Oct. 1, 1963 W. D. NOBES 3,105,273

PLATFORM TAKE-OUT HARDWARE

Filed Nov. 25, 1960 2 Sheets-Sheet 1

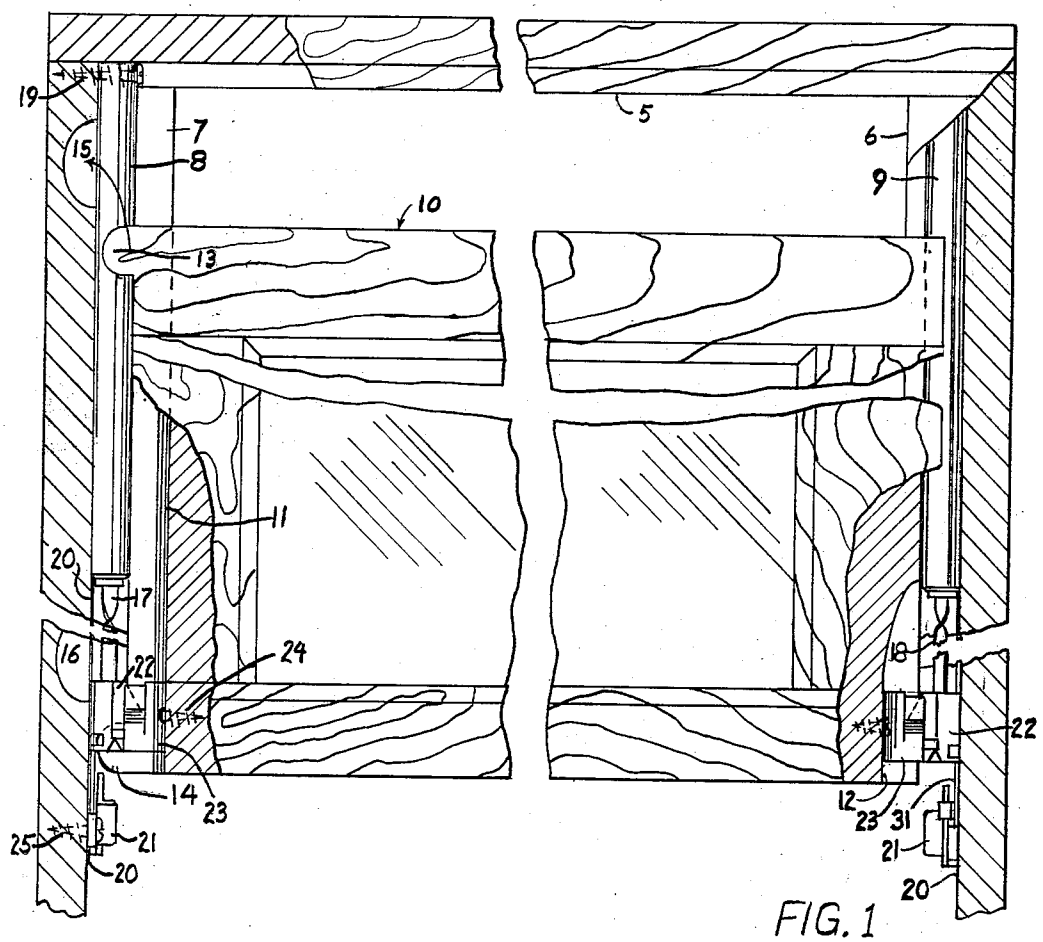


FIG. 1

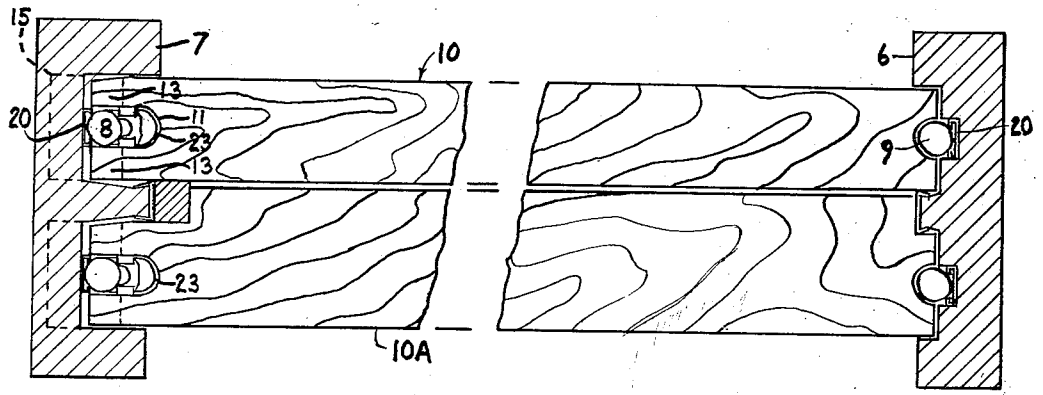


FIG. 2

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PLATFORM TAKE-OUT HARDWARE

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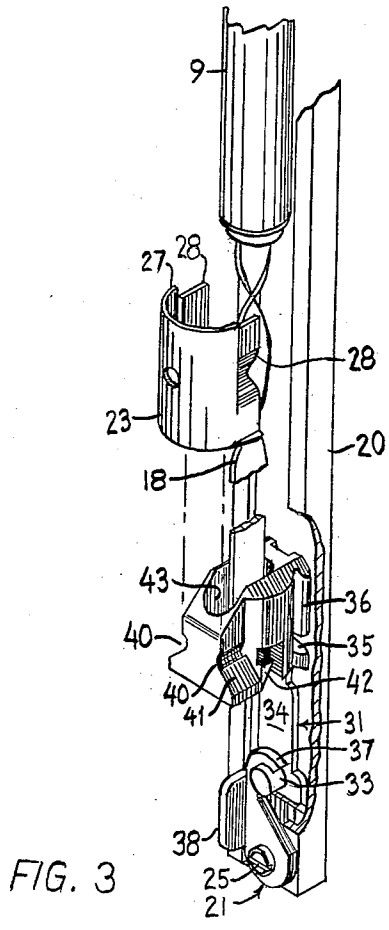


FIG. 3

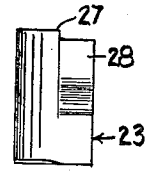


FIG. 4

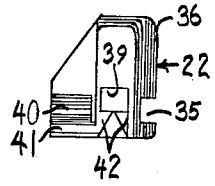


FIG. 5

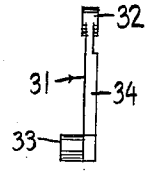


FIG. 6

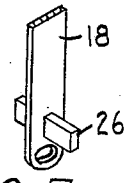


FIG. 7

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PLATFORM TAKE-OUT HARDWARE

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Filed Nov. 25, 1960, Ser. No. 71,528
3 Claims. (Cl. 20—52.2)

This invention relates to take-out windows, and more particularly to a take-out window with a sash balance. This application is a continuation-in-part of application Serial Number 1,905 of William Douglas Nobes, filed January 12, 1960, for Platform Take-Out Sash.

An object of this invention is to provide a take-out window with a sash balance and means for positively locking the balance when the sash is removed.

A further object of the invention is to provide for maximum ease in removing the sash from the window and from the sash balance.

Still another object of the invention is to provide a sash balance locking means which has no wearing parts; therefore precluding the wearing out of any components.

A further object of the invention is to provide a sash balance locking means which does not require any automatic feature in its operation, thereby being inherently simpler in design.

In its broader aspects, the invention embraces the structure of a window, such as for example double hung sash, a frame having guideways in which the sash slides, a sash balance, a detachable connection between the sash balance and the sash, and means for locking the sash balance before the sash is removed.

In the drawings:

FIGURE 1 is a front elevation of a window, showing a sash therein, and with portions cut away to illustrate the invention.

FIGURE 2 is a plan view of a window showing upper and lower sash.

FIGURE 3 is an exploded fragmentary view of the sash balance showing the operative connection and the lock.

FIGURE 4 is an elevation of one part of the detachable connection between the sash and the sash balance.

FIGURE 5 is an elevation of a part of the detachable connection between the sash and the sash balance.

FIGURE 6 is an elevation of an extension link used in connection with the locking means for the sash balance.

FIGURE 7 is a fragmentary view of the operating member of the sash balance to illustrate a detail thereof.

FIGURES 1 and 2 illustrate a conventional window comprising a frame having a header 5 and left and right side members 7 and 6, respectively. The sill is not shown. The side members 7 and 6 act as guideways by reason of their channel shape for the sash to slide in.

It will be seen that 10 is the upper sash, and 10A is the lower sash. Herein, all references will be made to the upper sash 10. However, it is to be assumed that all structure and operations are equally applicable to the lower sash 10A as well.

The sash 10 is formed with upper and lower extensions 13 and 14 respectively, which extend into the guideway formed by the left frame member 7 and thus maintain the sash in normal alignment in the frame. Upper and lower recesses 15 and 16 respectively are formed in the left frame member 7 whereby, when the sash 10 is in position to align the extensions 13 and 14 with the respective recesses 15 and 16, the sash may be moved laterally so that the extensions move into the recesses and permit the right edge of the sash to be disengaged from its position in the guideway formed by the right frame member 6. All of the above will more fully appear hereinafter, in the discussion directed to the take-out feature of this

structure. However, it is to be understood that, while the embodiment here shown and described illustrates a take-out window having extensions and recesses therefor, other structure is equally adaptable. Such a modification is contemplated in the type of side frame member having a conventional compressible guideway, wherein the actual guideway portion of the frame member is spring-biased in such manner as to permit lateral shifting of the sash to compress the guideway and permit disengagement of the opposite side of the sash from its corresponding guideway. The above modification is not illustrated.

A conventional tubular sash balance 8, of the type including a spiral spring, actuator element, and twisted actuator rod 17, is fastened to one frame side member by means such as a screw 19 or the like. The actuator rod 17 is connected to the sash 10 by means as will appear. A similar sash balance 9 may be disposed in the opposite guideway for the opposite side of the sash 10. The sash balance 9 is also shown as having an extensible actuator rod 18, which is connected to the sash 10 by means to be described.

A groove 11 is formed the length of the left side of the sash 10 in the edge thereof, which is conventional. This arrangement permits the sash 10 to maintain clearance of the sash balance 8 during the lateral shifting of the sash 10 for removal and replacement with respect to the window frame. A similar groove is formed in the edge of the opposite side of the sash as at 12, but does not necessarily extend the length of the sash in this particular embodiment. The groove 12, and the lower portion of the groove 11 form means for supporting part of the detachable connection between the sash balances 8 and 9 and the sash 10.

A track 20 (FIGURES 1, 2 and 3) is fastened as by screws 25 to the window frame extending downwardly and in alignment with respect to each sash balance 8 and 9. The track 20 is formed as a shallow channel having inwardly-formed flanges on its sides. The purpose of the track 20 will appear hereinafter.

The combination also consists in a detachable connection between the sash balance and the sash. The detachable connection includes basically a platform connected to the actuator rod 17 and indicated as at 22. The platform 22 is slidably disposed for vertical movement in the track 20. A coacting sash bracket 23 is fastened in the groove 11 in the sash 10 by means such as screw 24. The bracket 23 is adapted to embrace a portion of the platform 22 by means of a resilient portion of said bracket. In FIGURES 1 through 4 it will become apparent that, in this embodiment, the body 27 of the bracket 23 may be generally U-shaped to fit the groove 11 in the sash 10; and the arms of the U-shaped body, as indicated at 28, may be formed as rigid but resilient clips.

The platform 22, FIGURES 3 and 5, is provided with slides 36 which fit into the track 20 to thereby retain the platform for vertical sliding movement. A wedge-shaped retainer 41 and notches 40 extend from the body of the platform for engaging with the sash bracket 23, as will appear.

From FIGURES 1 and 2 it will be apparent that this structure applies to both sides of each sash 10 and 10A, in this embodiment.

FIGURES 3, 5 and 7 illustrate how the sash balance and the platform 22 are connected. It will be seen that a toggle 26 is disposed in the lower end of an actuator rod 18 of a sash balance. The lower end of the actuator rod 18 or 17 is disposed downwardly through the hole 43 in the body of the platform so that the toggle 26 lies transversely therethrough in the transverse hole 39 in the platform 22. Opposed detents 42 are located in opposite surfaces of the hole 39 so that the toggle 26 can be withdrawn through the bottom of the platform between the

detents 42 for performing tension adjustments to the balance, as is conventional in the art.

An extension piece 31 may be used in conjunction with the platform 22. The piece 31 is provided with a knob 32 adapted to be placed and retained in a transverse opening through the platform at 35. On the lower end of the body 34 of piece 31 is a pin 33 which forms part of the sash balance locking device for the sash 10.

Means for locking the sash balance when the sash is removed from the window is provided in the form of a latch 21 which is pivotally fastened to the frame side member 6 or 7 by suitable means such as a screw 25 or the like. It is seen that the sash balance 9 and the latch 21, or locking member, are each connected to the frame side member 6 at opposite ends while the detachable connection indicated at 22 is connected to the actuator rod 18. The latch 21 comprises a hook 37 and handle 38 by which the operator can move the hook 37 into locking relationship with the pin 33 on the extension 31. The latch 21 moves in an arc as indicated by the arrow in FIGURE 3. In the case of an upper sash 10, the locking device may include the extension 31 between the platform 22 and the latch 21. However, in the case of a lower sash such as 10A, the extension 31 may be omitted and the hook 37 will be adapted to be engaged directly in the transverse opening 35 in the platform. Therefore, for all practical purposes, the means for locking the sash balance for removal of the sash from the window may be defined as being the latch 21 having a hook 37, and the movable member of the detachable connection between the sash and the sash balance being the platform 22 and an opening 35 therein adapted to be engaged by the latch 21.

The operation of the invention is now to be described; it being understood and assumed that the window has a sash properly disposed therein and operatively connected with a sash balance 8.

With the sash in place in the guideway formed by the frame of the window, the sash 10 is freely slidable vertically by the operator as may be desired. At this time the sash bracket 23 fastened in the groove 11 of the sash embraces the slidable platform 22 connected to the actuator rod 17 of the sash balance 8 whereby the bracket 23 and the platform 22 make an operative connection between the sash and the sash balance. As the operator moves the sash vertically, the tension changes within the balance constantly counterbalance the weight of the sash through the connection as described.

Let it now be assumed that the operator is to remove the sash 10 from the window frame for maintenance or the like. The operator moves the sash 10 to its lowermost extreme of vertical movement. At this point pin 33 of the extension 31, which has moved with the platform 22, is in position to be engaged by the hook 37 of the latch 21. The operator now moves the latch 21, using the handle 38, to engage the hook 37 over the pin 33, doing likewise on each side of the sash. Lifting the sash, the operator also lifts the bracket 23 free from engagement with the platform 22, thus detaching the connection between sash balance and sash. The sash balance is held in its pre-adjusted tension by the latch 21. The operator lifts the sash to the point that the extensions 13 and 14 are aligned with their respective depressions 15 and 16 in the frame side member 7, moves the sash laterally so that the extensions move into the depressions, and, with the opposite side of the sash free of the respective guideway removes the sash from the window frame.

To replace the sash in the frame the operator places the sash extensions 13 and 14 into the depressions 15 and 16 with a lateral movement and slips the opposite side of the sash into its corresponding guideway. The

sash is then lowered until the bracket 23 engages with and makes a connection between the sash and the platform 22, thus effecting an operative connection between the sash and the sash balance. The latch 21 is then unhooked, or otherwise disengaged with the pin 33 (or opening 35 in the platform as the case may be). At this time the sash and sash balance and the operative connection therebetween are in normal operative relation to each other and the window is ready for use.

It will now be apparent that this invention provides for a positive operative connection between a sash balance and a sash, wherein the weight of the sash causes a U-shaped bracket secured thereto to embrace a retainer formed from a slidable means which is connected to the sash balance. The preadjusted tension on the sash balance causes the slidable means to move vertically therewith firstly to maintain the connection with the bracket and secondly to counterbalance the weight of the sash. Means for locking the sash balance in its preadjusted relation is provided in the form of a latch fastened to the frame, which in this embodiment has a hook for effecting an operative connection with the slidable means to hold same and the connected sash balance securely against movement before the sash is removed. The sash is then removed simply by lifting same to disengage the bracket from the slidable means and the sash is then ready for removal.

While a specific embodiment has been disclosed for the purpose of illustration; it is to be understood that modifications may be made which do not depart from the true spirit and scope of the appended claims.

I claim:

1. A window including a sash, a frame having guideways in which the sash slides, a sash balance fastened to the frame, a detachable connection between the sash and the sash balance; said connection including a track mounted on the frame, means slidable on said track and connected to the sash balance and having formed therefrom a retainer, a bracket fastened to said sash and detachably engaged with the retainer on said slidable means; and locking means fastened to said frame for the sash balance when the sash is removed from the window comprising a pivotal latch adapted to be engaged with said slidable means before the sash is removed.

2. A window according to claim 1; and an extension connected to said slidable means and being slidable in said track below the slidable means, said extension having formed therefrom a pin for being engaged by said latch.

3. A window including a sash, a frame having guideways in which the sash slides, a sash balance fastened to the frame, a detachable connection between the sash and the sash balance; said connection including a track mounted on the frame, a platform slidable on said track and connected to said sash balance, said platform having formed therefrom a wedge-shaped retainer, and a U-shaped bracket fastened to the sash, the arms of said bracket being formed to embrace the retainer on said platform to form a detachable connection therebetween; and locking means for the sash balance when the sash is removed from the window, said means including a latch on the frame formed with a hook for connection to said platform before the sash is removed, said latch positioned in opposite relation to said sash balance.

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