

May 14, 1940.

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2,200,548

WINDOW SASH GUIDING AND SEALING MEANS

Filed Feb. 18, 1938

Fig-1

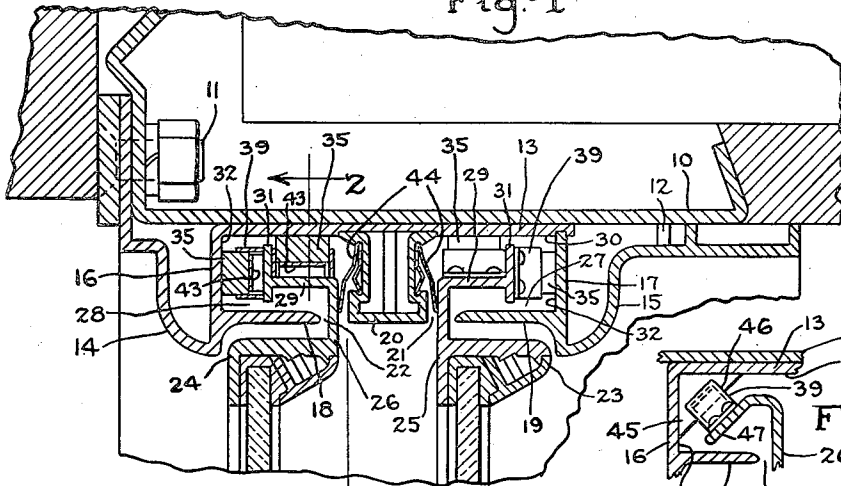


Fig-5

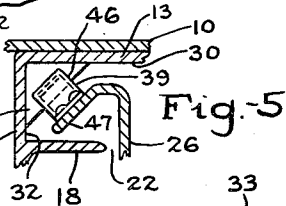


Fig-2

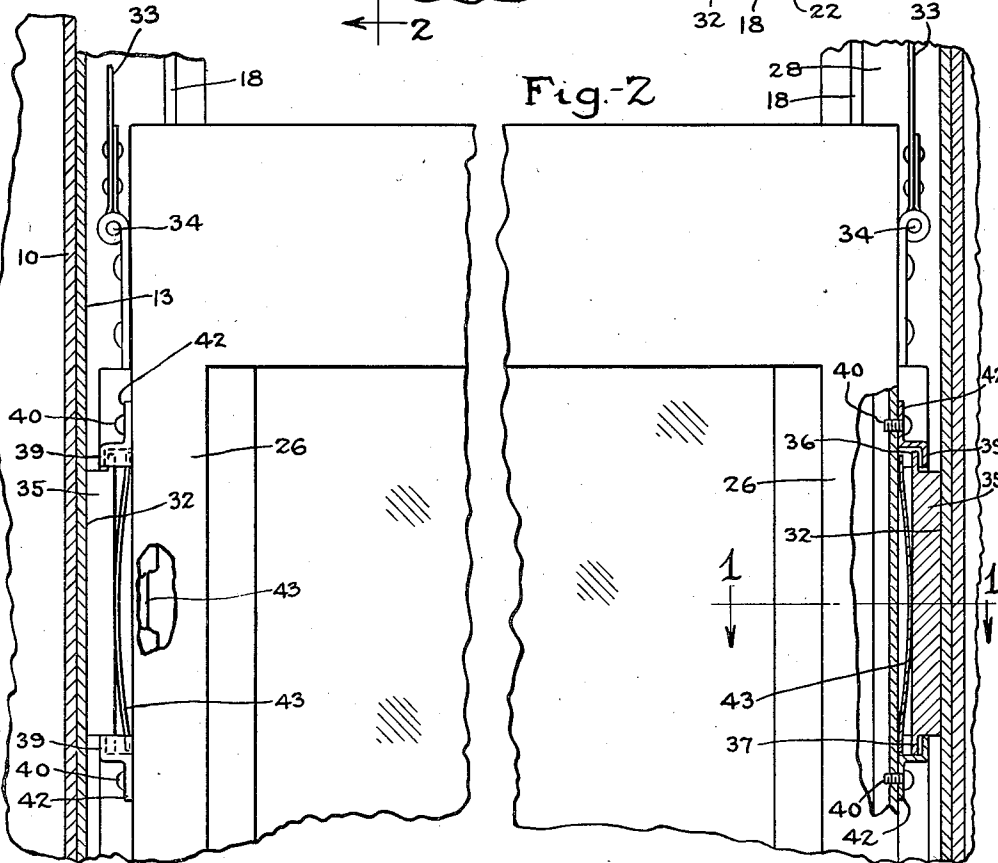


Fig-4

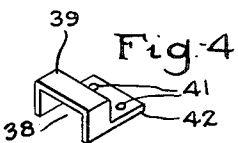
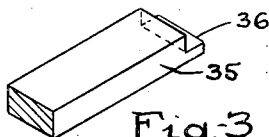


Fig-3



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UNITED STATES PATENT OFFICE

2,200,548

WINDOW SASH GUIDING AND SEALING
MEANS

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Application February 18, 1938, Serial No. 191,210

2 Claims. (Cl. 189-72)

Our invention relates to means for holding the side rails of window sash properly positioned and free from rattling in up and down sliding movements of said sash.

The invention applies particularly to window sash in which the outer frame and the rails of the sash are formed of extruded metal such as bronze or aluminum, and in this form of window construction it is necessary that a certain degree of tolerance or play be permitted between the frame channels and the side sash rails.

It is a particular object of our invention to provide means extending between the frame channels and portions of the side rails of the sash to hold the sash properly positioned and free from rattling in its movements up and down as the sash is raised and lowered and in any of its intermediate positions which it may be made to assume.

It is a further object of our invention to provide the side rails of the sash with a portion or portions adjacent the contact surface or surfaces of the frame channel up and down which the side rail will be caused to move and to provide between said side rail portion or portions and the contact surface or surfaces of the frame a sliding block or blocks spring held against the contact surface or surfaces of the frame so as to hold the side rails of the sash properly positioned and free from rattling as the sash is raised and lowered.

It is a further object of our invention to form sliding blocks with projecting lips held in position on the portions of the side rails facing the contact surfaces of the frame by means of keepers which allow the blocks to move transversely toward and from the supporting portion of the side rails, together with spring members between said supporting portions and the blocks to tend to force the blocks outwardly into engagement with the contact surfaces of the frame channels up and down which the side rails will be caused to move.

The full objects and advantages of our invention will appear in connection with the detailed description thereof and the novel features of the invention will be particularly pointed out in the claims.

In the drawing, illustrating an application of our invention in one form:

Fig. 1 is a transverse sectional view through the frame and the side rails of the sash in overlapping position of a window taken on line 1-1 of Fig. 2. Fig. 2 is a part sectional elevation view through a portion of a window taken on line

2-2 of Fig. 1. Fig. 3 is a perspective view of an end of one of the sliding blocks. Fig. 4 is a perspective view of a keeper adapted to hold the sliding blocks in position upon the side rail. Fig. 5 is a fragmentary sectional view of a modified form of spring means for holding the side rails of the sash properly positioned.

In the drawing a sub-frame 10 is provided formed of steel or cast iron or desirable strong and cheap metal. To this sub-frame is secured by means of bolts 11, 12 or other suitable securing means an inner frame formed of extruded metal such as bronze or aluminum which is the part of the frame in which the sash are held and operate and which being made of more costly and less strong material can in cooperation with the sub-frame be made lighter in weight than would be the case without the sub-frame.

The inner frame of extruded metal comprises a back plate 13 formed in conjunction with a side frame portion 14 at one side and having secured thereto a similar side portion 15 at the other side. The frame members 14 and 15 provide side walls 16 and 17 and projecting walls 18 and 19. A central dividing member 20 is positioned so as to leave longitudinal channels 21 and 22 between it and the ends of projecting walls 18 and 19. The side sash rails 23 and 24 are each provided with members 25 and 26 which extend through the openings 21 and 22 into the channels 27 and 28 formed along the frame members 14 and 15 by the walls 13, 17, 19 and 13, 16, 18 respectively and the central dividing member 20. The members 25 and 26 are each provided with a portion 29 facing contact surface 30 on the inside of back member 13, and with a rectangularly-disposed portion 31 facing contact surface 32 on the inside of the respective end walls 16 and 17.

The sash 14 and 15 are supported in a customary manner by straps or cables 33 secured to the sash as indicated at 34 and extending to suitable weights or springs, not shown. The means for holding the side rails and the sash connected therewith properly positioned and free from rattling as the same are raised and lowered will now be described. This means, see Fig. 2, comprises one or more blocks 35 in each frame channel which may be of wood, metal or low friction composition material as desired and which are provided at their ends with lip portions 36 and 37. These lip portions in the assembling of the members are positioned within portions 38 of keepers 39 secured to one or the other of the side rail portions 29 or 31 by means of screws 40,

which pass through holes 41 on extension plates 42 of the keepers 39. Between the blocks 35 and the members 29 on the side rails (also the members 31) are positioned spring members 43 which, as shown, comprise leaf springs bowed outwardly with the bowed portion engaging the inner side of the blocks 35 and the ends of the springs engaging the surfaces of members 29 or 31. The manner of holding the blocks 35 by means of keepers 39 and lip extensions 36 and 37 permits the blocks freedom of movement laterally so that the springs 43 will force the blocks 35 against the respective surfaces 30 and 32 and thereby tend to urge the sash into a neutral position by reason of the opposing force of springs 43 on opposite sides of the sash-engaging members 29. At the same time the springs 43 pushing blocks 35 outwardly from the members 31 into engagement with surfaces 32 will tend to force the sash toward the dividing member 20. A spring action weather strip 44 is positioned to come between the sides of dividing member 20 and sash rail portions 26 or 25 so that the push blocks reacting against sash rail portions 31 tend to force the sash rail portions 26 or 25 against this weather strip, thus insuring sealing against entrance of outside air and freely slidable contact surface for the sash rail portions 25 or 26 to engage in the up-and-down movements of the sash.

In the modification shown in Fig. 5, a corner block 45 is positioned inside of the surfaces 30 and 32 of frame pieces 13 and 16. In this block 45 is a longitudinal channel 46 which is adapted to receive one of the push blocks or pressure blocks 35 which are secured by the keepers 39 in position on the surface of an angularly-disposed member 47 on side sash rail member 26. The block 35 is freely movable along the channel 46 and being positioned at an angle of forty-five degrees to the sash rail member 26 exercises a positioning and controlling effect which is substantially the result of the forces exerted by the blocks 35 at right angles to each other, as shown in Fig. 1, and which will oppose each other at opposite sides of the sash, as in Fig. 2, and at the same time will force the sliding sash rail member 26 into engagement with the combined weather strip and contact strip 44, to permit sealing against outside air and ready movement of each of the sash up and down.

The advantages of our invention have been

made apparent in the foregoing description. The very simple arrangement of cooperating frame, guideway and sash rail in conjunction with the spring-pressed blocks engageable with the surfaces of the frame guides and forced into yielding engagement by the spring members on the facing surfaces of the sash rail, is in a high degree efficient to hold the sash rail in proper position free from any tendency to rattle as the sash is raised and lowered. At the same time the sash rail itself is of the simplest type of construction and when assembled within the frame channels is very effectively protected from any ingress of rain, snow or sleet due to weather conditions. It will further be noted that it is our purpose to provide at the same time a block wherein a suitable high degree of pressure may be exerted against the surface of the frame channel which it contacts and yet the frictional resistance to moving the block be maintained relatively low.

We claim:

1. A window construction embodying a frame formed with a pair of rectangularly disposed contact surfaces, a sash, one of said surfaces facing the sash, a sash rail provided with members which face the contact surfaces, extended blocks carried by said members in position to engage the surfaces, elongated springs held back of the blocks and engageable with the blocks and the members to force the blocks into yielding engagement with the surfaces, and a spring-sealing member between portions of the sash rail and of the frame against which the sash rail is forced by one of said spring-actuated blocks.

2. In a window construction, a frame having contact surfaces at right angles to each other, a sash rail embodying a T-shaped member with surfaces facing the contact surfaces, and a third surface along the side of the rail, a spring sealing strip for each sash rail engageable with said third surface, spring contact members carried by the T-face of the rail and tending to force the third surface against the spring sealing strip, and a second set of contact members carried by the shank of the T and engaging the contact surfaces on each side of the frame to hold the window in balanced position for up and down movement along the frame.

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