March 1, 1955 R. GOLDBERG 2,703,157

CONNECTOR ELEMENT FOR METAL PROJECTED WINDOWS

Filed March 5, 1954

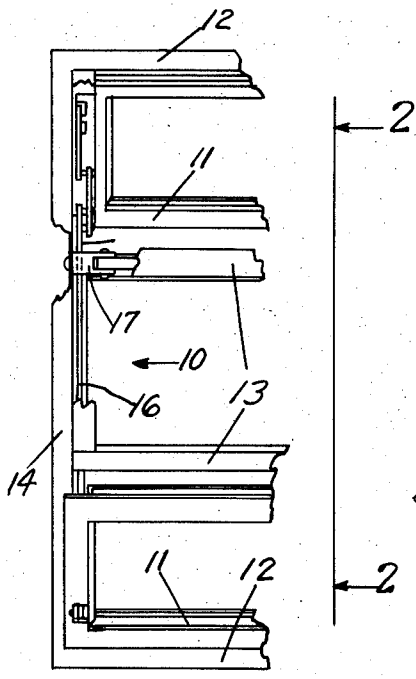


FIG. 1.

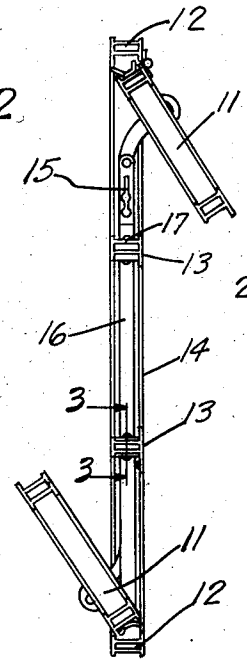


FIG. 2.

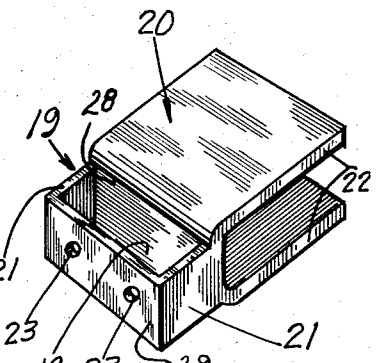


FIG. 5.

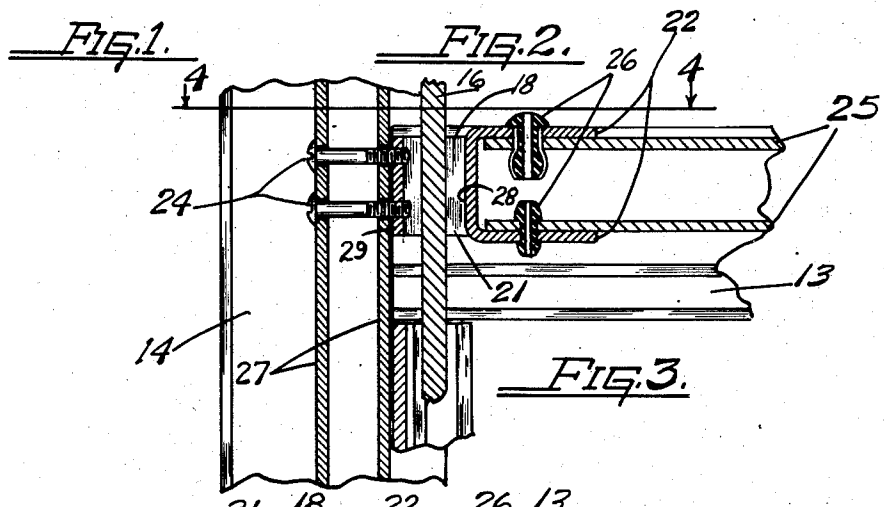


FIG. 3.

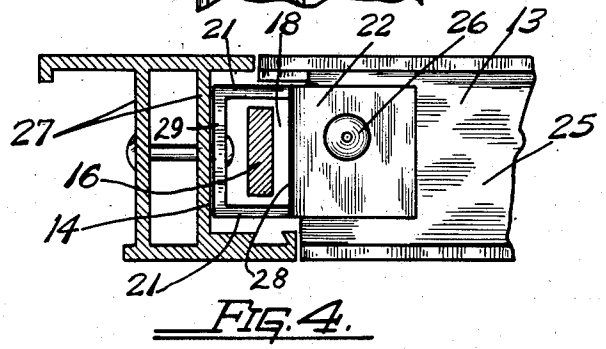


FIG. 4.

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United States Patent Office 2,703,157 Patented Mar. 1, 1955

2,703,157

CONNECTOR ELEMENT FOR METAL PROJECTED WINDOWS

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Application March 5, 1954, Serial No. 414,268
3 Claims. (Cl. 189—36)

This invention relates to improvements in metallic window frames of the projected type and more particularly to an improved frame construction in metal projected windows having double sashes operatively interconnected to one another by means of a connecting member sliding within the frame.

Metal projected windows are being used quite extensively in the construction of up-to-date buildings because of their neat appearance and ease of operation and installation. One of the most popular styles is that which has an upper and lower sash operatively interconnected by a connecting member which causes the second sash to open whenever the first sash is opened. In windows of this type, a cross-frame member is positioned within the window frame between the two sash portions. Oftentimes, two or more cross-frame members are provided between which a fixed pane of glass is glazed. In any event, a problem arises in connection with fastening the outer ends of the cross-frame member to the main frame in a manner that will permit the connecting member to slide freely within the main frame. The ends of the cross frame cannot be directly secured to the main frame in a satisfactory manner without blocking the opening through which the connecting member must pass.

The principal object of the present invention is to provide a connector element by means of which the cross-frame members of a metal projected window having double sashes interconnected by a connecting member may be attached securely and easily to the side frame members of a window frame and which leaves an opening between the side frame members and the cross-frame member through which the connecting member may move.

Other objects will be in part apparent and in part pointed out specifically hereinafter in connection with the description of the drawing which follows; and in which,

Figure 1 is a front elevation of a portion of a metal projected window showing the two sash portions in partly opened position;

Figure 2 is a side elevation of a metal projected window looking in the direction of arrows **2—2** of Figure 1;

Figure 3 is an enlarged fragmentary section taken along line **3—3** of Figure 2 showing the connector element of the present invention in place to secure the end of the cross-frame member to the side frame member;

Figure 4 is an enlarged fragmentary section of the connector element, cross-frame member and side frame member taken along line **4—4** of Figure 3; and

Figure 5 is a further enlarged perspective view of the connector element described and claimed herein.

Referring now in particular to Figure 1 of the drawing, reference numeral **10** designates in a general way a metal projected window having upper and lower sashes **11** connected by means of hinges on their respective upper and lower edges to upper and lower frame members **12**. The upper and lower sashes swing outwardly from the main frame in opposite directions, as shown most clearly in Figure 2. One or more cross-frame members **13** are secured between the side frame members **14** forming means for sealing the sashes against the weather when in closed position.

In Figures 1 and 2 will be seen a conventional link mechanism **15** which causes the lower sash to open whenever the upper sash is opened. The link mechanism interconnecting the sashes operates within a recessed portion in the wall of the side frame members and has a connecting member **16** which moves upward and downward as the sashes are opened and closed. The construction of the connector element **17** of the present invention, permits the cross-frame members to be joined at their ends to the side frame members in such a way that an opening **18**, shown most clearly in Figures 3, 4 and 5, is provided through which connecting member **16** may move upward and downward.

With particular reference to Figure 5, the connector element will be seen to comprise two substantially U-shaped members **19** and **20** rigidly connected together with their open ends facing in the same direction but with their side legs **21** and **22** respectively, at 90 degrees to one another. Thus, U-shaped member **19** forms a generally rectangular opening **18** with the closed end **28** of U-shaped member **20**. The closed end **29** of U-shaped member **19** is preferably provided with threaded openings **23** by which the connector element may be secured to the side frame member by means of bolts **24** as shown in Figure 3.

Figure 3 shows the manner in which the connector element is used to fasten the cross-frame member to the side frame member. Side legs **22** of the connector element are spaced to fit on the outside of transverse web portions **25** on the cross-frame member. Side legs **22** are shown secured to the transverse web portions by hollow rivets **26**; however, they may also be bolted or welded in place. The closed end **29** of U-shaped member **19** is then secured to transverse web portions **27** of the side frame member by means of bolts **24** passing through the transverse web portions into threaded openings **23**. In some instances it may be possible to rivet or weld the connector element to the transverse web portions as shown in Figure 4. The connector element is attached between the side frame members and the cross-frame members so that opening **18** formed by side legs **21** and closed ends of U-shaped members **19** and **20** will be substantially vertical thus permitting connecting member **16** to move freely up and down therein.

Figure 4 illustrates the relative position of the connector element with respect to the side frame member and the cross-frame member as well as showing the manner in which connecting member **16** may ride freely within opening **18** of the connector element.

Having thus described my invention, it will be seen that the several objects for which it was constructed have been achieved; and therefore, I claim:

1. A connector element for use in joining a cross frame member to a side frame member of a metal projected window of the type having a connecting member operatively interconnected between double sashes for movement within said side frame members comprising, a first and second U-shaped member each of which has a transverse leg and two substantially parallel side legs, the transverse leg of the first U-shaped member being connected to the side frame member so that the opening between the side legs extends in the direction of the length of said side frame member, the transverse leg of the second U-shaped member being rigidly connected between the side legs of the first U-shaped member across the open end thereof with the side legs of said second U-shaped member extending in the same direction from the side frame member as the side legs of the first U-shaped member in planes substantially perpendicular to the planes of the side legs of said first U-shaped member, and the side legs of the second U-shaped member being connected to the end of the cross frame member.

2. A device in accordance with claim 1 in which threaded openings in the transverse leg of the first U-shaped member are provided for the reception of bolts to connect the connector element to the side frame member.

3. A device in accordance with claim 1 in which the opening formed by the transverse legs of the first and second U-shaped member and the side legs of the first U-shaped member is rectangular and dimensioned to permit the connecting member to move therein.

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