Jan. 28, 1969 H. L. BIRUM, JR 3,423,897

FRAME ASSEMBLIES

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FIG. 1.

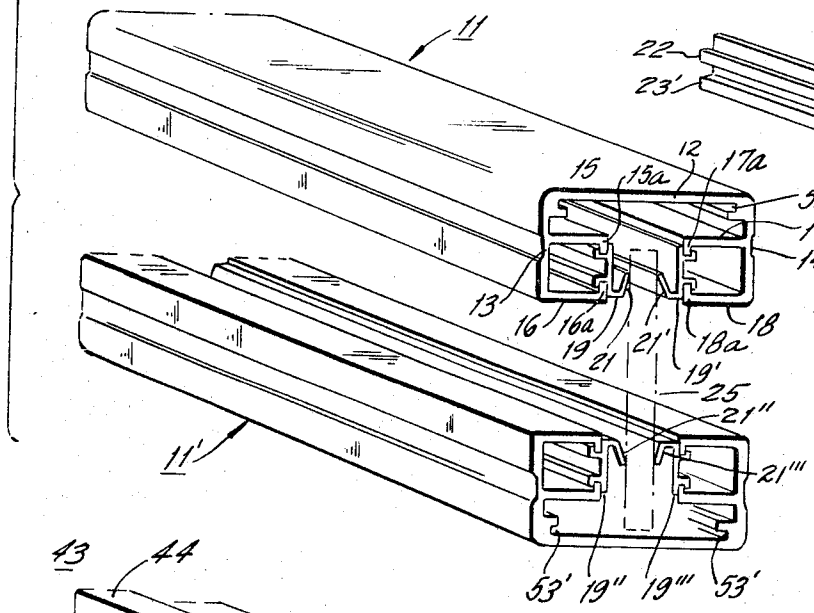


FIG. 1a.

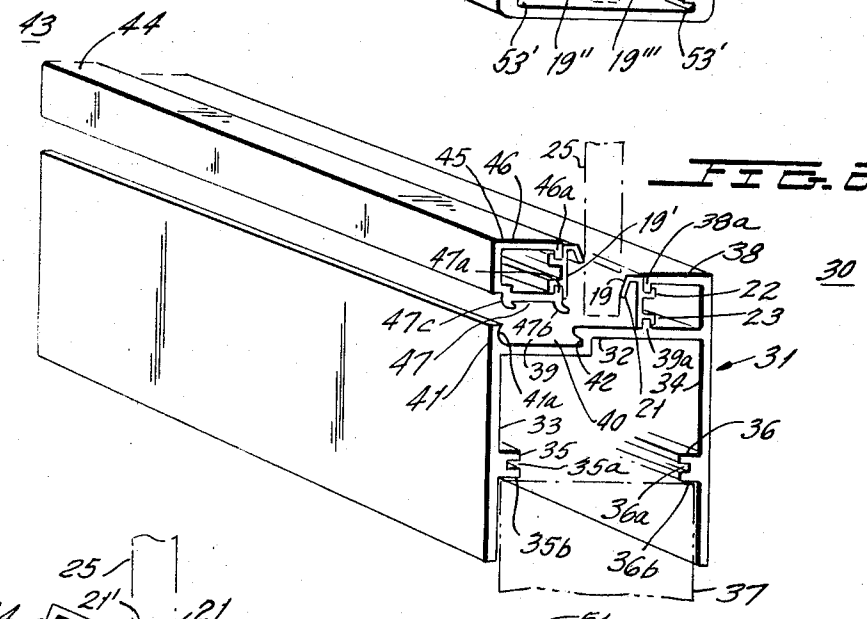


FIG. 2.

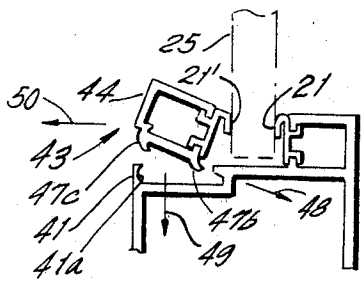


FIG. 2a.

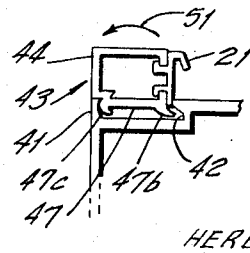


FIG. 2b.

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FIG. 3.

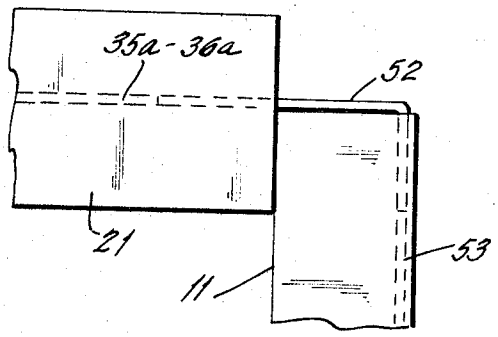


FIG. 5a.

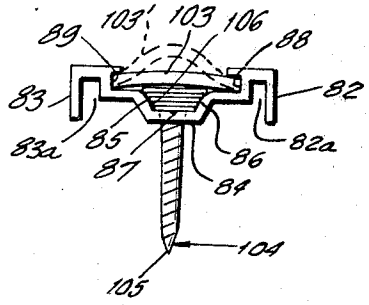


FIG. 5.

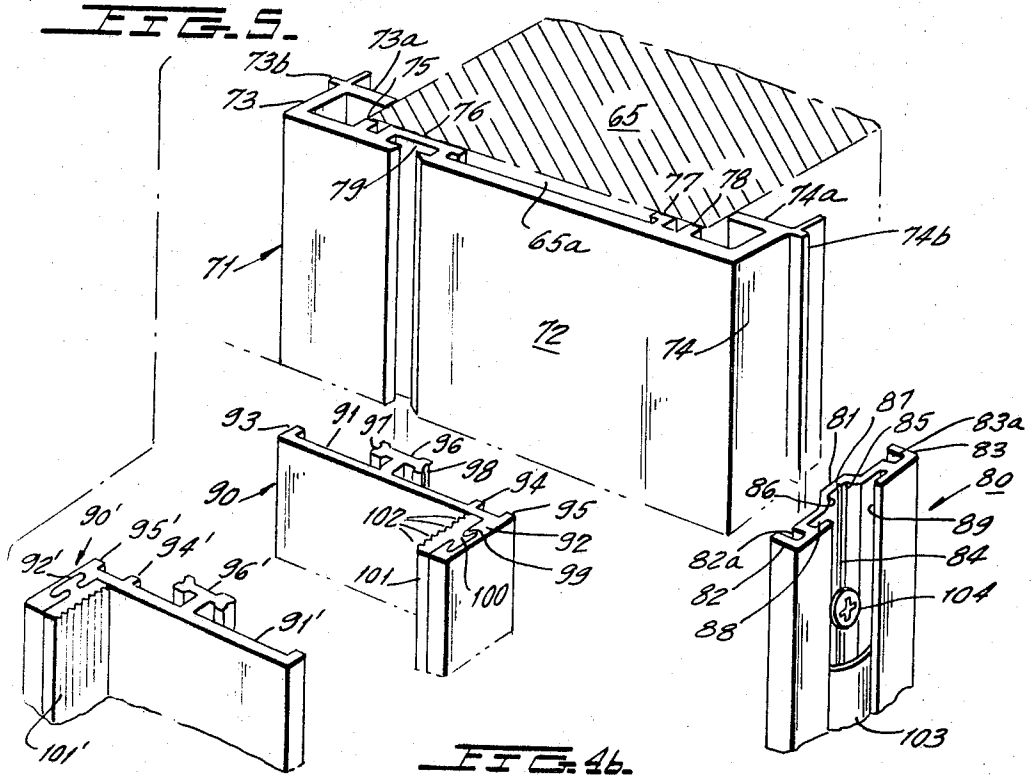


FIG. 4a.

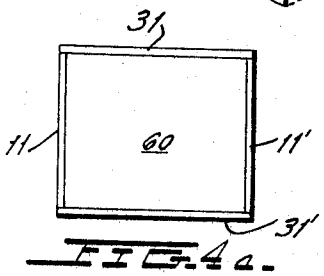


FIG. 4b.

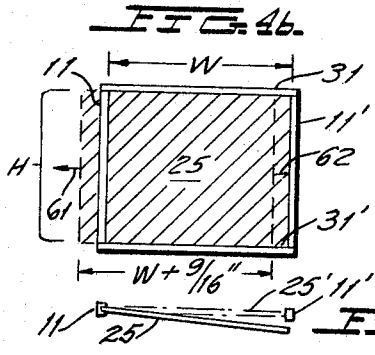
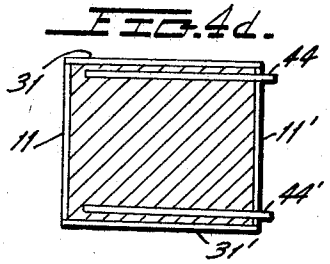


FIG. 4c.

FIG. 4d.



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FIG. 6.

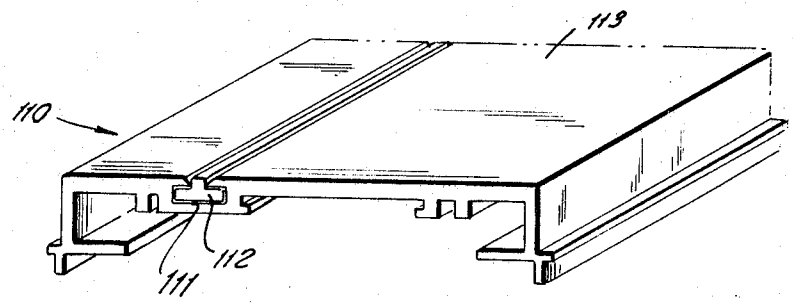
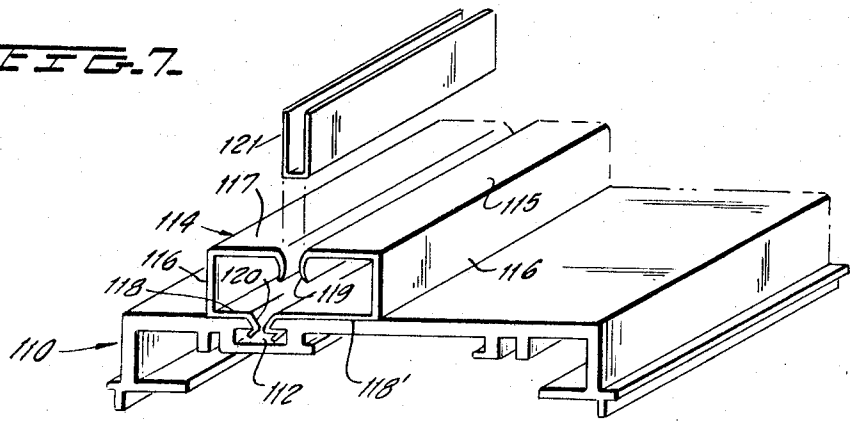


FIG. 7.



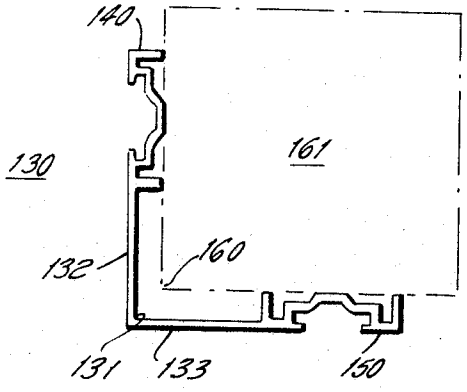


FIG. 8.

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3,423,897

FRAME ASSEMBLIES

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U.S. Cl. 52—502 8 Claims
Int. Cl. E06b 5/00

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 window pane. 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, filler or resilient strips; and batten strips embracing the margins of the channel for securing the channel to said stud or supporting member.

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 resiilent 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 hereinafter 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 hereinafter 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 it 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 overlie an associated one of the outwardly extending flange 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 pre-punched 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 1*a* 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 2*a* and 2*b* 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 4*a*, 4*b* and 4*d* are elevational views and FIGURE 4*c* 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 5*a* shows an end view of the batten strip assembly of FIGURE 5.

FIGURE 6 shows another manner in which the door frame 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 2*a* 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 similar inwardly extending flanges **17** and **18**, respectively. The free ends **15***a* and **16***a* of flanges **15** and **16** are turned inwardly toward one another, as are the free ends **17***a* and **18***a*, respectively, of the flanges **17** and **18** each forming a C-shaped configuration. 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 1*a*, 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 **15***a* and **16***a* 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 **17***a* and **18***a* 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 4*a*–4*d*.

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 **35***a* and **36***a* 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 **35***b* and **36***b* 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 **38***a*. A small projection **39***a* extends upwardly from central portion **32** in the direction of flange end portion **38***a*. The projections **38***a* 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 1*a*. 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., surfaces **41***a*, 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 aluminum 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 **46***a*. The lower arm **47** is provided with a first projection **47***a* extending vertically upward and which cooperates with the downward projection **46***a* 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 **47***b* and **47***c*, 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 2*a* so that the projecting portion **47***b* 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 **47***c* is in a position to be forced downwardly in the direction shown by arrow **49** so that the projection **47***b* becomes seated substantially within undercut groove **47** and so that the left-hand surface of projection **47***c* (relative to FIGURE 2*a*) bears against the arcuate surface **41***a* 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 **41***a* which embraces curved projection **47***c*. 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 2*b*, the curved projection **47***b* 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 **35***a*–**36***a* of the spacer assembly channel **31**. A tight fit may be provided by dimensioning the L-bracket **52** and the bracket receiving **53—53** and **35***a*–**36***a* 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 4*a*–4*d* 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 4*a* 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 4*b*, 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 2*b*. 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 an additional $\frac{9}{16}$ 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 4*b* and sliding it horizontally in the direction shown by arrow **61** until its

right-hand edge (relative to FIG. 4*b*) enters into the region between the exible strips **19** and **19'**, for example, shown in FIGURE 1*a*. At the opposite jamb, a clearance of approximately ⅛ 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 ¼ inch of each of vertical marginal edges are embraced by the vertical jambs **11** and **11'**. FIGURE 4*c* further clarifies the operation shown in FIG. 4*b* 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. 2–2*b*. 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. 4*a*–4*d* 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 with inwardly and outwardly facing projections **73***a*–**74***a* and **73***b*–**74***b*, respectively. The inwardly facing projections act to embrace the marginal edges of a stud **65** which frames the door opening. The outwardly directed projections **73***b* and **74***b* cooperate with the 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 **65***a* of stud **65** so as to position the base portion **72** a spaced distance away from surface **65***a*. 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 slidingly 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 of 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 uncut 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 5*a* 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 5*a*.

A pair of channels **82***a* and **83***a* 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 **82***a* receives the projection **74***b* 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 5*a*. 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** is may be securely fastened by means of a screw driver (preferably having a Phillips 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, are appropriately tightened the channel **82***a* which embraces projection **74***b* 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 **73***b* provided in arm **73** of the door frame channel.

FIGURE 5*a* 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 therebetween and to substantially prevent deformation to the batten member **80** when the screw members are securely tightened. Providing the sloping walls **85** and **86** with sub-

stantially 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 apperance 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 $3/16''$–$1/4''$. 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 $3/16''$ and $1/4''$.

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 5*a* 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 8.

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. Therefore, this invention is to be limited, not by the specific disclosure herein, but only by the appending claims.

What is claimed is:

1. In a window frame assembly of substantially rectangular configuration, the improvement comprising:
- at least one side of said frame being an elongated spacer member;
- first and second resilient gasket means each having a first resilient flange extending from a body portion forming a J-shaped configuration;
- said spacer member having a first C-shaped channel receiving one of said gasket means each of which is provided with a pair of grooves in opposite edges of the body portion to be slidably engaged with the marginal edges of said C-shaped channel;
- said first gasket means being aligned to engage one marginal edge of the window pane received by the frame assembly;
- rigid stop means having a second C-shaped channel for slidably receiving the first and second grooves of the remaining one of said gasket means;
- a recess provided in said spacer member a spaced distance from said first channel; said recess having an undercut groove along each wall of said recess;
- a pair of downwardly extending projection means on said stop means;
- the resilient flanges of said first and second gasket means being deformed by said window pane to firmly embrace the marginal edges of the window pane received by the window frame when each of said projection means is received by an associated undercut groove in said recess.

2. The assembly of claim **1** wherein said first and second resilient gasket means are placed under compression exerting a force tending to lift said stop means from said recess;
- the undercut groove on the one side of said recess furthest removed from said window pane being provided with a curved undercut groove abutting said projection means to restrain said stop means from being lifted from said recess.

3. The assembly of claim **2** wherein said first projection means slopes toward the undercut groove closest to said window pane.

4. The assembly of claim **2** wherein said first projection means slopes toward the undercut groove closest to said window pane;
- said second projection being arranged a spaced distance from said first projection;
- said recess having a slightly undercut wall abutting said second projection to retain said stop means in the assembled position.

5. A window frame comprised of four spacer members of the type described in claim **1**.

6. The assembly of claim **1** wherein another side of said frame is comprised of a recess spacer channel having a pair of arms;
- second and third J-shaped gasket means slidably re-

ceived by said arms and having single flanges positioned to face one another and being deformed by the window frame to firmly embrace the marginal edges of the window pane positioned within the frame;

the deformation of said gasket means flanges receiving the window pane providing frictional engagement therebetween.

7. The assembly of claim 6 wherein said gasket means are each comprised of a substantially J-shaped plastic strip;

each of said channel arms and said spacer channel having a C-shaped recess;

one arm of said plastic strip having a pair of outwardly flaring projections being embraced by an associated C-shaped recess;

said plastic strips being assembled by endwise insertion into an associated recess;

the remaining arm of said strip being shorter than said one arm and resiliently engaging the window pane.

8. A window frame comprised of two parallel spacer members joined substantially at right angles by two recessed spacer channels wherein said spaced members and

said recessed spacer channels are of the type described in claim 6.

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