Nov. 17, 1959 J. F. SHARP ET AL 2,913,046

SLIDING CLOSURE CONSTRUCTION

Original Filed July 17, 1958 3 Sheets-Sheet 1

FIG. 2.

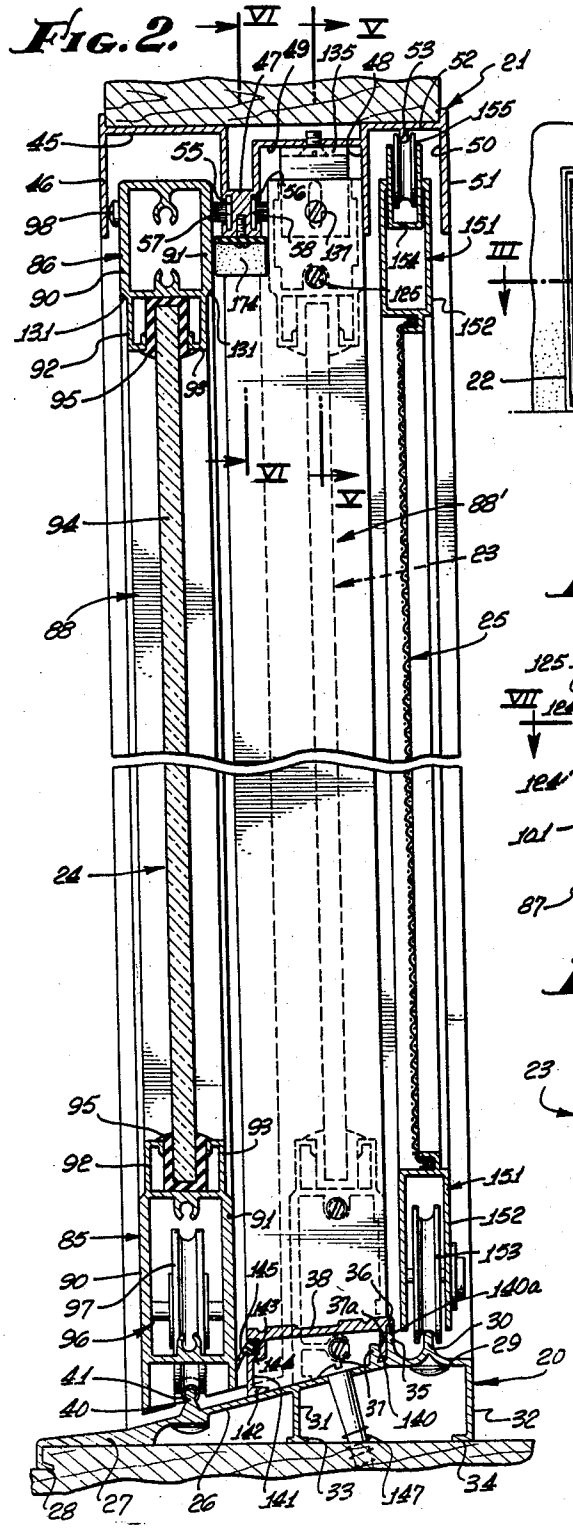


FIG. 1.

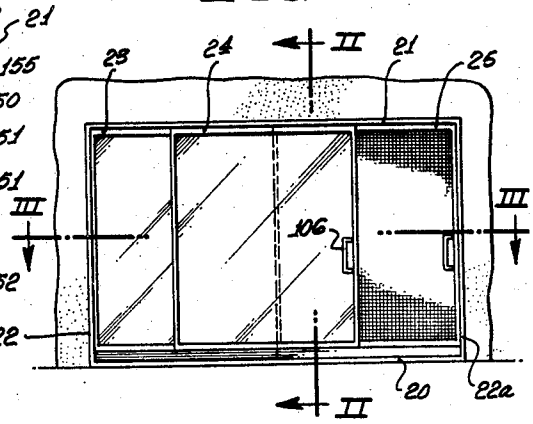


FIG. 7.

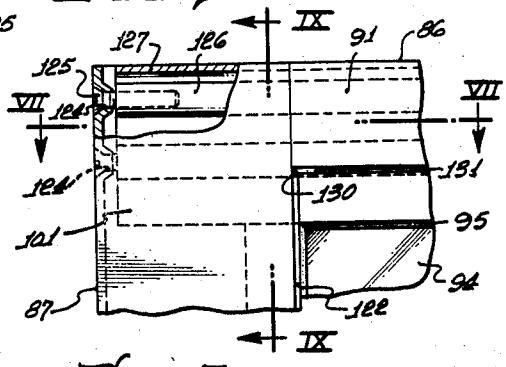
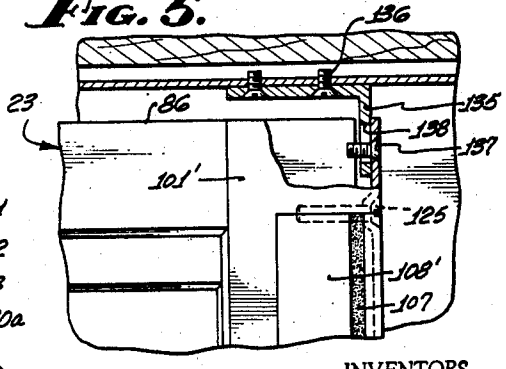


FIG. 5.



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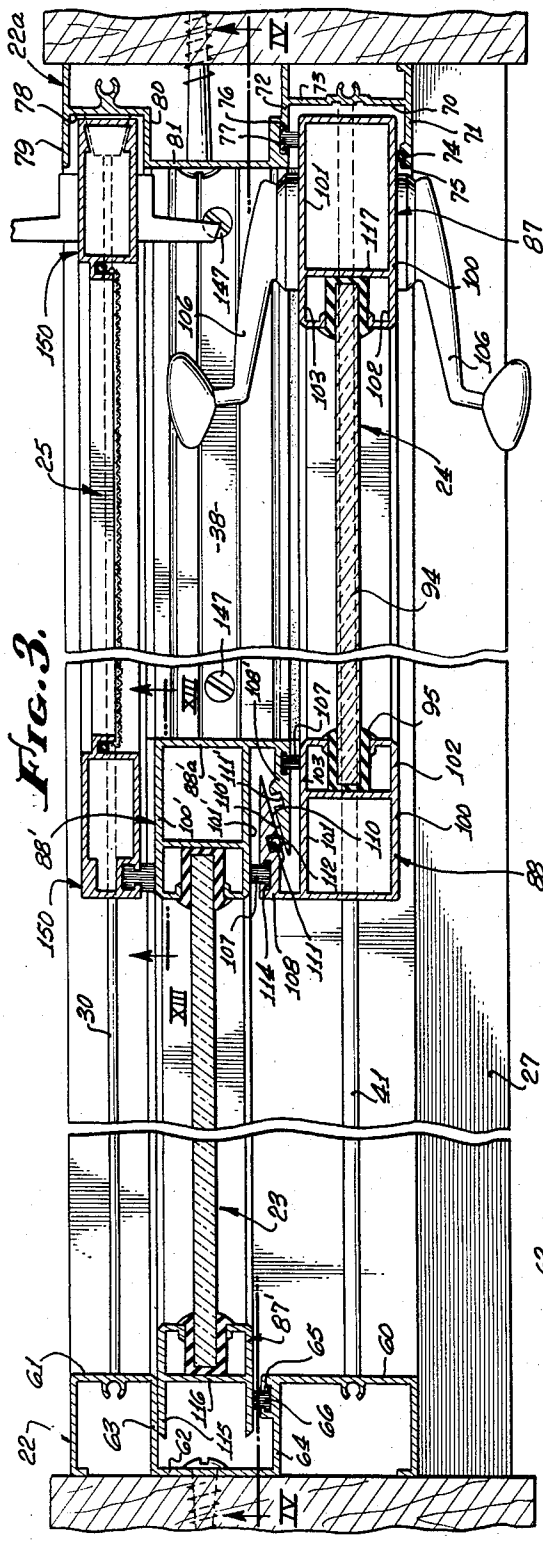


FIG. 3.

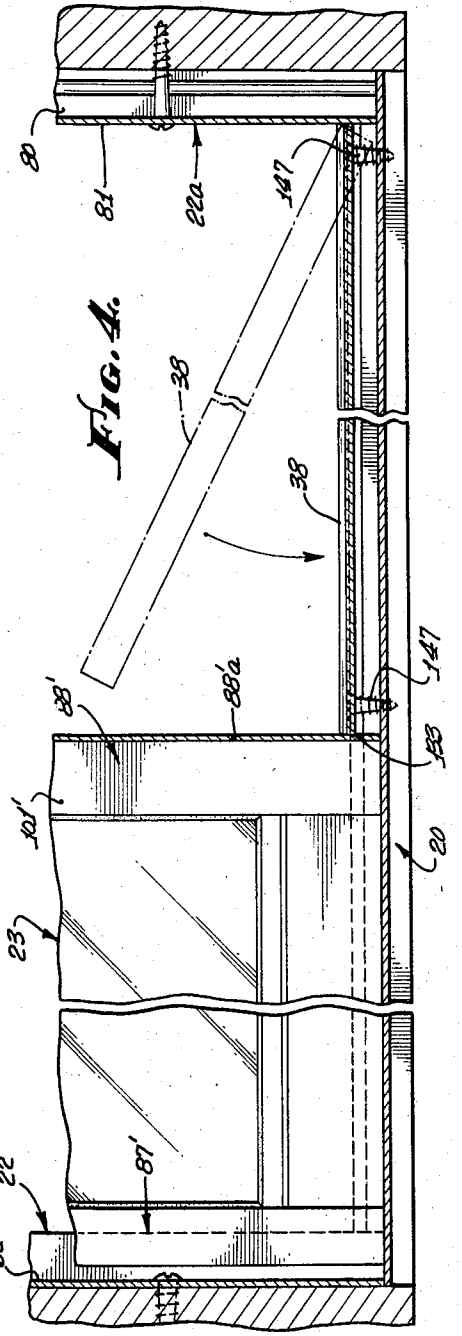


FIG. 4.

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SLIDING CLOSURE CONSTRUCTION

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FIG. 8.

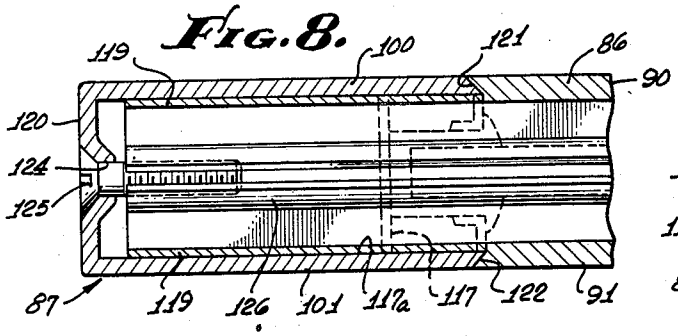


FIG. 9.

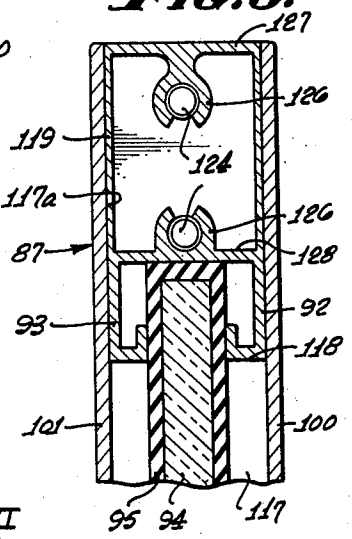


FIG. 10.

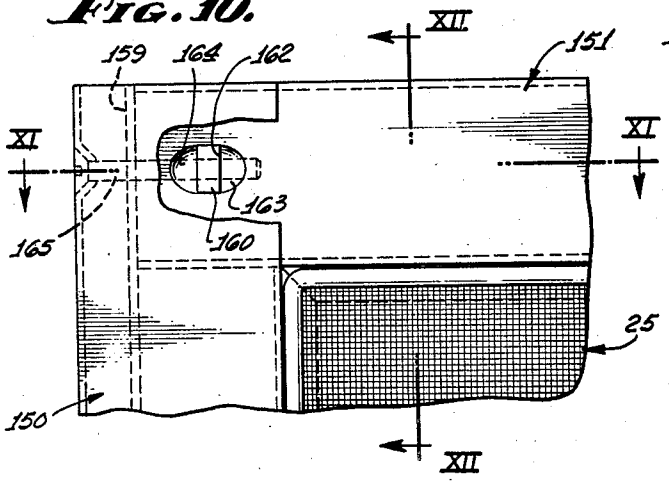


FIG. 12.

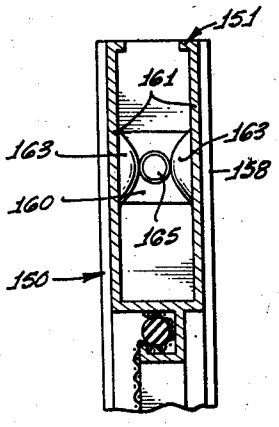


FIG. 11.

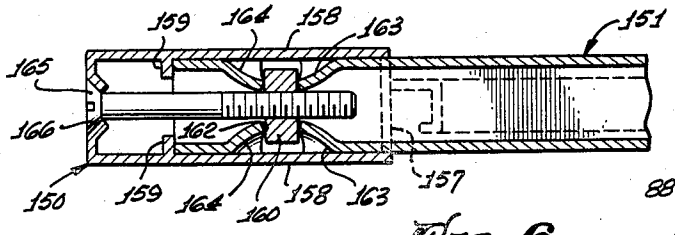


FIG. 13.

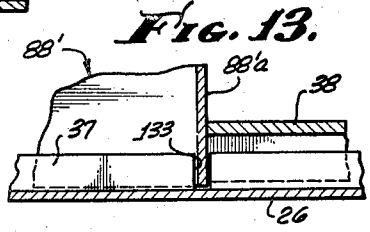
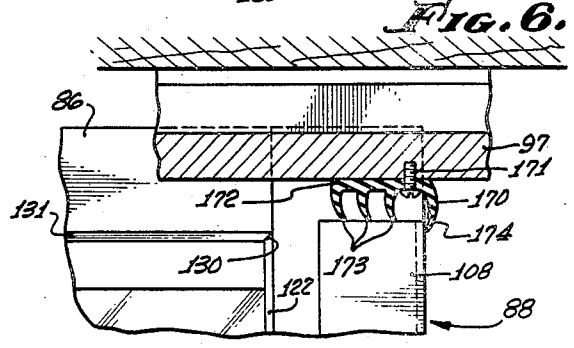


FIG. 6.



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2,913,046

SLIDING CLOSURE CONSTRUCTION

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Original application July 17, 1958, Serial No. 749,152. Divided and this application March 26, 1959, Serial No. 802,223

16 Claims. (Cl. 160—91)

This invention relates to sliding closure construction particularly for exterior walls of buildings and the like. Features of this invention may be utilized in interior sliding closure construction. This application is a divisional application of copending application Serial No. 749,152 filed July 17, 1958.

One of the primary requirements of an exterior sliding closure construction is resistance and weather tightness in general under any weather condition which produces a pressure differential between the outside and inside of the sliding closure, examples of such weather conditions being high winds, driving rains or driving dust storms. Many prior proposed sliding closures included frame constructions which required the sliding closure panels to be mounted inwardly of a sliding movable screen panel. Such prior constructions provided sill members of relatively low profile which were difficult to make weathertight under weather conditions as above mentioned and particularly under heavy rains and winds. Mounting of the screen panel outside of the closure panels subjected the screen mesh to constant weathering with resulting discoloration and general deterioration.

The present invention contemplates the provision of a novel sill frame member which presents the appearance of a low sill, yet which is so designed as to prevent overflow of water or rain at the sill member when a closure construction of this invention is subjected to a 45 mile per hour wind with a simulated rainfall of 2 inches per hour for at least a period of 15 minutes. The sill member of this invention also embodies novel features which permit the mounting of the screen panel on the inside of the closure panels and which affords rapid and precise assembly of closure panels therewith.

Another requirement of an exterior sliding closure construction is that weather tightness be achieved by a construction which can be shipped in knock-down condition and accurately and quickly assembled at the job site with minimum labor and time. Prior sliding doors have been proposed to meet this requirement but have been accompanied with certain disadvantages with respect to assembly, weather tightness, proper adjustment and attractiveness of the resulting sliding closure construction. This invention not only provides a frame construction within which a fixed panel is mounted in novel manner, but also provides a novel means of assembly of fixed and sliding panel members to form rigid rectangular frame for glazing and for convenient assembly with a frame construction.

The sliding closure construction, and particularly the head sill and jamb members, are shown in a copending application Serial No. 730,963, filed April 25, 1958, and entitled "Protective Barrier Means For Door Frame Construction," which describes and claims a plastic sleeve member for ensleeving such frame members and, if necessary, such sliding panel members so as to protect them during shipment and while on the jobsite, the plastic sleeves on the frame members also serving as

moisture barriers between the frame members and the surrounding wall construction.

The primary object of this invention therefore is to disclose and provide a novel sliding closure construction of exceptional weather tightness and of facile assembly.

A more specific object of this invention is to disclose and provide a novel manner of assembling closure panels in a frame construction.

A still more specific object of this invention is to disclose and provide a novel construction and manner for precise assembly of closure panel members.

A still further object of this invention is to disclose and provide a sliding closure construction wherein a sliding screen panel is mounted at the inside of closure panels and wherein a novel threshold construction is employed for weather tightness and which presents an appearance of a relatively low sill and threshold combination.

It will be understood that these and many other objects of this invention will be readily apparent to those skilled in the art from the following description of the drawings in which an exemplary embodiment of this invention is shown.

In the drawings:

Fig. 1 is an elevational view of a sliding panel construction embodying this invention.

Fig. 2 is a sectional view taken in the vertical transverse plane indicated by line II—II of Fig. 1.

Fig. 3 is a sectional view taken in a transverse horizontal plane indicated by line III—III of Fig. 1.

Fig. 4 is a sectional view taken in a vertical longitudinal plane indicated by line IV—IV of Fig. 3.

Fig. 5 is an enlarged fragmentary vertical sectional view taken in the plane indicated by line V—V of Fig. 2.

Fig. 6 is an enlarged fragmentary sectional view taken in the vertical longitudinal plane indicated by line VI—VI of Fig. 2.

Fig. 7 is an enlarged fragmentary view of a corner joint of a closure panel shown in Fig. 1, the view being partly in section.

Fig. 8 is an enlarged fragmentary sectional view taken in the plane indicated by line VIII—VIII of Fig. 7.

Fig. 9 is an enlarged fragmentary sectional view taken in the plane indicated by line IX—IX of Fig. 7.

Fig. 10 is an enlarged elevational view of a corner joint of the screeen panel shown in Fig. 1.

Fig. 11 is a sectional view taken in the plane indicated by line XI—XI of Fig. 10.

Fig. 12 is an enlarged sectional view taken in the plane indicated by line XII—XII of Fig. 10.

Fig. 13 is a fragmentary sectional view taken in the vertical plane indicated by line XIII—XIII of Fig. 3.

In Fig. 1 a sliding door construction embodying this invention is illustrated as installed in the wall of a building and generally may comprise a frame structure including a sill member **20**, a head member **21** and spaced side jamb members **22**, **22***a*. The frame members **20**, **21** and **22**, **22***a* define a frame opening within which may be positioned at least one fixed closure panel **23**, a sliding closure panel **24** and an interior sliding screen panel **25**. It will be understood that in frame openings of different width, more than one fixed panel or more than one sliding panel may be employed.

The sill member **20** of the frame structure may comprise a precut length of extruded aluminum alloy or of any other suitable metal formed or shaped in section as illustrated in Fig. 2. The sill member **20** may comprise an outwardly and downwardly inclined sill wall **26** terminating in an exterior longitudinal sill portion **27** of relatively thicker section and provided with a depending edge lip **28**. The sill wall **26** joins a generally horizontal wall section **29** at the interior longitudinal edge portion of the sill member, said wall portion **29** being formed with

a longitudinally extending, upstanding screen track or rib 30. The wall 26 and wall 29 may be supported from vertical support walls 31 and 32, each formed at its bottom edge with a foot portion 33 and 34 respectively. Spaced outwardly from the screen track 30 is a means for locating and positioning the fixed panel 23 and threshold 38 on the sill and said means may include parallel, longitudinally extending upstanding spaced retainer ribs 35 and 37. Rib 35 has greater height than rib 37 and may be provided with a downwardly inwardly inclined or beveled edge face 36. The low rib 37 may also have a downwardly and inwardly inclined bevel face 37*a*. The space between ribs 35 and 37 and the bevel faces 36 and 37*a* cooperate with depending members on a fixed closure panel 23 and a threshold 38 as hereinafter described. The inclined sill wall 26 may be provided with a longitudinally extending sliding panel track 40 of selected section, said track having a top longitudinally extending bead-like portion suitably encased in a track cap or cover 41 made of nylon or other suitable noise-resistant plastic material having reduced friction characteristics.

The head member 21 is vertically above the sill member 20 and may likewise be extruded from a suitable metal material such as an aluminum alloy. The head member 21 comprises an outer longitudinally extending, downwardly facing recess 45 defined by an outer depending wall 46 and an inwardly spaced depending U-portion 47. The U-portion 47 also defines with a depending wall 48 an inwardly spaced, downwardly facing continuous second intermediate recess 49. Inwardly spaced from recess 49 may be a third continuous longitudinal recess 50 defined by intermediate wall 48 and inner wall 51, said inner recess 50 being defined further by a top wall 52 provided with a centrally disposed longitudinally extending depending screen track 53 in vertical alignment with screen track 30 on the sill member.

The U-portion 47 includes a lower wall portion of relatively thick metal section which is provided on opposite longitudinal vertical faces thereof with parallel longitudinally extending grooves 55 and 56 which may receive and retain suitable weatherstrip means 57 and 58 respectively.

Jamb member 22 adjacent fixed panel 23 may comprise an extruded section of aluminum metal alloy providing a vertical outer strike face 60 for the sliding panel 24 and spaced inner strike face 61 for screen panel 25, said faces 60, 61 lying in the same vertical plane. Between said faces 60, 61 is a vertical recess 62 defined by spaced recess walls 63, 64 adapted to receive therebetween a stile of the fixed panel 23 as later described. The inner surface of recess wall 64 may be provided with a continuous vertically extending groove 65 within which may be secured a weatherstrip means 66.

The jamb member 22*a*, cooperable with the sliding panels 24 and 25 may also be of extruded aluminum metal alloy and may comprise an outer vertical longitudinal recess 70 defined by an outer recess wall 71, an inner recess wall 72, and a back wall 73. The edge portion of wall 71 may be provided with an inwardly facing, longitudinally extending groove 74 for carrying a circular section vertical bead element 75 of suitable plastic material such as nylon for sealing engagement against the outer or jamb stile member of sliding panel 24. The inwardly spaced recess wall 72 is provided with a vertical groove 76 within which is retained a weatherstrip means 77 for engagement with the outer stile as later described. Spaced inwardly from recess 70 is a vertically longitudinally extending recess 78 defined by inner jamb wall 79 and recess wall 80, said recess 78 receiving a stile member of the sliding screen 25. Between said recesses 73 and 78 the jamb member 22*a* is provided with a jamb wall 81 lying opposite to the recess 62 provided in the opposite jamb 22.

It will be understood that the jamb members, head, and sill members may be secured to the structure of the building wall in any suitable well known manner and may be assembled and interconnected at their corners in well known manner so as to provide a rectangular frame opening which is true and squared. Not shown in the illustrations of this example of the sliding closure, are the plastic sleeve members encasing the sill, head and jamb member and providing seal means between the frame members and the surround of the building.

The fixed and sliding closure panels 23 and 24 include rail and stile members made of similar cross sectional shapes and for the purpose of brevity and clarity the frame structure of only the sliding panel will be described in detail, the frame structure of the fixed panel being similar except for the differences described hereinafter. Like members on the fixed panel will be indicated with the same reference numeral with a prime sign.

Sliding panel 24 may comprise a bottom horizontal rail 85, a top horizontal rail 86, an outer jamb-opposing vertical stile member 87 and an inner interlock stile member 88, said members being joined together in a novel manner at their adjacent end portions to form right angle corners. Each top and bottom rail member may include an extruded box section defined by spaced side walls 90, 91 respectively which are provided at their inner periphery with inwardly off-set glass pane mounting portions 92 and 93 respectively. The mounting portions 92, 93 may be spaced apart to receive therebetween an edge margin of a glass pane 94 and a U-section resilient moulding or mounting strip 95 for said pane.

Between the side walls 90, 91 of the bottom rail and spaced from ends thereof, may be provided a pair of adjustable sheave means 96 for rollingly supporting the sliding panel, said sheaves including wheels 97 for quiet rolling engagement with the nylon track cap 41. The adjustable sheave means 96 are not described in detail and may be adjusted vertically so as to properly align the sliding panel within the opening with respect to jamb member 22*a*.

The top rail 86 may extend upwardly into the outer first recess 45 and the outer side wall 90 of the rail 86 may carry longitudinally spaced buttons 98 of plastic material such as nylon for sliding contact with the inner surface of wall 46 on the head member. The inner side wall 91 of rail 86 is provided with a wall surface in sealing contact with said weatherstrip means 57.

The inner and outer stile members 88 and 87 include similar box sections, and each may comprise respectively outer stile walls 100 and inner stile walls 101, said walls 100, 101 merging with mounting portions 102 and 103 respectively for securing a glass pane 94 and a U-section moulding or mounting strip 95. The outer stile 87 may be provided with suitable latch means (not shown) for cooperation with a latch plate on jamb member 22*a* and with door pulls 106 of suitable form. The stile wall 101 of the outer stile 87 is provided sealing contact with the weatherstrip means 77 and with sealing contact with the bead element 75 when the sliding panel is in closed position. The inner stile 88 has its wall 101 in sealing contact with a weatherstrip means 107 carried by an interlock member 108′ provided on the inner stile member 88′ of the fixed panel.

The interlock member 108 on stile 88 is spaced a selected distance from stile wall 101 and is in the form of a return of generally triangular section providing an inclined surface 110. Adjacent the base of the triangular section, the inclined surface 110 may be provided with a vertically extending groove 111 coextensive with the interlock member 108, said groove housing a bead or cord 112 of suitable material such as nylon for abutting engagement with the opposed inclined face 110′ of the interlock member 108′. The groove 111′ on the interlock member 108′ of the fixed panel need not carry a cord 112 if so desired. The interlock member 108 includes a weatherstrip groove 114 adapted to carry weath-

erstrip means **107** for sealing engagement with the opposed stile wall **101'** of the inner stile **88'**.

In this example, the jamb stile **87'** of the fixed panel is illustrated as being of generally H-section rather than of box section as shown for stile **87** and includes spaced walls **115** interconnected by transverse wall **116** which may be ported at top and bottom ends to receive securement screws (not shown) for assembly with the top and bottom rails **86**, **85**. The walls **115** on the stile **87'** are received within the recess **62** on jamb member **22** and the inner wall **115** is held against recess wall **63** when the fixed panel is assembled with the frame and secured thereto as later described.

One of the features of the present invention is the means for interconnecting the stiles **87**, **88** with the horizontal rail members **85** and **86**. Each corner of the sliding panel frame includes the same means for interconnection of the adjacent right angular disposed end portions of the rail and stile and for brevity and clarity only one such corner connection or joint will be described.

In Figs. 7, 8 and 9, such a corner connection is shown in detail, Fig. 7 being a view looking at the top inside corner of stile **87** and top rail **86**. Stile **87** of box section has a top end portion in which the stile walls **100** and **101** extend to the top of the panel. Inner wall **117** adjacent to mold sections **102** and **103** may be cut away at **118** (Fig. 9) so as to provide a top opening **117***a* adapted to receive the adjacent end portion of top rail **86**. The walls **91** and **90** of rail **86** may be of somewhat thicker section than walls **100**, **101** of stile **87**. At their ends, walls **90** and **91** of rail **86** are milled so as to provide relatively thin end sections **119** which slidably fit within and between stile walls **100** and **101**. During milling of each end section **119**, an undercut, inclined or sloping shoulder face **121** is formed in each of walls **90** and **91** of rail **86**. The inner vertical edges of the stile walls **100**, **101** throughout their length may be provided with longitudinal bevel faces **122**, said bevel faces **122**, at the top of the stile walls, each having a slope or inclination corresponding to an opposed inclined shoulder face **121** on walls **90** and **91** of the top rail. In assembly, top rail **86** may be inserted into opening **117***a* of stile **87** until the shoulder face **121** throughout its length seats tightly against the opposed bevel face **122**. It will be noted that the end sections **119** extend into closed spaced relation with the back or outer wall **120** of the stile and do not contact wall **120**.

Means for drawing the faces **121** and **122** into tight engagement may comprise a pair of screw bolts **125** carried by back wall **120** of the stile and extending through ports **124** therein for threaded engagement with a depending slotted sleeve-like portion **126** carried by and integral with the top and bottom walls **127**, **128** of the box section of rail **86**. Tightening screw bolts **125** will draw the top rail lengthwise into snug engagement with the bevel faces **122** on the stile and the corner will be secured in squared or right angle relationship. It should be noted that the outer surfaces of walls **100**, **101** and of walls **86** and **91** respectively lie in the same common plane and that a flush joint is thereby provided. A 45° miter joint line **130** may be provided at the bevel face **122** and the bevel face **131** provided on rail **86** where the rail walls **90** and **91** join the molding section **92** and **93**.

It will be understood that each of the corner joints of both the sliding panel and the fixed panel may be interconnected in similar manner. Since the illustrated stile **87'** on the fixed panel is of H-section instead of box section, it will be understood that end section **119** may be shortened and terminate at transverse wall **116** and screw bolts similar to **125** may draw stile **87'** tightly against the shoulder faces **121** on top and bottom rails of the fixed panel. The opposite end of the top rail on the fixed panel may be secured by one screw bolt **125** as shown in Fig. 2 and Fig. 5.

Assembly of the door frame members with the fixed and sliding panels may be readily and quickly accomplished. As described hereinbefore, the sill, jamb, and head members may be fitted into a wall opening in well known manner in order to provide a rectangular framed opening. The fixed panel may be placed in the frame opening at the side of the frame opening where it is to be located and the top rail thereof may be inserted upwardly into the central downwardly facing recess **49** of the head member until there is sufficient clearance for the bottom rail and its inner depending wall to clear the upstanding low rib **37** on the sill and to drop into the space between said ribs **37** and **35**. The panel **23**, when lowered, will seat on sill wall **26** and be held at its lower portion against transverse movement by holding and alignment engagement by ribs **35**, **37** of the bottom edge margin of inner wall **91**. The fixed panel may then be slid toward jamb member **22** until its stile **87'** is received in recess **62** provided therein. The outer stile wall **88'***a* of stile **88'** may then be lowered into a transverse slot **133** provided in the ribs **35**, **37** of the sill member. This interengagement of the ribs **35**, **37** with wall **88'***a* of the stile locates and secures the fixed panel longitudinally of the sill member.

The top of the fixed panel may be secured in selected position (Fig. 5) by an angle clip **135** secured to the head member as by screw bolts **136** and having a depending portion secured to the wall **88'***a* of the interlock member **88'** by means of a thread cutting screw bolt **137** extending into a narrow vertical slot **138** in the depending portion of the clip **135** to provide vertical adjustment of the fixed panel during installation.

The fixed securement of the top of the fixed panel by the clip **135** and of the bottom rail **85** throughout its length by the ribs **35**, **37**, and the resilient pressure of the weatherstrip means **58** and **66** against the top rail and outer jamb stile **87'**, serves to position and retain the fixed panel in weathertight relation in the frame.

With the fixed panel installed in the frame opening, threshold **38** may be readily installed between stile member **88'** and the opposed jamb member **22***a* by vertically lowering threshold **38** in the space between stile **88'** and jamb member **22***a* so that the inner longitudinally extending depending threshold rib **140** is received within the slot or space between ribs **35**, **37** and the longitudinally extending undercut top inner edge portion **140***a* is seated in complementary relation on bevel face **36** on rib **35**. The threshold **38** may include a front longitudinally extending wall **141** provided with a foot **142** seated against sill wall **26** and adjacent the top of wall **141** a weatherstrip groove **143** is provided for retaining a weatherstrip member **144**. Weatherstrip member **144** includes an outwardly extending depending resilient flap or lip **145** of suitable material which may engage the inner surface of wall **91** of sliding panel **24**. The threshold **38** may be secured to the sill member by three longitudinally spaced screw bolts **147**. Front wall **141** is relatively high and serves effectively to obstruct and retain water from flowing over the threshold during rain storms.

The sliding panel **24** may be readily installed by raising the panel so that its top rail **86** is received within the outer recess **45** in the head member. When the panel is raised sufficiently so that the inner portions of the bottom rail may clear the track **41**, the panel may be lowered so as to rest and position the sheave means **96** on track **40**. In such position, the top rail is engaged by weatherstrip means **57** and the outer nylon buttons **98** engage the outer depending wall **46** of the head member. The sheave means may be adjusted in well known manner so that the sliding panel is positioned in the frame opening with its vertical stile members parallel to jamb **22***a*.

In closed position, sliding panel **24** is in weatherseal-

ing relation to the frame by means of the track **40**, threshold wall **141**, and weatherstrip means **144** at the bottom rail, by weatherstrip means **77** at the jamb **22***a*, by weatherstrip means **57** at the head **21**, and by weatherstrip means **107** at the interlock members **88**, **88'**.

It will be apparent from the above description that the fixed panel is provided with weatherseal means entirely around its periphery and likewise the sliding panel is provided with weatherseal means at the top and bottom rails and at the inner stile and jamb member when the sliding panel is closed. Since the interlock members **88** and **88'** do not extend upwardly into snug engagement with the depending intermediate wall **47** provided on the head member because of the necessity for moving the panels vertical relative to the head member for assembly, weatherblock or obstruction is provided at the top of the interlock members as shown in Fig. 6. The interlocks **108** and **108'** lie directly beanth depending wall **47** of the head member and to said depending wall may be secured a weatherseal element **170** secured to wall **47** as by a screw bolt **171**. The element **170** may comprise a relatively stiff body portion **172** provided with a plurality of curved depending transversely extending fingers **173** and an outer finger **174** which extends over the edge of the interlock member **108**. The width of fingers **173** completely fills the space between the opposed stile walls of the inner stiles of the fixed and sliding panels and the fingers **173** are of sufficient length so as to sealingly resiliently press against the top edge faces of the interlock members **108** and **108'** when they are in closed position.

The sliding screen means **25** may comprise a rigid rectangular frame including screen stile members **150** and top and bottom rail members **151**, **151**. The bottom rail **151** may be of U-section with the open face of the U directed downwardly, walls **152**, **152** of screen rail **151** carrying a pair of longitudinally spaced wheels **153** pivotally mounted in well known manner in walls **152**. The wheels **153** rollingly engage screen track **30**. The top rail **151** may also be of U-section and the walls **152** thereof provide an upwardly facing recess within which may be upwardly biased vertically movable U-section housings **154**, each of which carries a top wheel **155** for rolling engagement with the depending track **53**. The housing **154** may be pivotally mounted about an axis spaced from the axis of the wheel so as to permit housing **154** and wheel carried thereby to be depressed when the screen is being installed in a manner similar to that described for the sliding panel.

The screen stiles **150** may be of box section and may be connected at their ends to the screen rails **151** in novel manner, only one corner connection being shown for brevity. Inner wall **157** of each screen stile **150** may be cut away adjacent each end of the stile member so as to provide an opening whereby the adjacent end portion of the screen rail **151** may be received through said opening and between the walls **158** of the stile. The inner surfaces of walls **158** are provided with inwardly directed stop flanges or elements **159** against which end faces of rails **151** abut in assembly.

The end portions of rails **151** each include a polygonal or square nut **160** positioned against rotation between walls **161** and held against longitudinal movement in novel manner. Each wall **161** may be provided with a vertically extending slot **162** approximately the width of the thickness of nut **160** and of a length not exceeding the width of the nut. After the nut has been positioned between walls **161** in alignment with the slots **162**, the margins of walls **161** adjacent the nut may be deformed inwardly as at **163** and **164** so as to hold the nut against longitudinal movement with respect to the stile rail **151**.

When the screen frame is assembled, a securing screw bolt **165** may be inserted through a counterbored port **166** in the back wall of the stile **150** and into threaded engagement with the nut **160**. As the screw bolt **165** is drawn tight, it urges nut **160** against inner edges of deformed metal portions **164** of the walls **151** and also urges end faces of said walls tightly into abutment with the flanges **159** on the stile walls **158**. As screw bolt **165** is further tightened, it will be apparent that the metal between the flanges **159** and the edge of the deformed portions **164** will be placed under compression and that such metal will tend to spread outwardly into tight frictional engagement with inner surfaces of the stile walls **158**. A friction-tight, non-rattling joint for interconnection of ends of rail and stile members is thus provided for the screen frame.

One of the important features of the sliding door construction described above is the arrangement of the threshold member **38** with the sill member **20** so as to provide not only a simple means for assembly of the sliding door construction, but also a construction which will resist driving rains and high winds so as to prevent rain water from being driven over the sill member to the inside of the door. At the portion of the sill member occupied by the sliding panel when closed, it will be noted that rain or water under pressure cannot pass to the inside of the door construction because first the water must pass over track **40**. As water reaches threshold **38**, it must be driven vertically upwardly along wall **141** a substantial distance and then is further blocked by the downwardly depending, longitudinally extending weatherstrip member **144**. To pass member **144**, water must move downwardly and then pass upwardly between the free edge of lip **145** and the rail wall. Since pressure differential at the lip **145** tends to urge the lip more tightly against the rail wall, water is positively prevented from passing therebetween. Any water which might seep between foot **142** and the sill wall will have insufficient pressure behind it to reach ribs **37** and **35**. The particular threshold and sill construction provides a positive effective obstruction to driving rain or driving winds which retain any water outside the threshold **38**.

With respect to the fixed panel, it will be noted that there is a positive weathertight interlock provided between the longitudinal bottom edge portion of the inner wall of the bottom rail which is relatively easily fitted and held between the ribs **35** and **37** on the sill member. The outer wall of the bottom rail member is provided with a snug metal-to-metal contact with the sill wall **26** and any water which may seep through such metal-to-metal contact is positively prevented from entering the room by means of the interlocking of the inner rail wall with the spaced low and high ribs on the sill member.

It will thus be apparent that the frame members have been constructed in such a manner that assembly of the sliding door at a jobsite is facilitated and that weathertightness of an installed door embodying the described invention is exceptional. The panels present a flush peripheral margin and the joint lines made by the undercut shoulder faces on the rails and the bevel faces on the stiles are virtually unnoticeable. The inclined shoulder faces **121** urge the adjacent margins of the stile walls **100**, **101** into snug wedge-like engagement with the opposed thin section portions **119** of the rails.

It will be understood by those skilled in the art that various modifications and changes may be made in the construction of a sliding closure wherein such modifications and changes come within the spirit of this invention, and all such changes coming within the scope of the appended claims are embraced thereby.

We claim:

1. In a construction for sliding panels including spaced vertical jamb members, and a head member, and a sill member joining said jamb members to provide a frame opening for at least one fixed closure panel and one slid-

ing closure panel movable horizontally in a plane exterior of the fixed panel, said panels having interlock stiles, jamb stiles, and top and bottom rails, the provision of: means providing an inner peripheral recess in one of said jamb members and in said head member, said fixed closure panel being provided with a top rail and a jamb stile received within said recess and closing one side of said frame opening; a threshold on the sill member extending between and abutting the interlock stile on the fixed panel and the other jamb member; a track means for the sliding panel on the sill member outwardly of the threshold and fixed panel; a continuous inner peripheral recess in the head member and in said other jamb member outwardly of said first mentioned recess and adapted to receive a jamb stile and a top rail on said sliding panel and in vertical alignment with said track; a third continuous peripheral inner recess in said head member and in said other jamb member inwardly of said first recess and provided with a top track therein; a bottom track on the sill member inwardly of the threshold and in vertical alignment with said top track; and a sliding screen panel having top and bottom wheels engageable with said top and bottom tracks respectively.

2. A construction as stated in claim 1 wherein said sill member includes a longitudinally extending upstanding wall means defining a continuous groove for the length of the sill member for holding said threshold and said fixed panel in longitudinal alignment.

3. In a construction for sliding panels including jamb members, a head member and a sill member providing a frame opening for at least one fixed closure panel and one sliding closure panel movable in a plane exterior of the fixed panel and having a bottom rail, the provision of: means on one of said jamb members and said head member providing a continuous inner peripheral recess, said fixed closure panel including a top rail and an outer stile received in said recess, a bottom rail seated on said sill member, and an inner stile; means for positioning and securing said fixed closure panel in said frame opening; and a removable threshold member extending between and abutting the inner stile and the other jamb member, said threshold member having a wall extending above the lower edge of the bottom rail on the sliding closure panel in closed position and defining a space therebetween adapted to be closed by weatherstrip means.

4. A construction as stated in claim 3 wherein said means for positioning said fixed panel includes closely spaced, longitudinal ribs on said sill member, a wall on the bottom rail of said fixed panel and another wall on said threshold, each of said last-mentioned walls being retaind in longitudinal alignment by said ribs.

5. A construction as stated in claim 3 including an adjustable clip member at the top of said inner stile and secured to said head member.

6. A construction as stated in claim 3 wherein said stiles are provided with interlock means terminating in spaced relation to said head member and wherein a weatherseal element is carried by said head member for engagement with the top edge faces of said interlock means for closing said space.

7. In a sliding closure construction, including jamb members, a head member, and a sill member providing a frame opening for a plurality of closure panels, the provision of: means on one of said jamb members and said head member providing a continuous inner peripheral recess for receiving peripheral portions of one of said closure panels; said one closure panel having a depending bottom wall means on the other of said jamb members and said head member providing a continuous inner peripheral recess for peripheral portions of another closure panel; a threshold member on said sill member between said one closure panel and said other jamb member, said threshold member having a depending wall; and means including longitudinally extending, closely spaced ribs carried by said sill member and having longitudinally adjacent portions in cooperable engagement with said walls respectively for aligning and positioning said one closure panel and said threshold member.

8. A construction as stated in claim 7 wherein a transverse slot is provided in said spaced ribs on said sill member for interlocking engagement with a transverse wall portion of said one closure panel.

9. A construction as stated in claim 7 wherein said threshold member includes a front wall of relatively great height, and a weatherstrip member carried by said front wall of the threshold member for weathersealing engagement with said other closure panel.

10. In a sliding closure construction, the provision of: a sill member including a pair of longitudinally extending tracks in lateral spaced relation; and a pair of upstanding longitudinally extending ribs between said tracks and defining a groove, said ribs having opposed walls to retain therebetween wall portions of a closure panel and a threshold member.

11. A construction as stated in claim 10 wherein said longitudinally extending ribs are adjacent one of said tracks and wherein one rib is higher than the other rib.

12. In a sliding closure construction including at least two closure panels, one being non-movable and the other being movable in a sidewise direction, the provision of: an integral sill member having a top sill surface and having a pair of longitudinally extending, closely spaced ribs at one longitudinal margin of the sill surface; a wall on said non-movable closure panel; and a threshold member having a wall adapted to be aligned with said closure panel wall, said walls having interlocking engagement with said ribs at longitudinally adjacent portions of said ribs for providing continuous positioning and weatherseal means for the length of said sill member.

13. A sliding closure construction as stated in claim 12 wherein one of said ribs is higher than the other of said ribs.

14. In a sliding closure construction the combination of: an exteriorily disposed sliding closure panel having a bottom rail; an interiorly disposed sliding screen panel; a fixed closure panel disposed in a plane between said sliding panel and screen panel; a sill member having upstanding parallel spaced ribs extending for the length of the sill member; a wall on the fixed panel in engagement with and between said ribs at one longitudinal portion of the ribs; a threshold member having a back wall in engagement with and between another longitudinal portion of said ribs, said threshold member having a front wall juxtaposed to said bottom rail of the sliding panel in closed position of the sliding panel; and weatherseal means between said bottom rail of the sliding panel and said front wall of the threshold member.

15. A readily assembled, weather-tight, sliding door construction including a head member, a sill member and spaced vertical jamb members providing a door opening: at least one fixed closure panel and one sliding closure panel in said opening, said sliding panel being movable in a plane exterior to the fixed panel, each of said panels having jamb stiles, interlock stiles and top and bottom rails, said head member and jamb members having outer and inner continuous peripheral recesses therein for receiving respectively the top rails and jamb stiles of said panels; a track means on the sill member for the sliding panel in alignment with the outer peripheral recess; a pair of longitudinally extending upstanding ribs on the sill member lying at the vertical planar zone defined by said inner recess, the bottom rail of said fixed panel having a wall retained by said ribs for positioning and holding said fixed panel; and a threshold member disposed between said fixed panel and the opposite jamb member and having a wall retained by said ribs for positioning and holding said threshold member, said ribs and walls retained thereby providing a continuous weather stop across said sill member.

16. A construction as stated in claim 15 wherein said

threshold member includes a wall extending between said fixed panel and the opposite jamb member and in spaced relation to the bottom rail of said sliding panel in closed position, and weatherseal means carried by the threshold member for engagement with the bottom rail of the sliding panel to close the space therebetween.

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