Sept. 7, 1954 A. R. KINISH 2,688,165

WINDOW OR OTHER SLIDABLE CLOSURE

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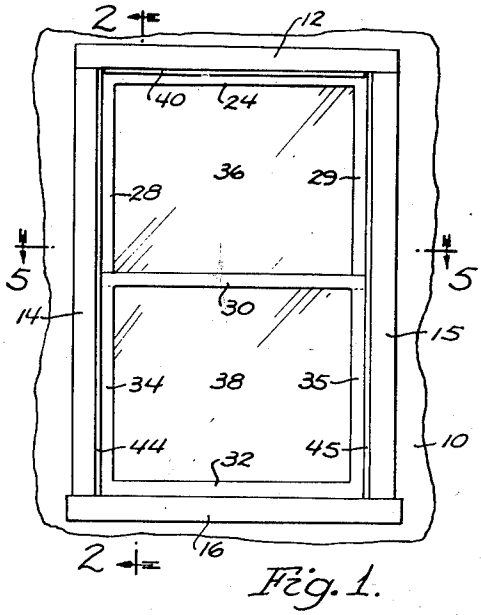


Fig. 1.

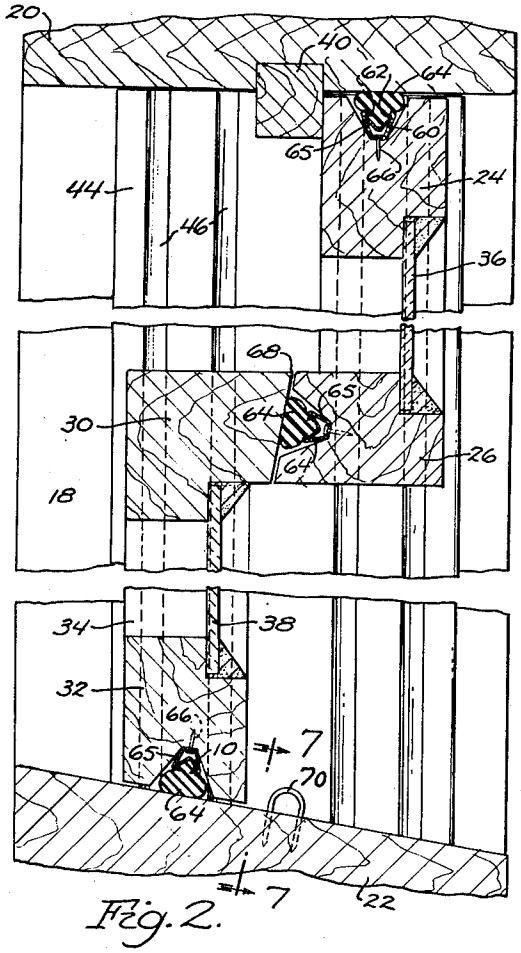


Fig. 2.

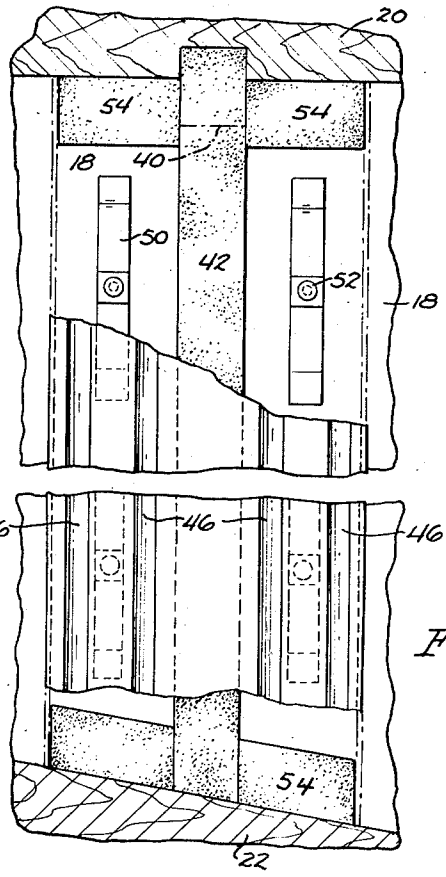


Fig. 3.

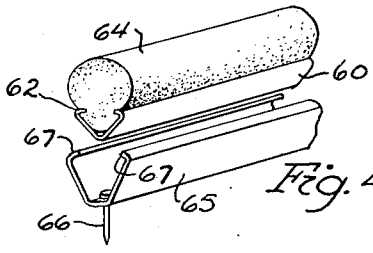


Fig. 4.

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WINDOW OR OTHER SLIDABLE CLOSURE

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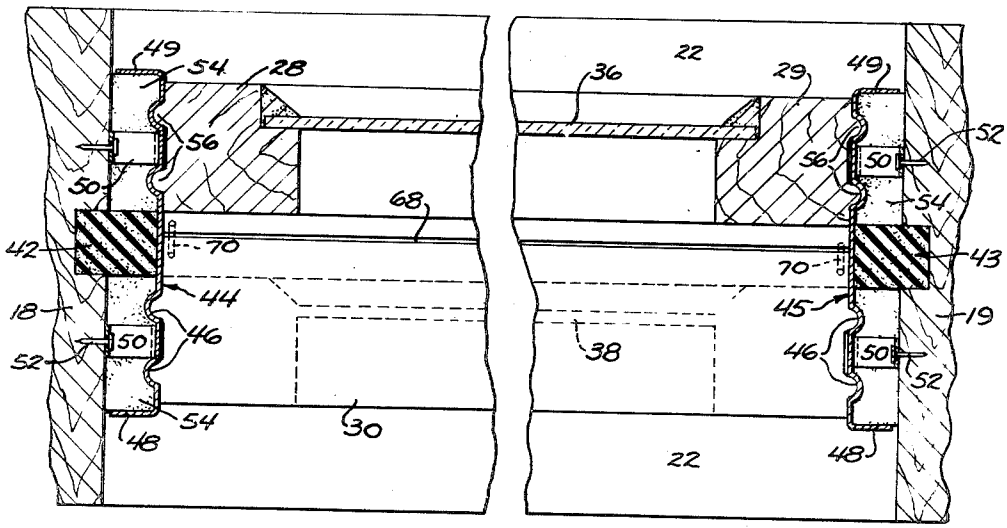


Fig. 5.

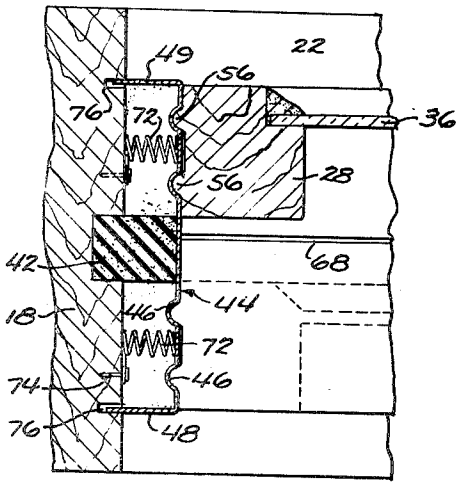


Fig. 8.

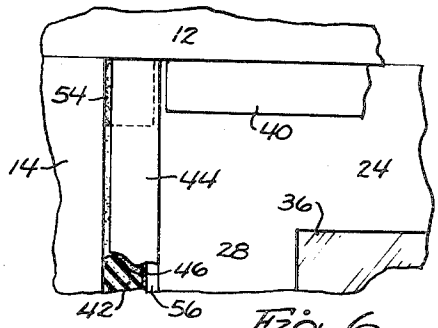


Fig. 6.

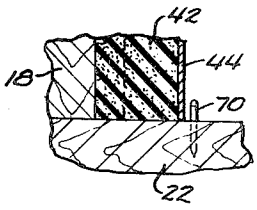


Fig. 7.

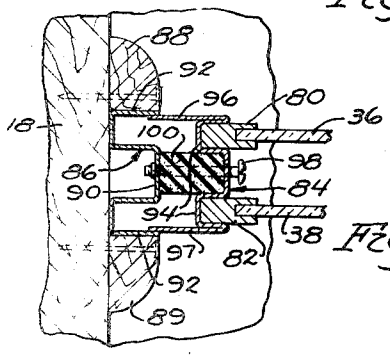


Fig. 9.

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WINDOW OR OTHER SLIDABLE CLOSURE

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Application March 15, 1948, Serial No. 14,897

2 Claims. (Cl. 20—52.4)

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This invention relates to a construction for use in windows or other slidable closures, and more particularly to a construction wherein the joint between the closure and its frame is weatherproof and which will not rattle.

An object of the invention is to provide a construction of the type indicated, having improved sealing characteristics to eliminate drafts and the entry of dust.

A further object is to provide improved mounting means for windows or other closures, whereby the closure may be easily mounted in or removed from its frame when desired.

A further object is to provide an improved closure construction wherein the frictional resistance to sliding movement is controlled and substantially constant, so that the need for sash cords and weights is eliminated.

A further object is to provide a construction which is substantially noiseless, weatherproof and dustproof, and which may be applied to closures originally constructed on conventional lines.

Further objects and advantages of the invention will be apparent from the following description, taken in connection with the appended drawings, in which:

Fig. 1 is a front elevation of a window sash and frame embodying the present invention.

Fig. 2 is an enlarged fragmentary sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Figure 2 but showing the sash removed, and with parts broken away to disclose the inner construction.

Fig. 4 is a view in perspective of a sealing strip forming part of the present invention.

Fig. 5 is an enlarged view, partly broken away, taken on the line 5—5 of Figure 1.

Fig. 6 is a detail of one of the upper corners of the closure.

Fig. 7 is a fragmentary sectional view taken on the line 7—7 of Figure 2.

Figs. 8 is a fragmentary sectional view similar to Figure 5, but showing a modified form of the invention.

Fig. 9 is a fragmentary sectional view similar to Figure 5 but showing a further modification.

It is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology herein is for the purpose of description and not of limitation.

The construction shown in Figures 1–7 comprises a window frame and two sashes of usual construction except as indicated hereinafter, set in place in a wall 10 of a building. Viewed from within the building as in Fig. 1, the frame is

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provided with the usual upper molding 12 and lateral moldings 14, 15, and with a lower molding 16. The other figures illustrate the elements of the frame, including jambs 18 and 19, crown plate 20, and a conventional sill 22.

The upper sash comprises upper and lower rails 24, 26 and stiles 28, 29. The lower sash comprises upper and lower rails 30, 32, and stiles 34, 35. The panes of the upper and lower sashes are indicated respectively at 36 and 38.

The casing members 18, 19 and 20 are grooved to receive the usual dividing rail which is indicated at 40 in Figure 2, but which in the jambs 18 and 19 is replaced by strips 42, 43 of sponge rubber or like material, as indicated in Figures 5, 6 and 7. The strips 42, 43 are secured in place in the grooves by nailing or by any other appropriate means.

Overlying the sponge rubber strips 42 and 43 are vertical slide rails 44 and 45, formed of metal such as copper or aluminum, and of such flexibility that they may bend somewhat to accommodate themselves to slight irregularities in the stiles of the respective sashes. Each of the slide rails is formed with a pair of grooves 46 for each of the sashes, and is formed with interior and exterior flanges 48, 49 which terminate short of the jambs 18 and 19, to permit the slide rail to move inwardly and outwardly to accommodate itself to irregularities in the lateral dimensions of the sash. At either side of the rubber strips 42, 43 the slide rails are supported at intervals along their lengths by leaf springs 50, each of which is centrally secured by means such as a nail 52 to the jambs 18 or 19, while the outwardly inclined ends of the spring bear against the slide rail between the adjacent grooves 46.

As indicated in Figures 3 and 6, the upper dividing rail 40 is cut away at its ends, in order to permit the slide rails to extend upwardly into contact with the crown plate 20, and to permit the rubber strips 42, 43 to extend into the ends of the groove occupied by rail 40. In order to form a weathertight corner, rectangular blocks 54, of sponge rubber or the like, are secured in the corners at either side of each of the strips 42 and 43, at top and bottom.

Each of the stiles of the sashes is formed with a pair of tongues or ridges 56, shaped to fit in the grooves 46 of the slide rail in sliding relation thereto. The tongues 56 may be formed by means of a shaper or other tool, which decreases the overall width of the sashes to the extent indicated particularly in Figure 5, to leave sufficient space for the slide rails.

In Figure 4 is shown a form of weatherstrip comprising a metal strip 60, of copper or other suitable material, formed into the trough shape shown and provided with inwardly directed edges 62. A strip of sponge rubber is retained in the

trough of the strip **60** by being engaged by the edges **62**, with the greater portion of the strip protruding as shown. The strip **60** is held in a channel **65** which has inturned edges **67** designed to retain the strip **60**, which may be snapped into place and removed therefrom at will. The base of the strip **65** is flattened to receive securing means such as nails **66**, the strip **60** being snapped into place afterwards. The manner of application of this weatherstrip is indicated in Figure 2, wherein the upper rail **24** of the upper sash is provided with a flared groove in which the weatherstrip is secured, so that when the upper sash is moved to its uppermost position the rubber strip **64** will contact the crown plate **20** and provide a weatherproof and rattleproof contact between the two. A similar strip may be provided in the lower rail **32** of the lower sash to contact the sill **22**, and a similar arrangement may be used between the beveled faces of the rails **30** and **26** to close the crack **68** which may exist between the two.

Where the device of the present invention is used to replace a conventional window construction, the dividing rails in the jambs **18** and **19** are first removed, and the ends of the dividing rail **40** in the crown plate **20** are cut off as above indicated. The sprong rubber strips **42**, **43** and blocks **54** are then inserted in the grooves from which the dividing rails were removed, the springs **50** are nailed in place, and the slide rails are put into place. In order to limit the inward movement of the slide rails, stop members such as staples **70** may be driven into the sill **22** and crown plate **20**, between the planes of the upper and lower sashes.

As used herein, the adjective "exterior" means situated toward the exterior of the building, relative to an "interior" element which is disposed nearer to the interior of the building. Thus, the plane of the upper sash is exterior relative to the plane of the lower sash and also relative to a median plane which lies between the two, and which may be said to divide the slide rails into what are hereinafter referred to as exterior and interior portions.

In the operation of the device, it will be seen that the slide rail will yield to accommodate itself to variations in the lateral dimensions of the sashes, such as may arise from swelling or shrinking, and will also accommodate itself to distortion of the frame itself from a truly rectangular shape, such as may arise from "settling" of the building. It will be noted that the exterior and interior portions of the slide rail need not yield equally, but that the rail may rotate or twist about its longitudinal axis to accommodate itself to varying pressures on its exterior and interior portions as defined above.

The embodiment of the invention shown in Figure 8 differs from that shown in Figures 1–7 in that instead of the leaf springs **50**, helical springs **72** are used, each spring having one of its ends extending laterally and formed with a loop, whereby it may be secured by a nail **74** to the jamb **18**. In this embodiment, the jamb **18** is formed with sawed slots **78** into which fit slidably the flanges **48** and **49** of the slide rail **44**. Preferably the slide rail is given an initial tension to cause it to be urged against the sides of the slot **76**, as indicated in Figure 8, so that air and dirt are excluded from the interior of the slide rail. In place of springs, blocks or strips of sponge rubber may be used if desired.

In Figure 9 is shown an adaptation of the present invention to a window comprising metal sashes. The stiles of the upper and lower sashes are indicated respectively at **80** and **82**, the slide rail being generally indicated at **84**. In this form of the invention, a metallic strip **86** extends along the jamb **18** and is held against lateral displacement by means of molding strips **88**, **89** which are secured to the jamb. The strip **86** is provided with a raised central portion **90**, and with interior and exterior flanges **92**. The slide rail **84** is formed with grooved portions **94** to receive the stiles **80** and **82** in slidable relation, and is formed with interior and exterior flanges **96**, **97** which engage the flanges **92** of the strip **86**.

The slide rail **84** is secured to the strip **86** by means of screws **98** which are threaded into the raised portion **90** of strip **86** and are slidably related to the slide rail, to permit the slide rail to move inwardly and outwardly relative to the strip **86**. In order to urge the slide rail inwardly into contact with the sashes **80** and **82**, pads **100** of sponge rubber or the like are placed at intervals along its length.

An advantage of the present construction lies in the fact that it remains operable even if the closure frame is distorted considerably from rectangular to parallelogram shape, as often happens when a building "settles."

Although the invention has been described with reference to certain specific embodiments thereof, it may be embodied in other forms within the skill of artisans in this art, and is not limited except in accordance with the terms of the following claims.

I claim:

1. In a window construction comprising a frame having conventional jambs, and sashes slidable in the frame in parallel spaced planes; a flexible one-piece metal slide rail mounted on one of the jambs for movement toward and away from the jamb, said slide rail being formed with exterior and interior convolutions to cooperate with corresponding convolutions on the sashes, a resilient member interposed between the jamb and a portion of the slide rail intermediate said exterior and interior convolutions urging the slide rail inwardly, forming a continuous weather seal between the jamb and the slide rail and forming a fulcrum for rotational and twisting movements of the slide rail about its vertical axis, spring members positioned between the jamb and the slide rail at opposite sides of said resilient member and independently urging such slide rail inwardly relative to the sashes.

2. Window construction as set forth in claim 1 wherein said frame is provided with vertical slots, and said slide rail is formed with longitudinal flanges movable in said slots in telescoping relation thereto.

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