June 19, 1945. B. J. TRILLER 2,378,666

SLIDING DOOR CONSTRUCTION

Filed Oct. 21, 1942 4 Sheets-Sheet 1

FIG. 1.

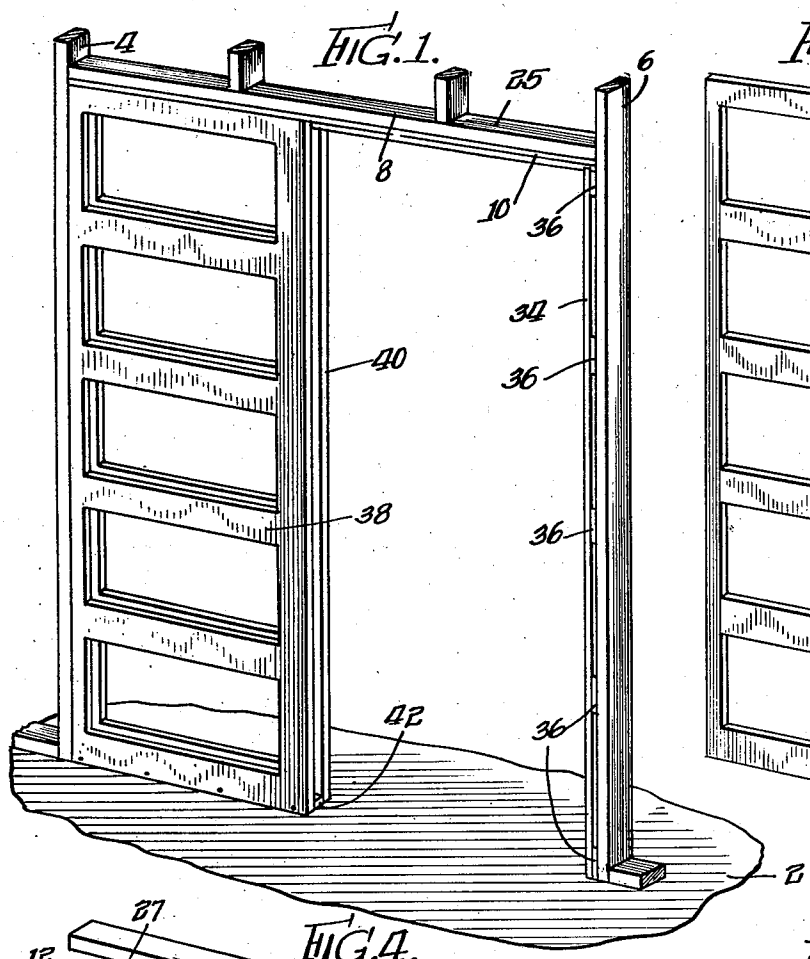

FIG. 2.

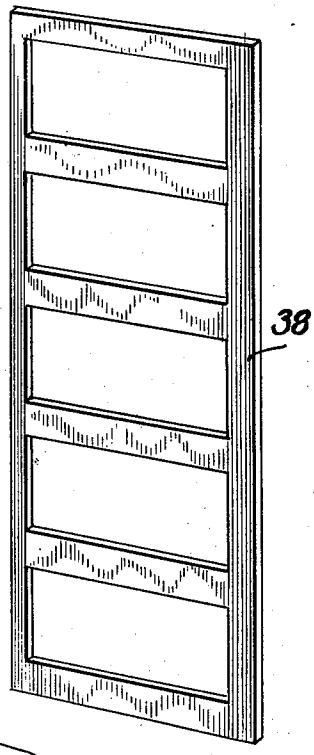

FIG. 4.

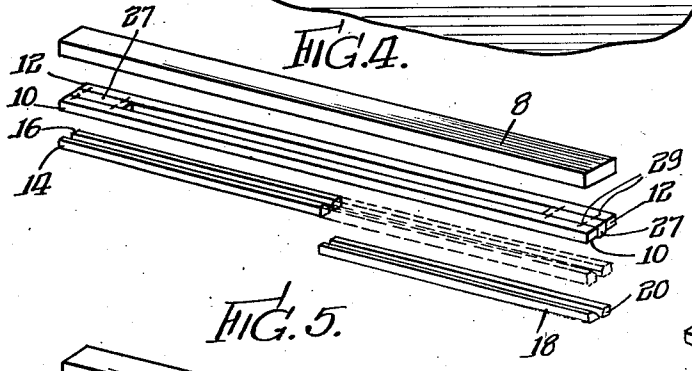

FIG. 3.

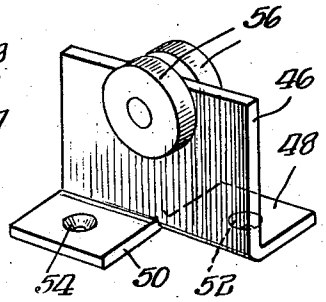

FIG. 5.

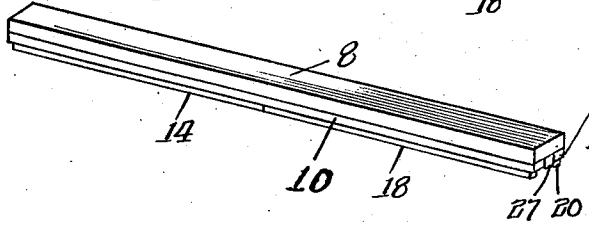

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FIG. 6.

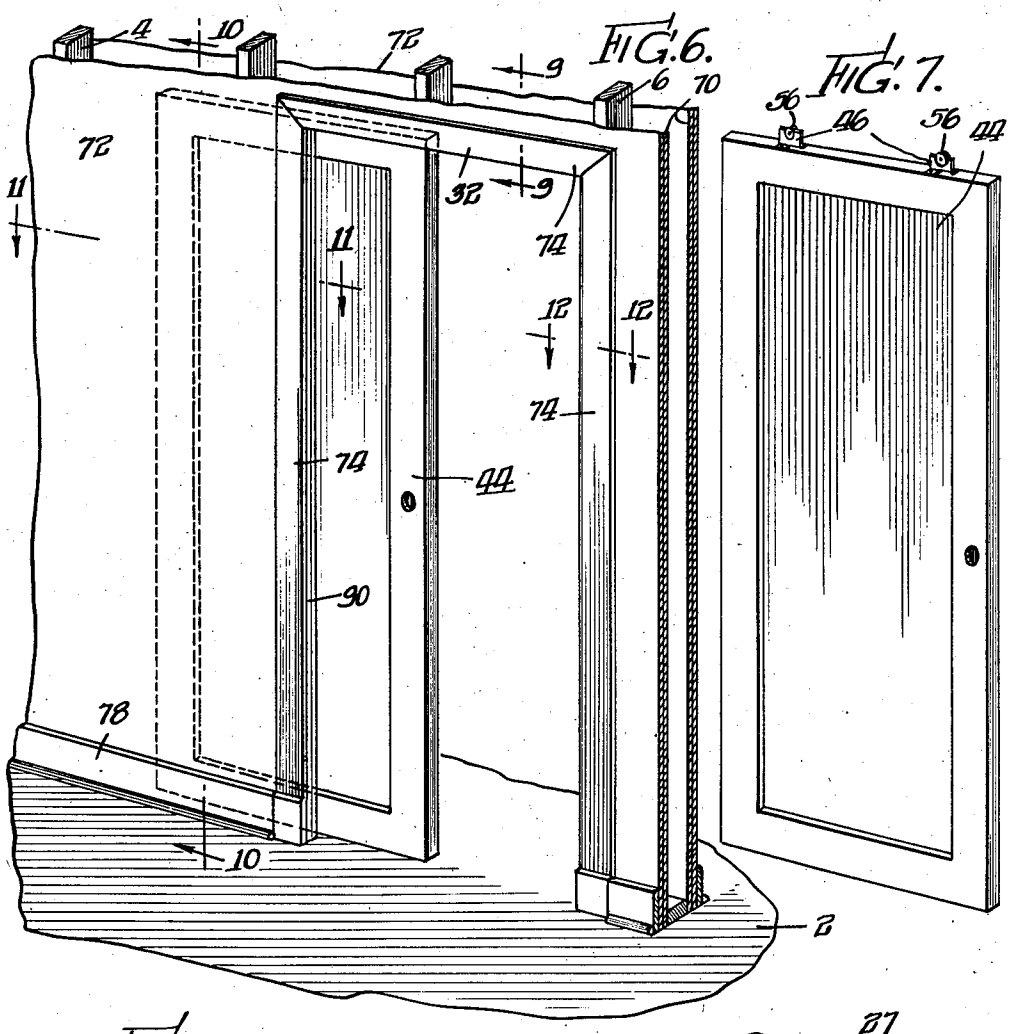
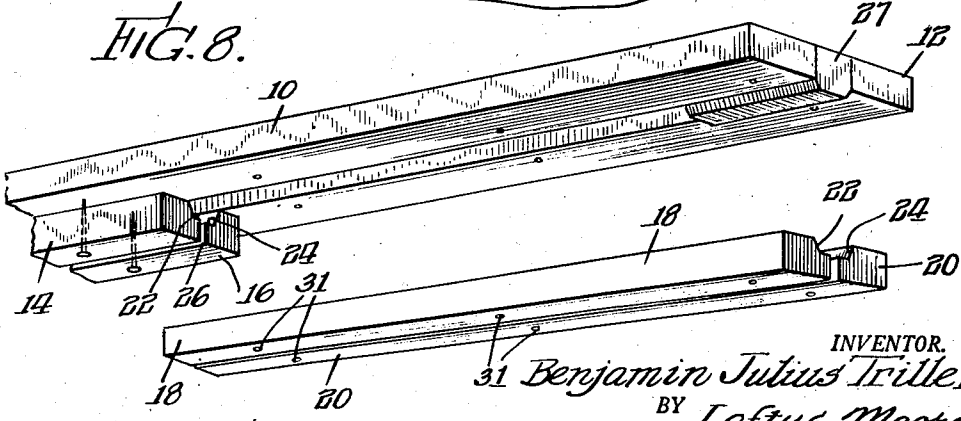


FIG. 7.

FIG. 8.



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SLIDING DOOR CONSTRUCTION

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FIG. 9.

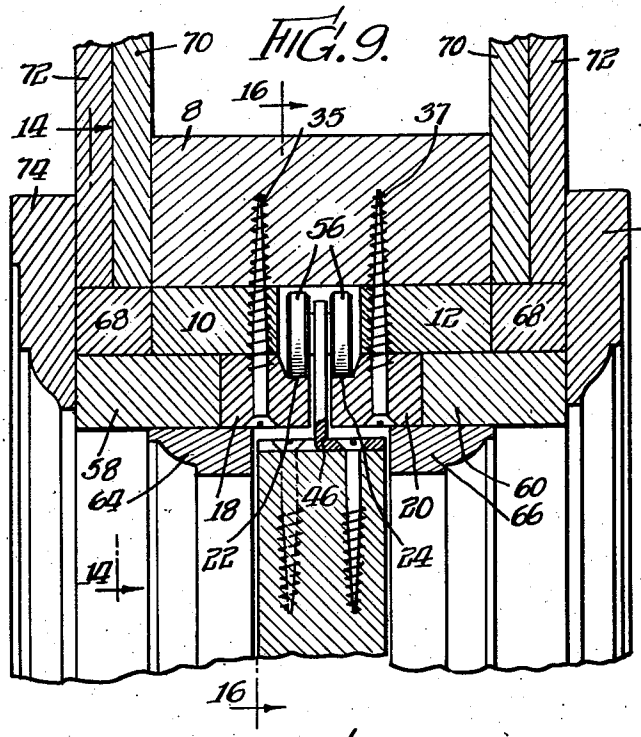

FIG. 10.

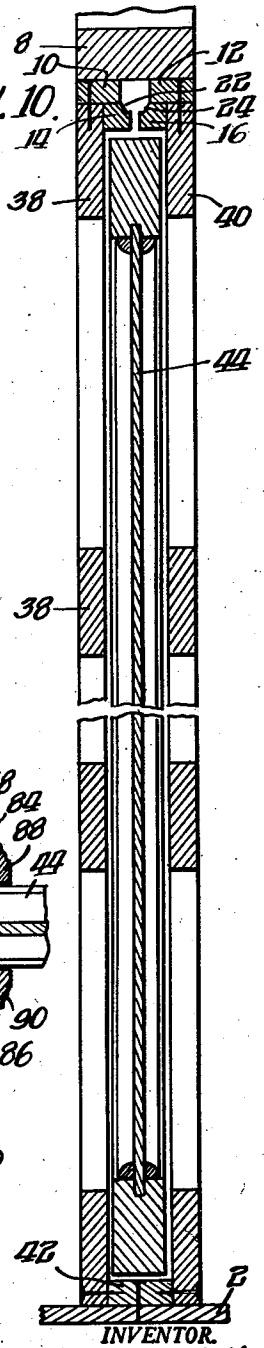

FIG. 11.

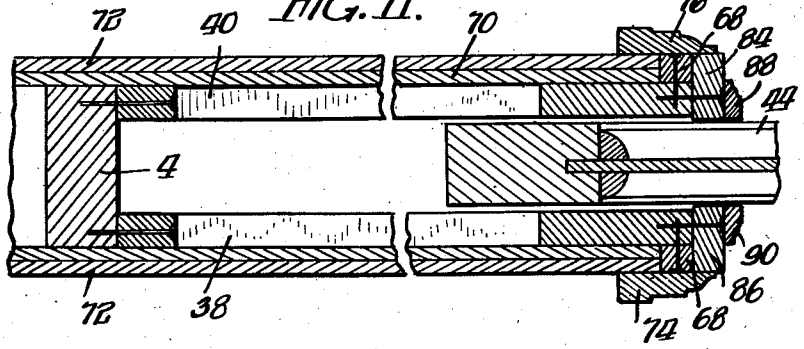

FIG. 12.

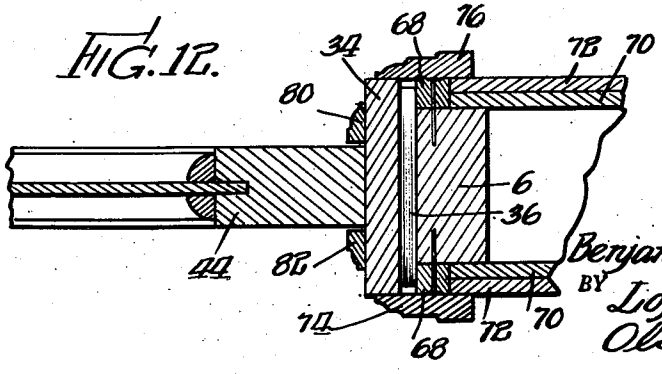

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FIG. 13.

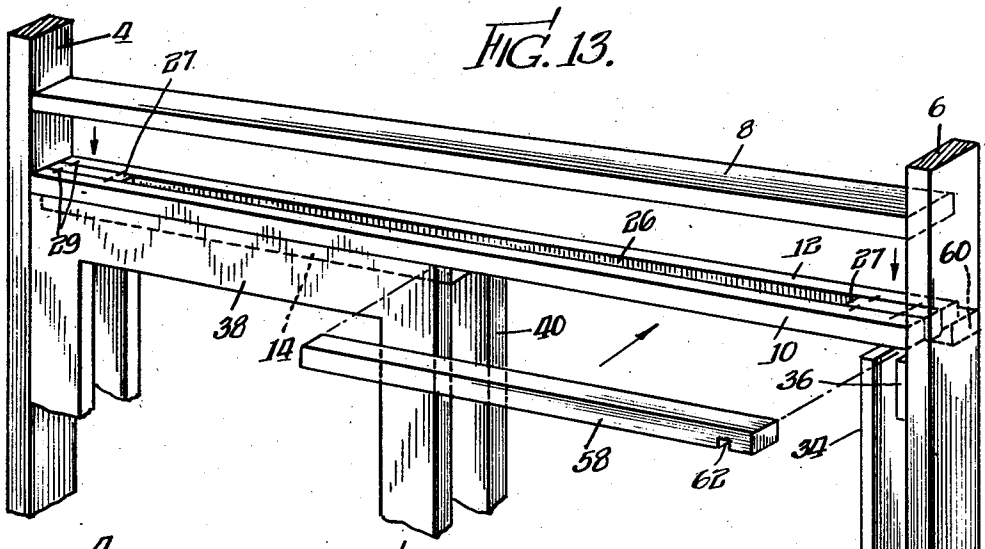


FIG. 14.

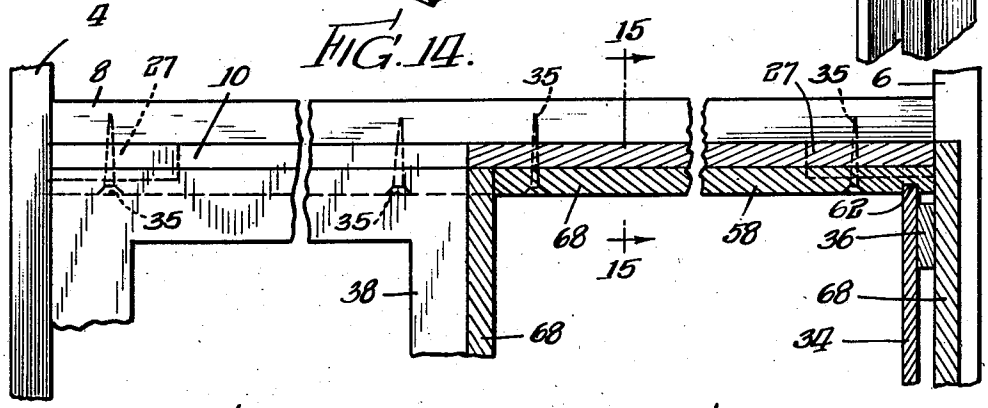


FIG. 15.

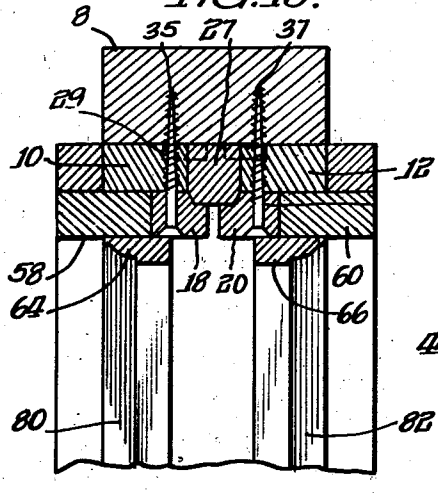
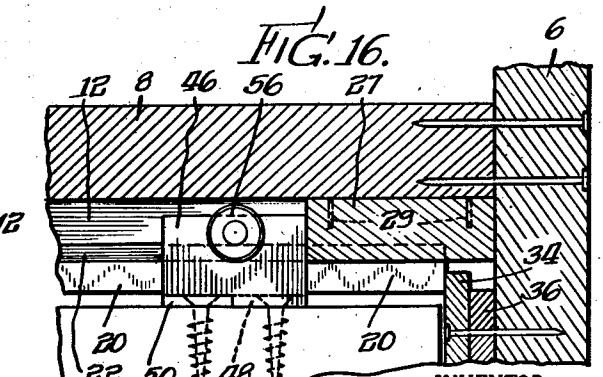


FIG. 16.



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UNITED STATES PATENT OFFICE

2,378,666

SLIDING DOOR CONSTRUCTION

Benjamin Julius Triller, Dubuque, Iowa

Application October 21, 1942, Serial No. 462,797

5 Claims. (Cl. 20—19)

This invention relates to a packaged assembly for the installation of sliding doors in an erected or partially erected building. Among the objects of the present invention are to provide an economical, simple, compact assembly of preformed units adapted to be put up in a compact package for shipment from the place of manufacture to a distributor or contractor for erection at the place of installation; to provide a compactly arranged package comprising two panels and a header with or without the door and the rollers and roller brackets which may be shipped from the factory to the point of installation and there installed in a simple, quick and economical manner, and wherein one of the units of the package is arranged to constitute a measuring element to assist in the erection of the sliding door unit; to provide a sliding door installation for an erected or partially erected building in association with the usual studding thereof, comprising a pair of spaced panel members and a header forming a door opening and which is arranged so that the door may slide endwise into open position between the two spaced panel members, and wherein the header is suitably supported upon the panels whereby partially to carry the weight of the door and whereby the header is formed as a slotted track to receive rollers carried by the upper portion of the door, and wherein particularly a portion of the header is bodily removable so as to permit the rollers to be slid endwise onto the track formed by that portion of the header remaining in situ, and whereby thereafter the removable portion of the header may be again assembled in place so as to form the complete track along which the rollers of the door may operate and along which the door may roll during its opening and closing movements; to provide a sliding door construction in association with the standard studding of erected or partially erected buildings which includes spaced panels, a multipart header mounted thereon, and comprising spaced apart track members upon the upper surface of which rollers carried upon a bracket attached to the door are adapted to roll and wherein the bracket depends through the space between said tracks, and particularly wherein a portion of said track members are separable from the remaining portion of the track members to permit the assembly of the door in sliding and rolling position relative to the door frame; to provide these and other objects of invention as will be apparent from a perusal of the following specification when taken in connection with the accompanying drawings, wherein:

Figure 1 is a perspective view of the door frame partially assembled, and set up in place between the usual studding of a building under construction, the door not being attached in the assembly;

Figure 2 is a perspective view of one of the spaced panels;

Figure 3 is a perspective view of one of the roller brackets which is attached to the top of the door;

Figure 4 is a perspective view of the various lumber pieces forming the header;

Figure 5 is a corresponding assembled view of these pieces;

Figure 6 is a perspective view showing the door in position and with the trim members assembled and the plastering overlying the spacing panels;

Figure 7 is a perspective view of the door itself;

Figure 8 is a perspective view of the header showing a portion of the tracks removed;

Figure 9 is a fragmentary detail section of the upper portion of the structure taken on line 9—9 of Figure 6;

Figure 10 is a vertical sectional view taken on line 10—10 of Figure 6;

Figure 11 is a partial horizontal sectional view taken on line 11—11 of Figure 6;

Figure 12 is a partial horizontal sectional view taken on line 12—12 of Figure 6;

Figure 13 is a perspective view of the upper portion of the door frame showing the parts during the assembly operation;

Figure 14 is a sectional view taken on line 14—14 of Figure 9;

Figure 15 is a vertical section taken on line 15—15 of Figure 14; and

Figure 16 is a vertical section taken on line 16—16 of Figure 9.

Referring to the drawings in detail, the invention is particularly related to door constructions of the type which slide into open position between two panels generally comprising a wall portion of a building, and in such manner as to eliminate the necessity of utilizing hinged or swinging doors, thereby saving space otherwise required when such hinged doors open or close. The present invention is concerned with the provision of units, preferably lumber units manufactured at the mill in precut form and size, compactly arranged, for shipment in packaged form to a distributor, or to a contractor, who delivers the same to the place of installation,

The unit comprising the package includes two spaced panels and a header composed of a plurality of units. The spacing panels and header units are adapted to be assembled in association with standard studding of a building either erected or under erection, and in this connection a portion of the header is arranged to form a track mechanism along which rollers attached to the top of the door are adapted to roll and support the weight of the door, and particularly, a part of this track member is adapted detachably to be assembled to the remaining parts of the header and the track members in such a manner that it permits the rollers attached to the door to be slid endwise onto the installed portion of the track mechanism, the door slid back into completely open position between the panel members and thereafter the detachable portion of the track mechanism reassembled into position to form a continuous track for the door rollers and whereby to not only support, but whereby to hold the door rollably or slidably in position. In addition, one of those portions of the package comprising the track mechanism is dimensioned so that it may be used as a measuring rod to assist in the accurate spacing of the studding comprising the frame work of the door installation.

In the drawings, I have shown a portion of a building under erection, or one which has already been erected, as comprising any type of base or floor 2 carrying the vertical studding 4 and 6, the studding 4 and 6 being nailed directly to the floor and the upper joists, not shown, in the usual manner. In this connection, the construction shown in Figures 4 and 5 comprises the member or header support 8, which is preferably a standard cut piece of two by four lumber, the length of which is such as to be identical with the distance between the inner face of the vertical studding 4 and the vertical studding 6. The header support 8 is preferably furnished by the contractor or carpenter at the location of assembly, and is preferably not included as a part of the header package assembly. The header comprises the two spacing strips 10 and 12 which as shown in Figures 5 and 9, directly underlie the header support 8. Each of these spacing strips 10 and 12 is likewise of an exact length identical with the distance between the vertical studding 4 and the vertical studding 6, and hence each one comprises an exact measuring rod used to determine the distance which the studding 4 and 6 are to be spaced apart. In addition, the header comprises four track bars 14, 16, 18 and 20, the upper inner walls of which are formed, as shown in Figures 8, 9 and 10, as being cut out on their inner corners to provide a complementary recessed portion forming a longitudinal track 22 and 24. These track members, when finally assembled, as shown in Figure 9, are spaced apart as at 26 a sufficient distance so as to permit a bracket hereinafter described to depend downwardly therebetween.

Spacing means is provided in the form of end blocks 27. The cross sectional shape of these end blocks is exactly like that shown in Figure 15 so as to fit into the grooved spaces between the track members 22 and 24 whereby properly to space these track members and likewise properly to space the header members 10 and 12. These end blocks 27 are fixed in position by suitable fastening devices 29 which enter the spaced header members 10 and 12. By reference to Figure 8 it will be seen that the two track members 18 and 20 are detachable from the two left hand or inner track members 14 and 16, but form continuations thereof. Means is provided in the form of registering screw holders 31 which register with other holders in the header members 10 and 12 for detachably and rigidly mounting outer track members 18 and 20 to the header members 10 and 12 in registration with the track members 14 and 16 so as to form one continuous horizontal track. The track members 14, 16, 18 and 20 are preferably formed of hard maple and are suitably impregnated with wax to give them a hard, relatively noiseless, surface along which the rollers hereinafter described are adapted to roll. Attention is particularly directed to the fact that the two header members 10 and 12, as shown in Figures 13 and 14, extend from the inner face of the vertical studding 4, completely to the inner face of the spaced vertical studding 6.

In addition, there is a vertical door jamb 34 which forms an inner facing against which the door is adapted to close. This vertical jamb 34 is properly positioned relative to the adjacent vertical studding 6 by means of spacing blocks 36. The extreme outer end of the two detachable track members 18 and 20 abut the inner vertical wall of the side jamb 34 so that these detachable track members 18 and 20, when the screws 35 and 37 which hold it in place are removed, may be bodily removed downwardly from the remaining portions of the header installation as permanently installed. Figure 9 shows clearly the relatively long screws 35 and 37 as passing through registering, pre-formed, holes in the track members 18 and 20, the header members 10 and 12, and into the two by four 8, thereby firmly holding the track members 10 and 12 sufficiently firmly in position that they may carry the weight of the rollers and the door depending therefrom, as hereinafter described.

In addition to the header installation, there are provided two wooden panels 38 and 40 of a general shape shown in Figures 1 and 2 of the drawings. These are skeleton panels and are adapted to be positioned each with a vertical edge juxtaposed to the inner vertical wall of the vertical studding 4. The panels are disposed in spaced apart position by means of suitable spacing strips 42 at the base and by means of the track members 18 and 20, at the top (see Figure 10). The spacing block 42 is nailed directly to the floor member and the lower portions of these stationary panels are nailed directly to the sides of the spacing block 42.

Any type of standard construction door 44 may be utilized. The door is preferably not a part of the shipped package, but is supplied by the contractor at the scene of installation. The door is provided along its top edge with two metal brackets 46. Each bracket has at its lower portion bent-out, oppositely disposed ears 48 and 50, provided with suitable screw holes 52 and 54. The vertical main body portion of the bracket at its top forms a bearing for a pair of rotatable anti-friction rollers 56. The two brackets 46 are screwed to the top edge of the door as shown in Figure 7. The cross dimension of the upright portion of the bracket is of a width gauged to lie in and pass horizontally in the space between the track members 18 and 20, the rollers running along the top of these track members 14 and 16 and 18 and 20.

By reason of the fact that the track members 18 and 20 are bodily detachable from the perma-

nently installed remaining portions of the header member, such construction permits of ease in assembling the door slidably in position with respect to the door frame and the header. For instance, the two track members 18 and 20 are removed as hereinbefore described whereupon one vertical edge of the door is passed between the two skeleton panels 38 and 40. The door is then lifted slightly until the rollers are in the same horizontal plane as the track of the permanently installed track members 14 and 16, whereupon the door is then slid inwardly between the two panel members as shown in Figure 6. When the door is pushed to fully open position, the track members 18 and 20 are then placed upwardly in position and screwed with the long screws 38 and 40 so as to form a continuous track. Next, the head jambs 58 and 60 (Figure 13) are placed in position as shown in Figure 9. It is to be noted that each head jamb is provided on its underside at the outer end with a rabbet 62 which is adapted to overlie the top of the side jamb 34 as shown in Figure 14. The head jambs 58 and 60 are then either screwed or nailed into position on both sides, after which the two strips 64 and 66 are placed in position on opposite sides of the upper edge of the door opening. After this has been accomplished, the plaster grounds 68 are installed and then the plaster foundation, comprising laths or other material 70, is applied and these receive the coat of plaster 72, and thereafter the usual trim or door casing 74 and 76 is positioned. It is to be understood, of course, that the plastering 70 and 72 likewise overlies the skeleton panels 38 and 40, as clearly shown in Figure 6, and that the usual trim 78 at the base of the panel members is installed, as well as the two door stops 80 and 82 (see Figure 12). On the opposite side of the door frame opening, as shown in Figure 11, the side jamb comprises two members 84 and 86, forming a space therebetween to allow the entrance for the door between the panels 38 and 40. The trim strip 88 and 90 is added to each side panel 84 and 86 to complete the structure.

It is thought that the invention and numerous of its attendant advantages will be understood from the foregoing illustrative description and it is obvious that numerous changes may be made in the form, construction and arrangement of the several parts without departing from the spirit or scope of the invention or sacrificing any of its attendant advantages, the form herein described being a preferred embodiment for the purpose of illustrating the invention.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In combination with a wall structure of a building, a pair of spaced vertical studding, a pair of panel members abutting one of the vertical studding and spaced apart to provide a door opening, the space between the free vertical edges of said panel members and the other studding constituting a door opening, a vertical door jamb forming a vertical facing for said second studding, a header support overlying the panel members, the vertical door jamb, and the door opening between the two vertical studding, a header construction assembled thereto and comprising tracks permanently connected to the header support, and extension tracks detachably connectible to the header support, said detachable extension tracks overlying the space forming the door opening and terminating flush with the inner face of said jamb, said tracks being spaced apart to provide a vertical, restricted passageway therebetween, a door adapted to close said opening and adapted in opening to shift horizontally into the space between said panel members, said door having an upstanding bracket passing between the track members and having anti-friction means adapted to ride on said tracks and extension tracks, said detachable extension tracks extending substantially from the vertical free edges of said panel members to the vertical edge of said jamb, and detachable means for maintaining said detachable tracks in position to said header member.

2. In a construction of the character described, in combination with a pair of spaced upright studding, a pair of panels spaced apart to provide therebetween a door receptacle normally to house a door, each panel having a vertical side extending parallel to and substantially flush with one of said vertical studding, the opposite vertical edges of said panels forming with said other vertical studding a doorway opening adapted to be closed by lateral movement of a door from the door receptacle, a header support overlying said panels and said door opening, the opposite ends of said header support lying flush against the inner walls of said first and second mentioned vertical studding, a door jamb extending parallel to and adjacent the vertical inner wall of said second studding, the upper portion of said jamb terminating below the horizontal plane of said panels, a header comprising two horizontal, spaced apart spacing strips, said strips overlying and being supported on the tops of said panels and overlying said door opening and the top of said jamb, the opposite ends of said spacing strips lying flush against the inner walls of said first and second vertical studding, a pair of horizontally disposed, parallel, spaced apart, track bars carried by and attached to the underside of said spacing strips within the vertical planes of the inner walls of said panels, and a second pair of spaced track bars forming track continuations of said first pair, means for securing the same to the underside of said spacing strips, the outer end of at least one of said second pair of track bars lying flush against the inner vertical wall of said door jamb whereby on release of said securing means said track bar may be demounted from its spacing strip, and a hanger positioned within the header to ride on the second pair of track bars with a lower portion of the hanger depending between the track bars and connected to the top portion of the door.

3. In a construction of the character described, in combination with a pair of spaced upright studding, a pair of panels spaced apart to provide therebetween a door receptacle normally to house a door, each panel having a vertical side extending parallel to and substantially flush with one of said vertical studding, the opposite vertical edges of said panels forming with said other vertical studding a doorway opening adapted to be closed by lateral movement of a door from the door receptacle, a header support overlying said panels and said door opening, the opposite ends of said header support lying flush against the inner walls of said first and second mentioned vertical studding, a door jamb extending parallel to and adjacent the vertical inner wall of said second studding, the upper portion of said jamb terminating below the horizontal plane of said panels, a header comprising two horizontal, spaced apart spacing strips, said strips overlying

and supported on the tops of said panels and overlying said door opening and the top of said jamb, the opposite ends of said spacing strips lying flush against the inner walls of said first and second vertical studding, a pair of horizontally disposed, parallel, spaced apart, track bars attached to the underside of said spacing strips, an inner portion of said spaced apart track bars lying within the spaced apart panels and an outer portion of the spaced apart track bars overlying the door opening and stopping short of the confronting face of said jamb, a hanger positioned within the header to ride on the track bars, the lower portion of the hanger depending between the track bars and connected to the top portion of the door, a part of the outer portion of the track bar being severed from the remainder of the track bars, said outer severed track portion being independently attached to the underside of said spacing strips whereby to permit their bodily independent removal from the header and being of sufficient extent to allow the hanger to be removed laterally from the header and the door withdrawn from the door opening.

4. In a construction of the character described, in combination with spaced upright studding forming an open frame, a pair of panels spaced apart with adjacent vertical edges flush against the inner wall of one of said upright studding and the opposite vertical walls spaced from the inner walls of the opposite upright studding to form a door opening, a header comprising spaced apart, parallel, horizontally disposed strips rigidly mounted in position so that a portion of one end thereof overlies the door opening, the outer ends of said spacing strips lying flush against the inner vertical walls of said spaced, vertical studding, horizontal, parallel, spaced apart track bars secured to the underside of said horizontal spacing strips, that portion of the track bars overlying the door opening being severed from the remaining portion and attached to the underside of the spacing strips independently of the remaining portion, the ends of said severed track bars terminating short of the inner vertical walls of said second vertical studding and the adjacent vertical walls of said panels, whereby said severed track bars may be independently removed from said header, and a hanger mounted in said header to roll along said track bars, said hanger having a portion depending through the spacing between said track bars, the lower portion of said hanger being connected to the upper portion of said door.

5. In a construction of the character described, in combination with a pair of spaced upright studding, a pair of panels spaced apart to provide therebetween a door receptacle normally to house a door, each panel having a vertical side extending parallel to and substantially flush with one of said vertical studding, the opposite vertical edges of said panels forming with said other vertical studding a doorway opening adapted to be closed by lateral movement of the door from the door receptacle, a header support overlying said panels and said door opening, the opposite ends of said header support lying flush against the inner walls of said first and second mentioned vertical studding, a door jamb extending parallel to and adjacent the vertical inner wall of said second studding, the upper portion of said jamb terminating below the horizontal plane of said panels, a header including two horizontal, spaced apart strips overlying and supported on the tops of said panels and overlying said door opening and said door jamb, a pair of horizontally disposed, parallel, spaced apart track bars, the opposite ends of said track bars lying flush with said first mentioned studding and with the inner face of said door jamb respectively, an inner portion of said spaced apart track bars lying within the spaced apart panels and secured to the underside of said spaced apart strips, and an outer portion of the spaced apart track bars overlying the door opening, there being means for detachably securing said outer portion of said track bars to the underside of said spaced apart spacing strips, a hanger positioned within the header to ride on the inner and outer portions of said track bars, the lower portion of the hanger depending between the track bars and connected with lower portion of the door, the outer portion of the spaced apart track bars being severed from the inner portions of the track bars whereby to permit their independent bodily removal from the spacing strips, a pair of head jambs each having an end lying flush against that vertical wall of the panel that lies adjacent the door opening, and having another end lying flush with the adjacent face of the second studding, each of said last mentioned head jambs having a transverse groove receiving the top of the door jamb, and means for connecting each of said head jambs with the header.

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