March 30, 1937. F. EICHE 2,075,642

GREENHOUSE SASH BAR

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Fig. 1

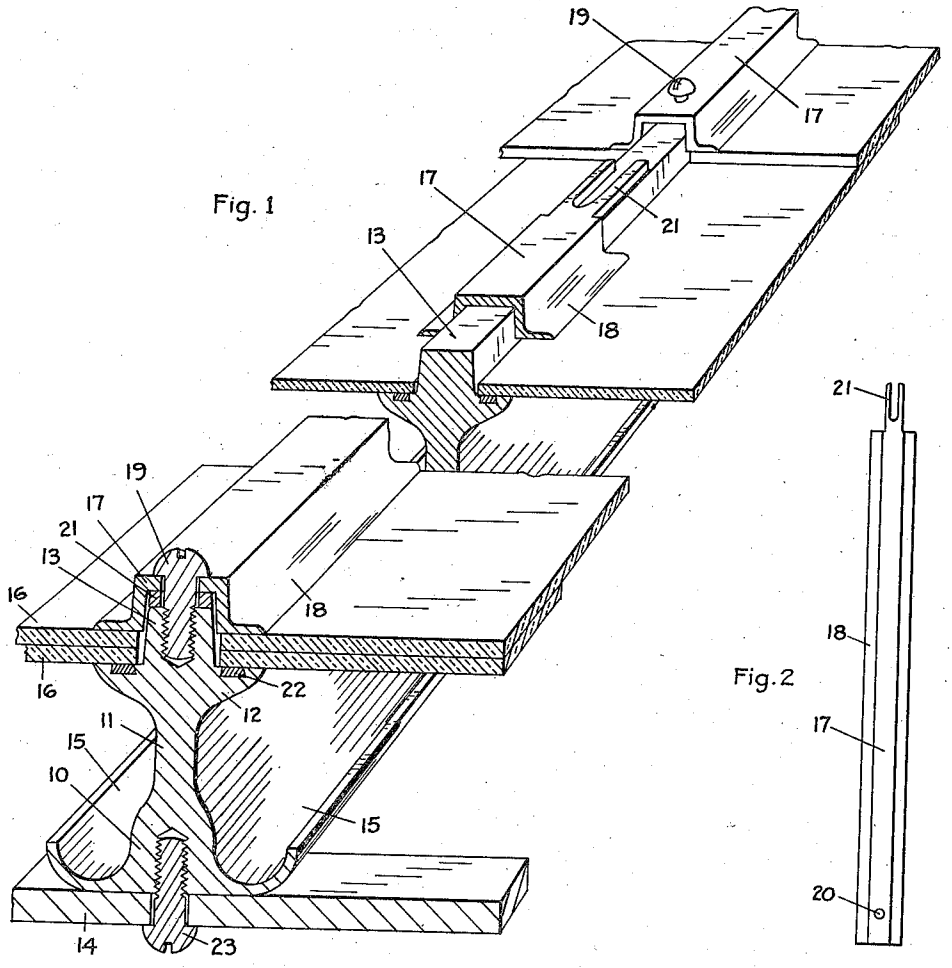


Fig. 2

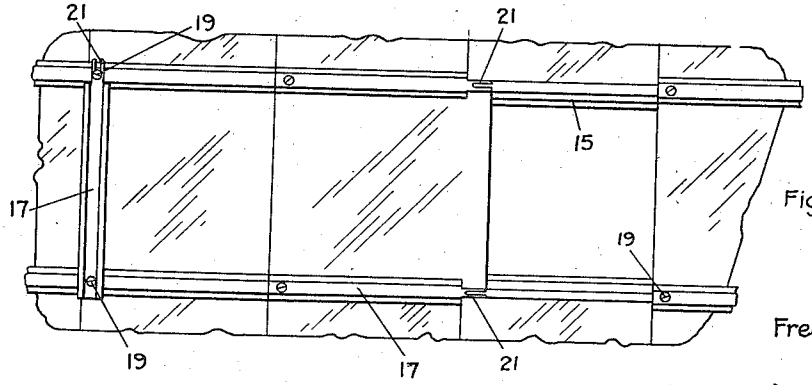


Fig. 3

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GREENHOUSE SASH BAR

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2 Claims. (Cl. 108—16)

My invention relates to greenhouse sash bars, one of its objects being the provision of an easily fashioned sash bar which lends itself to the extruding process of manufacture.

Another object of the invention is the provision of a sash bar which facilitates the removal and replacement of broken panes of glass.

Another object is the provision of a sash bar with means for firmly securing the glass panes against chattering.

Still another object of the invention is the provision of a sash bar which provides for a firm roof of sufficient strength to carry any possible load due to the weight of the glass itself or to snow and ice and capable also of supporting workmen to replace broken panes of glass.

A very important object of the invention is the provision of a sash bar which obstructs the minimum of light.

I also have in view the provision of a latch bar of simple construction and of extremely simple manipulation for releasing a broken pane of glass and for latching another pane of glass in its place.

Another object is the provision of a sash bar and latch bar arrangement which may be used on occasion as a ladder.

Having in view these objects and others which will be pointed out in the following description, I will now refer to the drawing, in which

Figure 1 is a view in perspective showing the sash bar and the latching bar and the panes of glass, all of these being sectioned at various places to disclose structure which would otherwise be concealed.

Figure 2 is a plan view of one of my latch bars.

Figure 3 is a plan view of a fragment of the greenhouse roof showing an opening where a pane of glass has been removed and showing also the adaptation of the latch bar as a support for a workman.

The sash bar includes a base 10, a shank 11, a head 12 and a rib 13, all of integral and solid construction since the sash bar is to be formed by the extrusion of metal. The base 10 is designed to rest on transverse beams 14 of the frame of the greenhouse and it is provided on its opposite sides with drip channels 15 for carrying away the moisture of condensation or other water which reaches these channels. The head 12 rests on the shank 11 and it projects to both sides thereof. The upper surfaces of the head 12 are flat and they are designed to support panes of glass 16 at the lateral edges of the panes. Above the upper flat surfaces of the head 12 is a rib 13 which tapers slightly in an upward and inward direction. This rib functions in a manner to be later described for securing the panes of glass firmly against the upper flat surfaces of the head 12 but it also functions to space the columns of the panes of glass from each other. The sash bar and its integral parts are all made in suitable lengths to span the distance between the eaves and the ridge of the greenhouse.

The panes 16 rest on the upper flat surfaces of the heads 12 and for this reason the sash bars are secured to the roof frame of the greenhouse in parallel relation and spaced a suitable distance from each other to accommodate the panes of glass which are generally uniform in dimensions. The units of each column of glass panes are thus arranged in imbricated relation to rest at their lateral edges only on the flat surfaces of the heads 12 of two spaced sash bars. For securing them in fixed position on the sash bar, I provide a latching bar of novel form. This latching bar 17 consists of a strip of channeled metal of substantially the same length as that of the glass panes 16. The channeled portion of the latching bar 17 is shaped to seat over the top of the rib 13. The latching bar is provided with two laterally projecting strips 18 whose overall width is that of the head 12 as shown in Figure 1. The rib 13 is provided with a plurality of uniformly spaced screw-threaded apertures for the reception of screws 19. The spacing of these apertures must conform to the length of the glass panes. As shown in Figure 2 the latching bar 17 is provided with an aperture 20 adjacent its lower extremity and with a fork 21 at its upper extremity.

The removal of a broken pane of glass and its replacement is thus an exceedingly simple matter as compared with such removal and replacement with any of the prior constructions. The two screws 19 adjacent the lower edge of the broken pane are first removed entirely and the two screws adjacent the upper edge of the broken pane are then loosened sufficiently to release the edges of the glass. This then releases the two latching bars 17 which may be slidably withdrawn so that a new pane of glass may be inserted. After the insertion of the new pane of glass the two latching bars 17 are replaced into the positions which they formerly occupied, being first shoved upwardly to straddle a screw 19 until the aperture 20 is in registration with the aperture in the rib 13. The screw 19 is then passed

through the aperture 20 and into the aperture of the rib 13 after which the screw 19 adjacent the upper edge of the glass pane is tightened to secure all of the parts together.

The latching bar 17 may be employed as shown in Figure 3 to serve as a ladder or as a support for the workman who makes repairs on the roof. By arranging the latching bar transversely to span the distance between the two sash bars, the latching bar may be secured temporarily in place to firmly support the weight of the workman who is making the repairs.

The head 12 of the sash bar is provided with a pair of grooves which run lengthwise of the sash bar and which are formed during the extrusion of the metal by which the entire sash bar is formed. These grooves are adapted to retain buffers 22 which may be formed out of rubber or cork or any other suitable material adapted to cushion the glass panes against vibration and to check the flow of any moisture which might otherwise creep into the joints.

While the sash bar may be made of any suitable metal, the most suitable metal thus far found is an alloy of aluminum which is sufficiently rigid to bear all of the weight to which it is subjected and which is resistant to atmospheric conditions which might cause rust or similar oxidation in some other metal. The transverse beams 14 which may also be formed of a similar metal are apertured for the reception of screws 23 which enter suitable screw-threaded apertures in the base 10.

By means of the latch bar 17 it is possible to remove and to replace a broken pane of glass without in the slightest way disturbing any other part of the greenhouse roof. The importance of this feature resides in its easy manipulation. Only two screws must be withdrawn and two others must be slightly loosened in order to release the pair of latch bars which hold the broken pane. Another pane of glass may then be inserted and firmly secured in place by the insertion of the two screws which were taken out and the tightening of the two screws near the upper edge of the pane of glass. As compared with the prior constructions, the manipulation of my latch bar is exceedingly simple since the minimum number of screws is taken out thus reducing to a minimum the annoyance caused by the loss of screws while working on a sloping glass roof.

Of prime consideration in a greenhouse roof is the transmission of light which is a most important factor in growing good plants and fine flowers. The heads 12 are relatively narrow and they obstruct the minimum of light. The flanges 18 of the latching bars merely cover the head 12 and they also do not obstruct any more light than is necessary.

The sash bar possesses great strength relative to its size and weight due largely to the fact that it is of an I-beam form. Not only does the form provide strength but the added strength is due further to the process of manufacturing the sash bar. Metal beams in their molecular structure have a grain which depends largely on the way the metal is formed and cooled. In the case of beams formed by extrusion the primary grain would naturally be lengthwise of the beam and this lengthwise grain adds to the supporting strength of the beam. While relatively small in size and of extremely light weight, the sash bars are capable of supporting the weight of the roof plus the weight of accumulations of snow and ice as well as resisting the wind pressures. This beam construction will also support any workmen who are making repairs on the roof. The use of the latch bar 17 in the manner shown in Figure 3 greatly facilitates this use since the latch bars are of relatively short length and of channel construction to in themselves support considerable weight. These may be used as a ladder as shown in Figure 3 or two or more latch bars may be arranged transversely to support a light platform for supporting the workmen while making repairs on the roof.

Having thus described my invention in such full, clear, and exact terms that its construction and operation will be readily understood by others skilled in the art to which it pertains, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A sash bar for greenhouses, comprising a body bar having an upstanding dividing ridge with pane supporting ledges at opposite sides thereof to support panes in consecutively overlapping relation, channeled latch bars fitting over the ridge with outwardly flanged lower edges adapted to seat on the opposite panes supported on the ledges, each channeled latch bar having a screw opening in its top near one end thereof and having fork arms coextensive with its upper surface at its opposite end and extending beyond said end to leave the said lower flanges free for abutting engagement with the edge of the adjacent overlapping pane to hold the same from sliding displacement, said latch bars being of a length substantially equal to the length of the adjacent panes and said ridge having in its top threaded screw sockets adapted to register with the screw openings of the adjacent latch bars, and clamping screws engaging through the openings in the latch bars and into said sockets of the ridge, the fork arms on one end of the latch bars adjustably engaging within the opposite ends of the latch bars on top of the ridge and at opposite sides of the screws, whereby tightening of the screws binds the fork arms against the ridge and secures the latch bars in consecutively overlapping relation throughout the length of the ridge.

2. A sash bar for greenhouses and the like comprising a body bar having two aligning plane surfaces for supporting panes of glass at their lateral edges and having a rib projecting upwardly from the middle portion of said body bar to space apart the panes of glass, said rib having uniformly spaced screw-threaded apertures, and latch bars corresponding in length substantially to that of the panes of glass and having channeled portions seating over said rib and also having lateral projections for engaging the upper surfaces of the panes of glass to hold the same seated on said plane surfaces, each latch bar having a longitudinally slotted projection at one end in the plane of the top of the channeled portions, said latch bars each having an aperture spaced from said fork a distance substantially equal to the spacing apart of said apertures in the rib, and screws passing through the apertures of said latch bars and through said forks and into the apertures of said rib to clamp the latch bars directly on the rib.

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