March 28, 1967 J. H. BELL ETAL 3,310,920

DOOR PANEL ASSEMBLY

Filed Jan. 18, 1965 5 Sheets-Sheet 1

Fig. 1

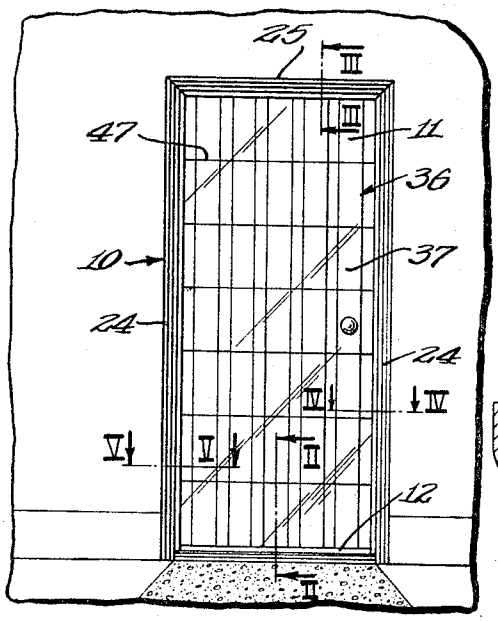


Fig. 5

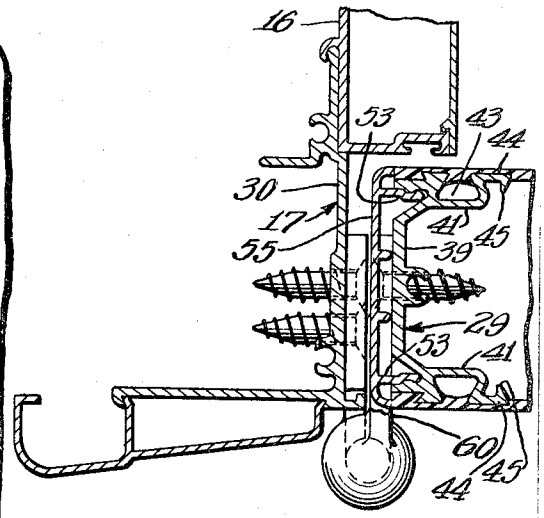
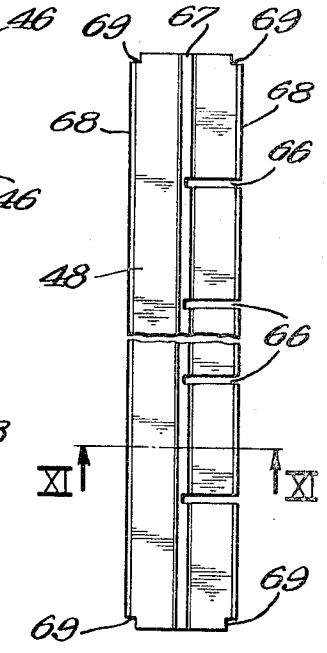


Fig. 10



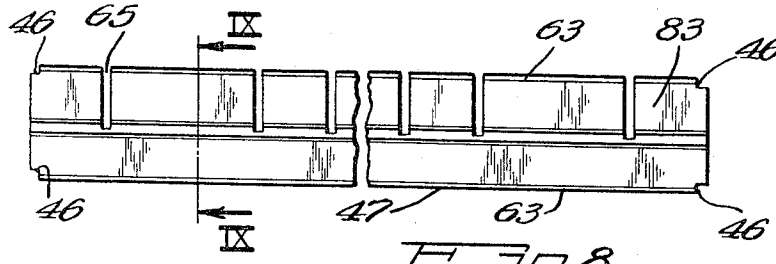
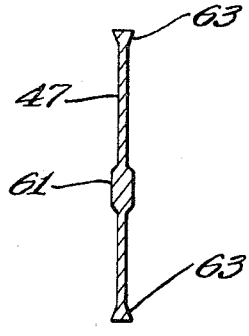


Fig. 8



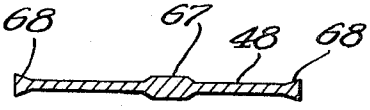


Fig. 11

Fig. 9

INVENTORS

John Harold Bell

Everett E. Daniels

BY Hill, Sherman, Meroni, Gross & Simpson ATTORNEYS

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DOOR PANEL ASSEMBLY

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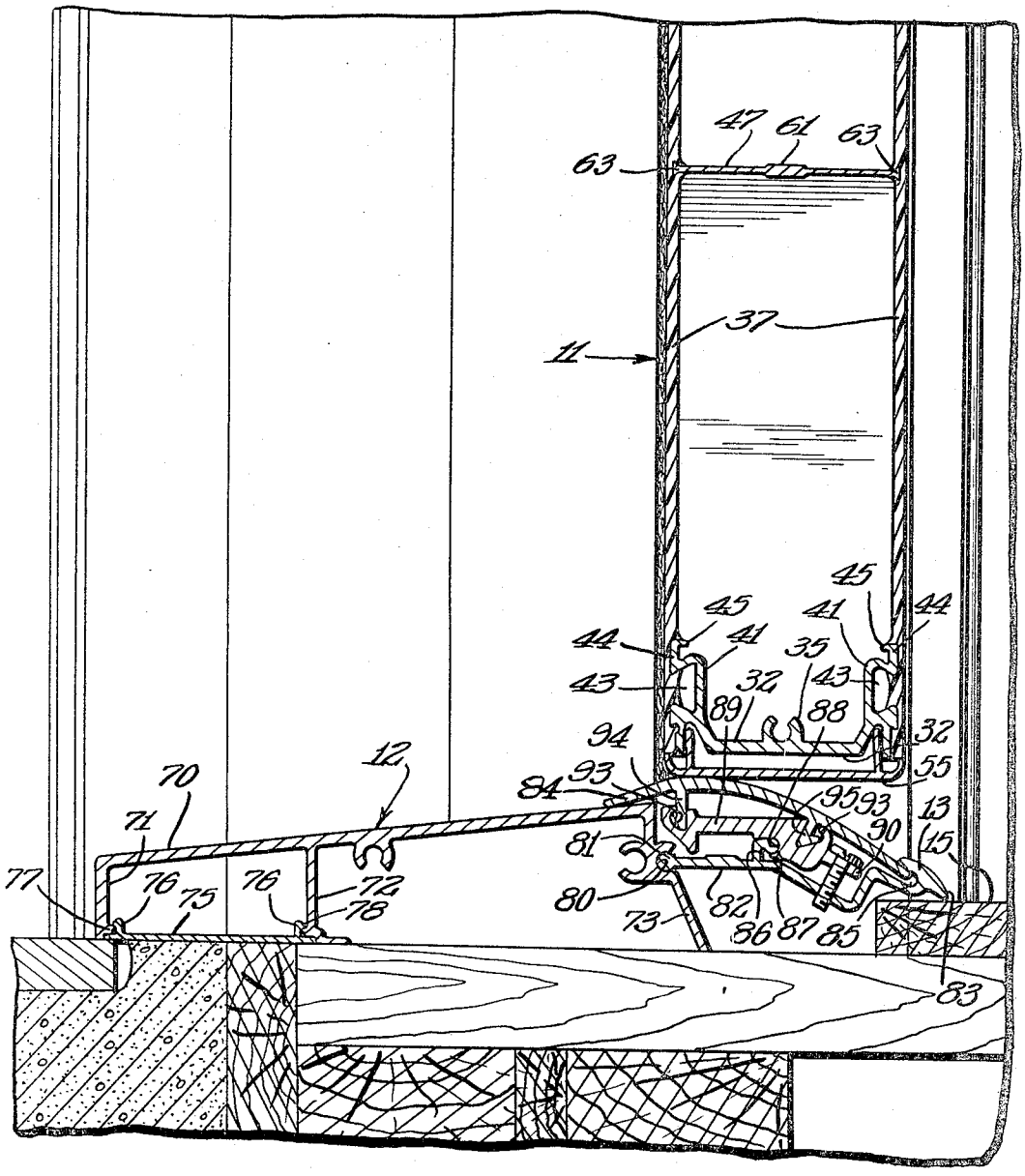


Fig. 2

INVENTORS
John Harold Bell
Everett E. Daniels

BY Hill, Sherman, Meroni, Gross & Simpson ATTORNEYS

March 28, 1967 J. H. BELL ETAL 3,310,920

DOOR PANEL ASSEMBLY

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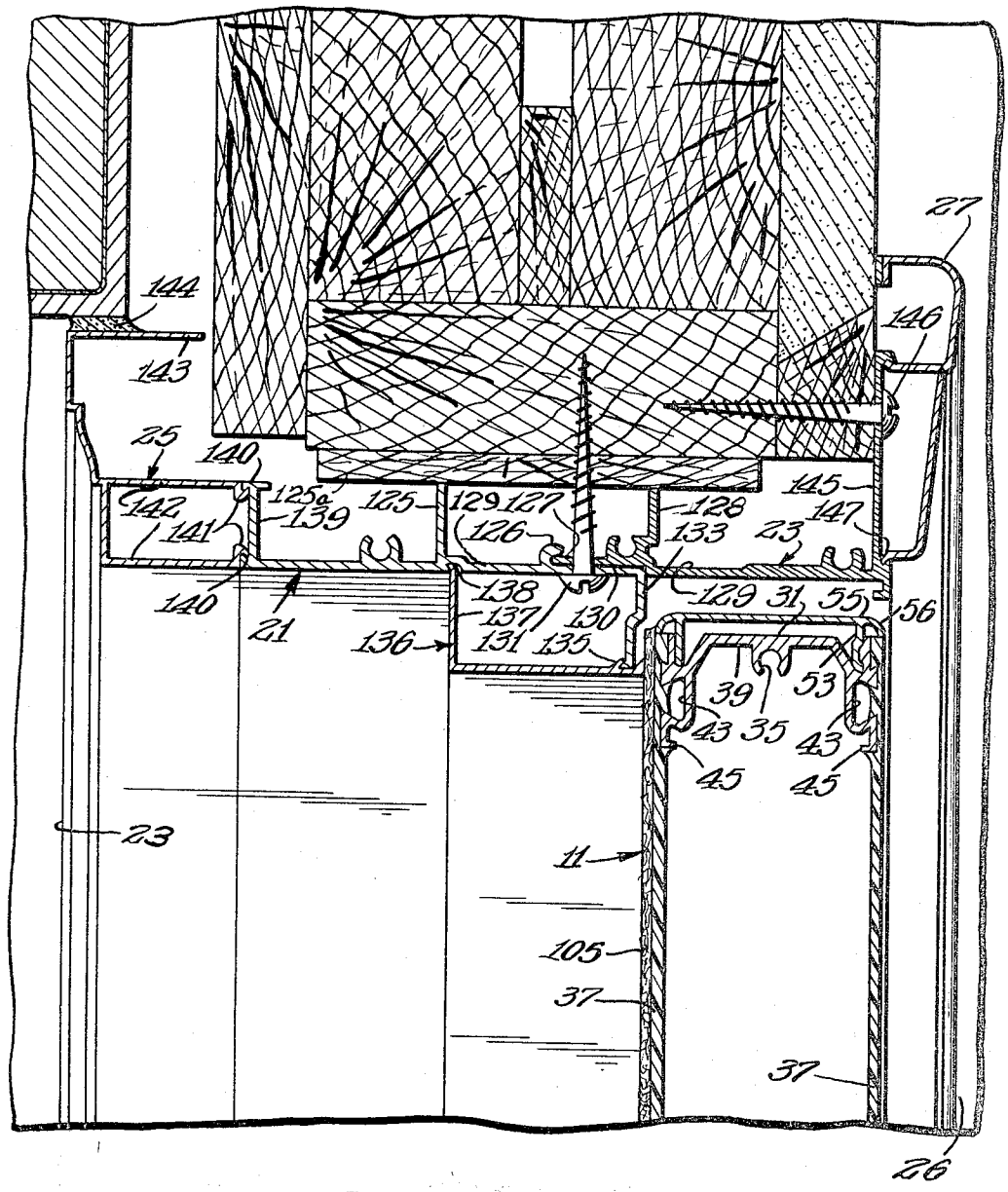


Fig. 3

INVENTORS
John Harold Bell
Everett E. Daniels

BY Hill, Sherman, Meroni, Gross & Simpson ATTORNEYS

March 28, 1967 J. H. BELL ET AL 3,310,920

DOOR PANEL ASSEMBLY

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Fig. 4

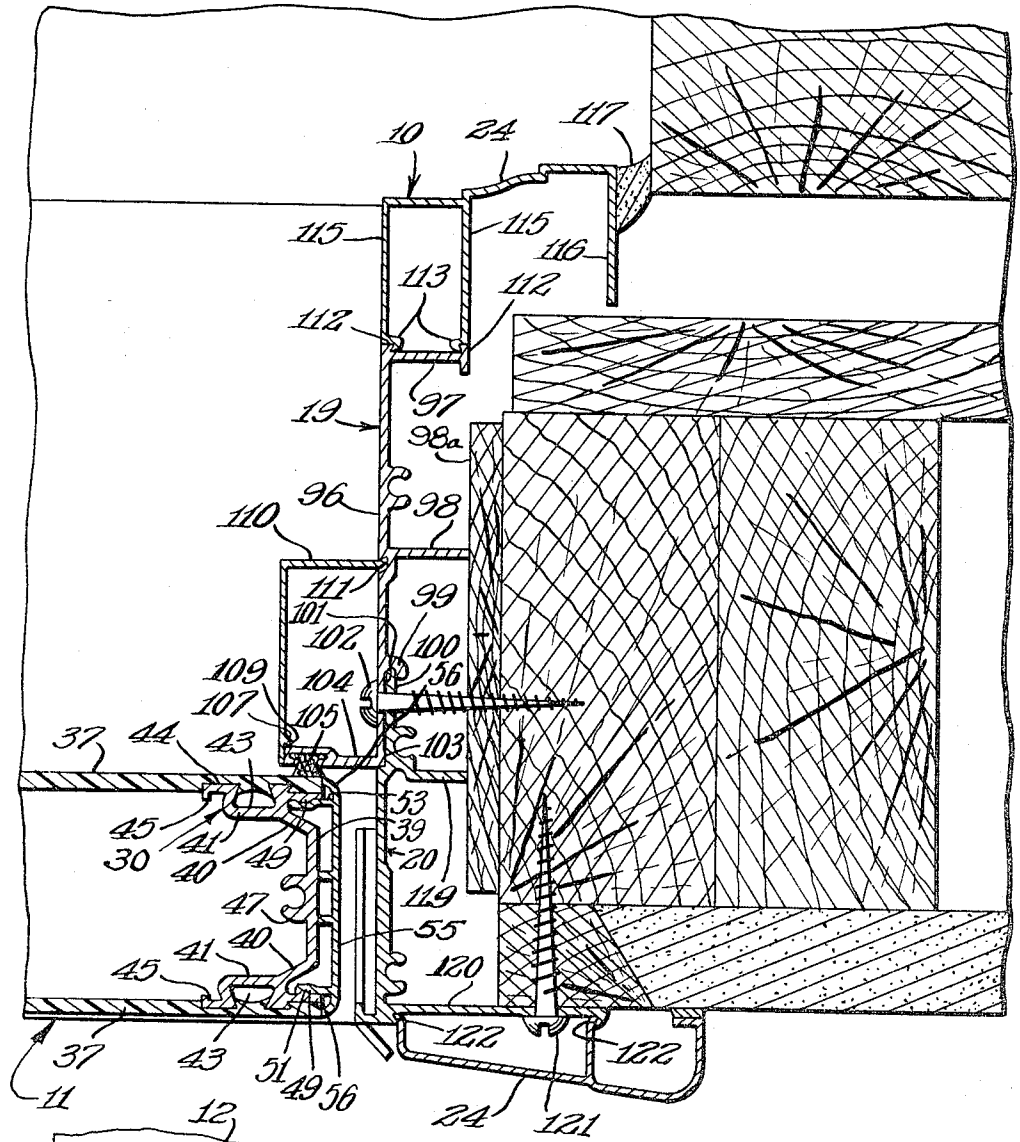
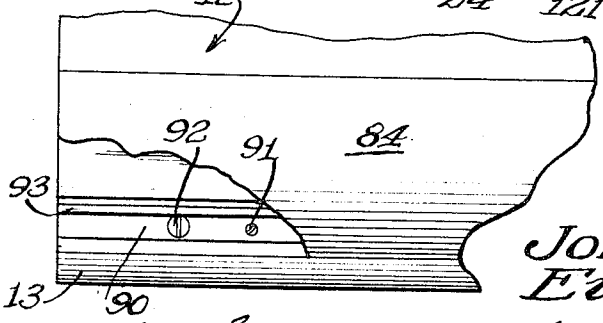


Fig. 2a



INVENTORS

John Harold Bell

Everett E. Daniels

BY Hill, Sherman, Meroni, Gross & Simpson ATTORNEYS

March 28, 1967 J. H. BELL ETAL 3,310,920

DOOR PANEL ASSEMBLY

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Fig. 6

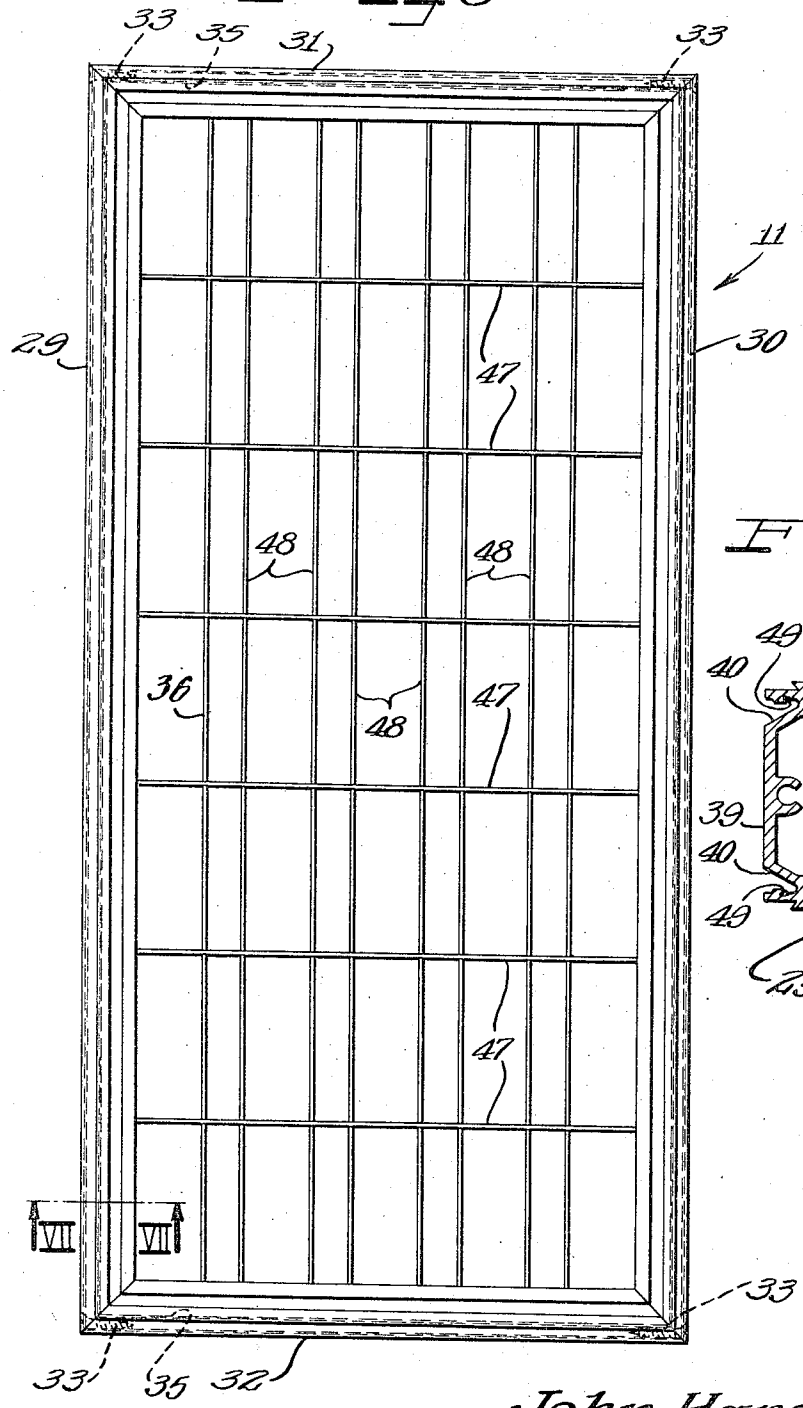
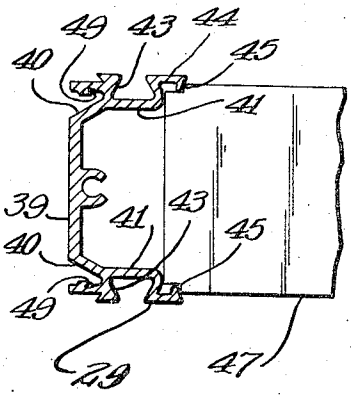


Fig. 7



INVENTORS

John Harold Bell

Everett E. Daniels

BY Hill, Sherman, Meroni, Gross & Simpson ATTORNEYS

United States Patent Office 3,310,920 Patented Mar. 28, 1967

3,310,920

DOOR PANEL ASSEMBLY

John Harold Bell and Everett E. Daniels, Litchfield, Ill., assignors to The Weather-Proof Company, Litchfield, Ill., a corporation of Ohio

Filed Jan. 18, 1965, Ser. No. 426,189
4 Claims. (Cl. 52—309)

This invention relates to improvements in closure panels and more particularly relates to an improved form of door panel assembly.

Another object of the invention is to provide an improved form of door panel assembly arranged with a view toward utmost simplicity and efficiency in construction and operation.

A still further object of the invention is to provide an improved form of closure panel for door-ways and the like in which plastic panels are mechanically bonded to the closure frame assembly by pressing the closure frame assembly on a semi-liquid plastic panel before it has "set-up," and so arranging the closure frame assembly as to have an interlocking connection between the assembly and panels as the panels harden.

A further object of the invention is to provide a door panel assembly having translucent panels in which the panels are spaced apart by a core and are interlocked with the core and the door frame assembly by the fluidity of the material of the panels when hot, and providing a mechanical and adhesive bond with the door frame assembly by cooling of the panels.

A still further object of the invention is to provide an improved form of prefabricated light weight panel particularly adapted for doors and the like, having a rectangular frame assembly and core bounded by the assembly and secured thereto, in which the core and assembly have diverging end portions providing mechanical interlocking means for interlocking engagement with translucent plastic panels, to form an integral translucent panel structure.

A further object of the invention is to provide an improved form of door structure having a frame and a metal core with translucent fiberglass panels bonded thereto by the fluidity of the panels when hot.

A still further object of the invention is to provide a novel form of panel, in which the trim covers the exterior edges of the panel and is retained thereto by snapping or pounding the trim on the panel.

These and other objects of the invention will appear from time to time as the following specification proceeds and with reference to the accompanying drawings wherein:

FIGURE 1 is a front end view of a pre-hung door frame and door panel installed in an opening of a building looking at the frame and door panel from the outside of the building;

FIGURE 2 is a sectional view taken substantially along line II—II of FIGURE 1 and showing the lower portion of the door panel, frame and threshold in transverse section;

FIGURE 2*a* is a fragmentary detail plan view with certain parts broken away in order to show the adjustment means for the cover for the inside threshold to conform the cover to the door;

FIGURE 3 is a transverse sectional view taken substantially along line III—III of FIGURE 1, and forming in effect a vertical continuation of FIGURE 2 and showing the top half of the door panel and frame in transverse section;

FIGURE 4 is a partial fragmentary horizontal sectional view taken through the latch stile end of the door panel and frame substantially along line IV—IV of FIGURE 1;

FIGURE 5 is a partial fragmentary horizontal sectional

view taken through the hinge stile end of the panel and frame with the frame structure for the door opening broken away, and showing certain details of the hinge and frame structure;

FIGURE 6 is a plan view of the panel frame, and core with the panels removed;

FIGURE 7 is a fragmentary sectional view taken substantially along line VII—VII of FIGURE 6 and illustrates a connection of a core member to the panel frame;

FIGURE 8 is a plan view of one of the horizontal core members;

FIGURE 9 is a transverse sectional view taken substantially along line IX—IX of FIGURE 8;

FIGURE 10 is a plan view of one of the vertical core members; and

FIGURE 11 is a transverse sectional view taken substantially along line XI—XI of FIGURE 10.

In the embodiment of the invention illustrated in the drawings, we have generally shown in FIGURE 1 a door frame **10** mounted in a door opening in a building and having a panel **11** hinged thereto, to provide access to the interior of the building.

The door frame **10**, as shown in FIGURES 2, 3, 4 and 5, is made in exterior and interior parts with a thermal barrier therebetween and includes generally an exterior threshold **12** leading generally to the door panel **11** and an inside threshold **13** forming a continuation of the exterior threshold and having engagement at its inner end with a floor **15** of the room. The door frame **10** also includes an exterior jamb **16** and an interior hinge jamb **17** forming a rear or inner continuation thereof and extending vertically along one side of the opening of the building (FIGURE 5). A similar exterior jamb **19** extends vertically along the opposite side of the building and has an interior latch jamb **20** forming an inner continuation thereof.

The exterior jambs **16** and **19** are connected together at their upper ends by an exterior head **21**. The interior jambs **17** and **20** are connected together at their upper ends by an interior head **23**. The exterior jambs **16** and **19** are of a similar construction and have exterior trim **24** snapped thereto, as will hereinafter more clearly appear as this specification proceeds. In a similar manner the exterior head **21** has trim **25** snapped thereto and extending across the top of the door opening. The interior jambs **17** and **20** also have trim **26** snapped thereto, while the interior head **23** has trim **27** snapped thereto. The adjacent ends of the vertical trim and the horizontal trim are chamfered at angles of 45°, to join the jamb and head trim and effect a pleasing door frame appearance.

The door panel **11** includes generally a hinge stile **29** and an opposite parallel latch stile **30**. The stiles **29** and **30** are connected together at their upper and lower ends by top and bottom rails **31** and **32**, respectively. The adjacent ends of the stiles and rails are shown as being beveled at angles of 45° to provide an abutting rigid rectangular frame. Screws **33**, which may be wood screws threaded in inwardly opening bosses **35** (FIGURES 2 and 3) extending along the insides of the rails **31** and **32**, are provided to hold the rails and stiles in assembled relation with respect to each other. The stiles **29** and **30** and rails **31** and **32** extend about an interlocking core **36**, which may be made from metal, such as aluminum, and which engages said stiles and rails, as will hereinafter more clearly appear as this specification proceeds. The core **36** forms a core for plastic panels **37**, **37** extending along opposite sides thereof and along the outer sides of the stiles and rails.

The panels **37** may be made from any suitable plastic material, and preferably may be made from a translucent plastic material, one such suitable translucent plastic being known to the trade as "fiberglass."

The stiles 29 and 30 and the rails 31 and 32 are of the same cross section so the detailed structure of the hinge stile 29 only, need be described herein, and like reference numerals will be applied to like parts of the stiles and rails. As shown in FIGURE 7, the stile 29 is generally channel-like in cross section and has a vertically extending web 39 facing the hinge jamb. The web 39 has opposite angular end portions 40, 40 extending angularly outwardly of the web and terminating into generally parallel leg portions 41, 41 extending perpendicularly to the web. The leg portions 41 extend forwardly and rearwardly of the inclined end portions 40, 40 and form interlocking connections for the plastic panels 37.

The inwardly extending leg portion 41 has an outwardly opening slot 43 extending therealong for the length thereof. The slot 43 diverges from its outer side, to form a generally dovetail shaped slot to be partially embedded in an associated panel 37 when the panel is in a liquid or semi-liquid form and provide a mechanical interlock with said panel upon hardening of the panel. The portion of the leg 41 extending inwardly of the slot 43 toward the center of the panel, in effect forms a generally dovetail tongue 44 terminating into an inwardly extending rib 45 defining the inner end of the leg 41 and extending for the length thereof. The rib 45 is adapted to extend along the wall of a notch 46 of a horizontal core section 47, it being understood from FIGURE 8 that the core sections 47 have notches opening at the corners of opposite sides thereof and at opposite ends thereof, to form a guide means for said core sections, when assembled to the stiles 29 and 30 and the rails 31 and 32.

The portions of the legs 41 extending toward the outer side of the panel have inwardly facing hook-like ribs 49 on the insides thereof, facing the inclined portions 40 of the channel and extending for the length of the channel to have interengagement with outwardly facing slots 51 formed in parallel retaining legs 53, extending inwardly of a cover 55 for the stile 29.

As shown in FIGURE 4 the cover 55 extends across the edge of the stile and has inwardly curved end lips 56 abutting the ends of the panels 37. The cover 55 may thus be snapped to the stile 29. Similar covers 55 are provided for the top rail 31, the stile 30 and the bottom rail 32.

The latch stile 30 may be drilled in a suitable manner to form a mounting for a latch (not shown) and to have a latch bolt (not shown) project therethrough. In a similar manner the latch stile cover 55 may have a suitable opening therein to allow the latch bolt (not shown) to project therethrough into engagement with a keeper (not shown) in the interior jamb 20.

The hinge stile 29 may be suitably drilled to form a mounting for hinges 60, 60. The hinges 60, 60 may be of a conventional form and are no part of the present invention so need not herein be shown or described further. The cover 55 for the hinge stile may be slotted (not shown) to receive the hinges and to accommodate the cover to be snapped to the stile.

The interlocking core 36 may be of any desired design, which will fill the space within the stiles and rails and rigidify the panels 37, 37 and present a pleasing appearance through the translucent panels. The core 37, as shown in FIGURES 6 and 8 to 11 inclusive comprises a plurality of parallel horizontal core sections or strips 47 and a plurality of parallel interlockingly engaged vertical core sections or strips 48. The core sections 47 and 48 may be made from aluminum extrusions. The core section 47 is shown in FIGURES 8 and 9 as having a thickened central portion 61 forming a rigidifying rib extending to opposite sides of the section for the length thereof. The core section 47 also has opposite outwardly flared end portions 63, generally dovetail in form to be pressed into engagement with the semi-liquid panels 37 and to interlock with said panels upon hardening thereof. The core sections 47 also have a plurality of parallel slots 65 extending therein from the side thereof and of widths slightly larger than the widths of thickened portions 67 of the vertical core strips 48, to accommodate the vertical core strips to be moved into interlocking engagement with the horizontal core sections along slots 66 of the vertical core sections, and extending along opposite sides of the thickened portions 61 of the horizontal core sections.

The vertical core sections 48 like the horizontal core sections 47 have opposite outwardly flared end portions 68 of a generally dovetail formation, to be pressed into the semi-liquid panels and form an interlocking connection therewith, upon hardening of the panels. The verrtical core sections 48 also have corner notches 69 at the corners of opposite ends thereof, adapted to have engagement with ribs 45 extending along the insides of the legs of the rails of the channels.

Upon assembly of the rails, stiles and core, the panel frame may be lowered onto a semi-liquid plastic panel and pressed thereinto by the weight of the panel frame. The plastic panel may then be allowed to harden to provide an interlocking connection between the panel frame and core, and the plastic panel, as shown in FIGURES 2, 3, 4 and 5. The panel frame with one plastic panel secured thereto may then be raised and turned upside down and lowered onto another semi-liquid plastic panel 37 in accurate alignment therewith. The second plastic panel may then be allowed to harden, to interlock the panel with the panel frame and core. The excess plastic may then be trimmed to the door frame.

The covers 55, properly mitered to give a pleasing appearance at the corners and notched to receive the hinges and a latch, are then snapped into place around the perimeter of the panel. The door panel is then ready for assembly to the door frame 10 in a conventional manner, it being understood that the door panel may be hung to the inner door frame, and the frame and threshold, with the door panel assembled thereto, may be shipped for installation in the form of a pre-hung assembly.

The threshold is shown in FIGURE 2 as comprising the outside threshold 12 and the inside threshold 13 forming an inside continuation thereof and adapted for use on varying heights of inside and outside floors, to make it possible to use the threshold for solid types of doors which cannot be planed.

The outside threshold 12 is in the form of a floor or tread plate 70 mounted on a plurality of spaced supporting legs 71, 72 and 73. In the form of the invention shown, the legs 71, 72 and 73 place the floor plate 70 at a relatively flat upwardly inclined angle toward the door to enable water to drain away from the door. The outside threshold 12 is mounted at its forward end on a plate 75 having spaced outwardly facing gibbed retainer guides 76 extending along opposite sides thereof to receive inwardly extending ribs 77 and 78 of the respective legs 71 and 72. The plates 75 may be screwed to the floor and the legs 71 and 72 may be snapped to engage the ribs 77 and 78 with the outwardly gibbed retainer guides 76, 76.

The rear leg 73 has a rearwardly opening semi-cylindrical socket 80 extending therealong and engaged by the semi-cylindrical end 81 of a plate 82 of the inside threshold 13. As shown in FIGURE 2, the plate 82 is of a modified Z shape in form and extends from the outside threshold 12 to the floor 15 and has an adjustable tread end 83 resting on the floor. The tread end 83 extends from the floor over the inner end of the plate 82 and with said plate forms a groove 85, to receive the end of a pliable plastic cover 84, which forms a thermal barrier and weatherstrip between the outside and inside threshold and the door panel. The plate 82 also has an upwardly projecting rib 86 extending upwardly therefrom intermediate its ends and extending for the length thereof transversely of the door frame and terminating in a rearwardly or inwardly extending rounded bead 87 engageable within a socket 88 formed in an adjustable inside cover support 89. The inside

cover or thermal barrier support **89** is adjustably mounted on the plate or mounting member **82** and has a ledge **90** projecting therefrom, toward the floor **15** and extending for the length of the threshold.

Spaced adjustment screws **91** are threaded in the ledge **90** and engage the plate **82** to adjust the cover support **89** and cover supported thereon. Spaced locking screws **92** loosely pass through the ledge **90** and are threaded in the plate **82** to lock the cover support **89** and cover and thermal barrier **84** in place.

The cover support **89** has two parallel spaced upwardly opening gibbed grooves extending therealong. The gibbed grooves form retaining mountings for the hook-like ends of legs **94** and **95** depending from the cover or thermal barrier **84**. The adjustable cover support **89** may thus retain the cover and thermal barrier **84** in adjusted position with respect to the inside threshold **13**, and may adjust said cover and thermal barrier to seal the bottom of the door panel **11**.

The outside threshold **12**, the inside threshold **13** and the adjustable cover support **89** may be made from aluminum extrusions while the cover and thermal barrier **84** may be made from a vinyl material having sufficient flexibility to readily conform to the angle of the outside threshold **12** after adjustment of the support **89** in accordance with various levels of the floor **15** with respect to the plate **70** of the outside threshold **12**, to enable the door to readily fit in its frame without necessitating alteration or planing of the door panel. The threshold is also so formed, that all adjustment and mounting screws are hidden after installation and adjustment of the cover **84**.

The entrance frame may be used with any form of door and includes an exterior frame formed from the exterior jambs **16** and **19** and the head **21** connecting the jambs together, and an interior frame formed from the interior jambs **17** and **20** and interior head **23**. The interior and exterior jambs and heads may be made from aluminum extrusions and may have a thermal barrier therebetween.

The exterior jambs **16** and **19** are of the same construction, so the same part numbers will be applied to each jamb and one only need herein be shown and described in detail. The exterior jamb **19**, as shown in FIGURE 4, includes a plate section **96** having a front leg **97** extending inwardly therefrom toward the wooden or masonry framework of the door opening, and shown as being spaced therefrom. An intermediate leg **98** extends inwardly from the plate **96** into engagement with a shim **98***a* used for squaring the door in the opening and spaced between the metal jamb and the framework of the door opening. The undersurface of the plate **96** has a rearwardly or inwardly facing gibbed guide **99** extending vertically therealong to receive the forward or outer end of a plate section **100** of the interior jamb **20**. As shown in FIGURE 4, a strip of thermal barrier tape **101** is interposed between the inner or underside of the plate **96** and the adjacent side of the plate **100**. The interior and exterior jambs may then be riveted or otherwise secured together. Screws **102** are shown as extending through the plates **96** and **100** to secure the jambs to the framework of the building. The plate **96** extends inwardly along the plate **100** to a shoulder **103** formed therein, and has a right angled leg **104** extending toward the door panel **11**, but spaced outwardly therefrom and parallel thereto, when the door panel is in its closed position.

The leg **104** has a gibbed slot **105** extending vertically therealong and opening toward the door panel and forming a mounting for a thermal barrier, which may be a wool pile or vinyl barrier. The leg **104**, therefor, in effect forms a door stop and support for insulating material extending between the door frame and door. The leg **104** has a hook-like rib **107** extending along its extreme inner end and facing the front of the frame and adapted to be engaged by a hook-like recess formed by an inwardly extending inclined rib **109** extending along the inner side of a door stop **110**. The door stop **110** is generally in the form of an angle and has a right angled forward leg adapted to be snapped into engagement with a groove **111** in the plate **96** and extending vertically therealong. The door stop **110** may thus readily be snapped in position, after the door frame has been installed into the framework of the door opening, and hides the attaching screws and also adds support to the weather-stripped door stop **104**.

The leg **97** has parallel spaced ribs **112** extending therealong and facing toward the front of the building. The ribs have inclined hook-like inner faces adapted to be engaged by hook-like end portions **113**, **113** of legs **115**, **115** of the exterior trim **24**, to accommodate the exterior trim **24** to be pounded or snapped into engagement with the jamb **19**, upon assembly of the jamb to the framework of the door.

The front face of the exterior trim **10** may be of various desired forms, to provide a utilitarian trim having a pleasing appearance and to conceal the framework of the door opening, or to span the opening between the inner and outer courses of a masonry wall. The front frame of the trim **24** has an inwardly extending right angled leg **116** sealed to the opening of the building, as by a suitable caulking compound, indicated generally by reference character **117**.

The interior jamb **20** has an inner leg **119** extending inwardly therefrom to the framework of the door opening and forming a spacer for the plate **100**, and to support the door frame rigidly in place when screwed down against the shims **98***a*. The jamb **20** also has a right angled leg portion **120** extending along the inner side of the wooden framework of the building and secured thereto by screws **121**. The leg portion **120** has retaining recesses **122** extending therealong and diverging as they extend toward the leg portion **120**, and forming snap on retainers accommodating the interior trim **27** to be snapped or pounded into engagement therewith in a manner similar to which the exterior trim **24** is snapped into engagement with the exterior jamb **19**.

The exterior head **21** is similar in cross section to the exterior jamb **19** and has an intermediate upwardly extending spacer leg **125** engaging the underside of the framework of the door opening and an inwardly facing retainer gib **126** adapted to be engaged by the forward end portion **127** of a plate **129** of the interior head **23**. A strip of thermal barrier tape **130** may be interposed between the underside of the plate **127** of the interior head and a plate **129** of the exterior head.

The exterior head **21** has a downwardly extending leg **133** having a hooked end portion adapted to engage within an inclined hook-like rib **135** extending along the inside of a horizontally extending door stop **136**. The door stop **136** has a front leg **137** snapped into a groove **138** extending along the exterior head **121** and opening toward the ground. The exterior head **21** also has a front vertically extending leg **139** extending inwardly toward the framework of the door opening and having spaced interlocking hook-like ribs **140**, **140** extending therealong and adapted to have interlocking engagement with hook-like ends **141** of parallel legs **142** of the exterior head trim **25**. The exterior head trim **25** may be like the exterior jamb trim **24** and has an inwardly extending leg **143** caulked to the door opening as by caulking compound **144** after the frame has been secured in place in the door opening.

The interior head **23** is also like the interior jamb **20** and has a vertically extending leg **128** engageable with a shim **125***a* and an inner vertically extending leg portion **145** extending along the inside of the framework for the building. The interior head trim **27** is snapped to facing diverging retaining grooves **147** extending along the inside of the leg portion **145** in the same manner the interior trim is pounded or snapped into engagement with the interior jambs.

In assembling the door frame, the interior and exterior frame sections may each be pre-assembled. Insulating or heat barrier tape **101** may be placed along the outer surface of the plate **100** along the outer end portion thereof. Insulating or heat barrier tape **130** may also be placed along the outer surface of the plate **127**. The interior and exterior frame sections may then be drawn together, with the plate **100** engageable within the gibbed guide **99** and the heat barrier tape between the plates **100** and **96**, and with the plate **127** engageable within the gibbed guide **126** and the heat barrier tape **130** between the plates **127** and **129**.

When the interior and exterior frame sections have been drawn together they may be retained in connected relation with respect thereto, as by machine screws or rivets in alignment with the screws **102** and **131**. The assembled interior and exterior frame sections may then be screwed or otherwise secured to opposite sides of the threshold, to form a unitary door frame. The door panel may then be assembled to the frame and the frame and panel may be suitably packed and shipped to a building site, with the trim separate from the frame, to be snapped onto the frame after the frame is level and securely fastened to a door opening in a building.

The assembled frame with the threshold either with or without the door panel, may then be placed in a door opening of a building. Shims **98***a* of the required thickness may then be placed under the legs **98** and **119**. Similar shims **125***a* may also be placed between the legs **125** and **128** and the framework of the doorway to level and space the head in the proper relation with respect to the framework of the doorway. When the framework is level with respect to the doorway, screws **102** are driven through holes in the preassembled inner and outer jambs and through the shims **98***a* into the rough opening of the building. Other screws **121** are driven through holes in the leg portions **120** of the interior jambs into the rough opening of the building. Similar screws **131** are driven through holes in the connected interior and exterior head between the legs **125** and **128** into the shim **125***a* and the rough opening in the building. Screws **146** are also driven through the leg portion **145** into the rough opening of the building.

The inside threshold **13** and cover support **89** may then be adjusted to the door and floor to accommodate free swinging movement of the door and to retain air from passing beneath the door, by removing the inner edge of the vinyl cover and thermal barrier **84** from the groove **85**. The locking screws **92** and adjustment screws **91** are then exposed. The locking screws **92** may then be loosened and the set or adjustment screws **91** may be turned until the cover support or thermal barrier **84** is in proper relation with respect to the door and floor, to seal the door when closed. Upon adjustment of the cover support **89** and cover and thermal barrier **84**, the locking screws **92** may then be tightened to lock the cover support **89** and cover **84** in place. The edge of the vinyl cover may then be replaced in the groove **85** extending along the inside threshold **13**.

Upon leveling and fastening the door frame and threshold to the door opening in the building, the inside of the door opening may be plastered and painted. The jamb stops **110** and the head stop **136** may then be snapped or pounded into position to conceal the screws **102** and **131**. The exterior trim **24** and **25** may then be pounded or snapped into position and caulked to the opening of the building. The interior trim **26** and **27** may then be snapped or pounded into place. The interior and exterior trim and the door stops, as well as the vinyl cover for the threshold, therefore, cover all fastening members, and are placed in position by a simple snapping action.

It may be seen from the foregoing that a new and improved closure panel has been provided, which may serve as a door or as a closure for any suitable opening, and that the panel itself is a rigid assembly having translucent front and rear panels rigidified by a core carried by the frame for the panels, and that the panels are mechanically bonded to the frame and core by pressing the frame and core onto the panels while the panels are in a semi-liquid form and allowing the panels to set or harden to form a mechanically bonded interlock between the panels, core and frame therefor.

While we have herein shown and described one form in which our invention may be embodied, it may readily be understood that various variations and modifications in the invention may be attained without departing from the spirit and scope of the novel concepts thereof.

We claim as our invention:

1. In a closure panel particularly adapted for doors and the like, a rectangular frame comprising:

a pair of parallel stiles and parallel top and bottom rails connecting said stiles together,

said rails and stiles being generally channel-like in cross section and each having a web and parallel legs extending inwardly of said web,

said legs each having an outwardly opening recess on each side thereof, extending therealong and diverging from the outer to the inner end thereof as it extends inwardly of the associated leg,

a metal core bounded by said stiles and rails and comprising a plurality of connected metal core strips connected together intermediate their ends and having notched end portions engageable within the channel-like surfaces of said stiles and rails and having opposite edges flaring outwardly for the lengths thereof to form generally dove-tail interlocking extremities,

and plastic panels having mechanical interlocking engagement with said stiles, rails and outwardly flared dove-tail formations of said core strips by applying said plastic panels to said stiles, rails and core strips in semi-liquid states and mechanically retaining said panels to said stiles, rails and core strips by hardening of said panels upon cooling.

2. A closure panel in accordance with claim **1**,

wherein the plastic panels are made from translucent fiberglass.

3. The structure of claim **1**,

wherein the core is in the form of a lattice-like grill including slat-like core strips having slots extending from one edge thereof toward the center thereof for engagement with associated slotted core strips,

and wherein the ends of the core strips extend between the legs of the channel-like connected rails and stiles.

4. The structure of claim **3**,

wherein the core includes a plurality of inter-engaged core strips extending in angular relation with respect to each other to form a lattice-like rigidifying grill,

wherein the core strips have rigidifying ribs extending longitudinally therealong to opposite sides of the strips, and have a plurality of parallel slots opening to the edges thereof and extending transversely thereof into said ribs and of a width to engage said ribs to form a rigid core of a lattice-like form.

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HARRISON R. MOSELEY, *Primary Examiner.*

KENNETH DOWNEY, *Examiner.*