Feb. 21, 1956 M. KRAESKY 2,735,145

WINDOW CONSTRUCTION

Filed Dec. 30, 1952

FIG. 1.

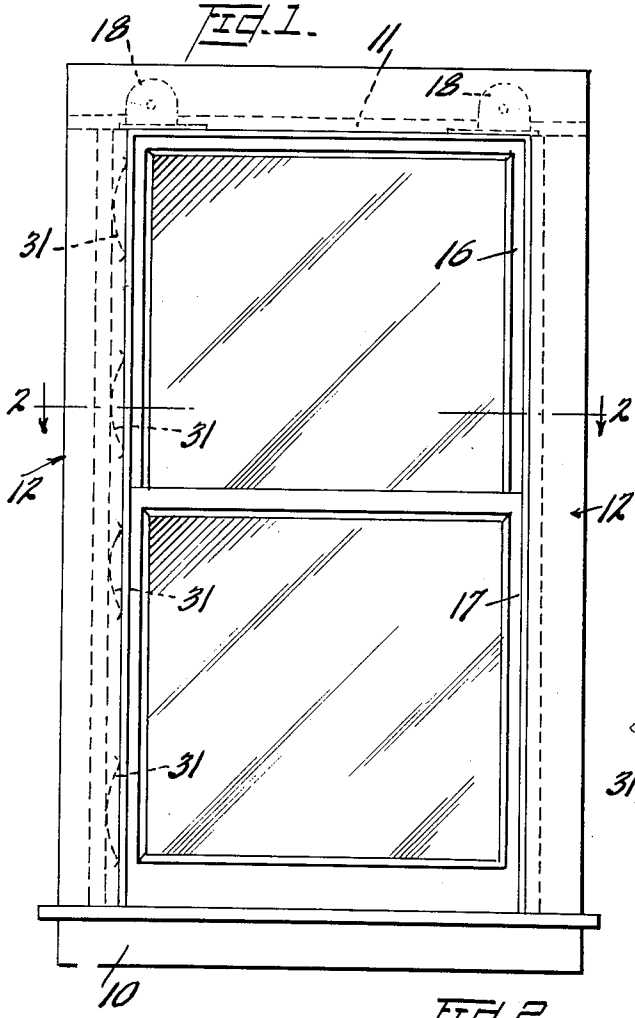


FIG. 3.

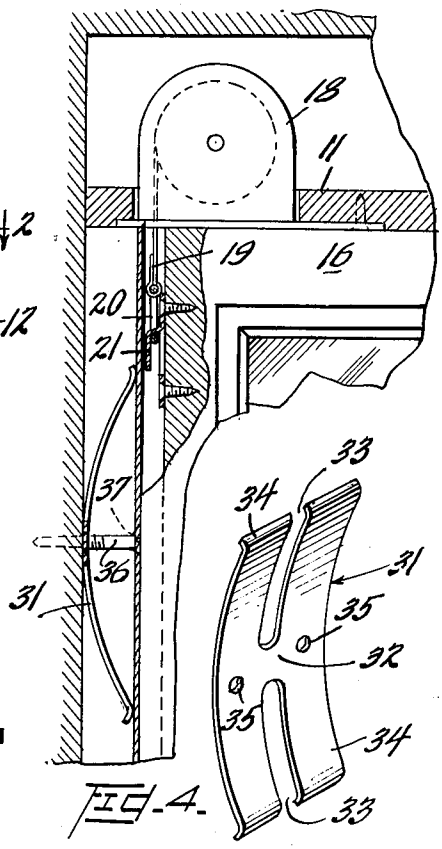


FIG. 4.

FIG. 2.

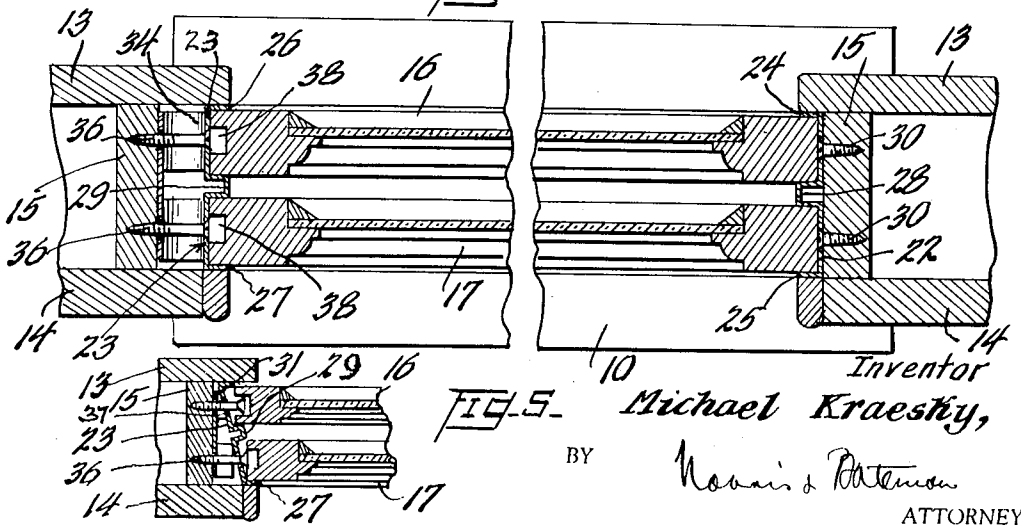


FIG. 5.

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WINDOW CONSTRUCTION

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1 Claim. (Cl. 20—52.2)

The present invention relates to window constructions of the type having upper and lower sliding sashes, and the primary objects of the invention are to provide improvements which may be applied readily and inexpensively to window constructions of the usual or conventional type and which enable either one or both of the sashes to be easily and quickly installed in the window frame and removed therefrom and, while the sashes are installed in the frame they will form weatherproof joints therewith and swelling or shrinking of the sashes or frame will be compensated for, so that the sashes will not bind in the frame but will always be free for opening or closing, and the sashes will not rattle in the frame, due to wind, vibration or other causes.

According to the present invention, the window frame is provided at each side with a channel member having double channels therein in which the respective side edges of sashes are slidable, the channel member at one side of the frame being fixed thereto for the sliding therein of the side edges of the sashes at that side of the frame, but the channel member at the other side of the frame being movable and held yieldingly against the side edges of the sashes at the latter side of the frame to maintain the sashes in operative position in the frame and provide weatherproof fit therewith by springs of novel form and construction to provide spring arms which act on the respective channels of the channel member and which are yieldable when one or the other sash is pushed laterally for insertion thereof in the frame or for removal therefrom.

The present invention provides springs for cooperation with the yieldable channel member which may be easily applied to the window frame and to be held in the frame by the same screws or other securing devices which hold the yieldable channel member in place in the frame, thereby facilitating installation of the springs and yieldable channel member and reducing the cost of installation.

In the accompanying drawing which shows the preferred embodiment of the invention—

Figure 1 is an elevation of a window construction embodying the invention as viewed from the inside of the window.

Figure 2 is a horizontal section on the line 2—2 in Fig. 1.

Figure 3 is an elevation, partly in section, of an upper corner of the frame and the adjacent portion of the upper sash.

Figure 4 is a perspective view of one of the springs for the yieldable channel member.

Figure 5 is a diagrammatic view in section of a portion of one side of the frame and of the adjacent portions of the sashes illustrating the manner in which one of the sashes is displaced laterally for insertion in or removal from the frame.

Similar parts are designated by the same reference numerals in the several figures.

The invention is shown in the present instance applied

to a conventional form of window construction comprising a frame having a sill 10, lintel 11 and side members 12, each side member being formed of outer and inner frame members 13 and 14 and a jamb 15, and upper and lower sashes 16 and 17 which are slidable vertically between the jambs. Each sash may be counterbalanced by a spring balance 18 mounted at each side of the lintel which may be of any well known or conventional type having a spring-tensioned flexible tape 19 which is attached by a loop 20 thereon to a hook 21 secured to the respective side edge of each sash to balance the weight thereof, these sash balances supporting the weight of the respective sashes at both sides thereof so that they may be easily and freely raised and lowered.

According to the present invention, a pair of channel members 22 and 23, which are preferably of duplicate form, are provided for guiding each of the sashes for vertical opening and closing movements. These channel members are composed of relatively thin rust-proof metal such as copper, brass or aluminum, each of these members being bent into shape to form outer and inner flanges 24 and 25 and 26 and 27 and an intermediate flange 28 or 29, the outer and inner flanges along the edges of these channel members being spaced apart a distance corresponding substantially to the distance between the outer and inner frame members 13 and 14 to provide weatherproof joints between these frame members and these flanges of the channel members, but the channel members are composed of relatively thin sheet metal so that their outer and inner flanges are flexible and may bend or yield to facilitate installing the sashes in the frame and removing the sashes therefrom and to maintain weatherproof fits between the sashes and the outer and inner frame members. The outer and inner flanges of each channel member are spaced from the intermediate flange thereof a distance corresponding substantially with the thickness of the sashes and provide a pair of channels in which the side edges of the respective sashes are slidable vertically.

The channel member 22 at one side of the window frame is preferably secured solidly against the jamb 15 by nails or screws 30. The channel member 23 at the other side of the window frame is spaced inwardly from the jamb 15 at that side of the frame and its outer and inner flanges 26 and 27 have weatherproof fits against the outer and inner frame members 13 and 14, although these flanges of this channel member are slidable inwardly and outwardly on these frame members and maintain weatherproof joints therewith.

The channel member 23 at one side of the frame extends from top to bottom of the window frame and is pressed yieldingly against the side edges of the upper and lower sashes at that side of the frame by a suitable number of springs 31 which are interposed between the channel member 23 and the adjacent jamb 15, four of these springs being shown, for example, suitably spaced vertically of the window frame. Each of these springs is of novel form and construction, they being composed of resilient sheet metal cut by dies of other suitable means to form a central body portion 32, and being slotted longitudinally from opposite sides of the central body portion to the ends and centrally of the width of the spring, as at 33, to form a pair of spring arms 34 at each end of the spring which are spaced laterally thereof in conformity with the lateral spacing of the channels in the channel member 23. The spring is pressed or otherwise pre-formed into a bowed or concavo-convex shape longitudinally, and the spring arms 34 are individually yieldable. A pair of laterally spaced holes 35 are provided in the central body portion of each spring in alinement with the oppositely extending spring arms to re-

ceive screws 36 or other suitable means for holding the springs in place in the window frame.

In installing the springs in the window frame, they are placed between the channel member 23 and the adjacent jamb 15 with the convex sides of the springs against this jamb, and the screws 36 are passed through holes 37 in the channel member 23 and through holes 35 in the spring and fastened in the jamb 15, the screws being extended into the jamb to an extent sufficient to bring the heads of the screws against the inner side of this channel member and to a further extent to pre-load the springs to exert sufficient inward pressure against the sashes, and the heads of the screws provide limit stops for the inward movement of the channel member 23 under the action of the springs when either or both of the sashes are removed from the frame, although permitting outward movement of the channel member 23 against the action of the springs as the screws 36 pass loosely through the holes 37 in the channel member. A single pair of screws 37 or other suitable fastening devices thus serves to hold each spring and the adjacent portion of the channel member in place in the window frame. The edges of the sashes which are guided in the channels of the channel member 23 are provided with vertical grooves 38 throughout their heights to receive the heads of the screws 36 when one or the other of the sashes is pushed against this channel member to retract it against its springs for insertion or removal of a sash.

In operation, the sashes are held firmly against the relatively fixed channel member 22 by the channel member 23 under the pressure of the springs 31, thus preventing rattling of the sashes due to wind, vibration or other causes, and the outer and inner flanges along the edges of the channel members provide and maintain weatherproof joints with the outer and inner members of the window frame.

In order to install a sash in the window frame, it is only necessary to insert one side edge of the sash in its respective channel in the channel member 23 and to push the sash against this channel member, as toward the left in Figs. 2 and 5, thus flattening more or less the arms of the springs 31 behind the respective channel of the channel member 23 to an extent sufficient to permit the other side edge of the sash to clear the edge of the frame member 13 at the other side of the frame, to then swing the latter side of the sash inwardly until it seats in its respective channel in the channel member 22, and to then release the hold on the sash, which will then be pressed into place by the springs acting on the channel member 23.

To remove either of the sashes from the windom frame, it is only necessary to push a side edge thereof against the channel member 23, thus compressing the respective

arms of the springs behind the respective channel of this channel member to a sufficient extent to permit the opposite side edge of the sash to swing outwardly clear of the frame member 13 or the flange 28 of the channel member 22, and to then withdraw the sash from the channel member 23. The heads of the screws 36 then limit the inward movement of the channel member 23 under the action of the springs 31, thereby holding this channel member in position to receive the side edge of a sash to be installed in the frame.

In installing or removing one or the other of the sashes, the channel member 23 will be tilted to some extent, as shown in Fig. 5, but the flanges 26 and 27 of this channel member will flex or bend to accommodate such tilting movement, thus enabling the flanges of the channel member to fitted closely against the outer and inner frame members.

I claim:

In a window construction comprising a frame and sashes slidable in parallel planes therein, a one-piece flexible channel member mounted in each side of the frame and each having laterally spaced channels located in the respective planes of the sashes to receive and guide the respective edges thereof, each of said channel members having inner and outer flexible flanges extending along its lateral edges and engaging the inner and outer portions respectively of the frame to form weatherproof joints between the frame and sashes, and having a guiding rib integral therewith and engaging adjacent edges of the sashes, the channel member at one side of the frame being tiltable about the flange at one of its lateral edges to move the channel at its other side in a direction away from the channel member at the other side of the frame for insertion or removal of the respective sash, and springs mounted between the tiltable channel member and the respective side of the frame, each spring being composed of resilient sheet metal of concavo-convex form slotted from its opposite edges toward its center to form pairs of individually yieldable arms at its opposite sides which bear against the respective channels of the tiltable channel member.

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