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MOUNTING FOR METALLIC WINDOW SASHES

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Fig. 1.

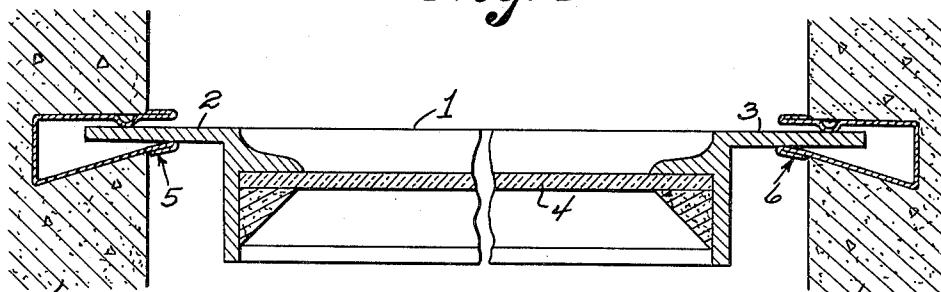


Fig. 2.

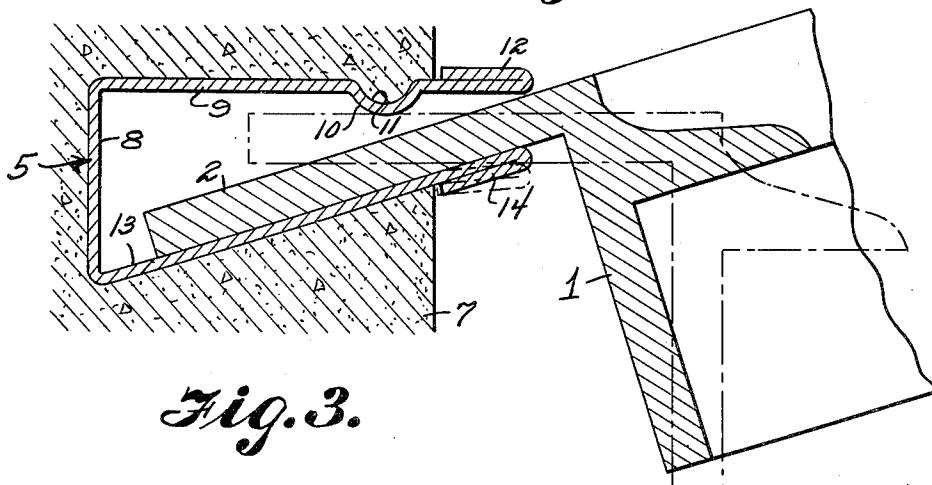


Fig. 3.

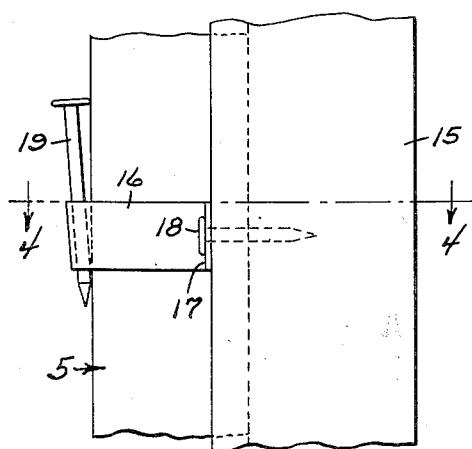
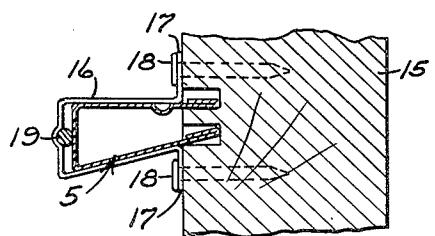


Fig. 4.



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MOUNTING FOR METALLIC WINDOW SASHES

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Continuation of application Serial No. 27,638, May 18, 1948. This application August 17, 1951, Serial No. 242,359

9 Claims. (Cl. 189—75)

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My present invention relates generally to improvements in metallic building structures having metallic window frames and metallic sashes, and more specifically to an improved mounting for a metallic window sash which while well adapted to various purposes and uses is especially designed for installation in the concrete walls enclosing a window opening, and also for installation in brick and other masonry walls. The primary object of the invention is the installation within the walls of a window opening of improved channel frames or reglets in which the flanged steel window sash may be mounted with facility and a minimum expenditure of time and labor. This improved channel frame or reglet is so constructed and supported about the window opening that a flanged sash may be solidly mounted therein to insure a durable and weather-proof joint between the window sash and the channel frame.

Improved means and an improved process are also provided whereby the reglets, preliminary to casting a concrete wall for the window opening, are erected and temporarily supported in precise position for casting the concrete, after which the temporary supports may be dismounted and withdrawn.

The channel shaped reglets are cut to standard size preferably from metal as for example, aluminum stock, and each piece of the rectangular frame is an integral or one piece unit adapted to be integrated with other units and installed in the walls about the window opening. The channel frame members thus consist of a minimum number of parts that may with facility and low cost of production be manufactured, assembled with convenience, and then installed in permanent position for reception and retention of metallic window sash.

This invention consists in certain novel features of construction and combinations and arrangements of parts and processes as described herein and more particularly set forth in the claims.

One important object of this invention is the provision of a window mounting which includes a channel shaped reglet so constructed and supported within a window opening in a building that the edge flange of a window sash provided for such opening may be readily inserted into the reglet channel and once received therein will be so grippingly engaged thereby as to be held firmly and securely in place against leakage of moisture or air thereabout.

Another important object is the provision of a window mounting which includes a channel

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shaped reglet supported within the jamb structure of a window opening with the outer free marginal portions of the side walls of the reglet channel projecting beyond the jamb face of the structure and converging toward each other, one of which side walls is yieldingly tensioned toward the other. Said marginal portions of the reglet channel are preferably spaced apart transversely of the channel a distance greater than the thickness of the edge flange of the sash adapted to be mounted within said window opening. One side wall of the reglet channel is provided with a linearly extending edge flange engaging portion spaced inwardly of the channel from the marginal portion of the opposite side wall of the reglet and projecting transversely of the channel toward its opposite side wall to such an extent that the distance transversely of the channel between the inner face of said portion and the free marginal portion of said opposite side wall is less than the thickness of the edge flange of the sash and less than the transverse distance between the free marginal portions of the two side walls of the channel.

25 In the accompanying drawings I have illustrated a complete example of a physical embodiment of my invention in which the parts are combined and arranged in accord with one mode I have devised for the practical application of the principles of my invention. It will however be understood that changes and alterations are contemplated and may be made in these exemplifying drawings and mechanical structures, within the scope of my claims without departing from the principles of the invention.

30 This application is a continuation of my application Serial No. 27,638, filed May 18, 1948, now abandoned.

35 Fig. 1 is a broken, horizontal sectional view disclosing a metallic window sash mounted in a window frame that is embedded in a concrete wall opening and embodies the principles of my invention;

40 Fig. 2 is an enlarged and horizontal sectional view of one of the concrete walls having a jamb or channel frame reglet embedded therein, showing the angular position of the sash as its flange is inserted in the reglet, and showing by dotted lines the sash in set or installed position;

45 Fig. 3 is a fragmentary upright detail view of part of a concrete form or buck with a channel frame attached thereto by temporary and frangible fastening means; and

50 Fig. 4 is a horizontal sectional view at line 4—4 of Fig. 3.

55 In order that the general arrangement and

utility of parts of the mounting for the window sash may readily be understood, I have disclosed in Fig. 1 a standard rectangular metallic window sash 1 having lateral and oppositely extending attaching flanges 2 and 3, and a usual pane 4 mounted therein, and in Fig. 1 the sash is shown in permanent fixed position with the flanges in the channel frame members. The channel frame members 5 and 6, within which the edge flanges of the sash are mounted, are cast in the two spaced concrete walls 7 and 7' of the window opening, and these frame members may each be cut from stock material to form members of a unitary frame for the sash.

Each of the upright channel frame members includes a back wall 8 fashioned with a right angular plate or side wall 9 in which an interior vertical rib 10 is formed. This rib co-acts with an edge flange 2 of the sash. The integral rib provides an exterior groove 11 in which the concrete formation is keyed to assist in preventing displacement of the frame member.

The side plate 9 disposed perpendicularly to the back wall terminates in a double thick or outwardly folded return flange 12 that projects beyond the face of the concrete wall 7 so that the inturned end of the flange may abut against the wall, while the rib 10 is spaced inwardly of the channel frame and inwardly from the exterior flange 12.

A second integral and angular plate or side wall 13 is extended from the back wall 8 and converges toward the flanged end of the plate 9 to form a restricted mouth or slot that opens to the interior of the outspreading channel member. This plate 13 terminates in a double thick flange 14 that is adapted to be used as a resilient fulcrum as the edge flange 2 of the sash is swung thereon in the insertion of the sash into the channel frame.

The free outer marginal portions 12 and 14 of the two side walls of the reglet channel project beyond the jamb face of the jamb structure 7 and converge as they extend therebeyond. They are tensioned yieldingly inwardly of the channel toward each other.

As appears from Fig. 3, the transverse spacing between the outer free marginal portions 12 and 14 of the channel walls is greater than the thickness of the edge flange 2 of the sash so that such edge flange may be readily inserted edgewise therebetween. The distance transversely of the channel between the inner face of the edge flange engaging linearly extending portion or rib 10 of side wall 9 and a plane flush with the inner face of the outer marginal portion 14 of the side wall 13 of the channel which plane is disposed substantially perpendicularly with respect to the transverse plane of the channel, or substantially perpendicularly with respect to the back 8 of the channel, is less than the thickness of said edge flange 2. Such distance is also less than the distance transversely across the channel from the inner face of the rib 10 to that portion of the side wall 13 immediately opposite to the inner face of the rib 10. This is apparent from Fig. 3.

In the manual operation of installing the window sash the channel reglets or frame members are first mounted upon wooden uprights at 15 that provide the concrete form for the window opening of a building structure. As shown in Figs. 3 and 4, the channel reglets or channel frame members are temporarily attached to this form or buck by means of frangible or breakable fastening brackets or bands 16. These bands or

straps conform to the exterior shape of the channel frame member. The wood form is provided with spaced parallel grooves or saw kerfs within which the marginal portions of the reglet channel are seated.

The thin frangible bands or brackets which are engaged in spaced relation upon the channel frame member are provided with angular attaching flanges 17 attached to the wood form by nails 18. To more rigidly hold the channel frame in precise position seating the marginal edges in the grooves of the form a nail 19 may be driven in between the back wall of the channel frame and the attaching band.

After the concrete wall 7 has been cast and set, the straps or brackets 16 may be broken off at the junction of their flanges as the form 15 is being removed from the concrete wall, thus leaving the flanges 12 and 14 of the channel frame member projecting inwardly from the face of the wall toward the window opening.

The sash 1 is then installed by first inserting one edge flange 2 at an angle as shown in full lines, Fig. 2, into the outspreading interior of the channel frame at one side of the window opening. This insertion is readily accomplished because it will appear that the distance between the outer free marginal portions 12 and 14 of the reglet channel side walls 9 and 13 is greater than the thickness of the edge flange 2. Furthermore, the distance between the inner face of the rib 10 and that portion of the side wall 13 directly opposite to said rib is also greater than the thickness of the edge flange 2.

The sash is then swung, with the edge flange 2 resting on the flange 14 as a resilient fulcrum, into the dotted line position until the edge flange 2 frictionally engages the rib 10. After the sash has been swung so that the edge flange 2 is dis-

posed parallel with the side wall 9 of the reglet channel and is snugly engaged with the outer face of the bead 10, the sash may be slid transversely so that the edge flange 3 enters the channel opening of the complementary reglet or channel member 6 at the opposite side of the window opening.

It will be understood that in the installation of the window sash the edge flange 2 would be initially inserted into the reglet to a greater depth than the position it would eventually occupy. After it has been swung to a position of parallelism with the plane of the window opening and slid transversely into the opposed reglet it is properly positioned transversely within the opening.

The edge flanges 2 and 3 of the window sash 1 are held grippingly between the marginal portions 14 of the side walls 13 of the two reglets and the inner faces of the ribs 10. Such flanges are so held as to form tight joints against leakage and support the sash at the position to which it has been adjusted transversely in the window opening.

Between the projecting resilient flanges 14 and the spaced ribs 10 the flanges are rigidly retained in parallelism with the right angle side plates 9 of the frame members to provide durable and weather-tight joints for the flanges within the frame members.

Following the insertion of the two side flanges of the window sash into the two jamb structures, the window sash may be lifted vertically with a suitable tool so that its header flange, not shown in the drawing, enters a header reglet, also not shown. The header reglet is of the same construction as the jamb reglets. The window sash would be lifted vertically to the point it

would occupy in the window opening and would now be engaged at the top and at the two sides by the reglets of this invention. Sill means may now be built into the window opening by the use of concrete or other suitable sill forming material.

What I claim is:

1. In a mounting for a metallic window sash having an edge flange, the combination of a channel frame having a back wall, a right-angular side wall, and an opposed side wall converging toward the right-angular wall to form a restricted mouth, said side walls terminating in retaining flanges having outer parallel edges one of which forms a resilient fulcrum for one side of the edge flange, and an interior rib integral with the right-angular wall and spaced inwardly from its flange in opposition to the fulcrum flange.

2. In a mounting for a window sash having an edge flange, the combination of a channel frame having a back wall and a pair of opposed side walls converging toward one another to form a restricted mouth, said side walls terminating in retaining flanges having outer spaced apart parallel edges, one of which forms a resilient fulcrum for one side of the edge flange of a window sash, and an interior rib integral with the side wall opposite said fulcrum flange and spaced inwardly from its respective flange and serving to abut the opposite side of the edge flange of the window sash to limit its turning movement on the fulcrum flange.

3. In a mounting for a window sash having an edge flange, the combination of a channel frame having a back wall, a pair of opposed side walls integrally connected to the back wall and converging from their connection to the back wall toward one another to form a restricted mouth, said side walls terminating in outer free edges extending in spaced apart relation sufficient to endwise slidably receive the edge flange of the window sash, one of said side walls having an interior rib spaced inwardly from its outer free edge and projecting into the channel of the frame, and the free edge of the other side wall being bendable and serving as a yieldable fulcrum about which the edge flange of the window sash may be turned for abutment with the interior rib.

4. In a mounting for a window sash having an edge flange, a channel-shaped reglet having a back wall and a pair of opposed side walls, said side walls converging toward each other as they extend away from the back wall and terminating in outer free edges spaced apart sufficiently to slidably receive therebetween said edge flange of the window sash, one of said side walls yieldingly resiliently tensioned toward the opposite side wall, one of said side walls provided with an edge flange engaging portion extending linearly thereof spaced inwardly from the outer free edge of the side wall, said portion projecting toward the opposite side wall of the reglet and terminating spaced transversely from the directly opposite linear portion thereof a distance greater than the thickness of the edge flange of the sash and spaced transversely from a plane extending flush with the outer free edge of the opposite side wall and perpendicular to the back wall of the sash a distance less than the thickness of said edge flange of the sash.

5. In a mounting for a window sash having an edge flange, a sash reglet channel-shaped in cross section and having side walls which converge toward each other as they project away

from the back of the channel, one of said side walls provided with a linearly extending sash flange engaging portion spaced inwardly from the free edge of the side wall and projecting inwardly of the channel toward its opposite side wall, said portion terminating spaced from a plane disposed flush with the free edge of said opposite side wall and perpendicular to the transverse plane of the channel a distance less than the thickness of said edge flange, one of said side walls being tensioned yieldingly toward the opposite side wall.

6. In a mounting for a window sash having an edge flange, a sash reglet channel-shaped in cross section and having side walls which converge toward each other as they project away from the back of the channel, one of said side walls provided with a linearly extending sash flange engaging portion spaced inwardly of the channel from the free edge of the opposite side wall and spaced transversely of the channel from a plane passed flush over the free edge of said opposite side wall a distance less than the transverse spacing from the directly opposite linear portion of said opposite side wall and less than the thickness of said edge flange, one of said side walls being tensioned yieldingly toward the opposite side wall.

7. In a mounting for a window sash having an edge flange, a jamb structure, a reglet channel-shaped in cross section mounted within the jamb structure with the outer free marginal portions of the reglet channel side walls projecting beyond the jamb face of the structure and converging therebeyond toward each other, one of said marginal portions being tensioned yieldingly inwardly of the channel toward the other side wall, said marginal edge portions being spaced apart a distance greater than the thickness of said edge flange of the sash, one of said side walls provided with a linearly extending edge flange engaging portion spaced inwardly of the channel from the margin of its side wall, said portion protruding inwardly of the channel and terminating spaced transversely thereof from a plane disposed flush with the free edge of the opposite side wall and perpendicular with respect to the transverse plane of the channel a distance less than the thickness of the edge flange of the sash.

8. In a mounting for a window sash having an edge flange, a jamb structure, a reglet channel-shaped in cross section mounted within the jamb structure with the outer free marginal portion of one side wall thereof projecting beyond the jamb face of the structure and tensioned yieldingly toward the opposite side wall of the reglet channel, said opposite side wall of the reglet channel provided with a linearly extending edge flange engaging portion spaced transversely of the channel from a plane passed flush over said outer free marginal portion perpendicularly to the transverse plane of the channel a distance less than the thickness of said edge flange and spaced transversely of the channel from the directly opposite linear portion of the opposite side wall a distance greater than the thickness of said flange.

9. In a mounting for a window sash having an edge flange, a jamb structure, a reglet channel-shaped in cross section mounted within the jamb structure with the outer free marginal portion of one side wall of the reglet channel projecting beyond the jamb face of the structure and converging and tensioned yieldingly toward the opposite side wall of the reglet channel, said

free marginal portion being spaced from a linearly extending portion of the opposite side wall of the channel a distance less than the thickness of the edge flange of the sash, said linearly extending portion of the opposite side wall being offset inwardly of the channel and the edge of said free marginal portion of the opposite side wall.

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