Oct. 31, 1933. F. X. RIPP 1,932,938

WINDOW

Filed April 8, 1931 2 Sheets-Sheet 1

Fig. 1.

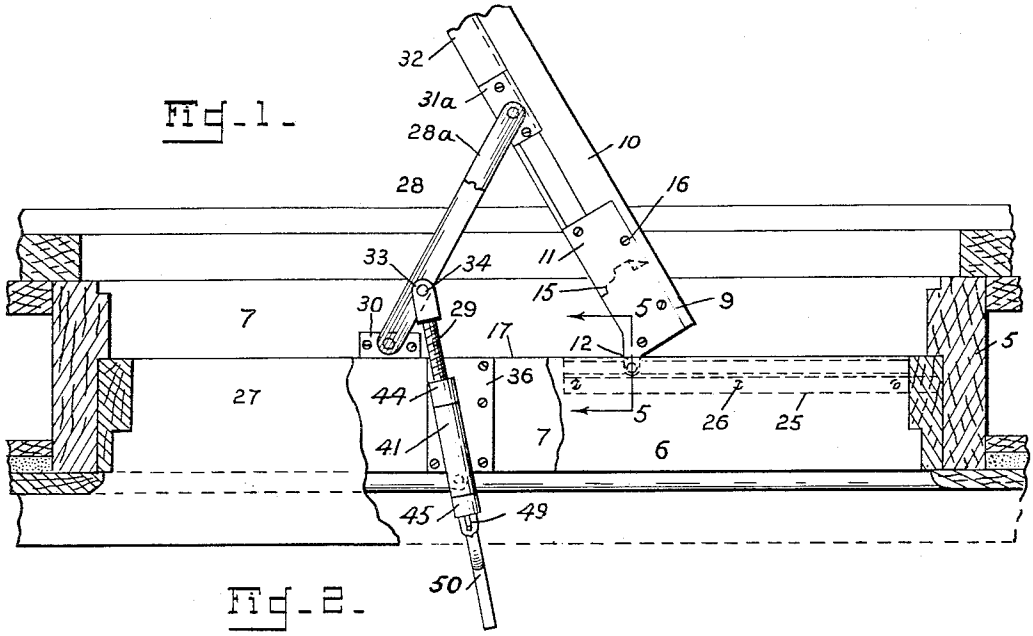


Fig. 2.

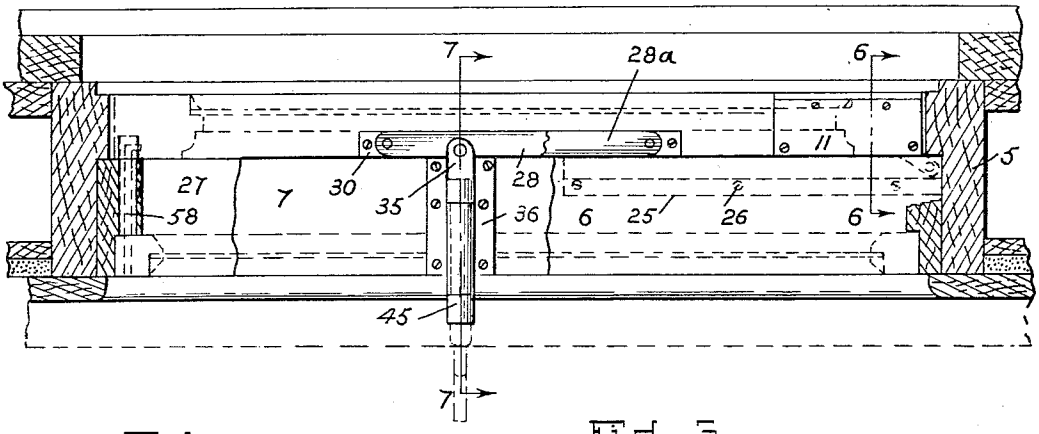


Fig. 4.

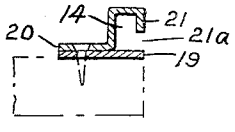


Fig. 3.

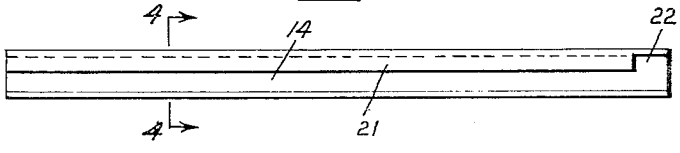
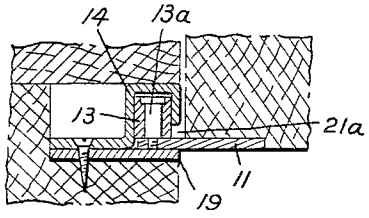


Fig. 5.



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Oct. 31, 1933. F. X. RIPP 1,932,938

WINDOW

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Fig. 6.

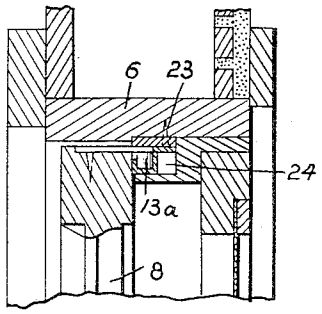


Fig. 8.

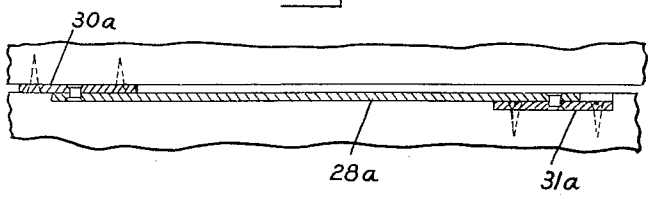


Fig. 9.

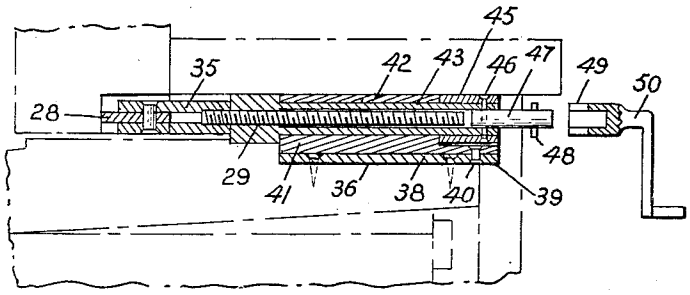


Fig. 7.

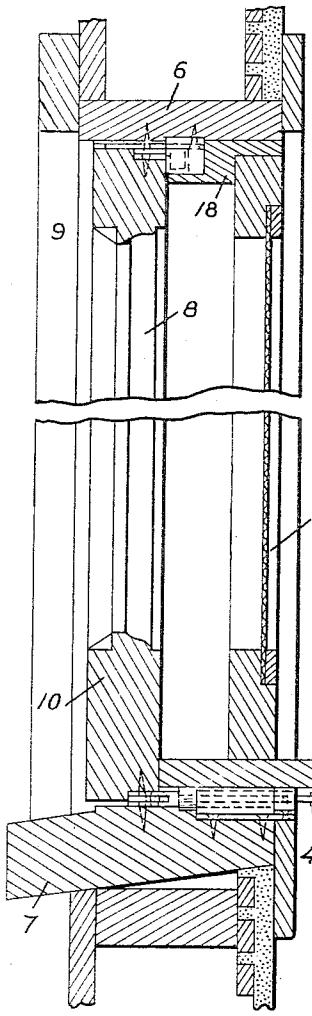


Fig. 10.

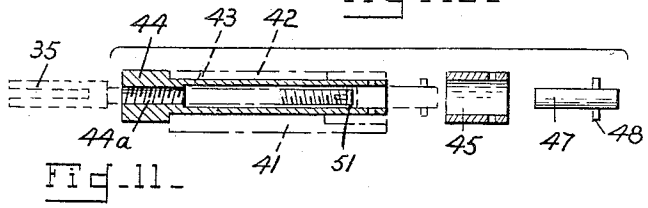


Fig. 11.

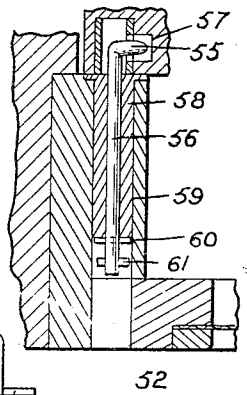
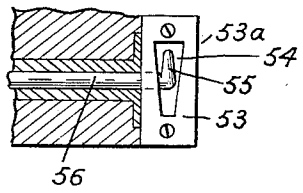


Fig. 12.



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Patented Oct. 31, 1933

1,932,938

UNITED STATES PATENT OFFICE

1,932,938

WINDOW

Frank X. Ripp, Madison, Wis.

Application April 8, 1931. Serial No. 528,684

8 Claims. (Cl. 20—42)

This invention relates to windows and more particularly it has reference to a window of the casement type having a combined sliding and swinging movement in opening and closing.

The principal objects of the invention are to provide an arrangement wherein all of the fittings are concealed and inaccessible when the window is closed and which enables the fittings to be interchangeably employed for either right or left hand mounting.

The fittings are characterized by a novel form of sliding and pivotal connection adapted to effect a close joint and support the sash against sagging and also by an actuating mechanism of great strength and simplicity designed to automatically restrict the opening movement of the sash.

With the foregoing and other objects in view, the invention resides in the arrangement and combination of elements and in the details in construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of the claims without departing from the spirit of the invention.

A preferred embodiment of the invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a plan view partly in section of the improved casement window and showing the sash in the open position.

Fig. 2 is a similar view showing the sash closed.

Fig. 3 is a view in front elevation of the trackway.

Fig. 4 is a sectional view on the line 4—4 of Fig. 3.

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

Fig. 6 is a sectional view on the line 6—6 of Fig. 2.

Fig. 7 is a sectional view on the line 7—7 of Fig. 2.

Fig. 8 is a sectional view on the line 8—8 of Fig. 2.

Fig. 9 is an enlarged sectional view of the operating mechanism shown in Fig. 7.

Fig. 10 is a detail view of the elements of the sleeve nut assembly.

Fig. 11 is a detail plan view of the latch unit.

Fig. 12 is a view in side elevation of the latch unit.

Referring to the drawings by numerals of reference:

There is shown a window frame consisting of the usual stiles 5, head jamb 6 and sill 7 and receiving a casement sash 8 having side rails 9 and cross or end rails 10. The sash is mounted for combined sliding and swinging movement, the connections of the mounting being concealed when the sash is closed and being further interchangeable, top and bottom, for either a right or left hand swing as occasion may require.

The sliding and swinging connection is established by identical means in alignment at the top and bottom on the corresponding side of the sash and frame and consists of a plate 11 having an arm 12 carrying a roller 13 riding in a channeled trackway 14.

The plate 11 is fitted into a countersunk recess in the sash extending across the joint 15 and is secured by screws 16 to both the side and cross rails whereby to strengthen the joint and prevent sagging and misalignment. The arm 12 lies in the plane of the plate 11 and extends laterally and rearwardly with relation to the inside corner of the sash. This obliquity enables the arm to be rigid with the plate and insures a snug fit against the lower stop 17 of the sill and the upper stop 18 while permitting angular displacement of the sash relative to the frame as shown in Fig. 1.

The trackway 14 comprises a rubbing plate 19 disposed against the frame and a channel plate 20 welded thereto. The outer wall 21 of the channel terminates short of the rubbing plate to provide an entry 21*a* for the arm 12 and adjacent the inside end it is provided with a slot 22 to permit introduction of the roller 13 into the trackway.

The arm 12 bears against the rubbing plate and prevents the sash from settling. The roller 13, whose axle 13*a* is fixed in the arm, is therefore disposed in a plane perpendicular to the arm. When the sash is being forced outwardly in opening the roller bears against the outer wall 21 of the trackway and when the sash is pulled inwardly in closing, the roller acts on the opposite or inner wall of the trackway.

The upper trackway is secured to the head jamb 6 by means of screws 23 and is fitted into a recess 24 in the upper edge of the stop 18. The lower trackway fits in a recess 25 in the sill to which it is fastened by screws 26 and is concealed by the stool 27.

The operating mechanism for opening and closing the sash comprises a lever 28 and a screw shaft 29. The lever is fulcrumed in a plate 30 secured to the sash and pivotally retained in a similar plate 31 secured to the under side of the bottom cross rail of the sash. The plate 31 and the lever are fitted into a recess 32 when the sash is closed. The lever is provided with an aperture 33 for receiving a removable pin 34 pivotally attaching the fork 35 on the outer end of the screw shaft 29.

The mounting of the screw shaft is placed centrally of the sill in a recess 36 that is covered by the stool 37. It consists of a bed plate 38 having a finger 39 on its rear end provided with

an aperture for receiving the pivot pin 40 of an elongated bearing member 41. The bearing member is preferably rectangular in cross-section so that it may be more positively confined between the bed plate and the stool and held thereby against any tendency to rotate.

The bearing member is formed with a bore 42 for receiving a sleeve 43 having a collar 44 on its forward end provided with internal threads 44a to form a nut.

The sleeve nut is inserted in the bearing member from the front until the collar 44 on its forward end abuts the forward face of the bearing member. When thus assembled the sleeve projects beyond the rear end of the bearing member and receives a slip collar 45 secured by a pin 46 and held thereby against the rear face of the bearing member. A rod or pin 47 partially inserted in the rear end of the sleeve and retained by the pin 46 carries a cross-pin 48 engageable by the slot 49 in a crank 50. Where it is desired, the rod 47 may be omitted and a crank of reduced diameter may be inserted in the sleeve and engage the pin 46.

The screw shaft 29 is threaded in the nut and when the sash is closed the shaft is disposed almost completely within the sleeve as far as the bolt 47. A set screw 51 secured axially in the rear end of the screw shaft limits opening of the sash by engaging the threads 44a of the collar 44. This prevents the screw shaft from leaving the sleeve and also terminates the stroke of the roller short of the entry slot 22 of the trackway. When the sash is closed the fork is accommodated in the recess 32 in the sash and the recess 36 in the sill.

A lever 28a that is a duplicate of the lever 28 and is mounted in an identical manner in exact vertical alignment therewith, connects the top cross rail of the sash and the head jamb 6 of the frame. The plates 30a and 31a are similar to the plates 30 and 31.

The top lever 28a cooperates with the bottom lever 28 in actuating and supporting the sash and insures uniform action of the top and bottom rollers 13a and 13. The lower arm 12 bearing on the rubbing plate 18 takes most of the weight of the sash and the tendency of the sash to tilt is opposed by the upper arm 12a bearing against its rubbing plate. This action of the upper arm prevents the bottom roller 13 from exerting undue pressure on the outer wall 21 of the lower trackway.

In casement windows the upper corner on the free end of the sash has a tendency to warp and pull away from the stops of the frame. In Figs. 11 and 12 there is shown a concealed latch arranged to be operated without removing the screen 52. The latch comprises a keeper 53 countersunk in the inner edge of the sash and having its inside wall 53a provided with a cam slot 54 for receiving the finger 55 of a latch rod 56. The finger is normally housed within the keeper and when moved through the slot 54 upon rotation of the rod it is accommodated in a recess 57 in the sash.

The rod 56 is journaled in a barrel 58 fitting in an aperture 59 in the side stop of the frame. A pin 60 adjacent the inner end of the rod engages the rear end of the barrel to prevent outward movement of the rod while a second pin 61 on the extremity is provided for the purpose of establishing a means of engagement with the crank.

I claim:

1. In a casement window, a frame, vertically aligned trackways carried by the upper and lower members of the frame, each trackway comprising a rubbing plate disposed against the frame and a channel member secured along its inner edge to the plate whereby an outside entry is established, stop members concealing the trackways, a sash fitting in the frame, a plate on the top and bottom of the sash extending over the joint between the side and end rails of the sash and secured to both rails, an arm on each plate projecting laterally and inwardly with relation to the inside corner of the sash and inserted through the entry of a trackway, said arms bearing on their respective rubbing plates, and a roller perpendicularly carried by each arm and riding in the trackway.

2. In a casement window, a frame, vertically aligned trackways carried by the upper and lower members of the frame, each trackway comprising a rubbing plate disposed against the frame and a channel member secured along its inner edge to the plate whereby an outside entry is established, a sash fitting in the frame, a plate on the top and bottom of the sash extending over the joint between the end and side rails of the sash and secured to both rails, an arm on each plate projecting laterally and inwardly with relation to the inside corner of the sash and inserted through the entry of the trackway, said arms bearing on their respective rubbing plates, and a roller carried by each arm and riding in the trackway.

3. In a casement window, a frame, vertically aligned trackways carried by the upper and lower members of the frame, each trackway comprising a rubbing plate disposed against the frame and a channel member secured along its inner end to the plate whereby an outside entry is established, a sash fitting in the frame, a plate on the top and bottom of the sash, an arm on each plate projecting laterally and inwardly with relation to the inside corner of the sash and bearing on the rubbing plate of its trackway, and a member on the arm riding in the trackway.

4. In a casement window, a frame, vertically aligned trackways carried by the upper and lower members of the frame, each trackway comprising a rubbing plate and a channel member secured along its inner edge to the plate whereby an outside entry is established, a sash fitting in the frame, a plate on the top and bottom of the sash, a rigid arm on each plate bearing on the rubbing plate of its trackway, and a roller carried by each arm and riding in the trackway.

5. In a casement window, a frame, vertically aligned trackways carried by the upper and lower members of the frame and opening outwardly relative to the frame, and having an entry on their outer side adjacent the frame, a sash fitting in the frame, a plate on the top and bottom of the sash, a rigid arm on each plate inserted through the entry, and a roller perpendicularly carried by each arm and riding in the trackway.

6. In a casement window, a frame, vertically aligned trackways carried by the upper and lower members of the frame and opening outwardly relative to the frame, and having an entry on their outer side adjacent the frame, a sash fitting in the frame, a plate rigidly secured on the top and bottom of the sash inserted through the

entry in the trackway and riding in the trackway.

7. In a casement window, a frame, vertically aligned trackways carried by the upper and lower members of the frame, a sash having end and side rails and fitting in the frame, a plate on the top and bottom of the sash extending over the joint between the end and side rails of the sash and secured to both rails, an arm on each plate projecting laterally and inwardly with relation to the inside corner of the sash and inserted in the trackway, and a roller projecting from the inner side of each arm and riding in the trackway.

8. In a casement window, a frame, vertically aligned trackways carried by the upper and lower members of the frame, a sash having end and side rails and fitting in the frame, a plate on the top and bottom of the sash extending over the joint between the side and end rails of the sash and secured to both rails, and arm on each plate riding in the trackway.

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