

July 17, 1951

W. R. VASS

2,560,752

ADJUSTABLE WINDOW FRAME

Filed April 3, 1946

4 Sheets-Sheet 1

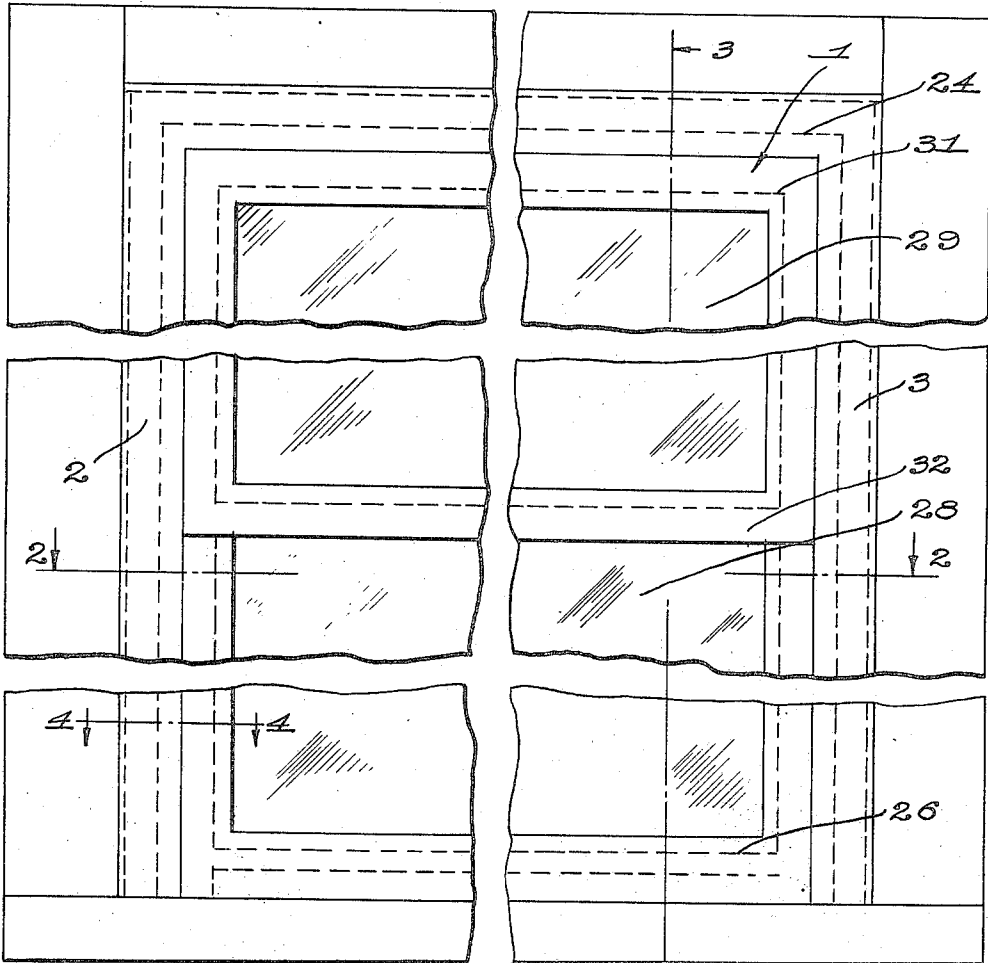
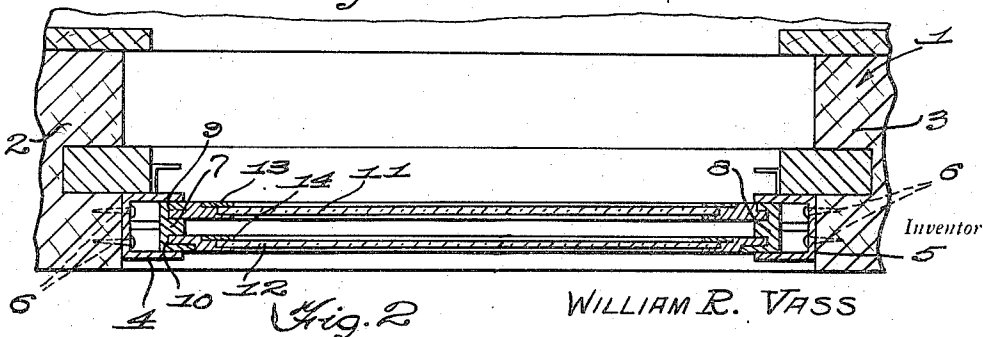


Fig. 1



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4 Sheets-Sheet 2

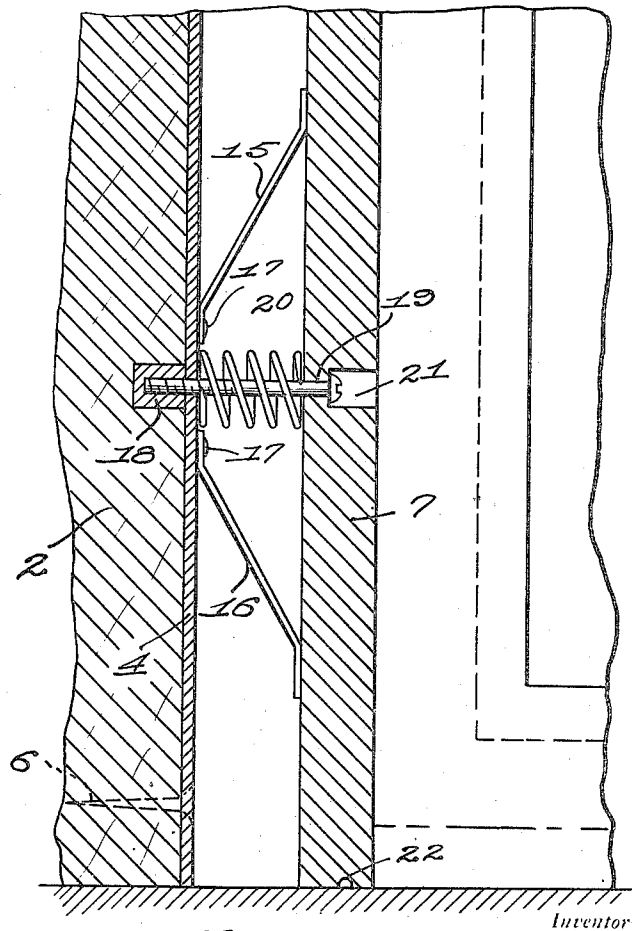
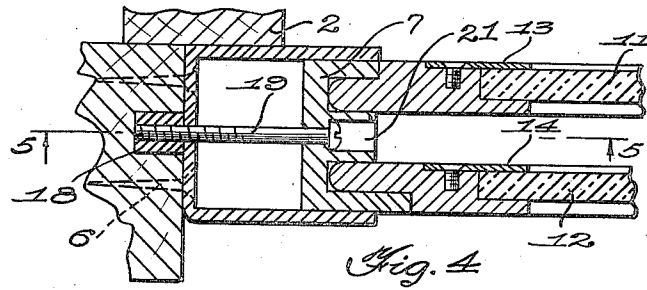
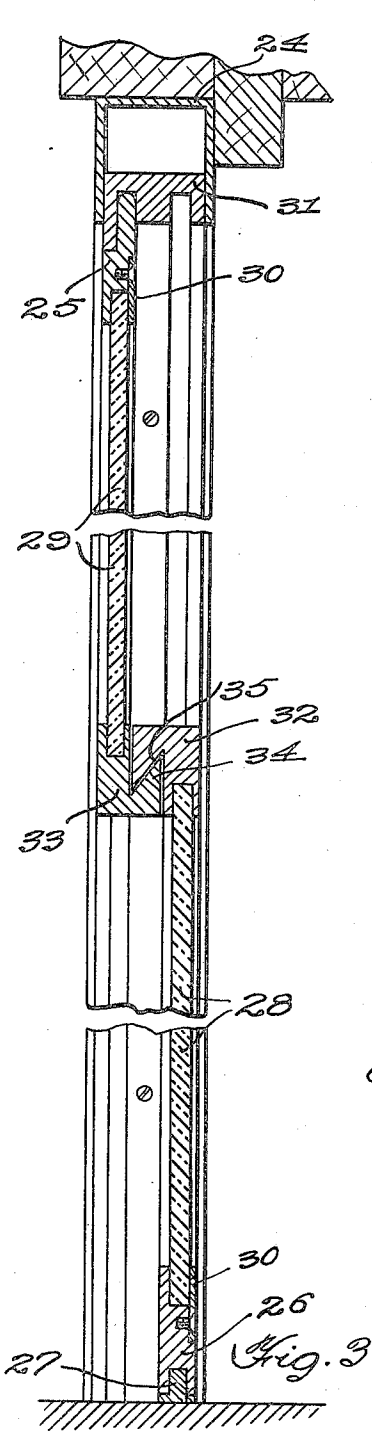


Fig. 5

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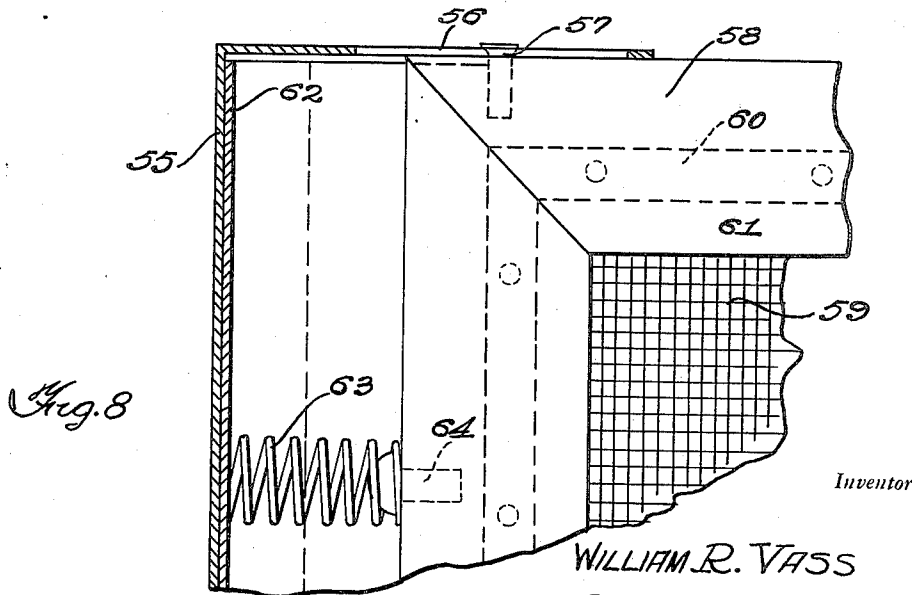
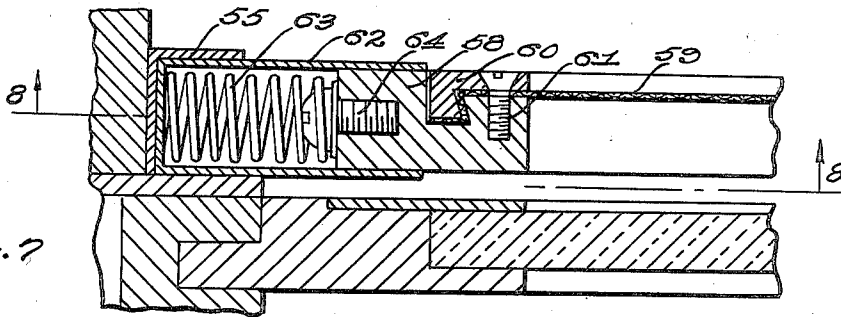
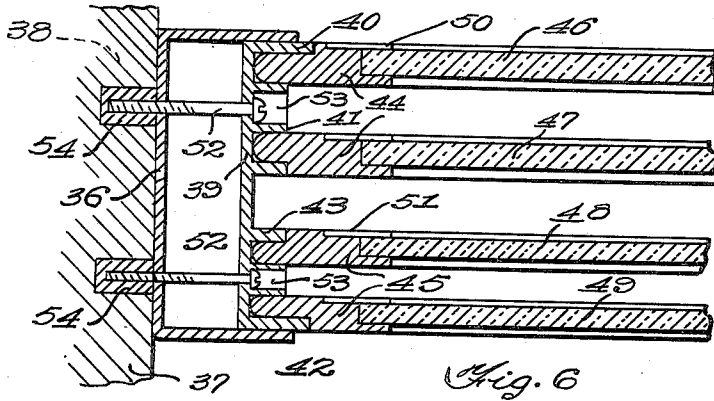
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4 Sheets-Sheet 3



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Fig. 9

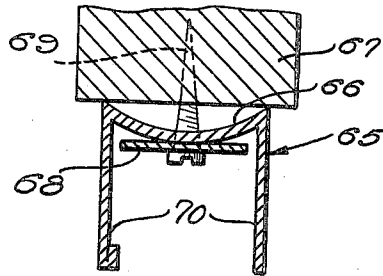


Fig. 11

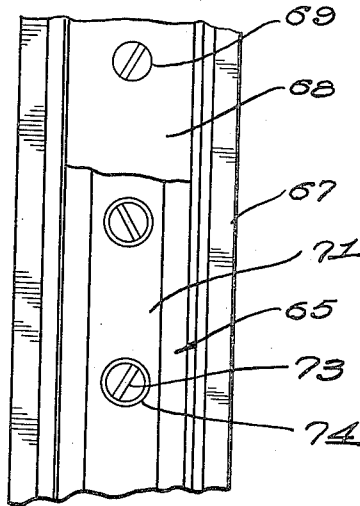
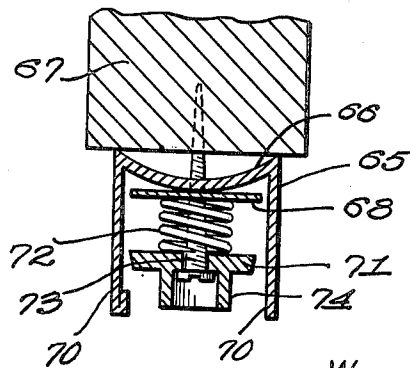


Fig. 10



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# UNITED STATES PATENT OFFICE

2,560,752

## ADJUSTABLE WINDOW FRAME

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Application April 3, 1946, Serial No. 659,379

1 Claim. (Cl. 20—12)

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This invention relates to improvements in metal windows and screens.

An object of the invention is to provide an improved construction wherein vertically extending metal sash guides are supported at the opposite sides of a window frame to guide and support the window sashes formed with spaced glass panes.

Another object of the invention is to provide an improved window construction wherein the window sash will be formed with spaced double glass panes, said sash being slidably received in metal sash guides secured to the opposite sides of the window frame and engaged along the edges by spring arms secured to the inner surface of said sash guides.

A further object of the invention is to provide an improved window construction wherein sash guides will be secured to the opposite sides of a window frame, together with sashes slidably supported therein, having their adjacent cross members at the bottom of the top sash and at the top of the bottom sash transversely rabbeted to form a weatherproof interlocking joint when said sashes are in closed position.

Another object of the invention is to provide an improved window construction wherein sash guides will be supported at the opposite sides of a window frame, together with resiliently mounted slidable sashes having either single or double glass panes, whereby the sashes will be resiliently supported when opened to any position within the limits of adjustability, and when both sashes are disposed in the upper portion of the window frame, a detachable screen may be resiliently supported in the lower portions of the sash guides.

Another object of the invention is to provide an improved window construction which will be highly efficient in operation and relatively inexpensive to manufacture and produce.

Other objects will appear as the description proceeds.

In the accompanying drawings which form a part of this application,

Figure 1 is a front elevation of a window formed in accordance with the instant invention;

Figure 2 is a sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a vertical sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a sectional view taken on the line 4—4 of Figure 1;

Figure 5 is a sectional view taken on the line 5—5 of Figure 4;

Figure 6 is a detail transverse sectional view through a portion of a window provided with a

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double sash guide and cooperating spaced double glass paned sashes received therein;

Figure 7 is a detail transverse sectional view through a window having single glass paned sashes showing a guide channel for detachably and adjustably supporting a screen;

Figure 8 is a vertical sectional view taken on the line 8—8 of Figure 7;

Figure 9 is a transverse sectional view through a modified form of sash or plate glass grip guide;

Figure 10 is a transverse sectional view through the sash or plate glass grip guide showing a resilient tensioning means for engaging a sash and showing the adjusting and control screws, and

Figure 11 is an end view looking into the sash or plate glass grip guide shown in Figure 9.

Like characters of reference are used throughout the following specification and the accompanying drawings to designate corresponding parts.

In carrying out the invention, there is provided a window frame generally denoted by the reference numeral 1 including oppositely disposed side frame members 2 and 3.

By referring to Figure 2 of the drawings, there is shown a window construction having opposite side frame members 2 and 3, and a pair of outside metal sash guides 4 and 5 which are U-shape in cross section and are secured to the opposite faces of said frame members 2 and 3 by the screws 6. The inside sash guides 7 and 8 for the lower sash are rabbeted out to form the spaced seats 9 and 10 in which the sash frames supporting the spaced panes of glass 11 and 12 are adapted to be received. Locking strips 13 and 14 will be secured about the edges of the glass panes 11 and 12 to hold the same in position within the sash frame 7.

In Figure 5 of the drawings there is illustrated the oppositely extending spring arms 15 and 16 which will be secured by the rivets 17 to the inner surface of the outer metal sash guides 4 and 5, and will resiliently engage the adjacent outer edges of the inner metal sash guides 7 and 8 to support the same in any degree of open position. The internally threaded nut members 18 will be secured to the outer surface of the outer metal sash guides 4 and 5 and will receive the adjusting and control threaded bolts 19 which extend through the inner metal sash guides 7 and 8, to support the coil tensioning springs 20 disposed about them in contact with the adjacent surfaces of the said inner and outer metal sash guides. The heads of the bolts 19 are received in the recesses or bores 21 formed in the inner metal sash guides. Breather openings 22 will be formed at

the lower end of the inner metal sash guides so that expanding air between the glass panes may escape when heated by the sun shining on the glass panes.

In Figure 3 of the drawings, there is illustrated the use of an outer metal sash guide 24 at the top of the upper sash 25, and a lower sash 26 having a weatherstrip 27 formed transversely of its lower member. Single panes of glass 28 and 29 will be secured by the locking strips 30 in the sash frame 25 and 26. An inner metal sash guide 31 will be adjustably and slidably received in the outer sash guide 24. The upper cross member 32 of the sash 26 and the adjacent lower cross member 33 of the sash 25 are rabbeted to provide the cooperating interlocking V-shape tongues 34 and V-shape grooves 35 for completely weatherstripping the middle of the window.

In Figure 6 of the drawings, there is illustrated an outer double metal sash guide 36 which is U-shape in cross section and secured to the opposite faces of a window frame 37 by means of the screws 38, said guides extending the full length of the window frame 37. An inner double metal sash guide 39 is formed with the space guide flanges 40 and 41, and 42 and 43, respectively, in which the double sash frames 44 and 45 are adapted to slide. The sash frames 44 and 45 are adapted to receive the spaced glass frames 46 and 47, and 48 and 49, respectively, and to be held in place by means of the locking strips 50 and 51. Of course, breather openings (not shown) will also be provided for the equalizing of the expanded air when the glass panes are heated by the sun shining upon them. Adjusting bolts 52 will be positioned in the bores 53 in the inner metal sash guide 39 and will extend therethrough and through the outer metal sash guide 36 to be received in the internally threaded nuts 54 attached to the guides 36.

In Figures 7 and 8 there is illustrated a resiliently tensioned screen and a method of supporting the same upon a window. A U-shape guide channel 55 is slotted in its upper and lower ends as at 56, and cooperates with the pins or bolts 57 extending into the screen frame 58 to limit the movement thereof. The wire screen 59 will be held in place by the offset clamping strips 60 which are fastened to said frame 58 by means of the screws 61, as best shown in Figure 7 of the drawings. Oppositely disposed U-shaped side adjusting channels 62 are supported within the guide channel 55 and overlie the opposite side edges of the screen frame 58. A plurality of laterally extending coil springs 63 are secured by means of the screws 64 to the opposite side edges of the screen frame 58, and contact the inner edges of said guide channel 55, whereby the screen frame 58 may be pushed toward the side and the opposite side of the frame will be released from the side of the window, or from a sash guide if the screen has been placed therein.

In Figures 9, 10 and 11, there is shown a metal grip guide construction which is formed of the U-shape metal guide strips 65, the central portion 66 of which is inwardly bowed and attached to the side edges of the window frame 67 by means of the strips 68 and screws 69, which serve to make the opposite sides 70 of the guide grips more firmly on a sash or plate of glass as the screws 69 are tightened down on the bowed central section. Slidable strips 71 will be positioned in spaced relation to the strip 68, and will support the coil springs 72 therebetween, being disposed over the screws 73 extending loosely

through said strip 71 and through the strips 68 at the central portion 66 of said guide strips 65. Upstanding collars 74 will be formed on the strip 71 to protect the heads of the screws 73. A window or screen sash or glass pane (not shown) will be supported between the metal strip guides and may be removed from the outside by pushing the window or screen sash or the glass pane toward one side against the action of the springs 72, thereby releasing the same from said guides. The side 70 of the grip guide will be bent upon itself for reinforcing the same, and if desired may support a strip of weatherproof felt (not shown).

From the foregoing description it will be apparent that there has been provided a highly efficient form of metal window and screen construction.

While the preferred embodiment of the instant invention has been illustrated and described, it will be understood that it is not intended to limit the scope of the invention thereto, as many minor changes in detail of construction may be resorted to without departure from the spirit of the invention.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

In a window construction including a window frame and outer sash guides secured thereto, inner guides supported by said outer guides for lateral adjustment, sash frames for retaining window panes supported in said inner guides for vertical movement, channels formed in said inner guides for receiving said sash frames, resilient tensioning means between said outer and inner guides, and adjusting means between said outer and inner guides for variably tensioning said resilient tensioning means, said tensioning means including divergent spring arms disposed between said inner and outer guides, the ends of said arms proximate to each other being secured to said outer guide and the opposite ends including laterally extending wings bearing against said inner guide, a threaded socket in said outer guide and window frame between the proximate ends of said arms, a headed bolt having a threaded end received in said socket and extending between and through said inner and outer guides, the headed portion of said bolt extending through said inner guide, and a coil spring wound about said bolt and interposed between said inner and outer guides.

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