the adjacent frame mounting member **51** (head **39** or jambs **41**) with an enlarged bolt head aperture **52** furthest removed from wall mounting **27**.

As shown in FIG. 2, adjustable fasteners **43** are rotatably mounted in frame mounting **29** by inserting bolts **45** through bolt holes **48** until bolt heads **54** are flush with aperture **52**. Lock flanges **56** are then positioned over the threaded ends of bolt **45** and fastened with respect thereto. Flanges **56** limit the axial movement of bolt **45** in cooperation with the bolt head in aperture **52** while at the same time permitting rotational motion of the bolt.

Frame mounting members **51** with installed rotatable bolts **45** are then placed adjacent the mating wall mounting members **47**, and bolts **45** threadably engaged with opposing flange sleeves **46**. The opposing sleeves **46** restrict the movement of bolts **45** with respect to the wall mounting members **47**. Thus installed, attached frame mounting **29** is mounted adjustably with respect to wall mounting **27** by the simple expedient of rotating bolts **45** which causes members **49** to move inwardly or outwardly relative to members **51** depending on the direction of rotation of the bolts and thereby enlarge or decrease the overall width of the frame mounting **29**.

Buck assembly **22** is usually prefabricated as hereinbefore described and shipped to the job site as a unit. As is readily apparent, convenience may dictate either partial or total assembly of the buck **22** on the job site to avoid difficulties attendant transporting of the assembled unit.

Installation of the adjustable buck assembly **22** in partition **16** is accomplished by trimming studs **31** to fit between floor **18** and ceiling **19** of partition **16**. Typically, studs **31** abut on plates **57** attached to ceiling **19** and sills **58** attached to floor **18**. As is readily apparent, studs **31** may be attached directly to floor **18** and ceiling **19**.

It may be noted that buck assembly **22** will often be installed in a wall or partition **16** which is out of plumb with respect to true vertical. Since door **15** and frame **25** will be subsequently installed interior of frame mounting **29**, the plumb of the finished door assembly **13** can be finally adjusted upon the installation of frame **25** by providing novel connections between the buck and frame as will hereinafter become apparent.

After the installation of buck **22** the partition surfaces or coverings **17** are installed. Surfaces **17** extend over both wall mounting **27** and frame mounting **29** reasonably approximating the final dimension of the outside of door frame **25**. Upon installation of coverings **17** and before placing doors **15** and frame **25** in the finished unit, the partition may be finished by the application of paint, wallpaper or the like. This advantage of the present invention is a direct result of the fact that the remainder of the door installation can be accomplished without additional machining and sizing as will hereinafter become apparent.

Frame assembly **25**, similar to buck **22**, is cut before being installed in partition **16**. Frame **25** is illustrated in FIGS. 1, 2 and 7 and is constructed from fire-resistant material such as fire treated wood and the like. Head frame **60** spans the top of frame **25** extending the width

of door 15 into abutment with jambs 41 at either end thereof and has a flat head adjoining surface 62 which extends the width of partition 16 spanning head 39 and wall coverings 17 on either side thereof. When partition 16 is constructed with fire-resistant wall surfaces 17, head frame 60 will cooperatively shield the top portion of buck assembly 22 from fire adjacent the top of door 15 in the installed position.

Opposite head adjoining surface 62 is head door border 63. Border 63 is a flat surface extending the width of door 15 and defines the minimum clearance between the top of door 15 and head frame 60. Head door border 63 extends the entire length of head frame 15 terminating at either end thereof.

Jamb frames 65 define the sides of door frame 25 extending the length of jamb 41 from floor 18 to head frame 60, when the latter is in the installed position. Similar to head frame 60, jamb frame 65 is constructed from fire-resistant material and has a flat jamb adjoining surface 66 spanning jamb 41 and wall surfaces 17. When the wall surfaces 17 are fire-resistant, this member cooperatively shields the buck 22 along the side portions from penetration of fire. Opposite jamb adjoining surface 66, jamb door border 68 is defined in jamb frame 65. Similar to head border 63, this surface defines the point of minimum clearance between door frame 25 and the sides of door 15.

Immediately adjacent jamb door border 68 and extending the length thereof is jamb door abutment or stop 70. This member extends normally from one side of jamb door border 68 and is immediately adjacent that portion of closed door 15 which is parallel to partition 16 and immediately adjacent jamb frame 65. When door 15 is in this closed position, jamb stop 70 provides two major functions. Jamb stop 70 limits the movement of door 15 in the closed position thereby restricting its hinged movement. Secondly, jamb stop 70 provides a fire barrier. Flame attempting to penetrate door assembly 15 along jamb door border 68 is deflected at right angles by stop 70 and adjacent door 15. This right angle deflection greatly limits the penetration of the fire.

Similar to jamb stop 70 there is provided adjacent head frame 60, head stop 72. Stop 72 is similar in configuration to jamb stop 70 and provides the dual function of limiting the swing of door 15 while at the same time insulating the clearance between the door and head door border 63 by deflecting penetrating flames at right angles.

Unlike jamb stop 70, head stop 72 bridges less than the total length of head frame 60 by distance equal to the height of jamb 70 from jambs 41 at either end thereof. This shortening permits jamb stops 70 to immediately abut head stop 72 at either end as illustrated in FIG. 7. This abutment allows head stop 72 to cooperate with jamb stops 70 in providing a continuous door stop along the sides and top of door frame 25.

Fire penetrating along jamb door border 68 and jamb stop 70 will attack the abutment or interface of head frame 60 with great force. Under such thermal stress it is not uncommon for adjoining wood members to part or open their union. In the event that the abutment between head frame 60 and jamb frame 65 opens under such conditions, the encroaching flames will strike the fireproof material of the head door border 63 resulting in the deflection of such flames at right angles. This right angle deflection, similar to that between the door stop and door, greatly impedes the penetration of fire, thus protecting buck assembly 22.

Frame 25 may additionally be reinforced against the penetration of fire at the corner portion thereof by the insertion of fire shield 74 illustrated in FIG. 8. As hereinbefore set forth, flame attacking the frame assembly 25 will typically erode the corner portions of framing assembly 14 with the greatest force. Since such accented thermal attack will often part the frame at the corners and penetrate to the interior of buck 22, additional fire reinforcement is often required at this point. Accordingly, by joining frame members 73 by fire shield 74 at the corner portions thereof reinforcement of these joints may be achieved.

Fire shield 74 shown in FIGS. 7 and 8 is typically constructed from a triangular shaped sheet metal member. The shield has edges 75 which are bent at right angles with respect to the remaining main portion of the triangular metallic member. These edges are of a width equal to the union between buck 22 and frame 25. Typically, one edge has an overlap 76 which is bent to cover the corner union between the shield edges 75.

Shield 74 can be slidably engaged between frame 25 and buck 22 when the two members are fastened. Alternately, shield 74 can be attached to frame members 73 before their engagement to frame mounting 29 of buck 22. When shield 74 is in the installed position, shield fasteners 77 penetrate shield edges 75 at fastener holes 78 effecting permanent attachment of the shield to the frame. As is apparent, fasteners 77 in cooperation with shield 74 serve the additional purpose of structurally reinforcing the adjoined corners of frame 75.

As illustrated in FIGS. 1 and 2, the attachment of frame 25 to buck assembly 22 is provided by sizing and leveling the sides of frame mounting 29 to accommodate the individual frame members 73. Members 73 are then slidably moved along the surface of frame mounting 29 to conform frame 25 to a true vertical position. Frame 25 is then attached by such means as screws, nails and the like.

Additionally, the present invention provides for slidable adjustment of the swingably mounted door 15 by means of novel hinge and strike plate connections hereinafter set forth. With reference to FIG. 2, a frame member 73 is shown with hinge inserts 84 milled therein. These insets are dimensioned to accommodate one leaf of hinge 85 illustrated in FIG. 10. Hinge screws 87 fasten to hinge leaf 85 and penetrate frame member 73 at frame screw holes 88 and frame mounting member 51 at screw holes 89 extending through member 51 into threadable engagement with backing plate 92 at aperture 93.

Plate 92, illustrated in FIG. 9, is a flat metal sheet having apertures 93 for threadably engaging hinge screw 87 by means of nut 94. Apertures 93 are placed on plate 92 so as to meet with, and immediately overlie, screw hole 89. The plate has preformed tabs 95 which provide mounting means for the plate independent of hinge screws 87. By placing plate 92 immediately over screw hole 89 and striking tabs 95 with a hard object, such as a hammer the plate is held in a fastening relationship with the side of frame mounting member 51 which is furthest removed from door frame 25. Hinge screw 87 may then be conveniently installed.

Plate 92 may alternatively have a second bolt aperture 97 which permits bolt 45 to penetrate the plate surface. This second aperture 97 permits locked flange 56 to bear against the plate surface.

Plate 92 imparts several distinct advantages to door assembly 14. First, apertures 93 provide a metal surface for the threaded engagement of hinge screw 87 at the top and bottom portions thereof. When door assembly 14 is attached by intense heat, such as that of a fire on one side of the partition, metal members such as hinge screw 87 commonly transmit heat, promoting combustion along their contact with nonfire-resistant materials. Further, the metallic plate assembly provides a noncombustible material which hinge screws 87 can threadably engage independent of the partial combustion of hinge screw holes 87. Secondly, plate 92 distributes the hinge load transmitted through screws 87 by the threaded engagement to the plate, thus arresting the tendency of screws 87 to be pulled from holes 88.

Screw holes 89 in frame members 51 and apertures 93 in backing plates 92 penetrate frame mounting 29 in the plane of partition 16 and are enlarged so as to permit

slidable movement of hinge screws 87 normal to partition 16.

Typically, buck 22 will not be exactly plumb or level with respect to the plane of partition or wall 16. Accordingly, hinge screws 87 and inserted through hinge leaf 85 and frame members 73 and extend into elongate screw holes 89 and loose threaded engagement with aperture 93 and nut 94 on backing plate 92. Frame member 73 and hinge leaf 85, fixedly attached by hinge screw 87, may then be slidably adjusted along frame mounting 29. In this adjustment hinge screw 87 moves along elongate screw hole 89 and, similarly, moves in loose threaded engagement along aperture 93 in plate 92. Frame member 73 is then adjusted in plumb or level and screws 87 permanently tightened fixing the frame member.

With reference to FIG. 3, the construction of door assembly 14 in the vicinity of strike plate 100 is illustrated. Door 15 is shown in cross section in the vicinity of lock mechanism 102 having a protruding latch 103 as is common in the art. Jamb frame 65 is shown at FIG. 3 with strike inset 105 milled from jamb door border 68 through flat jamb adjoining surface 66. Strike plate 100 is inserted in strike inset 105 and fastened by strike plate screws 106. Screws 106 penetrate jamb frame 65 at plate screw hole 107 and jamb 41 at rectangular plate screw hole 107*a* into threaded engagement with backing plate 92. Since door 15 is held to frame 25 by hinges 86 and lock mechanism 102, reinforcement of the hinge screw 87 and strike screws 106 by plate 92 is especially advantageous in securing door 15 in the closed position as a bulkhead against fire. Similar to frame member 73 and hinge 86, jamb frame 65 and strike plate 100 may be adjusted in plumb relationship slidably along jamb 41 at an elongate plate screw hole 107*a* and elongate aperture 93.

FIGS. 2 and 3 have illustrated cross sections of the door framing assembly at the hinges and strike plate, respectively. As is readily apparent, cross sections at portions of the frame other than these fittings are identical, with only the door fittings, their attaching screws and backing plates 92 being omitted.

With reference to FIGS. 2, 4 and 10, it may be desired to permit adjustment of frame mounting 29 and attach frame 25 after final installation of framing assembly 14. Such adjustment is especially useful where the structure into which assembly 14 is mounted settles or adjusts in some degree after construction. Accordingly, second bolt head apertures 108, frame members 53 and bolt head aperture 109 and hinge leaf 75 are formed leaving access to bolts 45. With these apertures, frame mounting 29 may be adjusted by rotating bolts 45 when frame members 73 are installed. After the desired adjustment is made, the apertures 108 may be covered by such devices as plug 110.

FIG. 4 also illustrates an alternate embodiment of the engagement of frame members 73 of the frame mounting members 51. Referring back to the description of head 59, jamb 41, head frame 60 and jamb frame 65, it will be remembered that the adjoinment of frame member 73 with frame mounting members 51 has been illustrated as a flat surface. In order to more positively locate frame members 73 with respect to frame mounting members 51, frame mounting step 114 and frame step 115 can be configured in the interfaces adjoining members for gripping engagement as illustrated in FIG. 4. With this configuration, transverse forces transmitted to the frame 25, as by the slamming of door 15, can be resisted not only by the fastening of frame 25 to frame mounting 29, but additionally, by the contact between mounting step 114 and frame step 115. Further, when door assembly 14 is attacked by fire, the normal union between frame 25 and frame mounting 29 may be greatly weakened. Obviously, steps 114 and 115 will impart additional strength to the attachment of frame 25 in their direction of gripping engagement.

FIG. 4 additionally illustrates an alternate embodiment of the cross section of buck 22 with an alternate adjustable connection 120. Narrow frame mounting member 117 is shown with a thickness substantially less than the distance between wall coverings 17 on either side of partition 16. Member 117 adjoins one wall covering 17 on one side and has access bevel 118 cut adjoining alternate connection 120 on the other side. Bevel 118 is cut in that portion of member 117 which is closest wall mounting 27 and furthest removed from the adjoined wall covering 17.

Alternate connection 120 comprises a rod 122 with an intermediate gripping surface 124 and opposing threads 126 at either end thereof. Connector 120 is threadably engaged interior of threaded sleeves 46 in wall mounting and frame mounting 29 by turning gripping surface 124 while simultaneously engaging the sleeves at opposing threads 26. As is apparent, when frame 25 is not attached, adjustment of connector 120 may be accomplished by having a wrench with an angular shank extend between the nonadjacent wall surface 17 along access bevel 118 to gripping surface 124.

With reference to FIG. 5, an alternate embodiment of the union between frame mounting member 29 and frame members 73 is illustrated. It is commonly known that when two wood members are joined, the members often warp or change their shape with respect to one another. Such warpage results in the union between the joined members opening and separating altogether. Further, when such a union is subjected to extreme thermal stress, such as by exposure to fire, this warpage tendency is greatly accented. To minimize this warping effect and to form a joint which will readily conform to such warpage, frame mounting member 51 and adjacent frame members 73 can be shaped with frame bevels 127 and frame mounting bevels 129 at their interface. These bevels extend from one side of frame 25, thickening frame member 73 until bevels 127 and 129 terminate in frame step 115 and mounting step 114, respectively. Typically, frame bevel 127 has a slope which is greater than the corresponding frame mounting bevel 129 in frame mounting member 51.

Bevels 127 and 129 having several advantages. It has been found in the construction of members having cross sections similar to frame mounting member 51 and adjacent frame members 73, frame 25 adjacent door 15, tends to warp toward buck 22 along the medial portion thereof. This warpage gives the outside portion of frame 25 a concave configuration. As is readily apparent, when frame bevel 27 has a slightly lesser slope than mounting bevel 129, such warpage will tend to conform and bring together the beveled surfaces along the wedge shaped interface between the two surfaces.

Bevels 127 and 29 have the further effect of reinforcing the union between frame mounting 29 and wall mounting 27. As has previously been explained, the gripping engagement of mounting step 114 and frame step 115 prevents movement of frame 25 relative to buck 22 in one direction. If an attempt is made to move frame 25 relative to frame mounting 29 opposite this gripping engagement, frame members 73 will slide outwardly along frame mounting bevel 129 until the frame wedges against door 15 stopping such movement altogether. When the union between frame 25 and buck 22 has been severely weakened, as by prolonged exposure to fire, this feature provides an additional safety factor in maintaining a fire-resistant barrier for the maximum attainable period of time.

Referring to FIG. 6, an alternate embodiment of the door stop is illustrated. Head frame 60 and jamb frame 65 have previously been described as having head stops 72 and jamb stop 70, respectively. These stops 70 and 72 have been illustrated as comprising a protrusion from a single unitary frame member composed of fire treated wood. FIG. 5 illustrates an alternate embodiment in which a separate stop member 131 comprises a T-shaped fire-resistant wood member. Stop member 131 fits into stop groove 132 formed between independent frame member segments 133 split along seam 133*a*. By the expedient

of placing a bolt aperture 97 at spacial intervals along stop grooves 132, buck 22 may be adjusted after the installation of frame member segments 133 but before the placement of stop member 131.

In some door assembly configurations, it may be desirable to provide clip connectors 137 to speed the fabrication of door assembly 14 and eliminate the use of nails and screws which leave exposed heads. Such connectors 137 are illustrated in FIG. 11 and shown conjoining moldings 112 to wall coverings 17 and frame member segment 133 to frame mounting member 51 in FIG. 6.

Connectors 137 are typically fabricated from flat rectangular sheets of spring steel or other material exhibiting similar memory characteristics. This sheet steel is formed with a U-shaped bend 139 in the medial portion thereof leaving two wings 140 at either end. Extending outwardly from wings 140 at either side are four spring tabs 142 which are bent from the surface of the wings extending angularly in the same direction as bend 139. In the bottom medial portion of bend 139 there is defined a rectangular slot 143 formed by spring flaps 145. Flaps 145 are typically cut in the medial portion of bend 139 and extend upwardly and away from the bottom of the bend. Extending on either side of bend 139 are small centering protrusions 147 bent angularly upward from the bottom of U-shaped bend 139.

A clip nail 150 is configured for mating engagement with connector 137 and rectangular slot 143. This nail 150 comprises a shank 151 and a head 153 having slot mating grooves 155 configured therein.

Connector 137 is illustrated in the installed position in FIG. 6 conjoining moldings 112 to wall coverings 17 and frame member segment 133 to frame mounting member 51, and running continuously the length of these members. Slot 157 is smaller in width than connector 137 so as to forceably accommodate the clip interior thereof.

Typically, clip connector 137 is forceably inserted in slot 157 with the medial portion of the bend flush with the surface of the slot and centered by protrusion 147 resting on the slot side 144. When installed, the surface of wings 140 conjoining the bottom portion of slot 157. Spring tabs 142 engages slot sides 160, forceably holding the connector interior of the slot.

Clip nails 150 are driven into the mating part to be conjoined immediately underlying the corresponding portion of clip connector 137. As illustrated in FIG. 6, nails 150 are shown embedded through wall coverings 17 into frame mounting member 51 and frame member 73. The parts to be conjoined are placed immediately overlying so as to mate nails 150 with connectors 137 and fastened by the simple expedient of pushing the adjoining members together. Spring flaps 145 resiliently engage nail heads 153 along rectangular slot 143 effecting a gripping engagement at grooves 155.

Connector 137 has an additional advantage which is not immediately apparent. As illustrated in FIG. 11, spring flaps 145 form an elongate rectangular slot 143 along their surface. This slot is capable of engaging nail head 153 along the length of its surface. In the event that moldings 112 or frame member 73 need be slidably adjusted with respect to their conjoining members, clip connector 137 may be moved along nail head 153 accommodating such movement.

Although the foregoing invention has been described in some detail by way of illustration and example for purposes of clarity and understanding, it is understood that certain changes and modifications may be practiced within the spirit of the invention as limited only by the scope of the appended claims.

What is claimed is:

1. A door framing assembly for a partition or wall comprising: a buck having a frame mounted therein; said buck having a wall mounting and a frame mounting; said wall mounting comprising a pair of spaced, opposed studs and a lintel; said lintel conjoined to said studs at either end thereof at approximate right angles and extending horizontally over said frame at least the width of said frame; a frame mounting assembly including opposed jambs and a head mounted within said buck; said jambs disposed substantially parallel to and spaced inwardly from said studs and each extending approximately from said lintel along its adjacent stud defining the sides of said frame; said frame comprising a presized head frame for conjoining said head and two presized jamb frames, each of said jamb frames for conjoining one of said jambs; means for conjoining said frame to said frame mounting; means for slidably moving said frame as conjoined to said frame mounting normally to the plane of said partition; connecting means adjustably fastening said frame mounting for movement towards and away from said wall mounting whereby said frame mounting is adjustable to conform to said presized frame.

2. A door framing assembly according to claim 1 and wherein: said jambs and said head have a thickness normal to said partition which is substantially less than the corresponding thickness of said studs and said lintel; said connecting means fastening said jambs and said head adjacent one of two surfaces fastened to either side of said partition; a bevel defined in said frame mounting proximate said connecting means; said bevel adjacent said wall mounting and furthest removed from said adjacent one of said two wall surfaces whereby access to said connecting means may be gained between the other of said two wall surfaces before said frame is conjoined.

3. A door framing assembly according to claim 1 and wherein said means for slidably moving comprises: a plurality of elongate fastener holes in said frame mounting, said holes penetrating said frame mounting in the plane of said partition and elongate normal to said plane; a plurality of fasteners attaching said frame to said mounting through said fastener holes; said fasteners slidably adjustable normal to said plane of said partition interior of said elongate fastener holes.

4. A door framing assembly according to claim 3 and wherein each of said fasteners comprises: a threaded screw rotatably engaging said frame and penetrating one of said elongate fastener holes; a plate mounted to said frame mounting having an elongate thread-engaging aperture therein overlying said one of said elongate fastener holes; said screw in threadable engagement with said plate at said aperture and slidable in said engagement along said aperture.

5. A door framing assembly according to claim 3 and wherein: a hinge is conjoined to said frame by one of said fasteners; and a strike plate is conjoined to said frame by one of said fasteners.

6. A door framing assembly according to claim 1 and wherein: said frame conjoins said buck along an interface, said interface comprising two planar surfaces with a step therebetween; one of said interfaces is beveled with respect to the other of said interfaces so as to increase the thickness of said frame from an edge thereof to said step.

7. A door framing assembly according to claim 6 and wherein: said one of said interfaces has a spacial separation therein increasing from said edge of said frame to said step.

8. A door framing assembly according to claim 1 and wherein said means for conjoining comprises: an elongate spring steel clip having two coplanar wings with a U-shaped bend therebetween; said coplanar wings for adjoining the bottom portion of a connector slot in said frame mounting; the ends of said wings for compressively engaging the ends of said connector slot, each of said wings configured with angularly spring tabs at either side thereof for compressively engaging the sides of said connector slot; a pair of facing and opposed spring tabs in the medial portion of said U-shaped bend defining an elongate resilient slot therebetween; said slot elongate normal to the plane of said partition; a clip nail having

a shank at one end for engagement with said frame overlying said clip, said nail having a head with slot mating grooves configured therein at the other end for elastic engagement between said spring flaps at all intervals along said elongate resilient slot whereby said frame may be compressively adjoined to said frame mounting by said clip nail in said resilient slot and slidably adjusted normal to said plane as adjoined.

**9.** An adjustable buck assembly according to claim **1** and wherein said connecting means comprises: a plurality of bolts having turning heads and elongate threaded cylindrical shanks extending therefrom; said bolts rotatably mounted in said frame mounting; bolt head apertures overlying said rotatably mounted bolts configured in said frame whereby said bolts may be rotated after said frame is installed in said buck.

**10.** A clip connector for fastening two adjoining wood members, said connector comprising: an elongate spring clip having two coplanar wings with a U-shaped bend therebetween, said coplanar wings for adjoining the bottom of a connector slot in one of said wood members, the ends of said wings for compressively engaging the ends of said connector slot; each of said wings configured with angularly extending spring tabs at either side thereof for compressively engaging the sides of said connector slot; a pair of facing and opposed spring flaps in the medial portion of said U-shaped bend defining an elongate resilient slot therebetween; a clip nail having a shank at one end for engagement with the other of said wood members and positioned to overlie said clip, said nail having a head with slot mating grooves configured therein at the other end for elastic engagement between said spring flaps at all intervals along said elongate resilient slot when said wood members are adjoined.



**11.** An adjustable buck assembly and complementary interior fitting frame for defining a conformable door mounting therein capable of having at least one of its sides aligned to true vertical, said buck assembly comprising: a wall mounting including at least one stud and a lintel; a frame mounting including a jamb said jamb disposed substantially parallel to said stud extending the length thereof defining the side of said conformable door mounting; said interior fitting frame including at least one jamb frame conjoined to said jamb; means for moving said jamb relative to one of said studs to align said jamb to true vertical within the plane of said partition and means for slidably moving said jamb frame relative to said jamb normal to the plane of said partition to align said jamb frame to true vertical within a plane normal to the plane of said partition.

**12.** An adjustable buck assembly according to claim 11 and wherein said jamb frame further includes means for mounting hinges thereto.


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