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WINDOW CONSTRUCTION

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WINDOW CONSTRUCTION

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Among the objects of the present invention is to provide a novel double-hung metal window construction.

A further object is to provide a novel frame construction in which the sash weights, pulleys and cords, or the mechanism for raising and lowering the sashes are not positioned in vertical alignment with the sashes but are off-set therefrom. By thus positioning the operating mechanism, it in no way disturbs the weathering features of the window.

Another object of the invention is the provision of a novel construction and arrangement of mechanism for operating the sliding sashes in a double-hung window.

A still further object of the present invention is to provide a novel compact window construction having a minimum number of parts and affording a maximum area of transparency and light.

Yet another object of the present invention is the provision of a novel window construction which may be readily assembled and/or replaced and in which the parts are more readily accessible than those now in use.

A still further object is to provide a novel metallic window construction in which the frame and/or sash members are formed of extruded metal giving the structure unusual strength and stability.

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

In the drawing:

Fig. 1 is a view in side elevation of the interior of the window.

Fig. 2 is a broken view in vertical cross section through the window taken in a plane represented by the line 2—2 of Fig. 1.

Fig. 3 is a view in horizontal cross section taken in a plane represented by the line 3—3 of Fig. 1, but with the position of the window reversed.

Fig. 4 is a fragmentary view in side elevation of an alternate construction.

Fig. 5 is a view in vertical cross section of the construction disclosed in Fig. 4.

Referring more particularly to the disclosure in the drawing, the embodiment selected to illustrate the invention comprises a window frame 1 formed preferably of extruded metal and having side jambs 2, 2, head jamb 3 and sill 4. Any suitable means may be provided for retaining the frame in the window opening.

In the window frame are provided slidable sash members 5 and 6. Each sash member is provided with side rails 7, the upper sash having a top

rail 8 and a bottom rail 9, while the lower sash is provided with a top rail 10 and a bottom rail 11. Each rail is formed with an inwardly facing channel or groove 12 for receiving a pane of glass 13. In order to assemble or replace the glass, one of the side rails is made removable as by means of screws, bolts or the like, the pane being pushed into the grooves in the other rails. These other rails may be suitably connected as by soldering, welding or the like.

The side rails 7 of the upper and lower sashes 5 and 6, and the top rail 8 of the upper sash and the bottom rail 11 of the lower sash, are each provided with an outwardly facing groove or channel 14. The groove in the top rail 8 is adapted to receive a rib 15 formed on the head jamb 3, when the upper sash 5 is in closed position, while the groove in the bottom rail 11 is adapted to receive a rib 16 formed on the sill 4, when the lower sash 6 is in its closed position. This provides an efficient weathering means for the top and bottom of the window.

Upon each side jamb is mounted a resilient strip of metal 17 having a pair of ribs or guides 18 adapted to seat in the grooves 14 in the side rails 7. These ribs have the double function of guiding the sashes in their sliding movement and of forming an efficient weathering means at the sides of the sashes. Due to the resiliency of the metal, the ribs 18 readily adjust and align themselves with the grooves or channels in the sash members.

In order to readily raise or lower the sashes and to retain them in their adjusted position, the invention comprehends the provision in the form shown in Figs. 1 to 3 inclusive, of a weight 19 connected to each sash. Each weight is connected to one end of a cable, cord or the like 20, with the other end 21 of the cable or cord connected to an eye bolt or other fastening means 22 mounted on a face of the sash. This cable or cord passes over a pulley 23 which is suitably mounted in the frame and which projects through the side jamb 2 and strip 17. As clearly disclosed, the pulley, weight, cable or cord and the means for connecting the cable or cord to the sash is off-set from the sash, or out of vertical alignment therewith. This construction insures no interference between the ribs 18 and sashes and permits these ribs 18 to extend for the complete length of the window opening and thus to insure complete weathering at the sides of the window. The pulleys in no way disturb the weather-tight joint between the frame and sash members. Handles *a* are provided for aiding in raising or lowering the lower sash.

In order to provide complete weathering at the meeting rails 9 and 10 of the sashes, these rails are provided with channel-shaped interlocking portions or flanges 24 and 25, respective-

ly, which when the sashes are in closed position, interengage and afford complete insulation and weathering. A weather strip 26 of felt or other suitable material may also be provided in one or both of the channels formed in the portions 24 and 25.

The cord or cable 20 for the upper sash is enclosed within a chamber formed by an L-shaped projection 27 on a removable plate or section 28 of the window frame. This section is suitably affixed to the side jamb 2 by means of screws, bolts or the like 29, and when removed permits access to the weights and pulleys. The opposite side or face of the side jamb 2 is provided with a similar L-shaped projection 30, but which is shown as forming a part of the jamb rather than as a removable unit. However, it will be readily appreciated that this projection may be made separately and suitably attached to the frame or side jamb. The base of these L-shaped projections or where they join the jamb proper, is cut away as at 31 to receive and retain the opposite ends of the flexible strip 17, while the intermediate portion of this strip is formed to provide a parting stop 32. This strip is laterally removable from the window frame.

In Figs. 4 and 5 there is disclosed an alternate construction of window operating means in which the weights, pulleys and cords or cables are dispensed with. In this construction there is provided a helical screw or member 33 suitably positioned in the chamber formed by the L-shaped projections 27 and 30. Each sash is provided with an eye bolt 34 in which is rotatably mounted a threaded nut 35, the latter rotating on the screw or member and carrying therewith the sash.

A frame 36 is provided for carrying a screen or the like 37. This frame is shown as suspended from one or more retaining members or lugs 38 and is provided with a groove 39 extending around the four sides thereof. This groove is adapted to receive a bar or rod 40 for clamping and retaining the screen in position.

From the above description and the disclosure in the drawing, it will be readily apparent that the invention comprehends a novel window construction and window operating means which in no way affects the sliding operation of the sashes or the complete weathering between the side jambs and the sashes. This operating means is off-set from the vertical plane of the window. The invention further provides a frame and sashes therefor which afford a maximum amount of light and transparency.

Having thus disclosed the invention, I claim:

1. In a window construction, a frame formed of extruded metal including side jambs, weight-hung sashes slidable in said frame and provided with side rails, resilient ribs on said jambs forming a guide for sliding movement of said sashes and further forming a weather-tight seal between the frame and sashes, and means off-set from said ribs and extending alongside a face of each sash and connected to a side rail of each sash for aiding in raising and lowering the sashes and retaining the same in adjusted position.

2. In a window construction, a frame formed of extruded metal including side jambs, weight-hung sashes slidable in said frame and provided with side rails, resilient ribs on said jambs forming a guide for sliding movement of said sashes and further forming a weather-tight seal between the frame and sashes, and means off-set from said ribs and sash rails and connected to a

face of a side rail of each sash for aiding in raising and lowering the sashes and retaining the same in adjusted position, said means including pulleys positioned at one side of the ribs and sashes so as not to disturb the weathering.

3. In a window construction, a frame formed of extruded metal including side jambs, weight-hung sashes slidable in said frame and provided with side rails each formed with a groove, resilient ribs on said jambs adapted to be received in the grooves of said rails and form a guide for sliding movement of said sashes and a weather-tight seal between the frame and sashes, and means including a member connected to a side rail of each sash and out of vertical alignment therewith for aiding in raising and lowering the sashes and retaining them in their adjusted position.

4. In a double-hung window construction formed of extruded metal, a frame including side jambs, weight-hung sashes slidable in said frame and having their side rails formed with a channel, weathering means on said jambs seating in said channels and providing a weather-tight seal between the sashes and frame, and a pulley and cord for each sash extending through a jamb and alongside an exterior face of one of the sash rails and connected therat.

5. In a window construction, a frame formed of extruded metal including side jambs, sashes slidable in said frame and provided with a channel in each side rail, a member on each jamb formed with spaced resilient ribs and a parting stop therebetween, said ribs because of their resiliency readily aligning themselves with the channels in said rails and providing the sole guiding means for sliding movement of said sashes and a weather-tight seal between the frame and sashes, and means on the opposite sides of said side jambs for clamping the edges of said members whereby to retain the same in adjusted position without the necessity of any attaching means and whereby said members may be readily withdrawn and/or replaced.

6. In a window construction, a frame formed of extruded metal including side jambs, a member on each jamb formed with spaced ribs and a parting stop therebetween, sashes slidable in said frame and provided with channels for receiving said ribs, said ribs being resilient whereby to readily align with the channels in said sashes and provide the sole guiding means for sliding movement of said sashes and further provide a weather-tight seal between the frame and sashes, and projections on the opposite side jambs of said frame for clamping said members in position, one of said projections being removable for the ready insertion or removal of said members.

7. In a window construction, a frame formed of extruded metal including side jambs, a member on each jamb formed with spaced ribs and a parting stop therebetween, sashes slidable in said frame and provided with channels for receiving said ribs, said ribs being resilient whereby to readily align with the channels in said sashes and provide the sole guiding means for sliding movement of said sashes and further provide a weather-tight seal between the frame and sashes, means connected to a side face of each sash for aiding in raising and lowering the sash and retaining it in its adjusted position, and a removable side section on each side of said frame for enclosing said means and for locking said members in their proper position.