March 31, 1959 C. B. PULLUM 2,879,537

SPRING LOADED SASH BALANCE CONNECT-DISCONNECT MEANS

Filed July 1, 1954 2 Sheets-Sheet 1

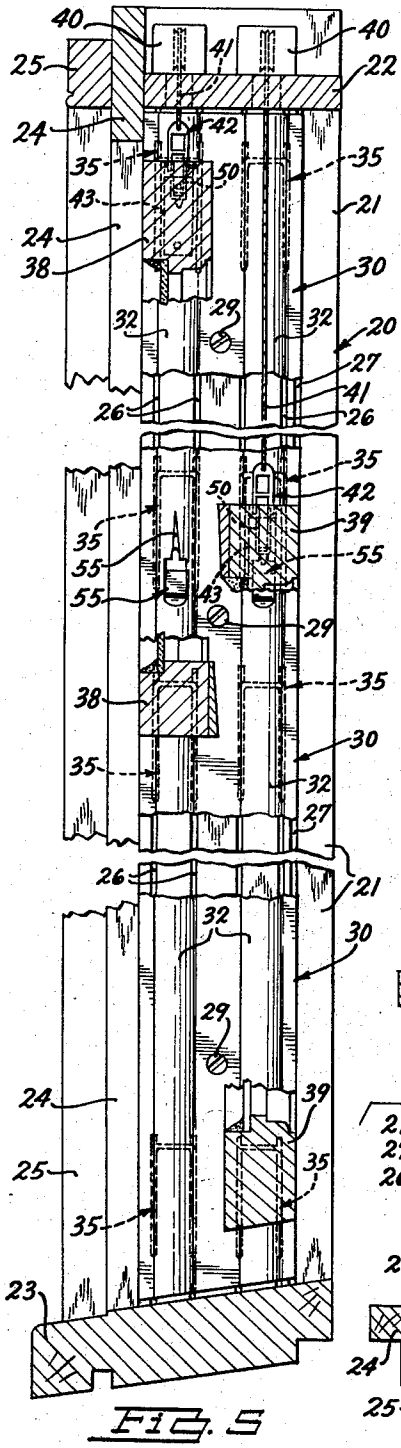


Fig. 5

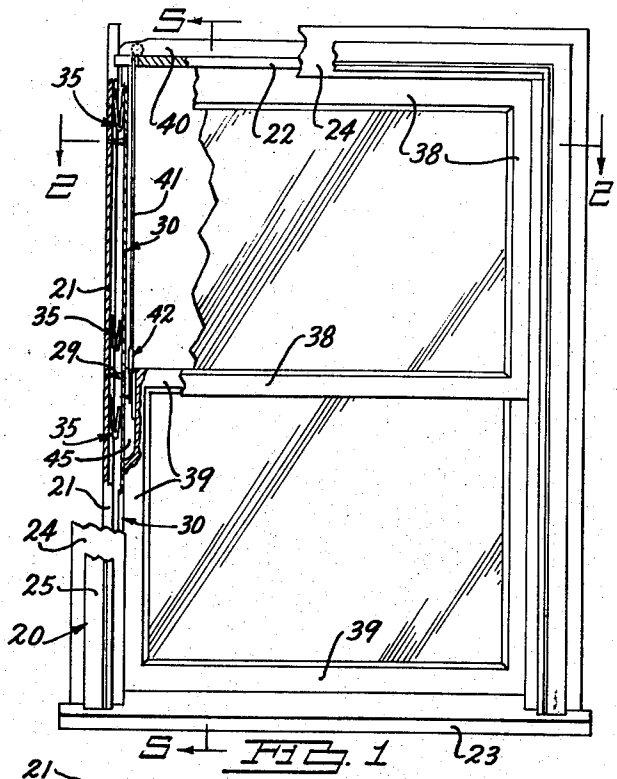


Fig. 1

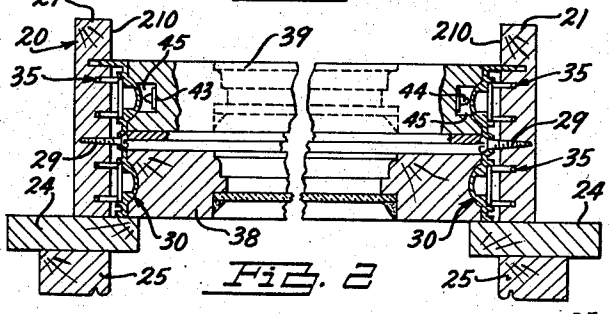


Fig. 2

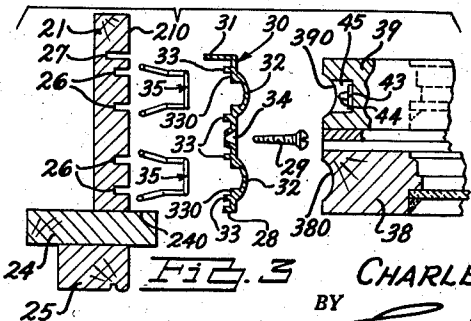


Fig. 3

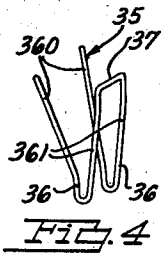


Fig. 4

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SPRING LOADED SASH BALANCE CONNECT-DISCONNECT MEANS

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2 Sheets-Sheet 2

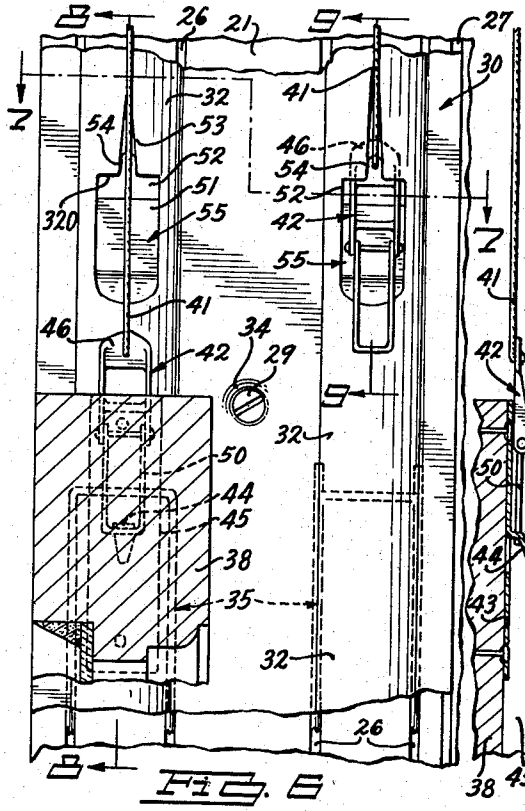


Fig. 6

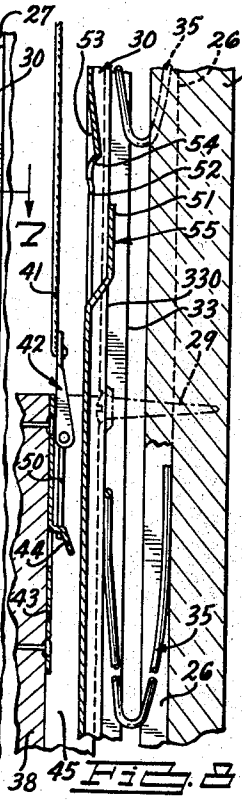


Fig. 8

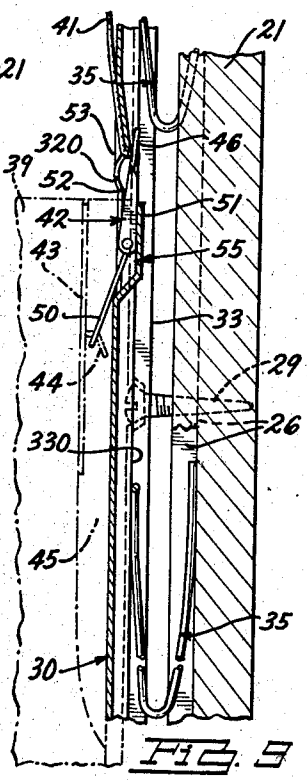


Fig. 9

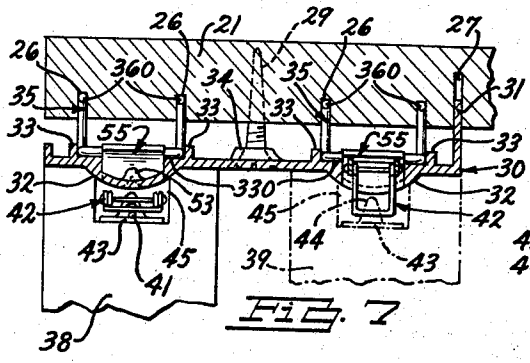


Fig. 7

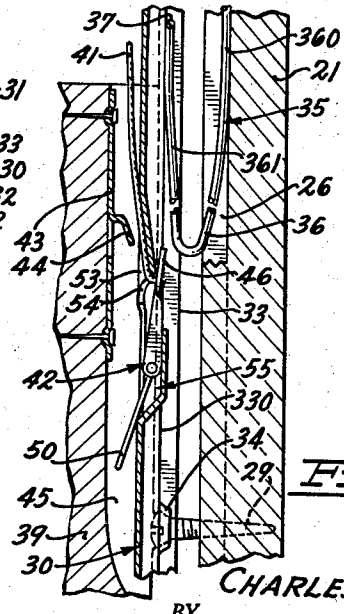


Fig. 10

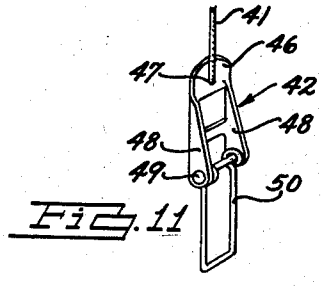


Fig. 11

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SPRING LOADED SASH BALANCE CONNECT-DISCONNECT MEANS

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Application July 1, 1954, Serial No. 440,675

1 Claim. (Cl. 16—202)

This invention relates to improvements in yieldable jamb friction type window construction.

One object of the invention is to provide an improved window construction wherein the sash are frictionally held by a yieldable jamb which serves as a weatherstripping member in such a manner as to eliminate the necessity for the use of an inside stop.

Another object of the invention is to provide an all metal yieldable jamb type window frame for removable sash wherein the yieldable jamb has one deep flange which telescopes into a groove provided therefor in the fixed jamb therebehind, which flange serves both to maintain the yieldable jamb in the desired lateral position and as a weatherstripping element.

Still another object of the invention is to provide, in a yieldable jamb window frame, means for unhooking and automatically rehooking spring loaded sash balance cable to sash frictionally held between yieldable jambs whereby to permit the removal of the sash for washing and the replacement thereof without the usual difficulties encountered unhooking spring loaded sash balance cables from the sash and rehooking them thereto.

Other objects of the invention will become apparent by reference to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is an outside elevational view of double hung yieldable jamb friction type window construction embodying the invention, portions thereof being broken away.

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

Fig. 3 is an exploded fragmentary horizontal sectional view similar to Fig. 2 showing the left half thereof.

Fig. 4 is a view in perspective of springs preferably employed to spring load the yieldable jamb.

Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 1.

Fig. 6 is an enlarged fragmentary elevational view of a jamb showing a spring loaded sash balance cable connector hooked to the outer sash and released from the inner sash by engagement with the yieldable jamb, the inner sash being removed.

Fig. 7 is a horizontal sectional view taken on the line 7—7 of Fig. 6, the inner sash being indicated in dot and dash lines.

Fig. 8 is a fragmentary vertical sectional view taken on the line 8—8 of Fig. 6 showing the upper sash hooked to the sash balance cable connector.

Fig. 9 is a fragmentary vertical sectional view taken on the line 9—9 of Fig. 6 indicating the lower or inner sash in dot and dash lines moved to a position in which the top of its sash balance cable connector is engaged in the yieldable jamb prior to moving the lower sash upwardly to disengage the sash balance cable connector therefrom.

Fig. 10 is a fragmentary sectional view similar to Fig. 9 showing the lower or inner sash completely disconnected from its spring loaded sash balance cable ready to be removed from the window frame by depressing the yieldable metal inner jamb.

Fig. 11 is a view in perspective of the connector preferably employed on the end of the spring loaded sash balance cable, the said connector being of a type engageable in a pocket formed in yieldable metal inner jambs to permit ready removal of the sash therefrom and the replacement thereof with substantially automatic disconnection of the cable connector from the sash and automatic re-connection thereto.

Referring now to the drawings wherein like numerals refer to like and corresponding parts throughout the several views, the particular embodiment of the invention disclosed for the purpose of illustration is shown in connection with the double hung yieldable jamb friction type window construction **20** shown generally in Figs. 1, 2 and 5 and in detail elsewhere throughout the drawings. This construction preferably includes a pair of jambs **21**, a header **22**, a sill **23**, and facia **24** and trim **25** disposed over the jambs **21** and header **22**, the lower ends of the said facia **24** and trim **25** abutting the sill **23**. These elements are all secured together in the usual manner and, although not shown, joints therebetween may be tongue and grooves or rabbeted as desired or required.

The opposite faces **210** of the jambs **21** are each provided with two pairs of laterally spaced longitudinal spring grooves **26** and a single laterally spaced guide groove **27**, the guide groove **27** being deeper than the spring grooves **26** to telescopingly receive the inner rearwardly disposed guide flange **31** of a yieldable jamb **30** which is secured to each of the jambs **21** by such suitable means as countersink head screws **29** screwed into each jamb **21** to a suitable depth to hold the guide flange **31** of the yieldable jamb **30** thereover into the guide groove **27** thereof and at the same time permit the yieldable jamb to be depressed as hereinafter described in detail. At the opposite side of the yieldable jamb **30** from the guide flange **31** is an abutment or rub flange **28** which is disposed adjacent the rear of the facia **24** at **240**.

Each of the yieldable jambs **30**, in addition to having an inner rearwardly disposed guide flange **31** and an abutment or rub flange **28**, is provided with a pair of parallel outer arcuate sash tracks **32** behind each of which is a pair of inwardly disposed shallow spring guide flanges **33** forming spring channels **330**. Suitably spaced along the center of the yieldable jambs **30** are apertures **34**, the said yieldable jambs **30** being countersunk around said aperture **34** to accommodate the countersink head screws **29** which are employed to secure the yieldable jambs **30** in spaced relationship to the jambs **21**. Compression springs **35** comprising a pair of V-shaped elements **36** joined together laterally by a transverse member **37** are positioned at intervals between the jambs **21** and the yieldable jambs **30** with the free legs **360** of each V-shaped element **36** disposed in a pair of spring grooves **26** and with the connected legs **361** and transverse member **37** thereof disposed in a spring channel **330**. The free legs **360** of the V-shaped spring elements **36** of the compression springs **35** are bent slightly laterally out of line in respect to the connected legs **361** thereof to laterally engage the jamb **21** and retain the compression spring elements **35** into the desired position longitudinally in respect to the jamb **21** when sprung into the spring grooves **26** thereof.

Between the yieldable jambs **30** are slidingly mounted an upper (outer) sash **38** and a lower (inner) sash **39** with the grooves **380** and **390** respectively in the edges thereof disposed in registry with the guide flanges **31** of the yieldable jamb **30**. The sash **38** and **39** are spring held in slidable relationship in the frame of the window **20** by means of the yieldable jambs **30**. The said sash **38** and

39 are readily removed from the window 20 by depressing the yieldable jambs 30. It will be observed that the guide flange 31 of each yieldable jamb 30 serves both as a weatherstrip and as means for maintaining the yieldable jamb 30 in the proper lateral operating relationship with respect to the inner surface of the facia 24 adjacent thereto.

A spring loaded sash balance 40 having a cable 41 constantly under tension is preferably employed with each sash 38 and 39, each cable 41 being connected to the sash balanced thereby by means of a sash balance cable connector 42 which is releasably anchored onto a suitable downwardly disposed anchor hook 44 struck out from a hook plate 43. The said hook plate 43 is secured by suitable means to one side of the sash in a hook pocket 45, which pocket 45 is formed at the base of one of the arcuate sash tracks 32 at the top thereof as best shown in Figs. 6, 7, 8, 9 and 10.

One type of sash cable connector 42 which may be employed in practicing the invention is composed of a yoke 46 having an aperture 47 in the flat upper end thereof through which the cable 41 is connected to the yoke 46. The said yoke 46 is formed with side flanges 48 through the lower portion of which is disposed a transverse pivot pin 49 onto which a U-shaped anchor loop 50 is pivoted. The left side of Figs. 6 and 7 and Fig. 8 show a cable connector 42 connected to the anchor hook 43 of the upper sash 38 which is the normal position assumed by these elements when a sash balance is connected in operating relationship to a sash.

Somewhat above the position taken by the upper horizontal rail of the lower sash 39, the arcuate sash tracks 32 are debossed at 51 and apertured at 52 to receive the upper end of the yoke 46 of a sash balance cable connector 42 behind the arcuate sash track 32 to provide an anchorage therein generally designated by the numeral 55 which removably engages the cable connector 42 as indicated in Fig. 9 with the cable 41 disposed through a notch 54 located at the lower end of a tapered groove 53 debossed in the arcuate sash tracks 32 just above and communicating with the aperture 52 therein. To engage the cable connector 42 in the anchorage 55 aligned with the sash 39, the sash 39 is raised to a point where the top of the yoke 46 of the cable connector 42 is disposed opposite the aperture 52 in the arcuate sash track 32 on which the sash 39 slides, and the yoke 46 is then pressed manually into the debossed portion 51 of the said arcuate sash track 32, and the sash 39 is lifted slightly until the cable 41 is disposed through the notch 54 at the lower end of the tapered groove 53 and the top of the yoke 46 is disposed beneath the edges 320 of the track 32 above the aperture 52 therein, see Fig. 9. When the cable connector 42 is so anchored to the yieldable jamb 30, the U-shaped anchor loop 50 is diagonally pivoted outwardly from the arcuate sash track 32 with the transverse bar of the U-shaped anchor loop 50 in position to be unhooked from or hooked onto the anchor hook 44 of the anchor plate 43 fixed in the hook pocket 45 of the sash 39.

It is readily observed that when the sash 39 is then slid further upward on its track 32 as indicated in Fig. 10, the said spring loaded sash balance cable connector 42 becomes completely unhooked from the anchor hook 44 carried by the said sash 39, and the sash can be easily removed for washing or cleaning from between the yieldable jambs 30. When the sash 39 is replaced between the yieldable jambs 30 with the sash groove 390 in registry with an arcuate sash track 32, it is replaced with the hook pocket 45 of the sash 39 opposite the sash balance cable connector 42, and the anchor hook 44 of the sash 39 is positioned above the U-shaped anchor loop 50.

By merely sliding the sash 39 downwardly from the position just described, the sash balance cable connector 42 is hooked automatically onto the sash anchor hook 44 and the yoke 46 of the cable connector 42 is released from the anchorage 55, whereupon the sash balance cable 41 is again connected to the sash 39 in the same manner as the sash 38 is connected to the sash balance cable 41 as shown in Fig. 8. The connection of a spring loaded sash balance cable 41 to a sash 38 or 39 is identical, and the description herein which applies to the connecting and disconnecting of a sash balance cable 41 to the sash 39 is equally applicable to connecting and disconnecting a sash balance cable 41 to the sash 38.

The invention thus provides a construction in which a spring loaded sash balance cable can be easily connected to and disconnected from a sash slidably mounted between yieldable jambs to permit the sash to be readily removed and replaced as may be required for washing or painting.

Although but a single embodiment of the invention has been disclosed and described in detail, it is obvious that many changes may be made in the size, shape, arrangement and detail of the various elements of the invention without departing from the spirit and scope thereof as defined by the appended claim.

I claim:

In a window construction comprising, a window frame having jambs, sash slidably mounted in said jambs, one of said jambs having a slotted debossed portion, a spring loaded sash balance cable, a cable connector having a yoke portion connected to said sash balance cable at a point below the upper end thereof and an anchor loop portion pivotally connected in depending relationship to said yoke portion, and an anchor hook carried by said sash engageable by said anchor loop portion of said connector, the upper end of the yoke of said cable connector being manually positionable into the slotted debossed portion of said jamb to lock said yoke portion to said jamb with the anchor loop portion pivotally disposed by said jamb at the bottom of said debossed portion thereof into the path of said anchor hook, whereby raising of said sash disengages said hook from the loop portion of said cable connector and the lowering of said sash engages said hook with said connector loop portion and disengages said connector yoke portion from the slotted debossed portion of said jamb.

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