May 29, 1956 W. T. MAROUSKY 2,747,241

WINDOW STRUCTURE

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FIG. 1.

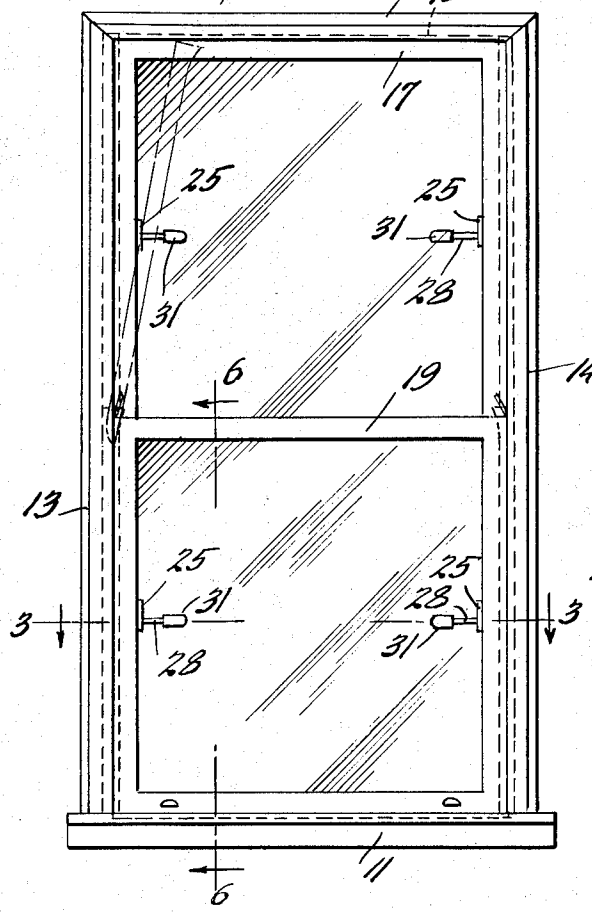


FIG. 2.

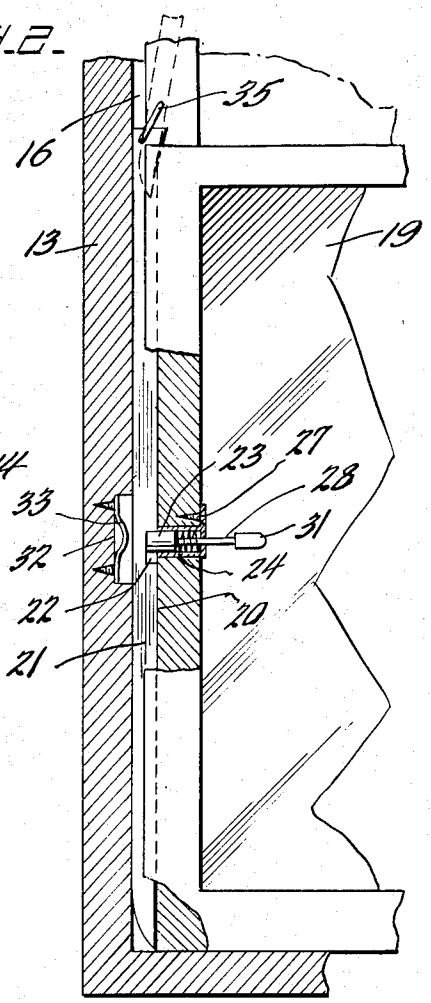
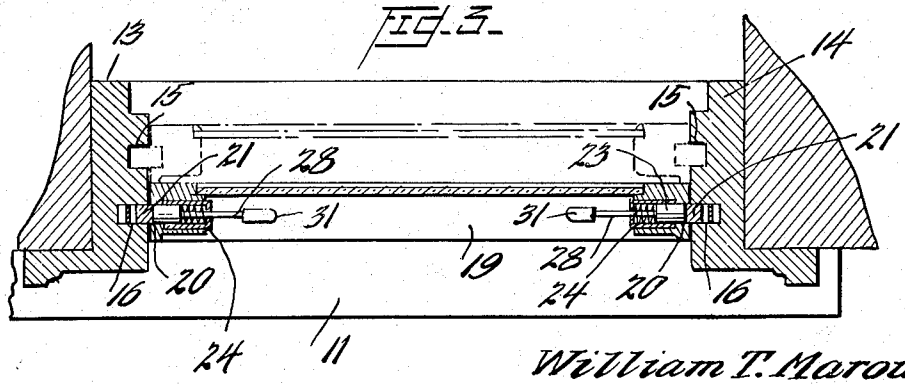


FIG. 3.



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FIG. 4.

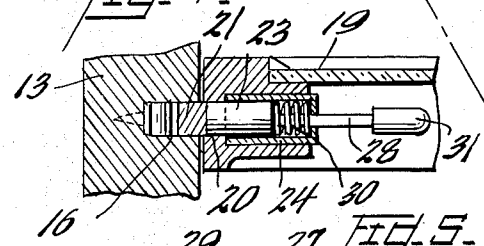


FIG. 5.

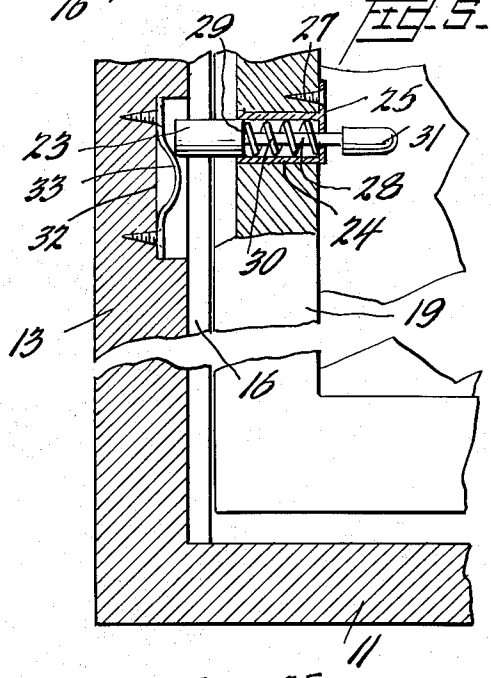


FIG. 6.

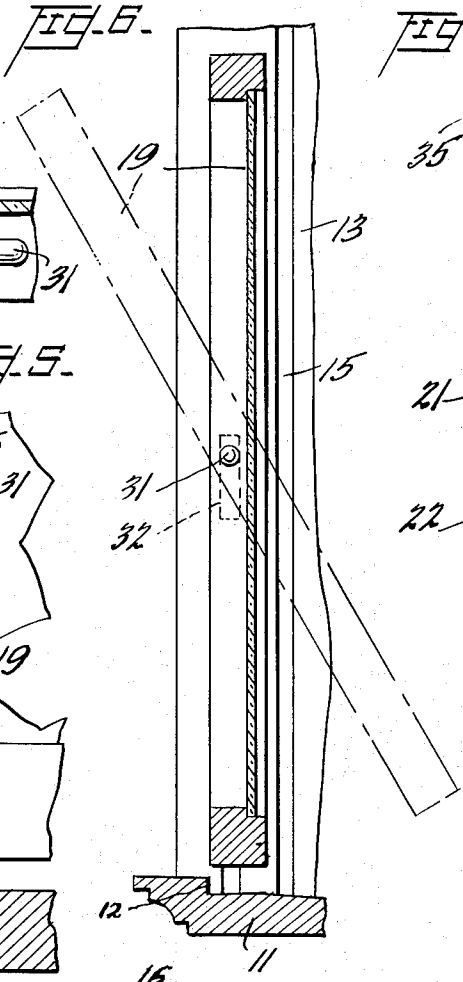


FIG. 7.

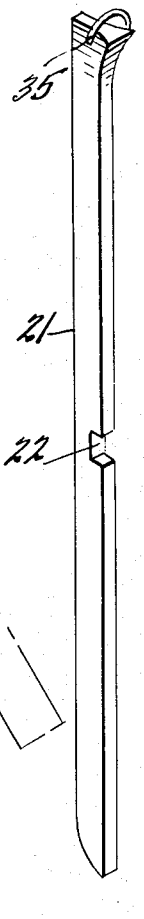


FIG. 8.

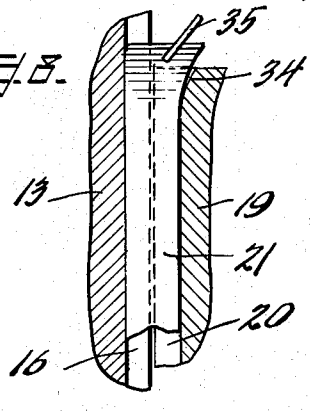


FIG. 9.

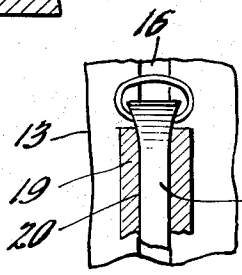
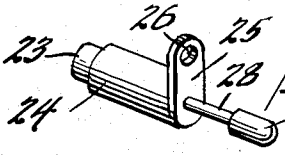


FIG. 10.



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United States Patent Office 2,747,241 Patented May 29, 1956

2,747,241

WINDOW STRUCTURE

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Application August 18, 1953, Serial No. 374,926

5 Claims. (Cl. 20—52.2)

This invention relates to windows and more particularly to windows in which the sashes may be reversed for cleaning purposes or removed entirely for purposes of cleaning or repair.

While in the form illustrated the invention is shown as applied to a double hung, sliding sash type of window, it will be understood that it is applicable to the other types of window as well, and that only the preferred embodiment is illustrated herein.

An object of the present invention is to provide a frame and sliding sash combination in which the sash may be quickly and easily reversed or when occasion arises, the entire sash may be removed from the frame, and in the case of double hung windows, either sash may be removed without disturbing the other.

A further object of the present invention is to provide a window frame and sliding sash combination in which the sashes are held in any position of adjustment without the necessity of employing sash weights, since the frictional engagement between the sash and frame is such that the sash will be retained in any position throughout its sliding excursion.

A further object of the invention is to provide a reversible and removable sash which cooperates with the frame so as to provide a weather and watertight seal.

Still another object of the invention is to provide a sash and frame combination which has means for preventing sliding movement of the sash when the sash is in position to be reversed so that there is no danger of the sash striking the frame during its reversing movement.

Other objects and advantages of the present invention will be readily apparent from the following description, it being understood that changes may be resorted to so long as they fall within the scope and spirit of the appended claims.

Referring to the drawings forming a part hereof,

Fig. 1 is a front elevation;

Fig. 2 is a fragmentary, vertical, sectional view showing the sash in its lowered position;

Fig. 3 is a horizontal, sectional view taken along the line 3—3 of Fig. 1;

Fig. 4 is an enlarged, fragmentary, horizontal, sectional view through the retaining bolt;

Fig. 5 is a fragmentary, sectional view similar to Fig. 2 but showing the sash in its elevated position and in condition to permit reversal of the sash;

Fig. 6 is a sectional view along line 6—6 of Fig. 1 but with the sash in its elevated position ready for reverse movement;

Fig. 7 is a perspective view of one of the window slides employed;

Fig. 8 is a fragmentary, sectional view of the upper portion of the lower sash showing the slide in position;

Fig. 9 is a view similar to Fig. 8 taken at right angles thereto; and

Fig. 10 is a perspective view of the retaining bolt assembly.

Referring more particularly to the drawings, the invention is illustrated as embodying a window frame comprising a header 10, sill 11 provided with the conventional ledge 12, and the side frames 13 and 14. Side frames 13 and 14 are provided with the conventional grooves 15 and 16 extending vertically throughout the length of the side frames. As here illustrated, the frame is for use in connection with double hung, sliding sashes, and since the upper and lower sashes are identical in construction, the description of one will suffice for both, with the exception that the upper sash is provided at its head rail 17 with an upstanding tongue 18 extending across the width of the sash and projecting into a groove in the header 10, all of which is conventional in window sashes of this type.

The inner sliding sash 19 is provided with a groove 20 vertically along the side rails thereof, it being understood that there is a similar groove on the sash at the opposite side thereof, and these grooves receive therein a removable slide 21 in the form of an elongated tongue which extends throughout the height of the sash. The width of the slide 21 is greater than the depth of the groove 20 and as the result, the slide 21 projects beyond the side of the sash and into the grooves 16 in the frame, thereby forming a seal between the sash and frame and guiding the window in its up and down movements.

As stated before, the slides 21 are removable from the grooves 16 and 20, but in normal operation, they slide with the window sash. The slide 21 is provided with a notch 22 intermediate its ends facing inwardly toward the sash and as clearly shown in Fig. 2, the window sash carries a retaining bolt 23 which projects through the sash and into the notch 22, with the result that as the sash is raised, the slide 21 moves with it, and functions as slides normally do in windows of this type.

The locking bolt 23 is shown in Fig. 10 as comprising a cylindrical sleeve 24 having an integral tongue 25 at one end thereof, which tongue is bent over the end of the cylindrical sleeve 24 so as to close the same and terminate in an ear provided with an aperture 26 by means of which the bolt may be secured to the window sash by means of screw 27. The bolt 23 is provided with a reduced intermediate section 28 forming a shoulder 29 against which one end of a coil spring 30 abuts, the other end of the spring abutting against the tongue 25 on the cylindrical sleeve 24. The reduced intermediate section 28 carries an operating knob 31 threaded thereon so that by removal of the knob, the plunger may be removed from the sleeve 24 and springs of various strengths substituted.

From the foregoing, it will be seen that the removable slide 21 is forcefully pressed into frictional engagement with the walls of the groove in the frame so that the sash will be frictionally held in any of its raised or lowered positions, and since various strength springs may be used in connection with the retaining bolt 23, it is obvious that the ease with which the window may be raised or lowered can be adjusted as desired.

In order that the sash may be reversed so that the outside of the windows may be reached for cleaning purposes, the side frame members 13 and 14 are provided with recesses 32 in the inner walls thereof and opening outwardly into the groove 16. The recess 32 is elongated vertically and is located opposite to the retaining plunger 23 which is arranged to slide in the recess 32 when the sash is raised to position to permit it to turn relative to the frame. In the base of the recess 32 there is provided a wear plate 33 which is bowed inwardly intermediate its ends as clearly shown in Fig. 5, the purpose of which will be later explained.

In normal operation of the windows the retaining bolt

23 is in engagement with the notch 22 in the slide 21, thereby locking the same to the sash for sliding movement therewith. When in this condition, the sash can not be turned, due to the engagement of the slide 21 with the groove 16 in the frame. In order to turn the sash relative to the frame, the retaining bolt 23 is withdrawn by means of the knob 31, thereby withdrawing the bolt 23 from the notch 22 in the slide, whereupon the slide 21 may be withdrawn upwardly from the groove 20 as shown in dotted lines in Fig. 1, after which the bolt is released and the spring will force the bolt into the recess 32 in the frame and against the wear plate 33. However, since the sash is closed and the lower rail thereof lies behind the ledge 12 of the sill 11, no turning movement of the sash is permitted. Consequently, the sash must be elevated before the turning operation can be performed.

As shown in Fig. 5, the sash is partially elevated, and the bolt 23 is bearing against the arcuate portion of the wear plate 33. Continued upward movement of the sash will position the bolt 23 to the upper side of the arcuate portion of the wear plate 33 so that the sash will be retained in its raised position to prevent sliding movement which would interfere with the operation of turning the sash.

After the sash has been reversed and the cleaning completed, the sash is swung backward back to its normal position, the slide 21 inserted in the grooves 16 and 20 until the lower end thereof engages the bolt 23, whereupon the bolt is retracted, the slide pressed to its lowermost position, after which the bolt is released when it will again engage the notch 22 in the slide, and the window is in position for normal operation.

The description given so far has dealt with the lower inner sash, but it is to be understood that the upper sash is provided with the same construction, and that the operation of reversing the window is identical with that of the lower sash, with the exception that the slides 21 are removed from the bottom of the upper sash rather than from the top, as heretofore described. In order that the slides 21 may be easily removed from the grooves 16 and 20, the groove 20 is flared inwardly as at 34 at the top of the sash which permits the slides 21 to be swung to the position illustrated in Fig. 1. However, this deepening or flaring permits air and moisture to seep into the groove, and in order to overcome this difficulty, the upper ends of the slides 21 are correspondingly flared so as to form in effect a wedge which completely closes the groove at the upper end thereof in the case of the lower sash, and of course this flared construction will be the same for the upper sash, but will be located at the lower rail of the upper sash instead of the top, as shown in Fig. 8.

To facilitate the sealing of the groove 20 still further, the slides 21 are also flared transversely on opposite sides as shown in Fig. 9, so that the upper end of the slides 21 is actually a wedge which completely seals the groove from ingress of air and moisture.

From the foregoing, it is believed to be obvious that both the upper and lower sashes may be simply and quickly removed and that one sash may be removed without disturbing the other. In order to remove the sash, it is merely necessary to withdraw the bolts, remove the slides, and move the window bodily out of the frame.

In order to turn the windows, the bolts are withdrawn, the slides removed by pulling upwardly on the ring 35 in the case of the slides for the lower sash and then releasing the bolts, which will be forced home in the recess 32, and then by raising the sash to clear the ledge 12, the sash may be swung to the desired position. In the case of the upper sash, it will be lowered so that the tongue 18 is removed from the groove in order that the swinging operation may take place.

Of course, in the case of the slides 21 which are employed with the upper sash, it is obvious that releasing the bolts 23 will permit the slides to fall, so that there is no necessity for pulling the slides out of the grooves, and due to the fact that the wear plate 33 is bulged inwardly intermediate its ends, it will be seen that the bolt 23 will in effect lie in the socket to one side of the bulged portion, so that the sash will be retained in proper position for reversing the same.

Having thus described my invention, I claim:

1. In combination, a window frame having side rails provided with vertically extending grooves in the inner faces thereof and having recesses opening into said grooves intermediate the ends thereof, sliding sashes in said frame having grooves opposed to the grooves in the frame, detachable slides lying in the grooves in the frame and sash and having notches in the inner faces thereof in alignment with the recesses in the frame when the sash is in closed position, spring-projected retaining bolts projecting through said sash and into the notches in said slides to cause movement of the slides with the sash in opening and closing the window, said bolts being of sufficient length to project into the recesses in the frame when the slides are removed and act as trunnions on which the sash may be turned, and means for retracting said bolts.

2. The combination as claimed in claim 1 in which the recesses in the frame are vertically elongated slidably to receive the bolts, and wherein the recesses have means therein for retaining the bolts against sliding movement when the bolt lies at one end of the recess.

3. The combination as claimed in claim 2 in which said means comprises a wear plate inwardly bowed intermediate its end.

4. In combination, a window frame having side rails provided with vertically extending grooves in the inner faces of the rails, sliding sashes in said frame having grooves opposed to the grooves in the frame, removable slides lying in the grooves in the frame and sash and detachably connected to the sash for movement therewith, each slide having one of its ends flared outwardly in the plane of the sash and also transversely of said plane to form a sealing wedge between the sash and frame.

5. In combination, a window frame having side rails provided with vertically extending grooves in the inner faces of the rails, sliding sashes in said frame having grooves opposed to the grooves in the frame, removable slides lying in the grooves in the frame and sash and detachably connected to the sash for movement therewith, the grooves in the sash having an inwardly curved bottom wall at the entry end for the slides to facilitate insertion and removal of the slides from the grooves.

References Cited in the file of this patent

UNITED STATES PATENTS

451,826	Koontz	May 5, 1891
534,607	Keuser	Feb. 19, 1895
729,665	Robbe	June 2, 1903
1,558,748	Muck	Oct. 27, 1925
2,185,888	Donahoe	Jan. 2, 1940
2,604,673	Krocker	July 29, 1952