

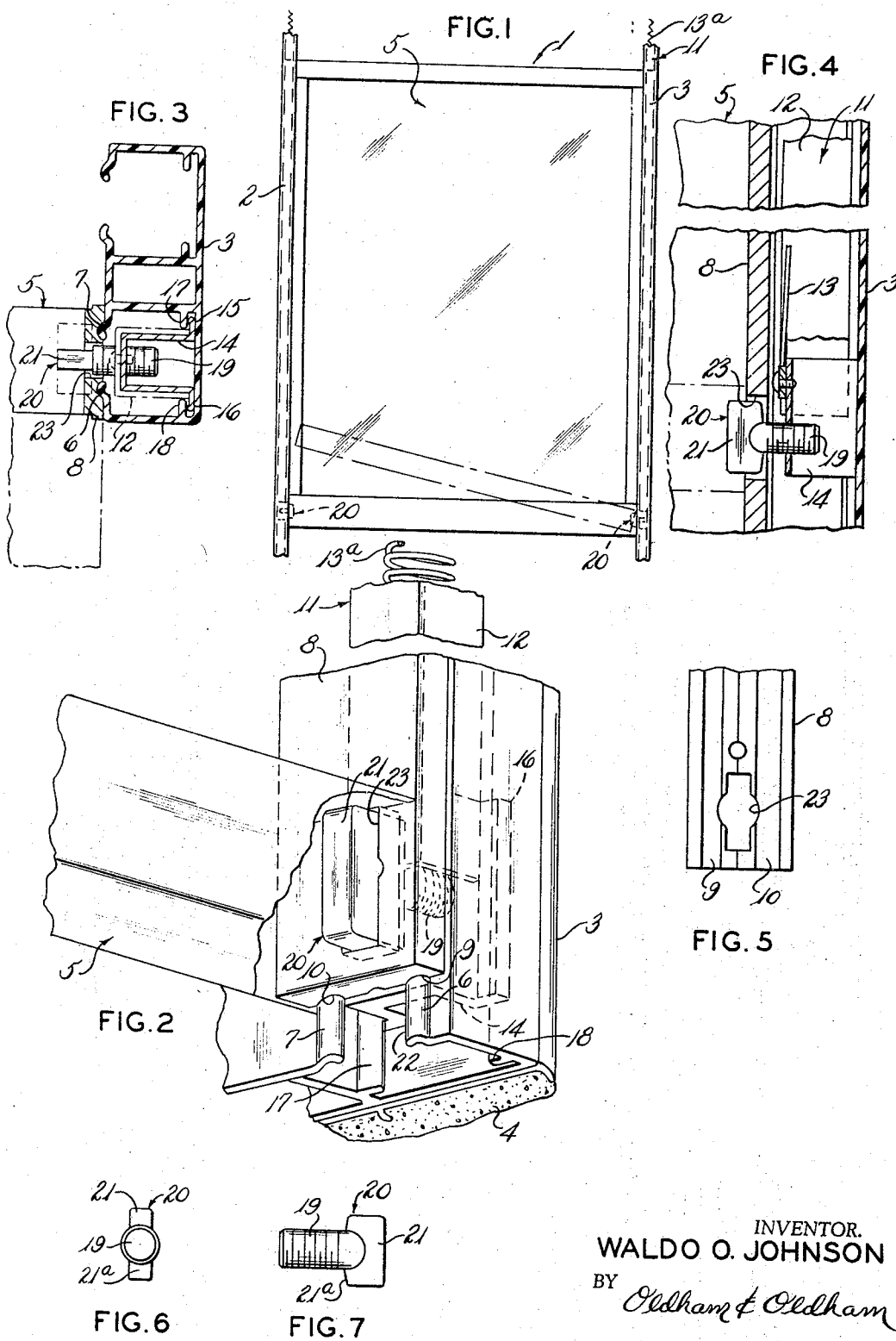
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REMOVABLE WINDOW WITH SASH BALANCE LOCK

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3,349,518 REMOVABLE WINDOW WITH SASH BALANCE LOCK

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ABSTRACT OF THE DISCLOSURE

A lock screw associated with a slidable sash balance guide of a window assembly, the lock screw having a shank portion threadably engaged with the balance guide and an elongate head portion received in a slot in the sash rail, the base of said head portion being contoured to cam against the surface of the jamb liner when said head is rotated to a horizontal position by pivoting the sash rail about the shank portion of said lock screw.

The present invention relates to window assemblies, and particularly to removable windows having sash balances provided therefor, and with means being present in the window assembly for locking or securing the sash balance, or balances in a given position when the window is removed from the window assembly.

Heretofore, various types of removable sashes or windows have been provided in various window assemblies, but it has been very difficult, if not impossible, in most of these window assemblies to provide them with sash balance means that can be conveniently secured in a given position when the window sash is removed from the window assembly.

The general object of the present invention is to provide a novel and improved window assembly having a sash balance means therein and wherein the sash balance means can be locked in a given position by a 90° pivotal movement of the window sash when removing it from the window assembly.

Another object of the invention is to use substantially conventional balance means in a window assembly and to provide a lock screw in association with a slidable sash balance guide used in the window assembly whereby the sash balance guide can be locked in a given position by a 90° turn of the lock screw in relation to a jamb liner.

A further object of the invention is to lock sash balance means in given positions automatically by the action required for removing a sash from a window assembly.

The foregoing and other objects and advantages of the invention will be made more apparent as the specification proceeds.

Attention now is respectfully directed to the accompanying drawings, wherein:

FIG. 1 is an elevation of a window assembly embodying the principles of the invention;

FIG. 2 is an enlarged fragmentary perspective view of a corner portion of the window assembly of FIG. 1 and showing a part of the resilient positioning means for the assembly;

FIG. 3 is an enlarged horizontal section taken through a jamb liner means and an associated window sash as illustrated in FIG. 1, and with the horizontal position for the window sash and associated means being indicated in dotted lines;

FIG. 4 is a fragmentary enlarged vertical section taken through jamb liner means and associated portions of a window sash of the assembly of FIG. 1;

FIG. 5 is a fragmentary elevation of a sash side rail of the window sash of FIG. 1;

FIG. 6 is an end elevation of a lock screw used in the window assembly of FIG. 1; and

FIG. 7 is an elevation of the lock screw of FIG. 6.

The present invention, generally speaking as to one embodiment thereof, relates to a slidable window assembly wherein a pair of opposed vertically extending jamb liners are positioned in suitable frame means for limited resilient lateral movement therein, a sash is slidably engaged between the jamb liners for vertical movement, sash balance means are present in the assembly, a balance guide slidably engages one of the jamb liners and is operatively attached to the sash balance means, and a lock screw having an elongate flat head thereon engages the sash balance guide and is associated with a portion of the jamb liner to abut thereon to secure the sash balance guide in a given position when the flat head of the screw is in a horizontal position and to release the sash balance guide when the flat head is in a vertical position, the sash including a sash rail with a slot therein for engaging the lock screw head to secure the sash balance guide operatively thereto, the sash being removable from the jamb liner forcing one or both of the jamb liners laterally outwardly and by pivoting the sash about the lock screw head to turn the flat head from a vertical to a horizontal position which action locks the balance guide in a given position.

Attention now is particularly directed to the details of the structure shown on the drawings, and a window assembly is indicated as a whole by the numeral 1. This window assembly can be positioned in any suitable frame means (not shown). The window assembly 1 includes a pair of vertically extending jamb liners 2 and 3 which are abutted against suitable means, such as resilient sealing strips 4, that are received in conventional supports or frames (not shown) whereby the jamb liners are positioned resiliently for lateral movement in the window assembly. A window sash 5 is positioned between the jamb liners 2 and 3 for vertical sliding movement therebetween while engaged therewith. The jamb liners 2 and 3 preferably have vertically extending ribs 6 and 7 formed thereon and a vertical sash rail 8, forming a portion of the frame for the sash 5, is shown and it has a pair of recesses 9 and 10 extending vertically thereof for sliding engagement with the ribs 6 and 7 to aid in retaining the sash in effective sealed engagement with the jamb liners for sliding movement thereon. The jamb liners can be made from any suitable material, and preferably a relatively stiff plastic material is used for forming these jamb liners 2 and 3 and which can be made to any desired shape, as by extruding the jamb liners by conventional means and cutting them to desired lengths. Usually, the sash rail is of a metal construction and it may be, for example, formed by extruding it from aluminum, or other suitable material.

In order to facilitate vertical movement of the sash 5 in the window assembly 1, one or more conventional sash balance means, indicated as a whole by the number 11, is provided in the window assembly at the lateral margins thereof. These sash balance means may, for example, be the National invisible balances as made and sold by the National Balance Co., and they include a metal enclosure 12 from which the control member, such as a flexible cable 13 may extend. A spring 13a is present in each sash balance means and it controls the cable 13 that connects to the spring by block and tackle means. The sash balance means 11 is suitably secured in position within the upper portion of one or both of the jamb liners 2 and 3 with the control member or cable 13 thereof resiliently extending downwardly therefrom and being attached at its end to a balance guide 14. This balance guide 14 is of substantially U-shape in horizontal section and usually is made from metal. In all events, the balance guide 14 has flanges 15 and 16 thereon that slidably engage under

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ledges 17 and 18, respectively, usually formed as a unit with the jamb liners 2 and 3 at a laterally outer portion thereof. The balance guide 14 has a tapped aperture provided therein with which a threaded shank 19 of a lock screw 20 is engaged.

It is an important feature of the present invention that this lock screw 20 can be used for securing the balance guide 14 in position to retain such balance guide and hence the sash balance means in a given position even though the sash 5 is removed from the window assembly. To facilitate this locking action for the balance guide 14, the lock screw 20 in this instance is shown as having a flat elongated head 21 formed thereon. The lock screw 20 extends laterally inwardly of the window assembly 1 and the screw shank extends through a slot 22 formed in the jamb liner 3 between the ribs 6 and 7. Such elongated head 21 normally is received in a vertically extending slot 23 formed in the sash rail 8. The base portion of the head, indicated at 21a, is so positioned in relation to an associated portion of the jamb liner 3 that when this head is in a horizontal position, the edge 21a of the head is moved from a position intermediate the ribs 6 and 7 formed on the jamb liner 2 and 3 to a position extending across such ribs and in frictional engagement therewith whereby the balance guide 14 will be retained in a given position. Such action is produced, it will be seen, by pivoting the sash 5 outwardly about one or both of the lock screws 20 as provided in the window assembly 1. The sash 5 can be removed from engagement with the head 21 of the lock screw by forcing the sash 5 laterally to the right, for example, in the illustration shown in dotted lines in the drawings, and then swinging the left-hand corner of the sash upwardly and/or inwardly of the window assembly to disengage the head from the associated recess or slot provided in the sash rail 8, or one corresponding thereto as formed in the opposite side of the sash. At the same time, the jamb liner 2 may be pressed laterally outwardly of the window assembly, if necessary. Thereafter, the remaining flat screw head can be conveniently disengaged from the associated sash rail slot and both sash balance means will be retained in their given positions. When reinserting the window, the steps just need be reversed for removing the window and the final pivotal action and swinging of the sash 5 up into the plane of the jamb liners 2 and 3 will release the lock screws 20 whereby the balance guides 14 are free for vertical movement in the window assembly.

While the invention has particularly been shown and described with relation to the provision of one sash balance means in the window assembly, it will be realized that two sash balances can be provided, one for engaging each vertical margin of the sash 5 and with the construction of the other jamb liner 2 and associated means being equivalent to that shown and described for the jamb liner 3. Likewise, similar means can be provided if desired for the other window in the window assembly.

In all events, a relatively uncomplicated and positive acting sash balance lock means has been provided in the window assembly of the invention and this assembly will provide a conveniently removable window, but one wherein the balance means therefor will be automatically locked in given positions when a window sash is removed and be released by reengaging the window sash with the window assembly. Hence, it is believed that the objects of the invention have been achieved.

While one complete embodiment of the invention has been disclosed herein, it will be appreciated that modification of this particular embodiment of the invention may be resorted to without departing from the scope of the invention as defined in the appended claims.

What is claimed is:

1. In a slidable window assembly, a vertically extending jamb liner having a vertically extending slot therein and being provided with vertically extending ledges therein,

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- means resiliently positioning said jamb liner for movement laterally of the window,
- a sash balance with a control member resiliently and adjustably extending therefrom,
- a balance guide attached to said control member and slidably engaging said jamb liner for movement therealong, said balance guide having flanges thereon for engaging said ledges to be restrained thereby against movement laterally inwardly of the window assembly,
- a lock screw having a shank portion secured to said balance guide and an elongate head portion extending laterally inwardly of the window assembly through said slot, the base of the head portion being contoured to cam against the laterally inner surface of the jamb liner and force said flanges against said ledges to secure said balance guide in a given position when said head portion is in a horizontal position and to disengage such surface of said jamb liner to release said balance guide when said head is in a vertical position, and
- a sash engaging said jamb liner for sliding movement thereon, said sash including a sash rail with an aperture therein adapted to engage the elongate head portion of said lock screw to secure said sash balance operatively thereto, said sash being removable from said jamb liner by forcing said jamb liner laterally outwardly and by pivoting said sash about said lock screw shank to turn said head from a vertical to a horizontal position to lock said balance guide in a given position and a pair of vertically extending ribs on the laterally inner surface of said jamb liner bordering the vertically extending slot thereof, said sash having vertically extending sash rails with vertically extending recesses therein for sliding engagement with said ribs, the base of the head portion riding in said slot free of said ribs as the head of said lock screw is in a vertical position but the base of said head portion camming against said ribs when said head is in a horizontal position.
2. In a slidable window assembly, a vertically extending jamb liner having a vertically extending slot therein and being provided with vertically extending ledges therein, means resiliently positioning said jamb liner for movement laterally of the window,
 - a sash balance with a control member resiliently and adjustably extending therefrom,
 - a balance guide having vertically extending flanges thereon attached to said control member and slidably engaging said flanges with said ledges of said jamb liner for movement therealong but to restrain the balance guide against movement laterally inwardly of the window assembly, said balance guide having a tapped aperture therein open on its laterally inner surface,
 - a lock screw having a threaded shank portion engaging said aperture in said balance guide and an elongate head portion extending laterally inwardly of the window assembly through said slot, the base of the head portion being contoured to cam against the laterally inner surface of the jamb liner to secure said balance guide in a given position when said head portion is in a horizontal position and to disengage such surface of said jamb liner to release said balance guide when said head is in a vertical position, and
 - a sash engaging said jamb liner for sliding movement thereon, said sash including a sash rail with an aperture therein adapted to receive and engage the elongate head portion of said lock screw to secure said sash balance operatively thereto, said sash being removable from said jamb liner by forcing said jamb liner laterally outwardly and by pivoting said sash about said lock screw shank to turn said head from a vertical to a horizontal position to lock said bal-

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ance guide in a given position and a pair of ver-
tically extending ribs on the laterally inner surface
of said jamb liner bordering the vertically extending
slot thereof, said sash having vertically extending
sash rails with vertically extending recesses therein 5
for sliding engagement with said ribs, the base of the
head portion riding in said slot free of said ribs as
the head of said lock screw is in a vertical position
but the base of said head portion camming against
said ribs when said head is in a horizontal position. 10

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