

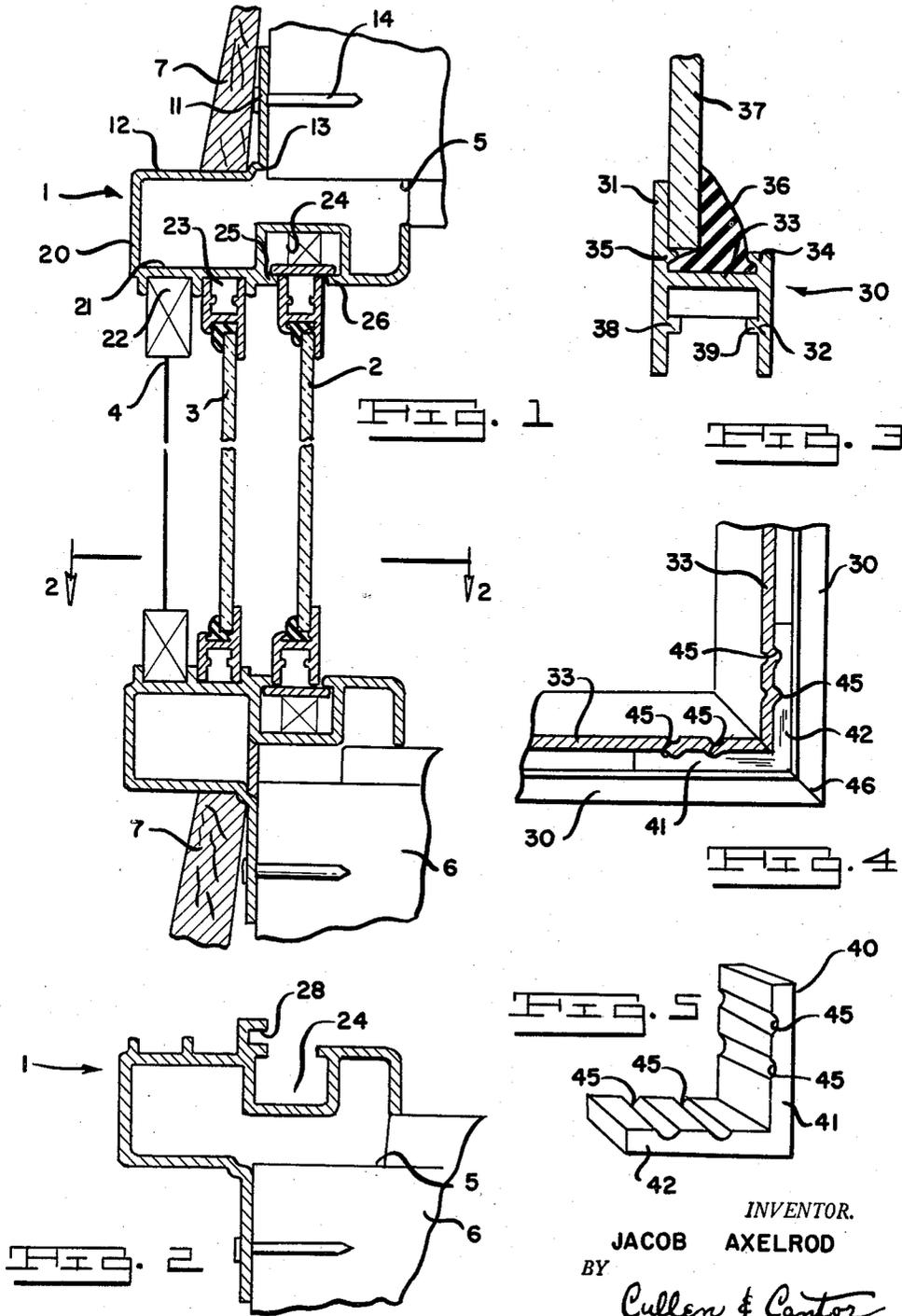
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WINDOW FRAME

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2,842,236

WINDOW FRAME

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This invention relates to window frames and more particularly to an outer frame formed of an integral nailing strip and drip strip, and in addition, includes an inner sash frame having a novel corner joint.

In the window arts, the window manufacturer fabricates a complete window unit comprising an outer frame which is adapted to be secured to the building structure surrounding the window opening, and inner sash which are slidable or otherwise mounted within the outer frame. This unit is then shipped to suppliers and builders for installation in houses under construction.

In the present commercially sold windows, the outer frame is nailed or secured to this building structure in some such other suitable manner, but in these types of connections, the outer frame is susceptible to leakage, that is, rainwater, and other types of moisture seep around the edges of the outer frame and drip into the inner sash frame and into the inside of the house adjacent the window opening.

In addition, these present window sash which normally comprise four frame strips surrounding a piece of glass, or in some cases, a large piece of foraminous material wherein the strips are joined at the corners have normally been extremely weak and susceptible to twisting or bending. This invention contemplates providing a strong corner joint of a novel construction wherein this twisting or bending, etc., of the sash is eliminated.

One object of my invention, therefore, is to provide an outer frame having means integral with this frame to eliminate the seepage of moisture past the outer frame into the inside of the house. This object is accomplished by providing an extruded or sheet metal bent form of frame having a nailing strip of considerable length parallel to the frame of the window which is adapted to be nailed or otherwise secured to the house structure adjacent the window opening. Integral with this nailing strip, a drip strip normal to the nailing strip is provided wherein moisture drips around the nailing strip and then across the drip strip to the external portion of the house rather than inside the house.

Another object of this invention is to provide corner joints for sash panels wherein the side members forming the panels are extruded in the shape of an H with a pair of lugs or lug stripping integral with the walls of the H in the lower channel thereof. A right angle corner member is fitted within the space between the cross member of the H and the lugs and is rigidly secured in place by indentations in the H cross member forced into suitable depressions formed in the connective member wherein an extremely tight and rigid corner joint is provided.

These and other objects of my invention will become apparent upon reading the following description of which the attached drawings form a part.

Referring to the drawings in which:

Fig. 1 illustrates a cross-sectional view of a frame formed in accordance with my invention.

Fig. 2 is a cross-sectional view taken through the jamb illustrated in Fig. 1 and is taken on line 2—2 of Fig. 1.

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Fig. 3 is a cross-sectional view of one of the side members forming the window sash, and

Fig. 4 is a cross-sectional view of the corner joints formed between two sides of the panel sash.

Fig. 5 is a perspective view of the corner connector, per se.

The frame embodying my invention is preferably formed from an aluminum extrusion although other types of materials may be substituted for the aluminum and the frame may be fabricated through a process of bending sheet metal rather than by the extrusion process. Referring to the drawings, an outer frame generally designated as 1, having provisions for the mounting of sash 2 and 3 and possibly a screen frame 4 is mounted within a window opening 5 which opening is surrounded by the building structure 6 of a dwelling house or some such similar structure.

The outside of the house, in this case, is covered with siding 7 although it is entirely possible to use brick, stucco, or other such suitable materials for the external portion of the house.

The outer frame 1 comprises a header member, a sill member and a pair of jamb members all joined together at the respective corners to form a four sided frame. For the purposes of inexpensive and simple fabrication, each of the above four members are identical in cross-section, and therefore a description of any one of them in the following disclosure will suffice as being a description of any of the others.

Each of the frame forming members are provided with a nailing strip 11 which is arranged in a plane substantially parallel to the plane of the window sash. Normal to this nailing strip and integral therewith is a drip strip 12 which extends towards the weather side of the window or the outside of the house.

Where desired, a protuberance 13 may be provided at the junction of the strips 11 and 12 for purposes to be described below.

The nailing strip 11 is secured to the house structure 6 surrounding the window opening 5 by means of nails, screws, or other such similar and suitable fastening means 14. In order to accommodate these fastening means the nailing strip may be provided with a plurality of openings through which the fastening means may be inserted.

The outer sheathing of the house, in the illustrated view, being slats or such similar type sheathing, is abutted against the outside of the nailing strip so as to completely cover the nailing strip. In this case, the sheathing is placed against the protuberance 13 so as to be placed at an angle relative to the nailing strip to thereby provide an area through which moisture may pass between the nailing strip and the outer sheathing.

Depending from the drip strip 12 is a front frame forming strip 20 formed integral with the drip strip and bent or otherwise formed into a channel plate 21 which is arranged in substantial parallelism with the drip strip. This channel forming plate 21 is formed with flanges which form a pair of parallel sash holding channels 22 and 23 wherein a screen or other such type of foraminous material holding sash may be inserted in the channel 22 and a panel or sash 3 may be inserted in the channel 23. Normally, the panel 3 is arranged to be rigidly held rather than movably held within the channel 23.

It may be noted that this particular embodiment illustrated is provided with horizontally slidable windows wherein it is desirable to have only one of the window panels 2 slidable and the other panel 3 non-slidable in order to insure a tight joint which will resist leakage and may be easily and cheaply weather stripped.

In addition to the above channels, a third channel 24 which is much deeper is formed by bending or otherwise

extruding a portion of the channel plate offset relative to the plane of the plate itself and this channel 24 is provided to accommodate the slidable sash 2. One of the reasons for the deepness of the channel 24 is to accommodate some sort of suitable weather stripping. One recommended type of weather stripping is that commonly used which consists of a plate inserted within the channel and retained therein by means of the flanges 25 and 26 formed at the mouth of the channel and spring biased against these flanges by means of some sort of suitable resilient springing means. Thus, the sash 2 rides upon a lower weather stripping and is abutted by an upper weather stripping and in addition abuts against weather stripping at either jamb when the sash is either open or closed.

As seen in Fig. 2, adjacent the deep channel formed in the jamb is an extruded strip weather stripping holding channel 28 adapted to hold a piece of felt or other similar type weather stripping against the sash 2 when the sash is closed.

The sash corner joint construction

In my window construction, I provide window holding sash which are formed out of four identical side members having mitered ends which are abutted against one another and joined to one another to form a rigid framing to hold a glass panel. Each of these members are designated as 30. The members 30 are extruded in the form of a lower case h and as seen in Fig. 3 in cross-section are provided with side walls 31 and 32 and a cross-member 33. Directly above the cross member are a pair of flanges 34 and 35 which form a means to hold the resilient window pane holding means 36 in position. The window pane holding means is formed of a suitable plastic or rubber and abuts the window panel 37 holding this panel against the side wall 31 so as to prevent movement relative to the frame.

Beneath the cross-member 33 on each of the walls 31 and 32 are provided a pair of lugs 38 and 39. These lugs may actually be an extruded stripping along the side walls and face one another and in addition are spaced from the cross-member. Within the space between the cross member and the lugs a corner connector 40 having legs 41 and 42 is inserted. The corner connector legs are of such a dimension as to be snugly fitted within the space formed between the cross member and the lugs and the upper surface, in the case of leg 42, abuts against the cross-member as seen in cross section in Fig. 4. The inside of each of the legs 41 and 42 of the cross member is provided with depressions which in Fig. 5 are illustrated as being cuts extending across the width of the leg. These cuts 45 may be formed as channels or in any other suitable form as may appeal to the skilled mechanic having in view the objective which I choose to obtain with this type of corner connection.

Once the corner connector legs 41 and 42 are inserted into two adjacent ends of the sash side members 30 and the ends are brought closely together so that their mitered portions form a 45° joint 46, the cross member areas adjacent or contiguous with the depressed portion 45 on the connector legs are indented or staked into these depressions. Thus, the legs are prevented from being withdrawn from the member end and rigidly are secured to these ends. As a result it can be seen that an extremely tight and close fitting rigid joint is formed between the two adjacent sash side forming members.

As can be seen from the above description, I have provided an outer frame which is extremely drip resistant due to the formation of an integral nailing strip with a drip strip and providing the nailing strip with sufficient length to impede the flow of water between the strip and the building structure. In addition, this formation is quite rigid since the nailing strip which extends at a

right angle to the drip-strip forms a strengthening flange for the entire outer frame. In addition, this frame is provided with channels suitable for containing weather stripping and which permits the free sliding of window sash therein.

In addition, the sash used with this particular type of frame is provided with an unusually rigid corner connection which makes possible the use of relatively thin gauge extrusions but which nevertheless has sufficient strength to prevent warping, twisting, bending or other damage to this sash when the sash is in normal usage in a dwelling house or some such similar structure.

Now having fully described one operative embodiment of my invention, it is to be understood that this invention may be further developed within the scope of the attached claims without departing from the essential spirit of said invention. Accordingly, the above disclosure should be treated as being a description of one operative embodiment and not in a strictly limiting sense.

I claim:

1. A window frame for mounting within a wall opening for supporting window sash and comprising a header member, a sill member and side jamb members joined together at their respective ends to form a four sided frame having a central opening, and with the frame having a weather side and a room side; each of said members being of the same cross-section wherein each member is formed with a flat nailing strip extending peripherally away from the central opening for laying flat over the wall edge surrounding a wall opening, a drip strip integral with the nailing strip and extending normally therefrom towards said weather side of the frame, a front frame strip integral with the drip strip end and extending into the frame central opening, and a channel plate integral with the end of the front frame strip and extending towards the room side of the frame and arranged substantially parallel to and spaced from the drip strip, the channel plate being provided with at least one pair of spaced flanges extending towards the central opening to form a sash supporting channel between the flanges, and the channel plate being indented, adjacent to and on the room side of said flanges, into the form of a groove, open towards the frame central opening and formed of side walls integral with the channel plate but extending outwardly of the central opening and a base joined to the side walls to close the end of the groove remote from the frame central opening, the channel plate being provided with projections extending from said side walls and projecting towards each other from the side walls to partially close the open end of the groove wherein a window sash may be inserted into said groove between the projections and a weather strip plate may be held within the groove by said projections and urged against said projections by a spring means positioned within the groove.

2. A construction as defined in claim 1 and wherein the junction between the nailing strip and drip strip is formed as a protuberance extending towards the weather side of the frame so that a covering sheet laid over the nailing strip with its end against the drip strip will be held out at an angle relative to the nailing strip by said protuberance.

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