

June 21, 1960

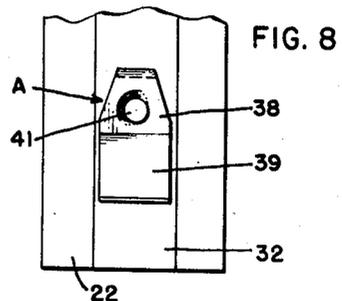
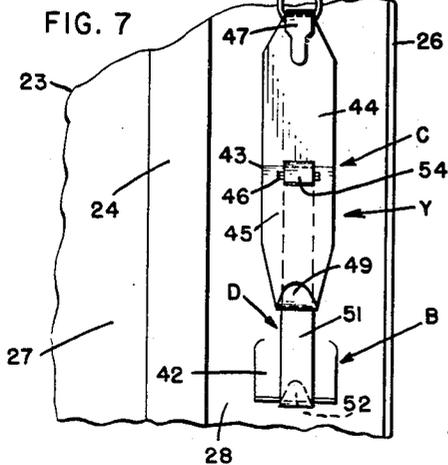
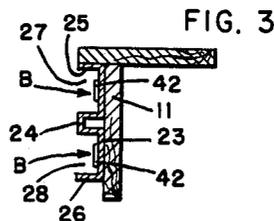
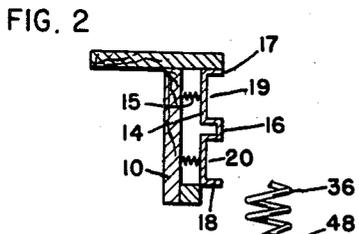
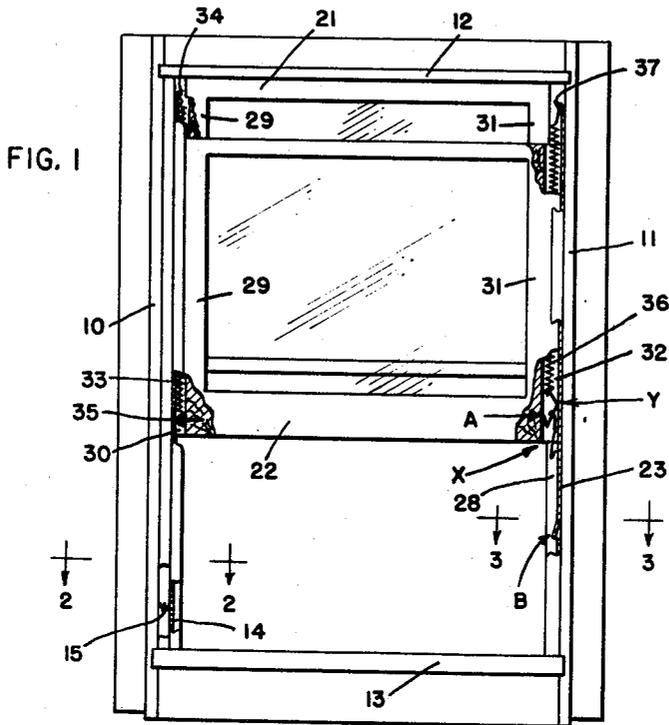
F. L. REESE

2,941,237

SASH BALANCE CONNECTORS FOR WINDOW STRUCTURES

Filed June 13, 1957

2 Sheets-Sheet 1



INVENTOR  
FRANKLIN LEWIS REESE

*Carwell + Logaard*

ATTORNEYS

June 21, 1960

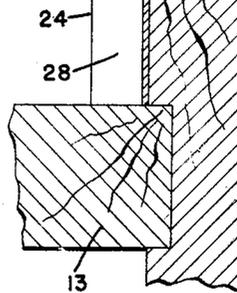
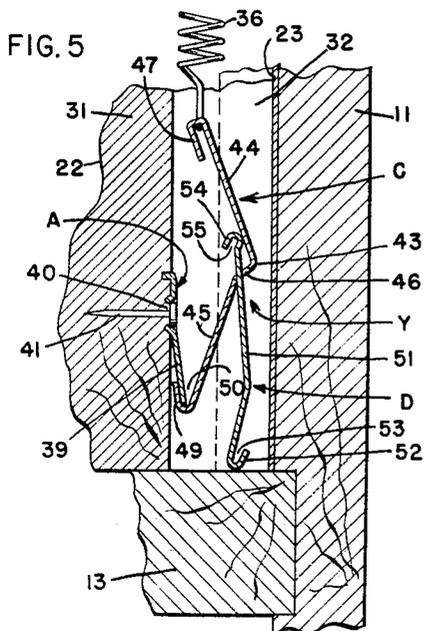
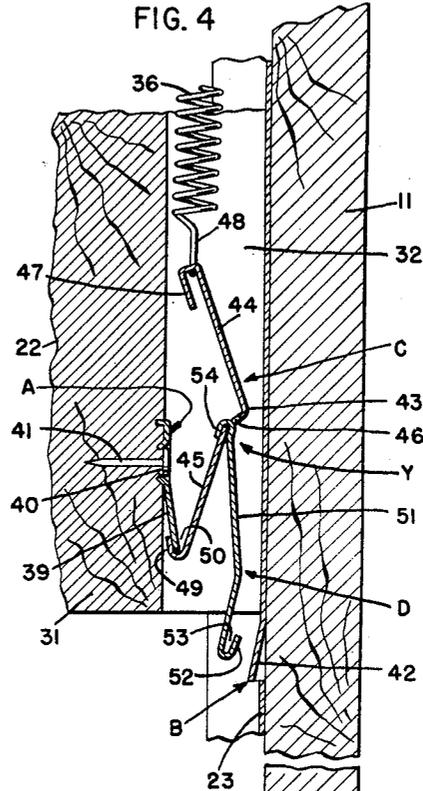
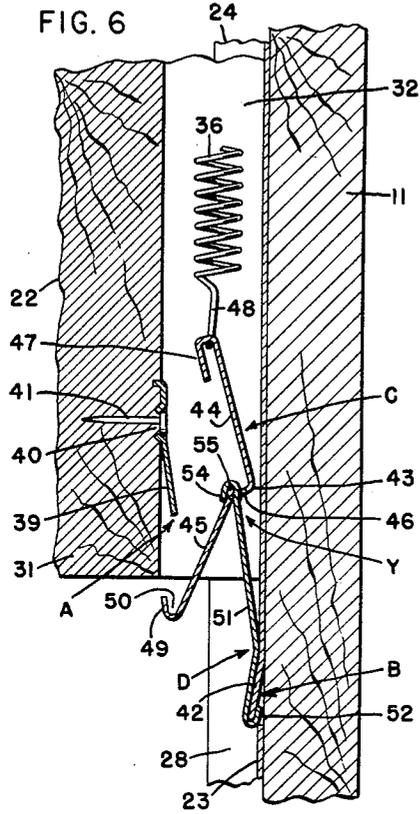
F. L. REESE

2,941,237

SASH BALANCE CONNECTORS FOR WINDOW STRUCTURES

Filed June 13, 1957

2 Sheets-Sheet 2



INVENTOR

FRANKLIN LEWIS REESE

*Baswell & Lagaard*

ATTORNEYS

1

2,941,237

**SASH BALANCE CONNECTORS FOR WINDOW STRUCTURES**

Franklin Lewis Reese, Bloomington, Minn.  
(7800 W. 78th St., Minneapolis 24, Minn.)

Filed June 13, 1957, Ser. No. 665,435

3 Claims. (Cl. 16-197)

My invention relates to improvements in window construction and particularly to balance connectors for connecting the sash balance of a window structure to a sash thereof and to the window frame interchangeably, whereby the sash balance may be temporarily disconnected from the sash and anchored to the window frame while the sash is taken from and returned to its normal operative position in the frame.

Expedients of this nature heretofore have been found desirable in double hung window construction, wherein the counterbalanced sashes may be removed from a window frame from the inside of the window structure to lend convenient access to the exterior sides of the sashes for cleansing or other purposes.

Among others, D. J. Dinsmore, patentee, United States Patent No. 2,761,173, dated September 4, 1956, devised a device for temporarily disconnecting sash balance cables from a window frame and their subsequent re-application thereto.

To avoid the inconvenience of removing individual stops from a window frame as a prerequisite to the removal of window sashes, Dinsmore evidenced in said Patent No. 2,761,173 his preference for the so-called "floating jamb" type of window construction in association with his sash balance disconnecting device, a predecessor of which type of window construction is generally disclosed in United States Patent No. 2,203,427 to O. L. Dautrick, dated June 4, 1940.

My preference, like that of the said patentee, Dinsmore, is to employ the floating-jamb type of window frame construction in association with my sash balance connector, an object of which is to provide a relatively simple, durable and efficient device of such nature adapted to be inexpensively associated with a window frame construction, and, in usual manner, to apply the energy of a sash balance to its respective sash upon the normal raising and lowering thereof.

A further object of the invention is to provide an improved sash balance connector, as above noted, having a member for convenient manipulation, whereby the sash balance will become anchored to the window frame and the sash thereupon will be freed from the connector simply by raising the sash.

Another object of the invention is to provide for the automatic re-engagement of a sash with its balance connector and the subsequent automatic freeing of the connector from the window frame simply upon the lowering of the sash.

An additional feature of the invention resides in providing in a sash balance connector, a part for manipulation, as aforesaid, which hangs beneath the sash for access, and which is self-adjustable in accommodation of the full closing of the sash against the sill of a window frame.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

2

In the drawing:

Fig. 1 is an elevational view illustrating the inside of a window frame structure and including a form of my invention in sash balance connectors associated therewith.

Fig. 2 is a detail sectional view taken as on the line 2-2 of Fig. 1.

Fig. 3 is a detail sectional view taken as on the line 3-3 of Fig. 1.

Fig. 4 is a vertical-sectional view in detail showing portions of the window frame structure and illustrating the balance connector connecting the sash balance with a sash in a partially raised position of the sash.

Fig. 5 is a detail sectional view similar to Fig. 4 showing the sash closed.

Fig. 6 is a view similar to Fig. 4 showing the balance connector connecting the sash balance with the window frame.

Fig. 7 is a fragmentary elevational view in detail illustrating from its inner side the sash hook and frame hook assembly of a balance connector with its frame hook in engagement with the companion frame catch.

Fig. 8 is an elevational view of a sash catch, the same being shown in position within the groove in a sash.

In the double hung window frame construction illustrated in Fig. 1 in connection with which an embodiment of my improved sash connector is shown, it will be seen that said frame construction includes the usual stiles 10, 11, header 12 and sill 13. Standing adjacent to the stile 10 is a floating jamb 14, the same being urged inwardly as by expansion springs 15 interposed between said stile 10 and jamb 14, said jamb 14 including in its construction a parting stop 16 and outside and inside stops 17, 18 defining outside and inside runways 19, 20 for upper and lower sashes 21 and 22. Similar in construction to the floating jamb 14, but attached to the window frame stile 11, is a fixed jamb 23 having a parting stop 24 and outside and inside stops 25, 26 defining outside and inside sash runways 27, 28. The upper and lower sash 21, 22 move vertically in said outside and inside runways 19, 27 and 21, 28, respectively. The corresponding stiles 29 of the sashes 21, 22 are each formed with a groove 30 therein confronting the floating jamb 14. The corresponding stiles 31 of said sashes 21, 22 are each formed with a similar groove 32 confronting the fixed jamb 23. In the groove 30 of each of the sashes 21, 22, a helically coiled balance spring 33 is received, the upper end of such spring being caught over an ear 34 turned inwardly from the upper portion of the floating jamb 14, the lower end of such spring being removably caught over a nail 35 or other headed stud anchored in the sash near the bottom thereof. Received in the groove 32 of each of the sashes 21, 22, is a similar helically coiled balance spring 36 which is caught at its upper end over an ear 37 inwardly turned from the upper portion of the fixed jamb 23.

In association with each of the sashes 21, 22 and its respective balance spring 36, I employ a sash balance connector X which, in addition to a sash catch A and a frame catch B, includes a hook assembly Y consisting of a sash hook C and a frame hook D.

While the balance connector X, shown in the drawing and hereinafter particularly described is the connector associated with the lower sash 22, it will be understood that the upper sash 21 has a similar balance connector associated therewith.

The sash catch A of the illustrated connector X is an elongated clip struck from sheet metal, said clip having a body 38 and a lip 39 extending angularly therefrom. Received by the groove 32 in the sash 22, the catch A is placed therein with the body 38 backed against the back of the groove 32 and with the lip 39 extending downwardly and outwardly, said body 38 being formed with an aper-

3

ture 40 therein for the reception of a nail 42 which is driven through said aperture into the sash 22 to secure said sash catch A thereto.

The frame catch B of the illustrated connector X is a downwardly inclined lip 42 struck inwardly from the material of the fixed jamb 23 at a point between the extreme upper and lower positions assumed by the lower edge of the sash 22.

The sash hook C of the connector X is of elongated band-like construction and is receivable in the groove 32 in the sash 22 in edgewise relationship with respect to the sides of said groove 32. Said sash hook C has a shank 43 including an upper upright reach 44 and a lower reach 45 inclined inwardly and downwardly from said upper reach. At the juncture of said reaches 44, 45, the shank 43 has a slot 46 therein extending transversely thereof. At the upper end of its upper reach 44, the shank 43 of said sash hook C has a downturned ear 47 which is hooked into the lower terminal loop 48 of the sash balance spring 36 for attachment of the hook assembly Y to said balance spring. The lower reach 45 of the sash hook C has a lip 49 at its inner side, said lip 49 being upturned from the lower portion of said lower reach 45 forming an upwardly opening bight 50 in the sash hook C. This bight 50 is located in the path of the lip 39 of the sash catch A and is engageable therewith from beneath the same.

The frame hook D of the connector X is an elongated band-like member pendently carried by the sash hook C. This frame hook D includes a shank 51 having a first lip 32 at its outer side, upturned from its lower portion, forming an upwardly opening bight 53 adapted removably to engage the lip 42 of the frame catch B. Said shank 51 of the frame hook B is loosely received at its upper portion in the slot 46 in the sash hook C and is slidable relative to said sash hook C, for purposes later to appear. Said shank 51 of said frame hook D is also manually swingable outwardly on the sash hook C to locate the bight 53 of the frame hook D in position to engage the lip 42 of the frame catch B from beneath the same upon the lifting of the sash 22. At the inner side of the frame hook D, its shank 51 has a second lip 54 which is downturned from its upper portion providing a downwardly opening bight 55 which coacts with the sash hook C to provide a connection between it and the frame hook D.

Except in the stage of movement of the sash 22 immediately adjacent the sill 13 of the window frame, the frame hook D of the connector X hangs from the sash-engaged sash hook C (Fig. 4) with the lower bight 53 of said frame hook D located inwardly out of position engageable with the lip 42 of the frame catch B upon the raising of the sash. Such disposition of said frame hook D is normally preserved through the medium of said upper bight 55 of said frame hook D which bight 55 embraces opposite sides of the lower reach 45 of the sash-engaged sash hook C preventing unintentional outward swinging of the frame hook D into position engageable with the lip 42 of the frame catch B. Providing for the intentional outward swinging of said frame hook D into position for engagement of its lower bight 53 with the frame catch B, the lower portion of said frame hook D is accessibly exposed in position beneath the lower edge of sash 22 to a finger of the user's hand, said frame hook D being readily swingable outwardly by the user's finger for engagement with the frame catch B after having been slightly elevated to disembrace the upper bight 55 of said frame hook D from the opposite sides of the lower reach 45 of the sash-engaged sash hook C.

While holding the frame hook D outwardly swung on the sash-engaged sash hook C for engagement of the lower bight 53 of said frame hook D with the frame catch B, such engagement of said frame hook D and frame catch B will be effected upon the lifting of the sash 22 to bring said bight 53 of the frame hook D up to the level of said frame catch B. Thereafter, continued upward movement

4

of the sash 22 will disengage the sash catch A from the sash hook C with the result that the connector X will have connected the sash balance 36 with the jamb 23 of the window frame, while disconnecting it from the sash 22, the thus altered relationship of parts being shown in Fig. 6. In this relationship of parts with the sash balance 36 held captive with respect to the jamb 23 of the window frame, the sash 22 may be shifted edgewise upon being thrust against the floating jamb 14. Such edgewise movement of the sash 22 first frees it from the fixed jamb 23. Then, by freeing the sash from the floating jamb 14 and by detaching the balance spring 33 from the anchoring stud 35 in the sash 22, said sash may be taken out of and away from the window frame for convenient handling in cleansing the same or for other purpose. The reverse of the aforesaid steps will be performed to replace the sash 22 in the frame structure in position wherein the sash catch A will be disposed above the bight 50 of the sash hook C. Thence, a lowering of the sash 22 will reengage the sash catch A with the sash hook C and release the frame hook D from the frame catch B, following which the frame hook D will drop and swing inwardly relative to the sash hook C into its normal position clear of the frame catch B. Upon the said downward sliding and inward swinging movement of the frame hook D, the upper bight 55 thereof shifts from a cocked elevated position with the lower edge of the lip 54 riding the shank 45 of the sash hook C (Fig. 6) to the relatively depressed position shown in Fig. 4, wherein said bight 55 again embraces opposite sides of the reach 45 of said sash hook C releasably to maintain the frame hook D normally positioned clear of the frame catch B.

During the final stage in the lowering of the sash 22, the lower end of the frame hook D strikes the sill 13 (Fig. 5), the subsequent descent of the sash-engaged sash hook C, attending the further lowering of the sash 22, being compensated for in the sliding connection between said frame hook D and sash hook C. At the outset of the lifting of the sash 22 from the sill 13, the first described relationship of the frame hook D and sash hook C is reestablished, the sash hook C first moving upwardly relative to the frame hook D and then picking up said frame hook D which gravitates into normal position relative to the sash hook C in which position the lower bight 53 of the frame hook D is releasably held in a path clear of the frame catch B.

Changes in the specific form of the invention, as herein described, may be made within the scope of what is claimed without departing from the spirit of the invention.

Having described the invention, what is claimed as new and desired to be protected by Letters Patent is:

1. A sash balance connector for normally connecting a sash balance to a sash catch at the back of an edge groove in a stile of a sash slidable in and removable from a window frame, and for temporarily connecting said balance to a frame catch on a jamb of the window frame during removal of the sash from the frame, said connector comprising a sash hook adapted to be hung from the sash balance, a frame hook pendently carried by said sash hook, said sash hook having a shank including a depending upper reach for attachment at its upper end to the sash balance and having a lower reach inclined inwardly and downwardly from said upper reach, said shank having an aperture therein at the junction of said reaches, said lower reach having a lip at its inner side upturned from its lower portion forming an upwardly opening bight in the sash hook located in the path of the sash catch and removably engageable therewith, said frame hook having a shank and a first lip at the outer side thereof upturned from its lower portion forming an upwardly opening bight for removable engagement with the frame catch, the shank of the frame hook being loosely received at its upper portion in said aperture in the sash hook enabling the frame hook to be swung manually relative to

5

the sash hook to locate the said bight of the frame hook in position to engage the frame catch, the shank of the frame hook having a second lip at its inner side downturned from its upper portion providing a downwardly opening bight embraceable with opposite sides of the lower reach of the sash hook, said frame hook being slidable by gravity relative to the sash hook into a normal depressed position wherein the upper bight in the frame hook embraces said lower inclined reach of the sash hook locating the frame hook relative to the sash hook with the lower bight of the frame hook held inwardly clear of the frame catch, said frame hook being upwardly slidable relative to the sash hook thereby to disembrace the upper bight of the frame hook from the sash hook and thus free the frame hook for the aforesaid manual swinging thereof into position to engage the frame catch.

2. A sash balance connector for normally connecting a sash balance to a sash catch on a sash slidable in and removable from a window frame, and for temporarily connecting said balance to a frame catch on a jamb of the window frame during removal of the sash from the frame, said connector comprising a sash hook adapted to be hung from the sash balance, a frame hook pendently carried by the sash hook, said sash hook having a sash catch engaging portion disposed in the path of the sash catch and removably engageable therewith, said frame hook having a connection with the sash hook enabling the former to swing relative to the latter, said frame hook having a frame catch engaging portion removably engageable with the frame catch, said frame hook normally hanging from the sash hook with its frame catch engaging portion located inwardly clear of the frame catch, said frame hook being swingable outwardly relative to the sash hook to bring the frame catch engaging portion of the frame hook into position to engage the frame catch upon upward movement of the frame hook from beneath said frame catch, said frame hook being adapted to project at its lower portion beneath the sash in the sash-

6

engaged disposition of the sash hook whereby the frame hook is rendered accessible for manual outward swinging thereof, said frame hook being adapted to engage the sill of the window frame during the final stage of downward movement of the sash, said frame hook being slidable relative to the sash hook at the said connection between it and said sash hook thereby enabling the sash hook to continue movement thereof downwardly after corresponding movement of the frame hook has been arrested by the sill of the window frame.

3. A sash balance connector for normally connecting a sash balance to a sash catch on a sash slidable in and removable from a window frame, and for temporarily connecting said balance to a frame catch on a jamb of the window frame during removal of the sash from the frame, said connector comprising a sash hook adapted to be hung from the sash balance and to engage the sash catch from beneath the same, and a frame hook engageable with the frame catch from beneath the same, said frame hook having a connection with the sash hook enabling said frame hook to swing relative to the sash hook and to slide vertically relative thereto from a depressed position to an elevated position, said frame hook in said elevated position being manually swingable on the sash hook toward the jamb of the window frame to locate said frame hook in position to engage the frame catch, said frame hook being adapted to gravitate from its said elevated position to its said depressed position, said connection including frame-hook swinging means acting upon the gravitational descent of said frame hook to swing and hold the frame hook inwardly clear of the frame catch.

References Cited in the file of this patent

UNITED STATES PATENTS

979,014	Lippincott	Dec. 20, 1910
2,791,796	Haas	May 14, 1957
2,825,090	Osten	Mar. 4, 1958