Dec. 4, 1956 F. S. NICOLL, JR 2,772,449

REMOVABLE SASH WINDOW UNIT

Filed Dec. 31, 1954

2 Sheets-Sheet 1

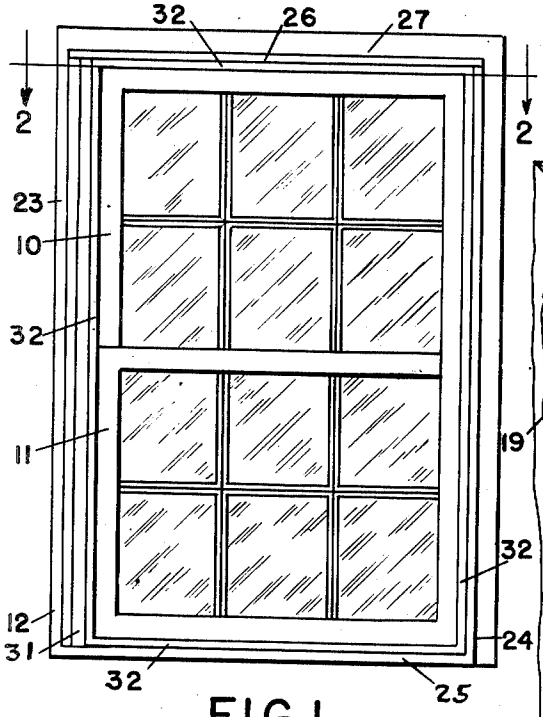


FIG. 1

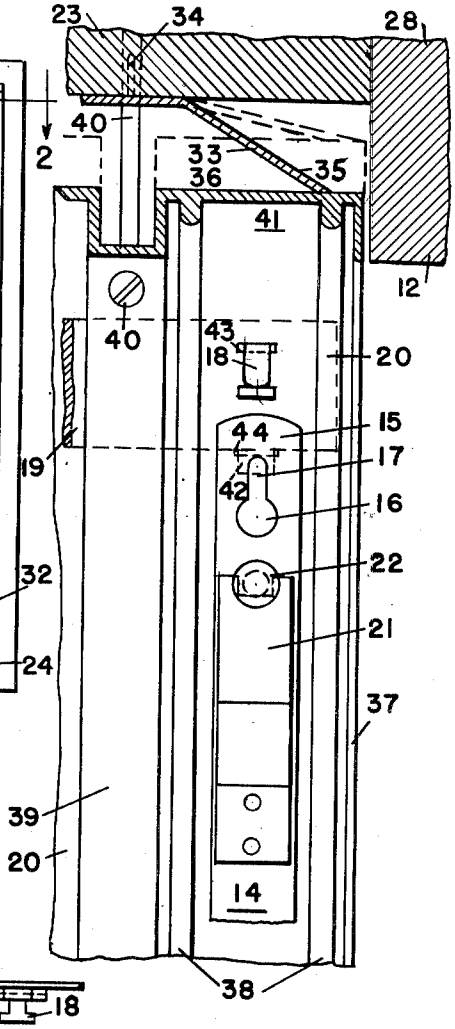


FIG. 6

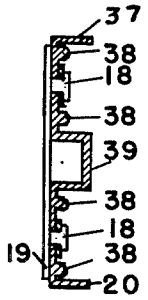


FIG. 5

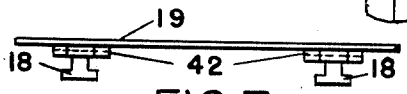


FIG. 7

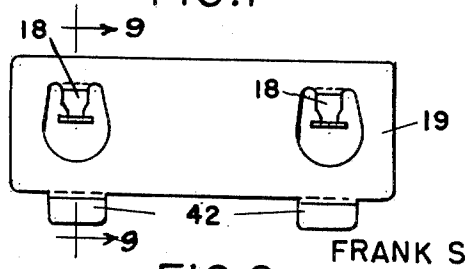


FIG. 8

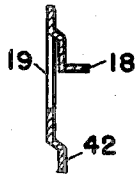


FIG. 9

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REMOVABLE SASH WINDOW UNIT

Filed Dec. 31, 1954 2 Sheets-Sheet 2

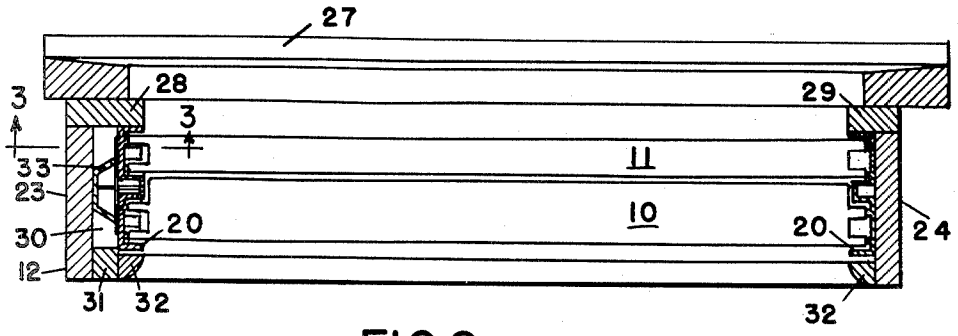


FIG.2

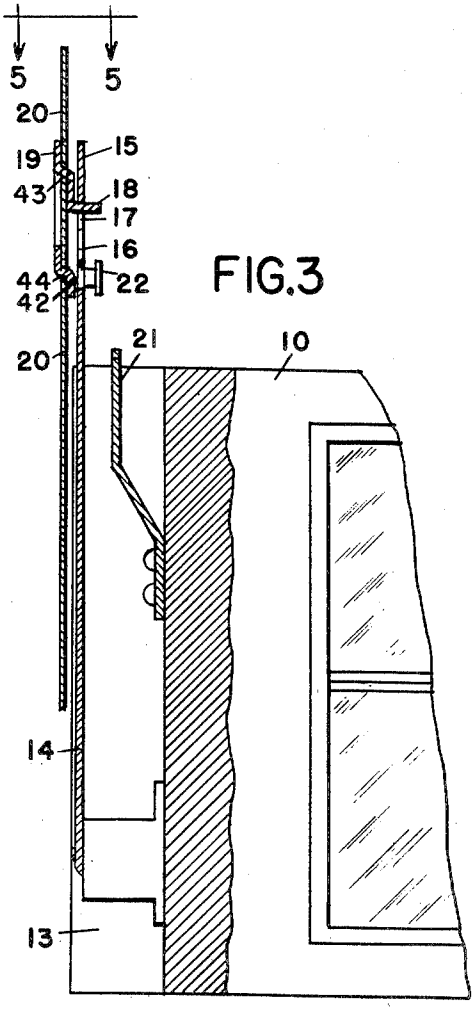


FIG.3

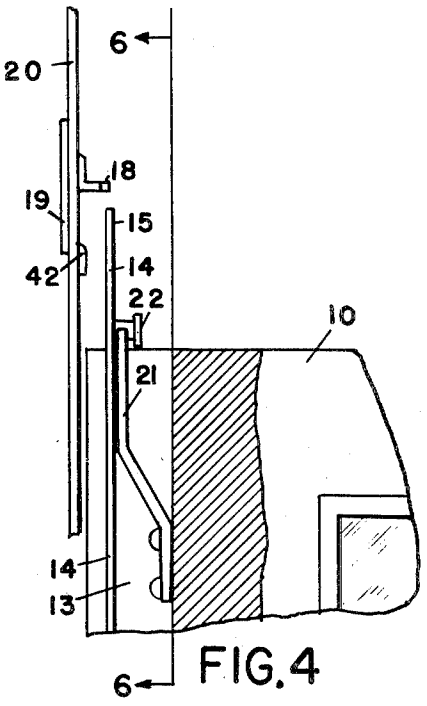


FIG.4

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REMOVABLE SASH WINDOW UNIT

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3 Claims. (Cl. 20—52.2)

This invention relates to builders materials and more particularly to improvements in vertically sliding window counterbalancing and easy removal of sliding sash from its frame.

The conventional sliding sash use many types of counterbalance, one of which is the coiled ribbon spring connected to the lower end of the sash and with its free end permanently affixed to the window frame. To remove the sash from a window frame using this type of construction it is necessary to remove parts of the window frame and remove the nail or screw that fastens the free end of the ribbon spring to the window frame. After several removals of the sash from the frame for washing the windows etc. the removable parts of the frame become mutilated and worn out and unusable.

This invention has among its objects the production of a balanced and removable window unit comprising a frame having a floating jamb weatherstrip cushioned by a backer spring and weather stop to allow the sash to be angularly positioned in the window frame and to depress the floating jamb weatherstrip and backer spring and weather stop sufficiently to allow the sash to be slidably positioned in said frame without removing any parts of the window frame and at the same time to be able to engage or disengage the free end of the balance spring from the window frame as required.

It is a further object of this invention to provide a new and improved floating jamb weatherstrip that will have a balanced support plate that will support the full width of the floating jamb weatherstrip and project therethrough to engage with the free end of the balance spring attached to the sash.

A further object of the invention is to provide a new and improved removable sash window unit having a window frame and sash units that will be weatherproof and have depressible portions to enable the sashes to be snapped into or out of place without removing any parts of the frame, and to removably position the free ends of the balance springs to said window frame.

Other objects will become apparent as the invention is more fully set forth.

For a clearer understanding and depiction of the invention, reference is made to the accompanying drawings wherein a particular form of the invention is shown. These drawings in conjunction with the following description explain its preferred construction, indicate its principles and describe its operation, while the claims included show the scope of the invention.

Referring to the drawings:

Figure 1 is a front inside elevation of the removable sash window units and frame embodying this invention:

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

Figure 3 is a sectional view taken along line 3—3 of Figure 2; partly in section to show a coiled balance or ribbon spring attached to a floating jamb weatherstrip, ready for operation of a sash in the window frame.

Figure 4 is a similar view to that shown in Figure 3 except the free end of a balance spring has been removed from the adjacent weatherstrip and is held in stretched position on a bracket attached to the associated sash and the figure shows the position of the free end of the balance spring in relation to the sash at the time of removal from or replacement of the sash in the window frame;

Figure 5 is a plan view looking in the direction of the arrows shown in Figure 3; and

Figure 6 is a view looking in the direction of arrows 6—6 shown in Figure 4, the dotted lines represent the position of weatherstrip and backer spring and weather stop when compressed;

Figure 7 is a plan view of the spring bracket and stiffener plate;

Figure 8 is a front elevation of Figure 7; and

Figure 9 is a sectional view taken along line 9—9 of Figure 8.

Similar reference numerals refer to similar parts throughout the drawings.

Referring now by characters or reference numerals to the drawings, from which it is understood the invention may be applied to any sliding window or door and as an example the drawings show a window with an upper sash 10 and a lower sash 11 slidably mounted in a frame 12. Each sash has a cut out portion 13 to receive a coiled balance spring 14 and its free end 15 which is fitted with a hole 16 and elongated slot 17 to enable the free end of the spring to be attached to a hook 18 formed on a balance spring bracket and stiffener plate 19. The combined balance spring bracket and stiffener plate 19 is provided with two hooks 18 and two tongues 42 (as shown in Figs. 7, 8 and 9) which project through slots 43 and 44 in a floating jamb weatherstrip 20 (shown in Figs. 3 and 4) and are easily attached or removed without the use of tools, rivets, welding etc. A balance spring engaging support 21 is positioned in the upper end of the cut out portion 13 of each sash, and engages the detaching rivet 22 affixed to the adjacent balance spring 14 and raises the free end 15 of the spring 14 so the hook 18 of the adjacent bracket and stiffener plate 19 can pass through the hole 16 and slide in the elongated slot 17 and anchor the spring to the floating jamb weatherstrip 20. The frame 12 comprises side rails 23 and 24, a sill plate 25, an upper plate 26, and an inner trim 27. The side rails 23 and 24 are spaced from the trim 27 by spacer strips 28 and 29. A well 30 is formed in the side rail 23 by spacer strip 28 and front spacer 31 and a quarter molding 32 that runs around the frame 12. A backer spring weather stop 33 is fastened in the well 30 against the side rail 23 preferably by nails or screws 34 and its flared ends 35 press against the rear wall 36 of the floating jamb weatherstrip 20 and force it outwardly against the adjacent vertical side of each sash. The floating jamb weatherstrip 20 is provided at each end with turned-up edges 37, ribs 38, and a center raised section 39, and holes are positioned at predetermined locations in the center raised section 39 that will not conflict with the travel of the sashes and are to receive screws 40 to control the outward movement of the floating jamb weatherstrip 20. The ribs 38 limit the side movement of the sashes and create a pocket 41 to provide a free passageway for the travel of the balance springs 14. The side rail 24 has a jamb weatherstrip 20 fixed thereto which guides one side of each sash in its vertical travel, but is not compressible, as is its opposite member attached to side rail 23.

In the operation of this invention the free end 15 of each balance spring 14 may be pulled out and its rivet 22 positioned against the end of the adjacent balance spring engaging support 21, the sash is then tilted sidewise with the inner end pressing against the depressible floating

jamb weatherstrip **20** attached to side rail **23** until it and the backer spring and weather stop **33** are depressed sufficiently to allow the sash to be positioned properly in between both of the floating and fixed jamb weather strips **20**. The sash is then raised until the hole **16** in the free end of the balance spring **14** is aligned with the hook **18** on the spring bracket and stiffener plate **19** and is engaged therewith, the sash is then lowered and the walls of the elongated slots **17** slide into engagement with the hooks **18** and remains positioned thereon. The sashes may then be raised and lowered in the same manner as is used for any other balanced sash, and will always remain in that position, and in addition to their self balancing features there is provided a free riding sash that is weatherproof and non-binding. To remove a sash from the frame, the sash is raised or lowered as the case may be, until the head of the detaching rivet **22** comes in contact with the end of the balance spring engaging support **21**, the sash is then raised so the hook **18** will slide out of the elongated slot **17** and into the hole **16** and the free end **15** of the spring **14** is disengaged from the hook **18** and is moved away from it, the sash is then pressed to the left, to compress backer spring and weather stop **33** and the right side of the sash is pulled inwardly and out of the frame and the sash is then removed for washing the windows etc.

While but one general form of the invention is shown in the drawings and described in the specification, it is not desired to limit this application for patent to this particular form as it is appreciated that other forms of construction could be made that would use the same principles and come within the scope of the appended claims.

Having thus described the invention, what is claimed is:

1. In a window structure, the combination, with a window frame having a pair of side stiles, of a set of sashes and means removably retaining said sashes in said frame for vertical movement therein; said means comprising a pair of jamb devices, one fixedly secured to one of said stiles and the other jamb device floatingly mounted on the other stile of said window frame, resilient means urging said floating jamb away from said second

stile, each of said jamb devices providing guide channels for the oppositely disposed stiles of each sash, a stiffener plate secured to the upper rear portion of said floating jamb, a set of hooks located one in each guide channel of said floating jamb and extending through the latter and secured to said stiffener plate, said stiffener plate having a set of tongues integral therewith and projecting through said floating jamb one each into one of said guide channels of the floating jamb, each sash having a channel facing said floating jamb, a set of counterbalance springs for suspending said sashes at desired elevations in said window frame, means in the channel of each sash securing to the latter one end of a counterbalance spring, a rivet secured to each of said springs adjacent to the upper end thereof, a support member located at the upper end of the channel in each sash and having an end engageable with one of said rivets, an opening in each counterbalance spring above such rivet, each support member by engaging the rivet on the spring adjacent to said support member being adapted, when the sash having said support member is raised to the proper level, to carry the spring to a position in which the opening in the spring can be passed over the adjacent hook.

2. A window structure of the type set forth in claim 1, in which said hooks and said tongues hold the stiffener plate on said floating jamb.

3. A window structure of the type set forth in claim 2, in which said hooks on the stiffener plate have enlarged heads spaced from the webs of the guide channels in the floating jamb and the openings in said counterbalance springs having enlarged portions at the lower ends and narrow slots extending upwardly from said enlarged portions, whereby said enlarged portions may be slipped over the heads of said hooks and the slots may then suspend the springs from the portions of the hooks located inwardly of said heads.

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