

Nov. 4, 1969

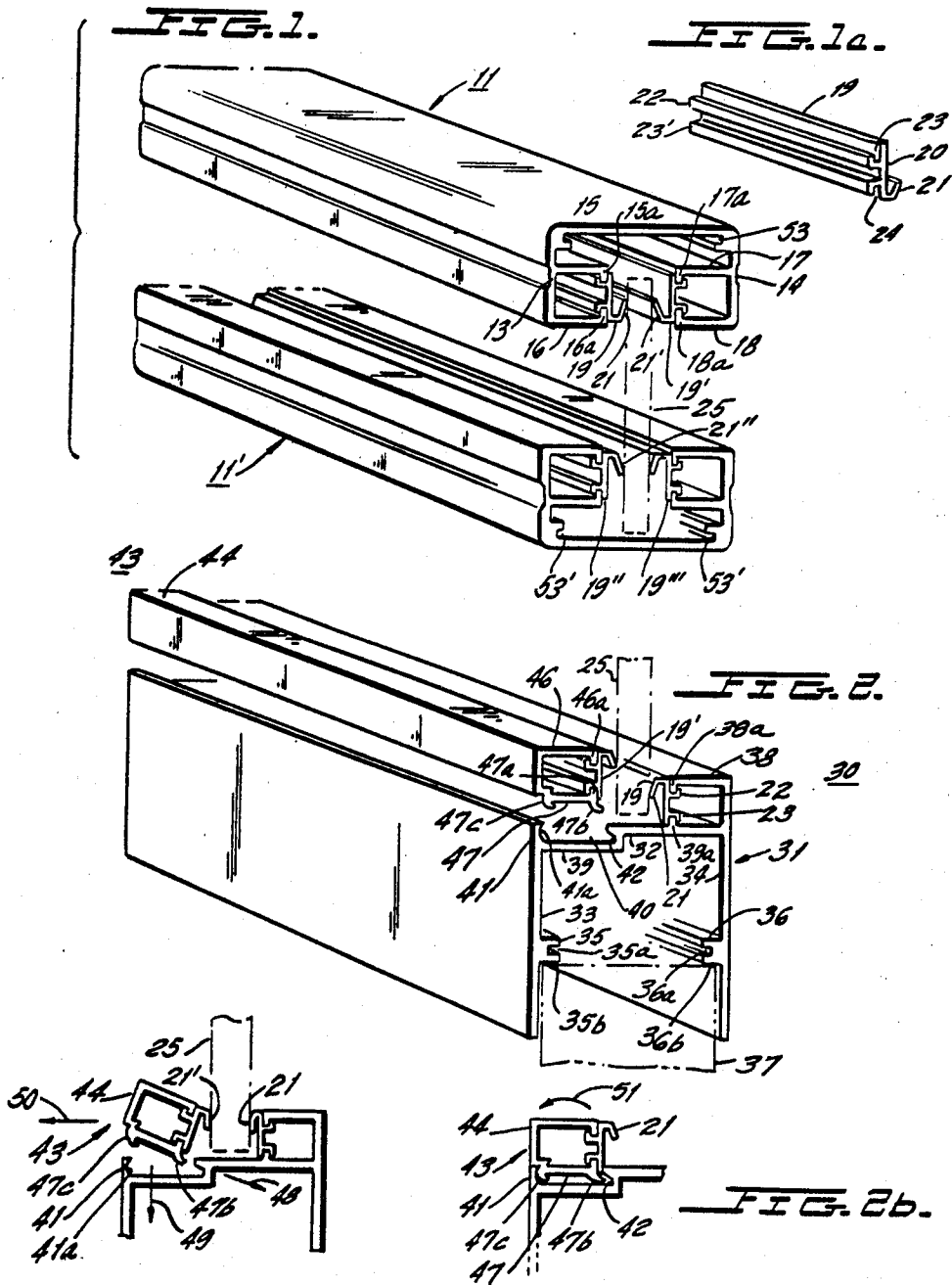
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3,475,870

PARTITION ASSEMBLIES

Original Filed March 18, 1966

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

FIG. 3.

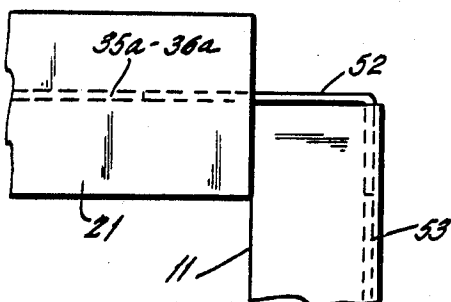


FIG. 5d.

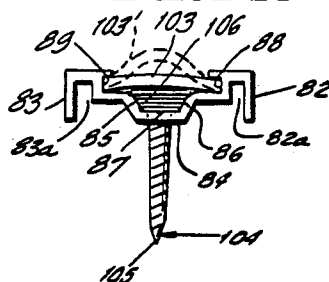


FIG. 5.

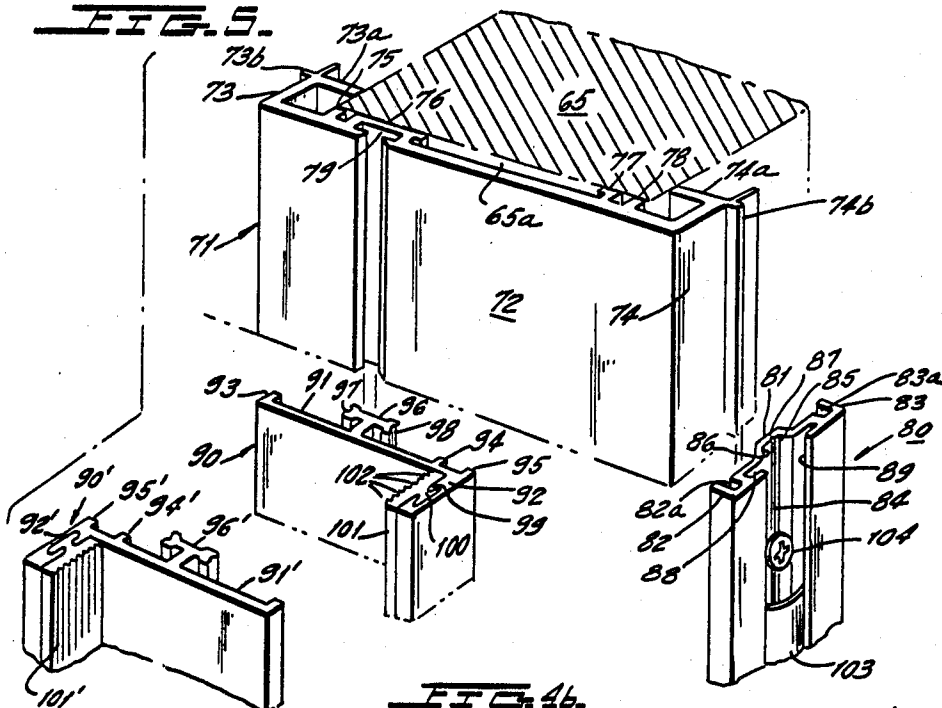
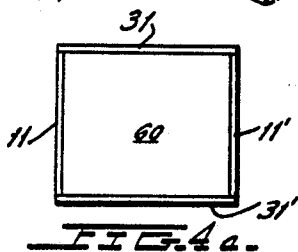


FIG. 4a.

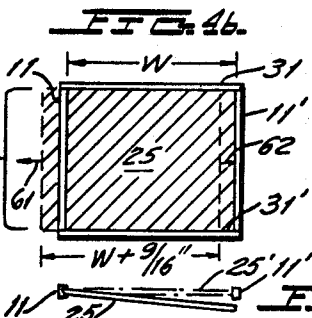


FIG. 4b.

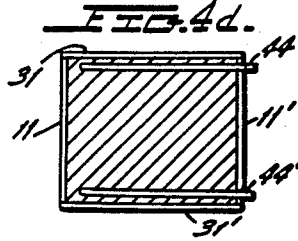


FIG. 4c.

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FIG. 6.

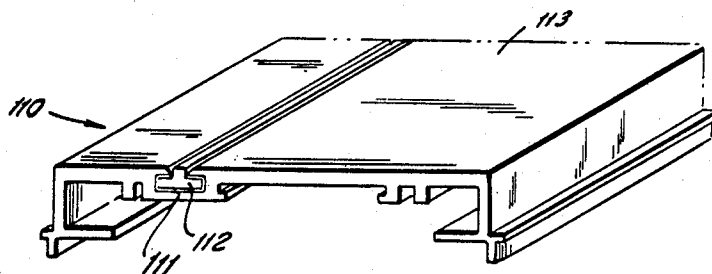


FIG. 7.

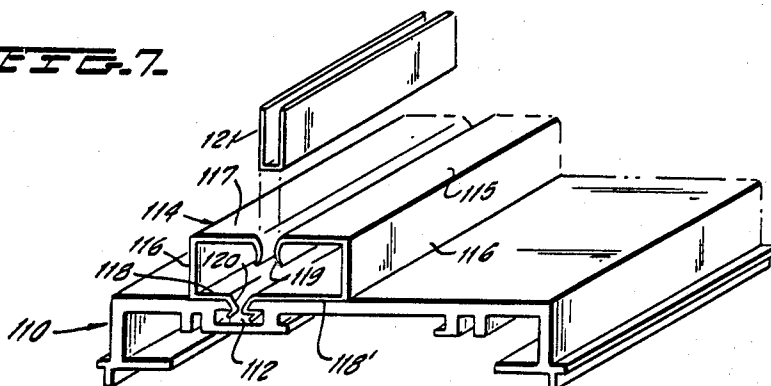
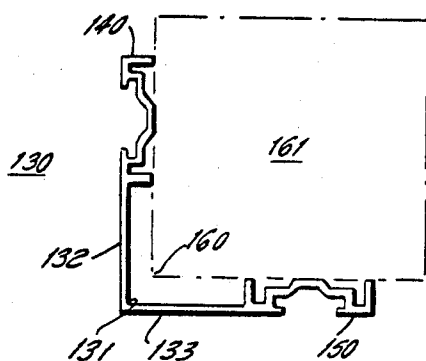


FIG. 8.

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3,475,870

PARTITION ASSEMBLIES

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Original application Mar. 18, 1966, Ser. No. 535,489, now
Patent No. 3,423,897, dated Jan. 28, 1969. Divided and
this application July 19, 1968, Ser. No. 763,037

Int. Cl. E06b 1/18; E04c 3/32

U.S. Cl. 52—211

13 Claims

ABSTRACT OF THE DISCLOSURE

Frame members preferably formed by an extrusion process for forming door and window assemblies. The window assembly includes rigid extruded frame members having slidably engaged deformable resilient members engaging the marginal edges of a transparent sheet. The door frame assembly includes a rigid channel which embraces a stud or supporting member; said channel having a double undercut groove therein for receiving a door stop, a filler strip to produce a plane surface and spaced strips holding a transparent sheet; and batten strips embracing the margins of the channel for securing the channel to said stud or supporting member.

This is a division of application Ser. No. 535,489, filed Mar. 18, 1966, now Patent No. 3,423,897.

The instant invention relates to assemblies for use in the construction field, and more particularly to window and door frame assemblies which are uniquely designed to provide for simplification of assembly for both factory and field installation and which require a minimum number of parts and labor.

In the construction of factories, office buildings, apartment houses, and the like, it is most desirable to provide building materials and components which are designed to reduce the materials and labor involved for factory assembly, as well as field application in order to reduce costs of labor and material, while at the same time maintaining the requisite quality and reliability of such structures.

As one example, in the construction of window frames, the conventional method employed is comprised of forming the frame, inserting the window pane and then force fitting the gasket between the frame and the window pane in order to tightly mount the pane. The force fitting operation must be undertaken with extreme care so as not to damage or break the window pane. The gasket is also difficult to insert so as to be assured that a neat, even fit will be obtained.

In order to overcome the difficulties of such conventional structures, I have conceived of a window frame in which at least two of the opposite parallel sides of the frame are provided with a channel for receiving a relatively flexible plastic strip which may be slid into the receiving channel and which is provided with suitable projections for retaining the plastic strip within the channel. The plastic strip is also provided with a resilient edge for making frictional engagement with the window pane.

In one embodiment, the remaining two parallel sides of the frame are each comprised of a substantially U-shaped channel having secondary channels facing one another for receiving a plastic strip of the same type as described above.

The structure is assembled by cutting the members of the frame to size, cutting the plastic strips to size, and inserting all the strips into their associated channels. The sides of the frame are then all mounted together to form a rigid structure. The window pane is then slid into one channel member so that its opposite parallel edge lies slightly to the interior side of the adjacent channel. The

pane of glass may then be slid back slightly so that it enters between the plastic slips of the second channel member and is substantially rigidly secured therein. The remaining two channels are each provided with a tertiary channel designed to receive a metallic insert which is provided with projections designed to be received by the tertiary channel. The metallic insert is provided with a channel for receiving one of the plastic inserts mentioned above, which may be slid into position so as to be secured by the metallic insert. The metallic insert herein-after referred to as a "stop," may then be simply snapped into position so that its plastic insert is urged into rigid engagement with the window pane. The force fit urges the window pane against the stop, causing it to be rigidly retained within the tertiary channel, thereby forming an excellent supporting frame for the window pane.

The second channel member is hereinafter referred to as "recessed glass spacers" and may be either horizontally or vertically aligned and the first channel members herein-after referred to as "glass spacers" may likewise be either horizontally or vertically aligned.

In another embodiment, the recessed glass spacers may be completely dispensed with and the entire window frame may be formed with the glass spacer members each having a cooperating stop. The assembly of a structure of this type permits the window pane to be inserted flush against the plastic strip of the four glass spacers forming the frame and the stops may then be properly seated. While the assembly of this embodiment is somewhat easier, the preferred embodiment first described constitutes a saving in parts.

The elements constituting the frame, namely, the glass spacer, recessed glass spacer, the stop and the plastic strips, may all be formed through an extruding process. The only additional elements needed to form the frame are the corner brackets employed to secure the frame sides at the corners of the frame.

Turning now to a consideration of the formation of door jamb assemblies, it is conventional to frame the door opening with studs and to mount a metallic channel so that its arms embrace opposing surfaces of the stud. One conventional door jamb structure is comprised of a U-shaped channel having the free ends of its arms both bent inwardly so as to form a force fit with the stud which it embraces. Due to the normal usage of the door jamb the force fitting may become loose and the channel may free itself from the force fitting so as to interfere and possibly prevent normal usage of the door.

Another conventional approach which assures a firm fitting of the door frame against the stud is to provide a channel which is secured to the stud which defines the door opening by means of batten strips which overlie the arms of the channel and are secured to the channel and the stud by suitable fastening screws. A field installation of this type is extremely difficult in that it requires holes to be first drilled into the door frame channel prior to mounting of the batten strips since the thicknesses of the channel arms are quite substantial so as to prevent a screw or other fastening member to be simply driven through the channel arm. In addition, care must be taken to align the holes in the batten strips with the predrilled holes in the channel arms so as to permit the fastening members to freely pass therethrough in order to be secured to the stud.

In order to greatly simplify the mounting of such door frame channels, while at the same time providing no increase in the number of structural members required, I have conceived of a door frame channel formed of a suitable metallic material such as, for example, aluminum, and which may be formed through an extrusion process. The door frame channel is provided with a flat base portion and channel arms of substantial thickness enabling

the door frame channel to withstand prolonged heavy duty use. Each of the channel arms are provided with inwardly and outwardly extending flanges aligned substantially parallel to the channel base. The inwardly extending flanges bear against the surface of the stud confronting the door opening. The marginal edges of the channel arms embrace a small portion of the stud. The outwardly extending flanges are arranged to be interlocked with a batten strip having a base portion and first and second arms extending in a first direction from the base portion, one of which arms overlies an associated one of the outwardly extending flanges provided on the door frame channel.

The central portion of the batten strip is provided with a recess which is defined by a flat base portion joining two sloping walls. The sloping walls are designed to receive a flathead screw so that the downwardly tapering portion of the screw head has a contour which is substantially identical to the contour of the sloping walls. This configuration permits the batten strip, which is preferably formed of aluminum through an extrusion process, to have a rather thin cross-section, thus greatly reducing the amount of aluminum needed to form such extruded batten strips and hence greatly reducing their cost.

Heretofore conventional batten strips were formed of flat central portions requiring the mounting holes to be prepunched and countersunk in order to receive the mounting screws.

In another conventional embodiment in which the base portion of the batten strip was provided with a groove formed of a flat surface joining the flat sloping side walls, it was found to be necessary to form the base portion to have a relatively great thickness in order to prevent the batten strip from bending upon tightening of the flathead screws. Such batten strips were difficult to mount to the studs of a wall due to the fact that their increased base portion thickness required the holes to be predrilled.

By sloping the side walls so as to have a curvature which substantially exactly follows the tapering downward surface of the screw head, it has been found that the batten strip will not experience any bending upon insertion and tightening of the flathead screw members, while the base portion of the batten strip was made relatively thin and substantially thinner than the conventional batten strips. The advantage of the approved batten strip structure is that it greatly reduces the amount of aluminum needed to form the batten strips and greatly facilitates the insertion, mounting and tightening of the flathead screws in that they may be "started" simply through the use of a hammer so as to pierce the batten strip with the flathead screw. The flathead screw may then simply be screwed in with a hammer the rest of the way and tightened.

The batten strip of the instant invention is further provided with a narrow V-shaped groove running down the middle of the batten strip base portion to greatly facilitate the locating of the flathead screw members. In order to fasten the flathead screw its forward tip is simply pressed against the narrow V-shaped groove and driven in slightly by a hammer. This arrangement assures perfect alignment of each screw member.

The front surface of the batten strip is provided with undercut grooves positioned on opposite sides of the base portion for receiving a plastic filler strip designed to completely conceal the recess containing the mounting screws. The filler strip may be of any suitable color to blend in with the surrounding decor.

It is therefore one object of the instant invention to provide a novel frame assembly for use in office buildings, factories, apartments and the like, which greatly facilitates field installation of such assembly for the purpose of forming door and door window frame structures.

Another object of the instant invention is to provide a novel window frame assembly adapted for facilitating insertion of a window pane by providing glass spacers on

at least two parallel sides of the frame, having means for receiving a stop, including a resilient plastic strip, which stop is not inserted until the glass is positioned within the frame and which, upon insertion, provides excellent pressure contact for holding the window pane within the frame.

Another object of the instant invention is to provide a novel frame assembly for use in forming a door frame comprising a channel having arms for embracing the studs defining the frame with each of the arms being provided with outwardly extending flanges cooperating with a batten member for securing the channel to the stud without the necessity for passing fastening members through the channel.

Another object of the instant invention is to provide a novel batten for securing frame members and the like to a building structure which is comprised of a base portion and two outwardly extending arms wherein the base portion is provided with a recess comprised of a flat base surface joining two sloping curved sides which substantially exactly fit the contour of a tapering flathead screw to facilitate securement of the batten to a stud without in any way deforming the batten.

These and other objects of the instant invention will become apparent when reading the accompanying description and drawings in which:

FIGURE 1 is a perspective view showing two recessed glass spacer assemblies and the manner in which they cooperate to receive a pane of glass.

FIGURE 1a is a perspective view showing the flexible strip of FIGURE 1 in greater detail.

FIGURE 2 is a perspective view of a glass spacer assembly and its cooperating stop assembly.

FIGURES 2a and 2b show end views of the assembly of FIGURE 2 useful in explaining the steps of assembling the structure.

FIGURE 3 is an elevational view of a portion of one spacer assembly and one recessed spacer assembly showing the manner in which they may be connected.

FIGURES 4a, 4b and 4d are elevational views and FIGURE 4c is a top view of a window frame assembly showing the manner in which the glass is inserted.

FIGURE 5 is a perspective showing the door frame and batten strip assembly of the instant invention.

FIGURE 5a shows an end view of the batten strip assembly of FIGURE 5.

FIGURE 6 shows another manner in which the door frames of FIGURE 5 may be employed.

FIGURE 7 shows another embodiment of the door frame wherein it may be employed for use as a window frame.

FIGURE 8 shows an alternative embodiment of the batten of FIGURES 2 and 2a for use as an exterior corner member.

Referring now to the drawings, FIGURE 1 shows a pair of recessed spacer assemblies comprised of channels 11 and 11'. Since these assemblies are substantially identical to one another, only one will be described in detail wherein like elements of the assemblies are designated by primed numerals. The channel 11 is comprised of a base portion 12 having two downwardly depending arms 13 and 14. Arm 13 is provided with two inwardly extending flanges 15 and 16, while arm 14 is provided with two like inwardly extending flanges 17 and 18, respectively. The free ends 15a and 16a of flanges 15 and 16 are turned inwardly toward one another, as are the free ends 17a and 18a, respectively, of the flanges 17 and 18 each forming a C-shaped channel. The channel 11 is preferably formed of aluminum through an extrusion process and may be made of any desired length, depending upon the size of the window frame desired. The length of the channel may be substantial and may be cut to size for frames of lesser length.

A flexible plastic strip 19, also shown in FIGURE 1a, which is of a length substantially equal to the length

of channel 11, is slidably received by the flanges 15 and 16 of channel arm 13. The flexible plastic strip 19 is comprised of a substantially flat body portion 20 which is bent upward along its lower edge to form the flange 21. The flange 21 and body portion together form a J-shaped cross-sectional configuration. The opposite surface of body portion 20 is provided with first and second projections 22 and 23 which curve outwardly and away from one another to form the receiving grooves 23 and 24, respectively. The flexible strip 19 is mounted to the channel arms 15 and 16 by aligning the grooves 23 and 24 with flange end portions 15a and 16a respectively, and sliding the flexible strip 19 into the channel 11. The flanges 17 and 18 of channel arm 14 are provided with a similar flexible strip 19' which is substantially identical in configuration and function to strip 19 and which is slid into engagement with the flange end portions 17a and 18a in a similar manner. With the flexible strips 19 and 19' suitably positioned, it can be seen that the marginal edges of flanges 21 and 21' are bent backward slightly toward their associated body portions 20 and 20' so as to substantially tightly embrace a window pane 25 shown in dotted fashion, in order to suitably position and support the pane. It is obvious that the recessed channel assembly 11', which is provided with flexible strips 19'' and 19''' is caused to embrace glass pane 25 by means of the marginal edges of flanges 21'' and 21''' in a manner similar to that previously described. As can clearly be seen from a consideration of the recessed spacer assemblies of FIGURE 1, the flexible strips 19-19''' are all slid into position prior to insertion of the glass pane 25, as will become more obvious upon a consideration of the manner of mounting the glass shown in FIGURES 4a-4d.

FIGURE 2 shows a spacer assembly 30 designed in accordance with the principles of the instant invention and which is comprised of a channel 31 having a base portion 32 and downwardly depending arms 33 and 34, respectively. Each of the legs 33 and 34 is provided with inwardly facing projections 35 and 36, respectively, each having a respective groove 35a and 36a for receiving an L-bracket member in a manner to be more fully described for the purpose of assembling the frame components. The bottom shoulders 35b and 36b of these projections are employed for the purpose of supporting the spacer assembly channel upon a supporting sill 37, shown in dotted fashion.

The upper surface of central portion 32 is provided with an L-shaped flange 38 which is turned downwardly at its free end 38a. A small projection 39a extends upwardly from central portion 32 in the direction of flange end portion 38a. The projections 38a and 39 are dimensioned to receive the curved projections 22 and 23 of a flexible strip member 19 substantially identical to that shown in FIGURE 1a. The strip member 19 is slid into position in the same manner as was previously described with respect to the recessed spacer assemblies shown in FIGURE 1.

The upper surface of central portion 32 is further provided with a recess 39 defined by surface portion 40, projection 41 and undercut groove 42. It should be noted that the vertical surface of projection 41 facing recess 39, i.e., surface 41a, has an arcuate shape.

When the spacer assembly channel 31 is horizontally aligned it supports a glass pane 25 so that its right-hand surface rests against the flange 21 of flexible strip 19. The lower horizontal edge of glass pane 25 rests upon the surface of central portion 32. The glass pane 25 is firmly secured by means of a stop assembly 43 which cooperates with the spacer assembly channel 31 to firmly secure the lower marginal edge of the glass pane. The stop assembly 43 is comprised of a substantially U-shaped channel 44, preferably extruded from aluminium stock and which is comprised of a central portion 45 having two extended arms 46 and 47. The forward end of arm 46 is bent inwardly to form a downward projection 46a. The lower

arm 47 is provided with a first projection 47a extending vertically upward and which cooperates with the downward projection 46a to receive the flexible plastic strip 19' which is slidably mounted to the stop channel 44 in the same manner as the flexible strip 19 of FIGURE 2 and 19-19''' of FIGURE 1.

Lower arm 47 is further provided with two downwardly facing projections 47b and 47c, both of which are curved in cross-section and project substantially in the same direction.

The stop assembly 43 is secured to the channel arm 31 in the following manner:

The glass pane 25 is first positioned so that its lower edge rests against central portion 32 of channel 31 and so that its lower marginal surface rests generally against the flange 21 of flexible strip 19. The stop member is tilted slightly to the position shown in FIGURE 2a so that the projecting portion 47b faces undercut groove 42, while the flange 21 bears against the front surface of glass pane 25. The spacer assembly 43 is urged generally in the direction shown by arrow 48 until the curved projection 47c is in a position to be forced downwardly in the direction shown by arrow 49 so that the projection 47b becomes seated substantially within undercut groove 47 and so that the left-hand surface of projection 47c (relative to FIGURE 2a) bears against the arcuate surface 41a of projection 41.

The flanges 21 and 21' of the flexible strips are compressed against the associated surfaces of window pane 25 causing a force to be exerted against channel 44 in the direction shown by arrow 50. The spacer assembly channel 44 is restrained from movement due to the curved surface 41a which embraces curved projection 47c. If the force exerted in the direction of arrow 50 exerts any rotational impetus to the channel assembly 43 so as to urge it in the direction shown by arrow 51 of FIGURE 2b, the curved projection 47b restrains any rotational movement in this direction since it is embraced by the undercut groove 42. Thus, when fully assembled, the spacer assembly provides excellent positioning and support for the window pane with the assembly operation being very simple and straightforward.

FIGURE 3 shows a sectionalized portion of a spacer assembly channel 31 and a recessed spacer assembly channel portion 11 which are horizontally and vertically aligned, respectively. These frame components may be secured to one another by an L-bracket 52 formed of a material having superior structural strength, with one arm of the bracket being inserted into the grooves 53-53 of recessed spacer channel 11 (see also FIG. 1) and with the remaining arm being inserted into the grooves 35a-36a of the spacer assembly channel 31. A tight fit may be provided by dimensioning the L-bracket 52 and the bracket receiving grooves 53-53 and 35a-36a so as to provide a force fitting therebetween. A force fitting arrangement is satisfactory since the window glass frame assembly will itself be fitted within the frame of the building structure which, in turn, will provide sufficient structural support for the window glass frame assembly.

FIGURES 4a-4d show the manner in which the window pane is mounted into a window frame assembly of the type embodying the principles of the instant invention.

FIGURE 4a shows a window frame assembly 60 which is comprised of two glass spacer channels 31 and 31' which are horizontally aligned. The vertically aligned components of the frame assembly are comprised of recessed glass spacer channels 11 and 11'.

The glass pane, as shown in FIGURE 4b, is cut so that its height H is designed to fit between the associated resting surfaces of the glass spacer channels 31 and 31' with the manner in which the glass rests against these channels being shown best in FIGURES 2, through 2b. The width of the glass pane is equal to the distance W between the interior surfaces of recessed glass spacer channels 11 and 11', plus and additional $\frac{1}{16}$ of an inch.

The glass pane, after being appropriately cut to size, is inserted into the frame assembly by positioning the window pane 25, as shown in FIGURE 4b and sliding it horizontally in the direction shown by arrow 61 until its right-hand edge (relative to FIG. 4b) enters into the region between the flexible strips 19 and 19', for example, shown in FIGURE 1a. At the opposite jamb, a clearance of approximately 1/4 inch will allow the glass pane 25 to be pushed in against the glass spacer flexible strip 19, shown best in FIG. 2, so that the glass is pressed against the flexible strips of both the upper and lower channels 31 and 31', respectively. The glass pane 25 may then be moved in the direction shown by arrow 62 so as to be received between the flexible strips of the right-hand recessed glass spacer channel 11' so that approximately 1/4 inch of each of the vertical marginal edges are embraced by the vertical jambs 11 and 11'. FIGURE 4c further clarifies the operation shown in FIG. 4b wherein the left-hand edge of glass pane 25 is inserted within jamb 11 to provide for sufficient clearance so that the right-hand edge may be moved into the dotted line position 25' and then inserted within jamb 11'.

After proper alignment of the pane 25 within the frame components 11, 11', 31 and 31', the stop assemblies 44 and 44' are inserted by snapping them into position in the same manner as that described with reference to FIGS. 2-2b. The completed frame assembly thereby provides an extremely rigid supporting structure for the window pane which may be performed as a field installation with relative ease. By providing the stop assemblies 44 and 44' with flexible strips such as the flexible strip 19' shown in FIGURE 2, there is no need whatsoever for force fitting a gasket into the frame assembly as is the case with conventional window frames.

Whereas the embodiment of FIGS. 4a-4d teaches the employment of two glass spacer assemblies 31 and 31', it should be understood that four such assemblies may be employed to form the frame, if desired. The advantage of employing only two stop assemblies 31 and 31' results in a saving in the cost of the aluminum parts employed. However, four glass spacers of the type shown in FIGURE 2 may be employed, if desired.

FIGURE 5 shows a frame assembly 70 of the type which may be employed for forming a door jamb and which is comprised of an extruded channel 71 having a vertically aligned base portion 72 with integrally formed channel arms 73 and 74. Each of the channel arms are provided within wardly and outwardly facing projections 73a-74a and 73b-74b, respectively. The inwardly facing projections act to embrace the marginal edges of a stud 65 which frames the door opening. The outwardly directed projections 73b and 74b cooperate with a batten strip 80, to be more fully described.

The interior surface of central portion 72 is provided with a plurality of projections 75-78 which bear against the surface 65a of stud 65 so as to position the base portion 72 a spaced distance away from surface 65a. The base portion 72 is provided with a double undercut groove 79 adapted to receive a door stop frame 90. The door stop frame 90 is a substantially L-shaped extruded member comprised of first and second arms 91 and 92 arranged substantially at right angles. The rear surface of arm 91 is provided with projections 93-95 which are arranged to bear against the surface of central portion 72 of channel 71. Arm 91 is further provided with a substantially T-shaped projection 96 integrally formed with arm 91 and having oppositely directed arms 97 and 98, respectively, which are adapted to be slidably received within the double undercut groove 79 of frame channel 71. The relative alignment between elements 71 and 90 is shown in FIGURE 5.

The second arm 92 of door stop frame 90 is provided with a double undercut groove 99 for receiving a T-shaped projection 100 provided on the rear surface of a resilient gasket member 101. The forward surface of

gasket 101 is provided with a plurality of V-grooves 102 which are designed to resiliently engage the marginal edge of a door when the door is moved to the closed position. As shown in FIGURE 5, the door stop frame 90 is aligned relative to the jamb 71 with the gasket 101 and arm 92 positioned to the right of double undercut groove 79. If desired, the door stop frame 90 may be aligned in the dotted line position 90', shown in FIGURE 5, so that arm 92' and gasket 101' lie to the left of double undercut groove 79. This permits the hanging of a door which opens into a room to be reversed so as to open out of the room, if desired. The T-shaped projection 96 is inserted within the double undercut groove 79 in the same manner regardless of the positioning arm 92. If desired, the same jamb 71 may be employed without a door stop frame 90 which may be inserted at a later date or conversely, may be provided with a door stop frame which may be removed at a later date thus providing a frame assembly with an extreme amount of flexibility. Due to the unique interrelationship between the T-shaped projection 96 and double undercut groove 79, there is no need whatsoever for drilling any additional holes to mount this frame so that its subsequent removal does not in any way blemish or otherwise affect the appearance of the channel 71.

The jamb channel 71 is secured to stud 65 by providing the batten strip 80 comprised of a central portion 81 having extending arms 82 and 83. The central portion is extruded in such a manner as to form a recess defined by a base surface 84 joined by sloping curbed walls 85 and 86. A narrow V-shaped groove 87 is provided, which lies substantially along the longitudinal axis of the batten strip. A pair of undercut grooves 88 and 89 are provided along opposite sides of the recess and are designed to receive a flexible plastic strip 103 which is inserted between the grooves after mounting of the batten strip in a manner to be more fully described. The flexible plastic strip is preferably finished in an aesthetic manner and may be of any suitable color so as to blend in with the decor of the particular surroundings. The flexible plastic strip may be bent in the manner shown in dotted fashion 103' in FIGURE 5a so as to be wedged between grooves 88 and 89. Once the strip has been properly positioned, it will flatten out as shown in solid fashion 103 in FIGS. 5 and 5a.

A pair of channels 82a and 83a are provided adjacent the batten strip arms 82 and 83, respectively, at least one of which channels is designed to receive an outward projection of the frame 71. The manner in which the batten strip secures the frame channel 71 is as follows:

The frame channel 71 is cut to size and positioned relative to stud 65, in the manner shown in FIGURE 5. The batten 80 is then vertically aligned so that its channel 82a receives the projection 74b of frame arm 74. The batten strip 80 is then secured to stud 65 by means of flathead fastening screws of the type 104, shown in FIGURES 5 and 5a. The screws are "started" by positioning the tapered point 105 of the flathead screw within narrow V-groove 87 and driving it in slightly by means of a hammer or other suitable instrument. After the screw has punctured base portion 84 it may be securely fastened by means of a screw driver (preferably having a Philips head in the case of the instant embodiment). The V-shaped groove 87 acts to accurately center the screw members along the longitudinal axis of the batten strip. When the screw members, which are positioned at spaced intervals along the batten strip, as appropriately tightened the channel 82a which embraces projection 74b acts to firmly secure frame 71 to stud 65. A similar batten strip may be applied in a similar manner so as to secure the projection 73b provided in arm 73 of the door frame channel.

FIGURE 5a shows the manner in which a screw 104 is seated within the batten strip recess. As can clearly be seen the curvature of the inwardly tapering head portion is substantially identical to the curvature of sloping side walls 85 and 86 to provide excellent surface contact there-

between and to substantially prevent deformation of the batten member 80 when the screw members are securely tightened. Providing the sloping walls 85 and 86 with substantially the identical contour of the inwardly sloping head portion 106 permits the base portion 84 to be made quite thin without any harmful effect upon its structural properties, thereby resulting in a substantial reduction in the amount of aluminum needed to extrude the batten strips. In conventional batten strips the thickness of the base portion 84 is at least twice that of the embodiment described herein in order to prevent deformation of the batten strip when the screws were securely fastened. Another distinct advantage lies in the fact that it is much simpler with a thinner base portion to drive the screw member through the base portion simply by the use of a hammer, which operation can be performed with relative ease. The substantially thicker base portions of conventional batten strips require the holes to be pre-drilled by means of either an electric drill or a bit and brace, thereby increasing the labor costs for the mounting of batten strips.

Additional versatility is afforded to the door frame of FIGURE 5, as shown by the embodiments of FIGURES 6 and 7. Considering FIGURE 6, a door frame 110 is shown therein which is provided with a double undercut or T-shaped groove 111 substantially identical to that shown in FIGURE 5. In the case where the door frame is merely used to frame an opening which does not receive a door, an elongated T-shaped filler strip 112 is slidably inserted into the double undercut groove 111 so as to fill the groove and provide the front surface 113 of frame 110 with a smooth flat appearance as well as preventing dirt particles from accumulating in the double undercut groove. The door frame 110 may be later modified to receive the door stop shown in FIGURE 5, simply by removing the filler strip 111 and replacing it with the door stop extruded member 90.

FIGURE 7 shows the manner in which the door frame 110 may be employed as a window frame. In order to provide such a window frame structure, first and second plastic strips 114 and 115 are slidably fitted into the double undercut groove 111. Plastic strip 114 is provided with a base portion 116 having integral arms 117 and 118 extending therefrom. The forward end of arm 117 is curved inwardly at 119 while the forward end of arm 118 is bent at 120 so as to follow the contour of the left-hand side of double undercut groove 111. The plastic strip 115 is substantially identical to the plastic strip 114 and has been designated with like numerals. The only difference between strips 114 and 115 is that arm 118' of strip 115 is longer than arm 118 of strip 114. With the plastic strips slidably mounted within the double undercut groove 111, in the manner shown in FIGURE 7, the facing curved portions 119—119 of strips 114 and 115 receive the marginal edge of a window pane 120 which is force fitted therebetween. The lower edge of window pane 121 is preferably wedged between the strips 114 and 115 so that the lower edge rests upon the surface of arm 118'. The strips 114 and 115 are so dimensioned that with the window pane positioned therebetween, outwardly directed forces are imposed upon the strips, which outwardly directed forces are restrained from moving the strips by means of the bent portions 120—120 of the arms 118 and 118', respectively. In addition to providing a good force fitting for the window pane the strips 114 and 115 have sufficient resiliency and strength to receive window panes varying in thickness from $\frac{3}{16}$ "— $\frac{1}{4}$ ". It should also be noted that the window frame of FIGURE 2 likewise is provided with flexible strips of sufficient resiliency to provide good force fits for window panes also varying in thickness between $\frac{3}{16}$ " and $\frac{1}{4}$ ".

FIGURE 8 shows an aluminum exterior corner member 130 which is substantially comprised of first and second batten strip members 140 and 150 identical in arrangement to that shown in FIGURES 5 and 5a wherein

an extruded angle portion 131 having arms 132 and 133 is integrally formed with the batten members 140 and 150 so as to form a member for providing securement of panels, frames and the like, to an exterior corner 160 of a frame member such as, for example, a stud 161. If desired, it would also be possible to reversely bend the arms 132 and 133 to form an interior corner member, which corner member can be extruded in the same manner as the extruded member 130, shown in FIGURE 3.

It can be seen from the foregoing that the instant invention provides novel framing assemblies for use in the construction industry which are light in weight, have great structural strength, consist of a minimum number of component parts and which are quite easy to use for both field and factory installations.

Although there has been described a preferred embodiment of this novel invention, many variations and modifications will now be apparent to those skilled in the art.

What is claimed is:

1. A frame assembly for wall openings and the like having studs defining the opening comprising:

a channel having a substantially flat base portion and a pair of integrally formed arms both extending in a first direction;

each of said arms having a first outwardly directed flange;

said arms embracing an associated stud;

a batten strip having a base portion and third and fourth integrally formed arms both extending in the same direction from said base portion;

first and second recesses provided along said base portion adjacent each of said third and fourth arms with each arm forming one wall of its associated channel; at least one of said recesses receiving one of the outwardly directed flanges provided on said channel arms;

fastening means securing said batten strip to the stud.

2. The assembly of claim 1 wherein said channel base portion is provided with an undercut groove running the length of said channel;

a door stop frame having an L-configuration;

one arm of said frame having a projection generally conforming in cross-section to and slidably received by said undercut groove.

3. The assembly of claim 2 wherein the remaining arm of said door stop frame is aligned to extend substantially perpendicular to said channel base portion;

a second undercut groove being provided in said remaining arm;

flexible gasket means comprised of a flat strip having a projection received by said second groove.

4. The assembly of claim 1 wherein said channel arms are each provided with inwardly directed flanges for embracing an associated stud;

said channel base portion having at least one projection engaging the stud positioning the base portion a spaced distance from said stud.

5. The assembly of claim 1 further comprising:

an elongated strip having a T-shaped cross-section;

said elongated T-shaped strip being slidably received by said undercut groove to provide the surface of said channel base portion with a substantially flat-continuous surface.

6. A batten strip being comprised of a base portion and first and second integrally formed arms both extending in a first direction from said base portion;

said base portion having a recess defined by a flat base surface positioned between a pair of sloping walls;

a screw member for fastening said batten strip to a surface having a screw head and a threaded portion tapering gradually to form a pointed end;

said screw having a curved tapering portion between the screw head and the threaded portion;

said recess being adapted to receive said screw member;

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- the sloping walls of said recess being curved to form substantially the same contour as said screw member curved tapering portion;
- the cross-section thickness of the batten strip base portion in the region of said base surface being no greater than the cross-sectional thickness of the remainder of said base portion and said arms;
- a pair of channels being formed along the surface of said base portion opposite said recess;
- each of said channels being adjacent one of said arms with each arm forming one wall of its associated channel.
7. The batten strip assembly of claim 6 further comprising a pair of undercut grooves being provided on opposite sides of said sloping walls;
- a flexible strip slidably mounted within said undercut grooves to conceal said recess and the screw member.
8. The assembly of claim 7 wherein said recess base surface is provided with a narrow axially aligned V-shaped groove to facilitate positioning and mounting of the screw member.
9. The assembly of claim 8 wherein said batten strip is an extruded aluminum member;
- the thickness of said base portion being selected to allow the screw member to be driven through the base surface without the need for a pre-drilling operation.
10. The assembly of claim 8 wherein said batten strip is an extruded aluminum member;
- the thickness of said base portion being selected to allow the screw member to be driven through the base surface without the need for a pre-drilling operation;
- said thickness being between the order of $\frac{1}{60}$ inch to $\frac{1}{25}$ ".
11. A corner batten strip assembly comprising:
- first and second batten strips of the type described in claim 6;
- an elongated L-shaped strip;
- the elongated marginal edge of one arm of said strip being integral with one arm of said first batten strip;
- the elongated marginal edge of the other arm of said strip being integral with one arm of said second batten strip.
12. A frame assembly for wall openings and the like having studs defining the opening comprising:
- a channel having a substantially flat base portion and a pair of integrally formed arms both extending in a first direction;

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- each of said arms having a first outwardly directed flange;
- said arms embracing an associated stud;
- said channel base portion having a double-undercut groove extending lengthwise along said channel;
- first and second elongated flexible strips;
- each of said strips being comprised of a central portion having first and second integrally formed arms;
- the free end of said first arm being curved in the direction of said second arm;
- the free end of said second arm being bent to form a flange received by one undercut of said double undercut groove;
- a transparent sheet having one edge force fitted between the curved portions of said first and second flexible strips;
- said arm curved portions acting to retain said transparent sheet;
- said flanges acting to retain said flexible strips within said double undercut groove when said transparent sheet is positioned between said arm curved portions.
13. The assembly of claim 12 wherein the second arm of said second flexible strip is longer than the second arm of said first flexible strip;
- said second flexible strip second arm supporting the marginal edge of said transparent sheet.

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