Oct. 20, 1936. F. J. PLYM 2,057,975

WINDOW CONSTRUCTION

Filed April 11, 1932 3 Sheets-Sheet 1

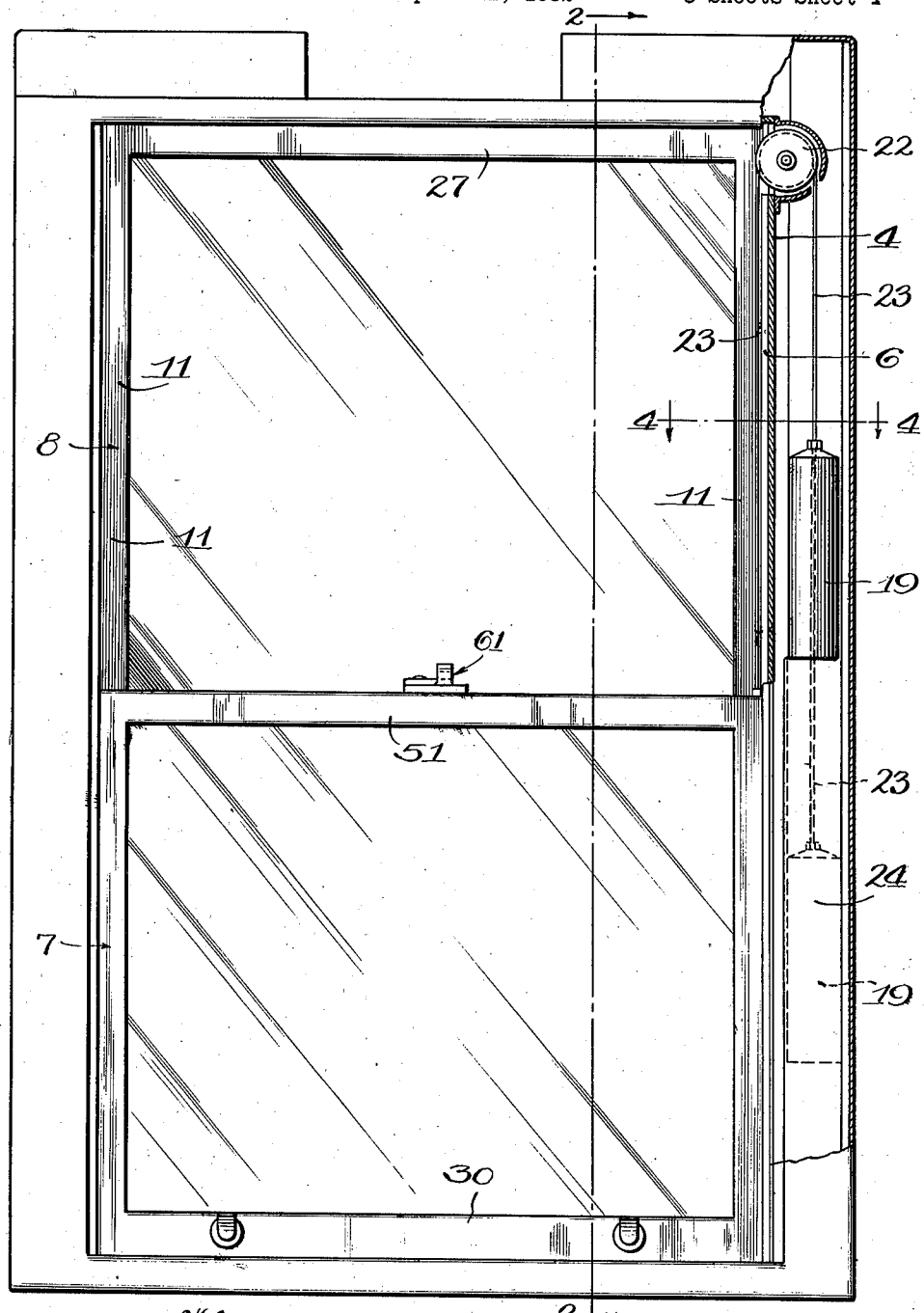


Fig. 1

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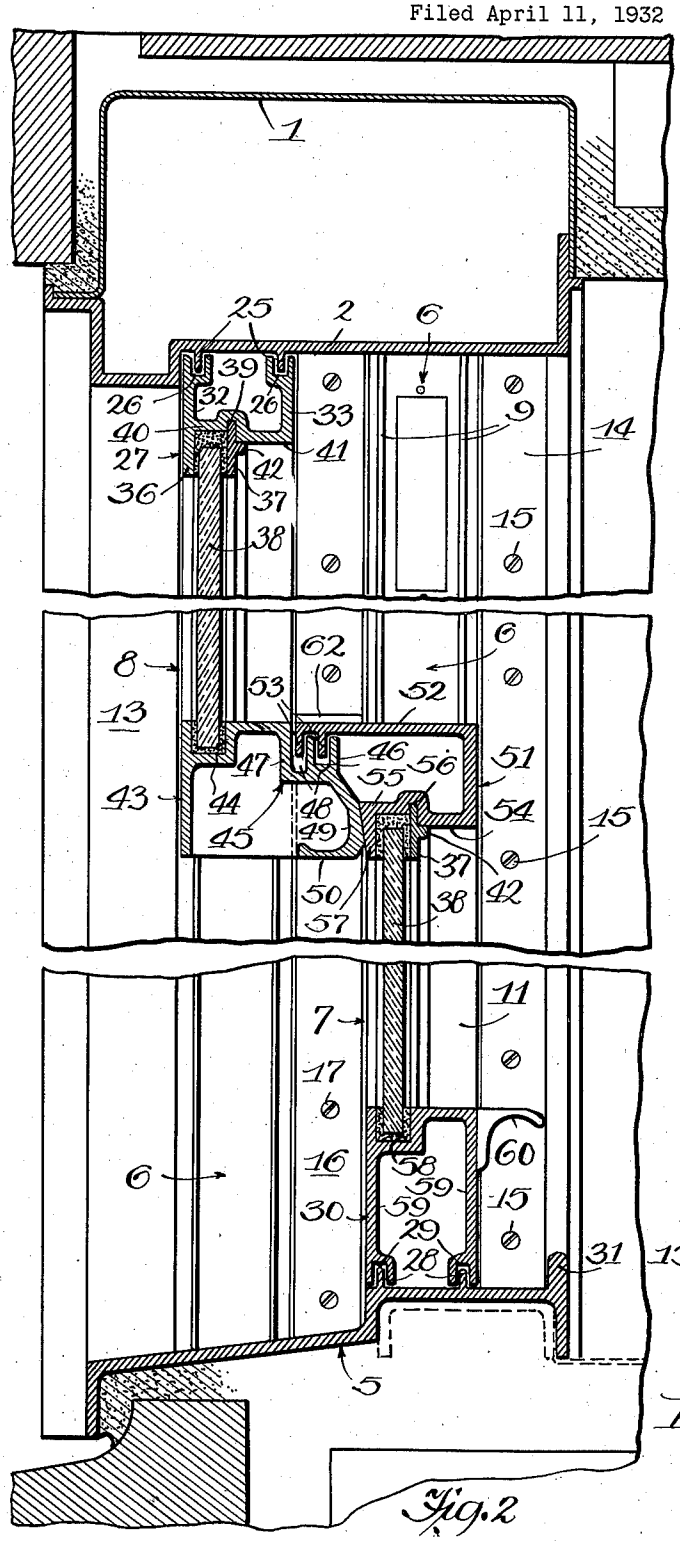


Fig. 2

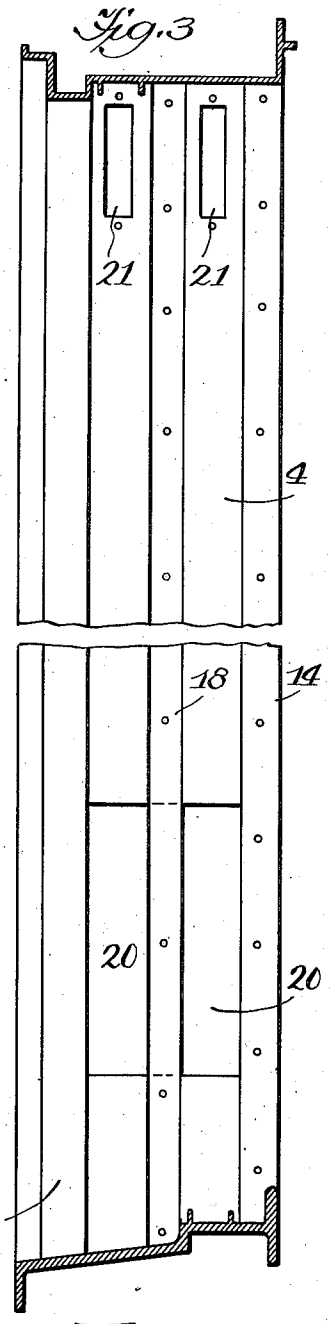


Fig. 3

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Fig. 7

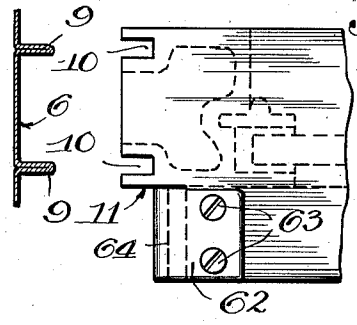


Fig. 6

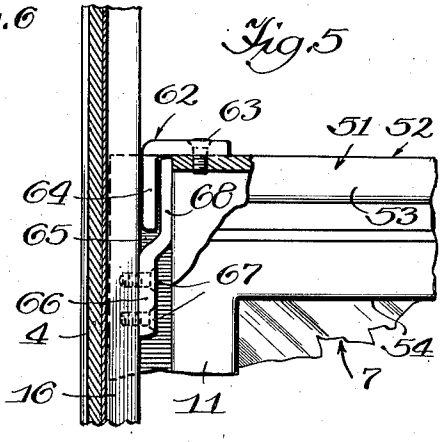
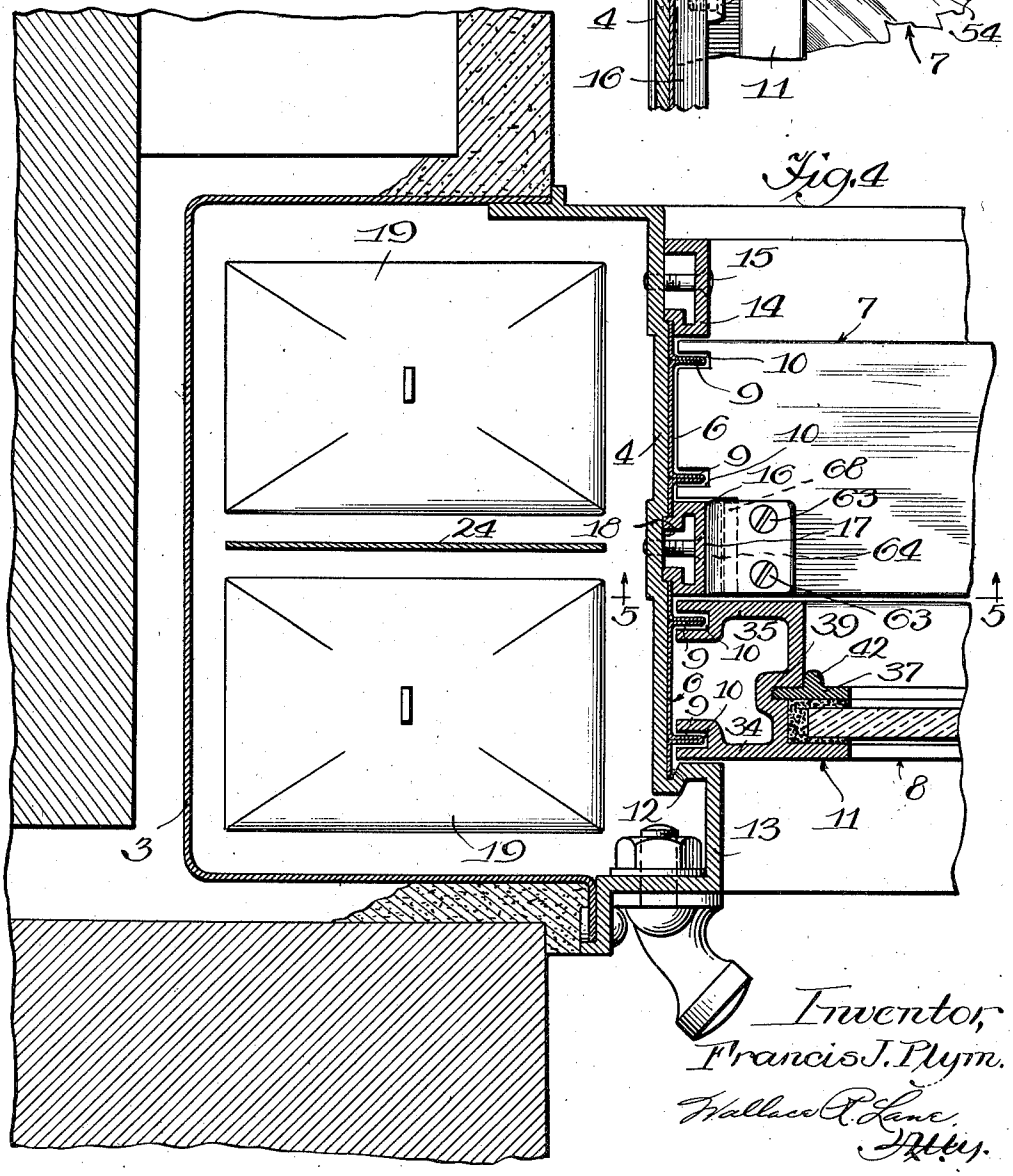


Fig. 5

Fig. 4



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UNITED STATES PATENT OFFICE

2,057,975

WINDOW CONSTRUCTION

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Application April 11, 1932, Serial No. 604,433

3 Claims. (Cl. 189—72)

The present invention relates to window constructions and more particularly to a novel metal double-hung window structure and in the frame and sashes therefor.

Among the objects of the present invention is to provide a novel window construction having slidable sashes, the frame and sashes being formed with novel weathering means whereby a weather-tight closure is formed when the sashes are in closed position.

A further object of the invention is the provision of a novel metal window frame and sash constructions formed of heavy gauge or extruded metal which may be easily and readily assembled and provide a substantially rigid structure of relatively few parts and exceptionally durable.

Another object is the provision of a novel window frame, the head jamb and sill being formed with longitudinal projections or ribs adapted to be received in channels formed or provided in the rails of the sash members so as to form a weather-tight seal therewith when the sash members are in closed position.

This weather-tight closure is accomplished without any wedging action between the sashes and projections on the frame, so that the sashes may be readily opened or closed without undue exertion. The embodiment of the sill further includes a rib or projection thereacross to prevent condensation on or at the sill from draining into the room.

A still further object of the invention is the provision of a weathering strip of resilient material adapted to be loosely mounted on the side jambs of the frame and there form stiles for permitting sliding movement of the sash members. These weathering strips, there being two on each side jamb, are provided with ribs adapted to seat in channels formed in the side rails of the sashes. When the sashes are placed in position, these ribs are seated in the channels and the sashes then carry the strips into assembled position where they are held assembled by the sashes and parting stops engaging the edges of the strips.

Another object of the invention is the provision of strips or members provided with resilient ribs engaging channels in the side rails of the sash, and said ribs because of their resiliency, adjusting and aligning themselves to the sashes and taking up any shock or rattle.

A further object of the invention is the provision of a weight-hung window having the side jambs provided with openings or pockets through which the weights are inserted. These openings or pockets are closed by the strips or members forming the stiles for receiving the sashes and permitting sliding movement thereof.

Another object of the invention is the provision of a novel sash construction formed of extruded metal, and in the novel means and method of forming the sash rails to permit sliding movement thereof; further in the forming of a weather-tight seal between the sash rails and the head jamb, side jambs and sill, and the meeting rails of the sash members.

A still further object of the invention is in the novel sash construction and the means and method of mounting the glass in the sash.

Further objects are to provide a construction of maximum simplicity, efficiency, economy, and ease of assembly and operation, and such further objects, advantages and capabilities as will later more fully appear, and are inherently possessed thereby.

The invention further resides in the combination, construction and arrangements of parts illustrated in the accompanying drawings, and while there is shown therein a preferred embodiment, it is to be understood that the same is susceptible of modification and change, and comprehends other details, arrangement of parts, features and constructions without departing from the spirit of the invention.

In the drawings:

Fig. 1 is a view in front elevation of the window.

Fig. 2 is an enlarged fragmentary view in vertical cross section taken in a plane represented by the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary view in side elevation of one of the side jambs and disclosing the pocket or opening for the insertion or withdrawal of the window weights.

Fig. 4 is an enlarged fragmentary view in horizontal cross section taken in a plane represented by the line 4—4 of Fig. 1.

Fig. 5 is a view in vertical cross section taken in a plane represented by the line 5—5 of Fig. 4.

Fig. 6 is a top plan view of the corner of the sash disclosed in Fig. 5.

Fig. 7 is a view in vertical cross section of the resilient strip or member upon which the sashes are slidable.

Referring more particularly to the disclosure in the drawings, the window frame comprises a head plate or member 1 upon which is mounted the head jamb 2, opposite side members 3 upon which are mounted side jambs 4, and a sill 5, the entire frame being mounted in masonry of the building structure. Upon each side jamb 4 is

mounted a pair of resilient strips or members 6, there being disclosed one for each side rail of each sash, the sashes being referred to generally as 7 and 8. Ribs 9 formed on each strip 6 are adapted to be received in spaced channels 10 formed in the opposite side rails 11 of the sashes. These strips 6 are merely held in place by reason of their engagement with the sashes and the parting stops.

The strips or members 6 for the outer sash 8 have their outer ends seated within a longitudinal groove 12 formed in the permanent stop 13 of the frame, while the resilient strip or members 6 for the inner sash 7 have their outer ends clamped in position by means of a detachable parting stop 14 adapted to be held in position by means of attaching means 15 such as screws or the like.

The inner ends of the members 6 on each side are clamped in position by the central parting stop 16 which is held in position by means of attaching means such as screws or the like 17. This parting stop 16 is shown as having a portion thereof seating into a longitudinally extending depression 18 formed in the side jambs 4. By reason of this construction, a detachment of the parting stops 14 and 16 permits the ready removal of the sashes 7 and 8 for the reason that the members 6 which form the stile upon which the sliding sashes operate are withdrawn upon a withdrawal of the sash members. By reason of the resiliency of the ribs or longitudinal projections 9 which engage in the channels in the side rails of the sash, these ribs adjust and align themselves to the sashes and take up any shock or rattle.

In order to permit proper access to the window weights 19 and to permit ready assembly and disassembly thereof, the side jambs 4 are provided with an enlarged opening 20. These openings 20, there being one on each side of the frame, are adapted to be closed by the resilient strips or members 6. Adjacent the top of the jamb members are provided a pair of smaller openings 21, one for each pulley 22 over which the ropes or chains 23 pass. Likewise, these members 6 are provided with openings coinciding with these openings 21 in the side jamb, in order to permit the proper operation of the pulleys 22 and the chains or ropes 23 carrying the window weights 19. A plate 24 is disclosed in Fig. 4 as separating these window weights so as to permit proper and uninterrupted operation thereof.

The head jamb 2 is provided with longitudinally extending ribs or projections 25 adapted to seat in channels 26 in the top rail 27 of the sash 8, whereby to provide a weather-tight closure when this upper sash is in closed position. Likewise, the sill is provided with ribs or projections 28 adapted to seat in channels 29 provided in the bottom rail 30 of the lower sash member 7. By reason of the spaced flanges or ribs seating in the spaced channels in the sash rails, a double weathering feature is provided. By reason of this weathering feature, no wedging action takes place since the ribs or projections fit loosely into the channels. This permits an opening and closing of the sashes without undue exertion, and is a decided improvement over window constructions now in use.

In order to prevent any condensation which may collect at the sill, from draining into the interior of the room, the invention comprehends the provision of a projecting portion or flange 31 on the sill 5.

As clearly disclosed in Figs. 2 and 4, the head jamb, side jambs and sill of the frame, and the sashes are shown as constructed of a heavy gauge or extruded metal whereby to form a rigid construction, which may be readily assembled or disassembled, and which is extremely efficient in operation. The upper sash 8 is provided with a top rail 27 having spaced sides 32 and 33, the upper end of each being provided with a channel 26 for the reception of the ribs or projections 25 on the head jamb. The side rails 11 are of similar construction to the top rail 27 and are provided with spaced sides 34 and 35 each provided with a channel 10 for the reception of the resilient ribs 9 on the weathering strip 6. Each of the side rails 11 and top rail 27 are provided with a glass engaging portion 36 and a glass stop 37 adapted to retain the glass 38 in position. An edge of this glass stop seats within a channel 39 provided in the web of the rail. Since the sash rails are of extruded metal and since the depth of this slot 39 is greater than the width of the stop 37, the portions 40 and 41 of the web are offset to permit the tool for forming or cutting the slot to penetrate to the depth desired. A bead 42 provides an abutment and an aligning means for the parting stop. The lower rail 43 of the upper sash is formed to provide a channel 44 for the reception of the lower edge of the glass, and an inwardly extending portion 45 adapted to overlap with the lower sash and provided with upstanding ribs 46 forming therebetween and with the side wall 47, a pair of channels 48. The portion 45 is further provided with a downwardly tapered or angularly shaped portion 49 and an inward extension 50.

The lower sash 7 is provided with an upper rail 51 having an outwardly extending portion 52 adapted to overlap with the upper sash and provided with downwardly extending ribs 53 adapted to seat in the channels 48 on the lower rail of the upper sash member. The lower portion or web of this upper rail is provided with offset portions 54 and 55 provided with a slot 56 therebetween for the reception of a glass stop 37, the offset portion 55 being provided with a downward extension 57 having its exterior tapered or angularly shaped whereby to form a contacting closure with the portion 49 of the lower rail of the upper sash member. By reason of the construction of the meeting rails 43 and 51, a highly efficient weathering means is provided.

The lower rail 30 of the lower sash member is formed with a glass retaining channel 58 and side members 59 each formed with a channel 29 for the reception of the ribs 28 formed on the sill 5 of the frame. The side rails 11 of the lower sash are similar in construction to those of the upper sash and similar reference characters have been applied thereto.

In mounting the panes of glass 38 in position, the lower edge thereof is seated in putty or the like in the channels formed in the lower rail. The upper and side ledges of these panes of glass are also seated in putty or the like and after being placed in the proper adjusted position, the glass stops 37 are driven into their respective channels until the bead 42 on the stop engages with the web of the sash rail.

In order to operate the lower sash, handles 60 are provided on the lower rail 30. Suitable locking or latching mechanism 61 is provided on the meeting rails 43 and 51 of the upper and lower sashes, respectively.

An L-shaped angle member 62 is mounted upon the opposite sides of the upper rail 51 of the lower

sash member 7 by means of suitable attaching means 63 such as a screw or the like. This member is provided with a downwardly extending flange 64 adapted to be received in a pocket or channel 65 formed by means of a bracket 66 mounted on the parting stops 16 by suitable attaching means 67, such as screws or the like. In order to provide this pocket, the bracket is bent outwardly or away from the parting stops so as to provide an upwardly extending flange or projection 68 of substantially the same width as the parting stop.

By means of this construction, the lower sash when in closed position interlockingly engages with the bracket 66 so as to provide a weather-tight closure adjacent the parting stop 16, there being one on each side of the frame. This structure is a decided advance over the windows now in general use, such windows permitting substantial clearance around the sashes and parting stops when the sashes are in closed position. As clearly disclosed, there is no wedging action between the flanges or projections 64 and 68, so that when it is desired to raise the lower sash from closed position, no additional exertion or force is necessary than were such weathering means not provided.

From the above description and the disclosure in the drawings, it will be readily seen that the present invention is a distinct improvement in window constructions and particularly in metal windows of the double-hung type.

Having thus disclosed the invention,

I claim:

1. In a window construction, a frame formed of extruded metal and including a head jamb, side jambs and sill, sashes slidable in said frame and provided with rails having spaced side members formed with longitudinally extending channels, ribs formed on said head jamb and sill and adapted to seat in said channels whereby to form a weather-tight seal therewith when said sashes are in closed position, and members positioned on the side jambs intermediate said side jambs and sashes, said members being provided with ribs seating in the channels in the side rails of the sashes to permit sliding movement thereof.

2. In a window construction, a frame therefor, slidable sashes in said frame, said sashes being formed of extruded metal, a meeting rail on one of said sashes provided with a pair of grooves, a meeting rail on the other of said sashes having an outwardly extending flange provided with spaced ribs adapted to be received in said grooves and parts on said meeting rails adapted to be brought into contacting engagement whereby to provide a weather-tight seal when said sashes are in closed position.

3. In a window construction, a frame therefor, slidable sashes in said frame, said sashes being formed of extruding metal, a meeting rail on one of said sashes provided with a pair of grooves and having a downwardly extending flange, and a meeting rail on the other of said sashes having a part adapted to tightly engage said flange, said second rail having an outwardly extending flange provided with spaced ribs adapted to interengage said grooves.

FRANCIS J. PLYM.