

Dec. 12, 1939.

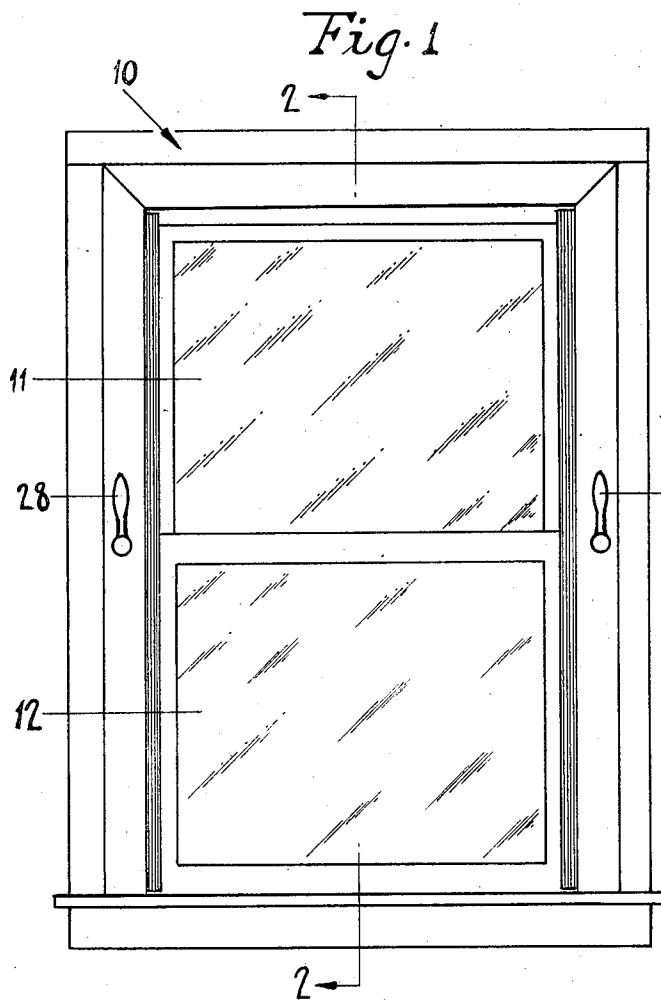
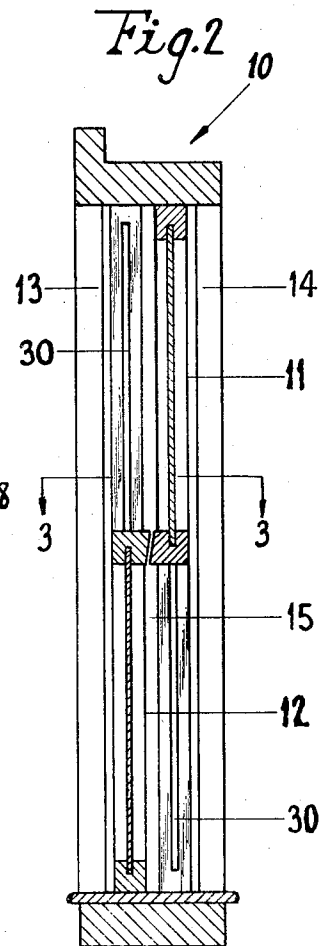
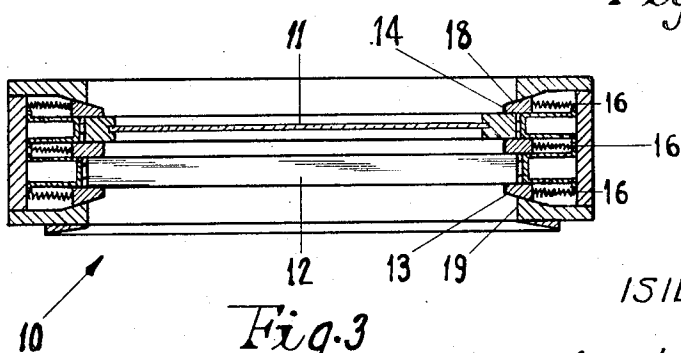
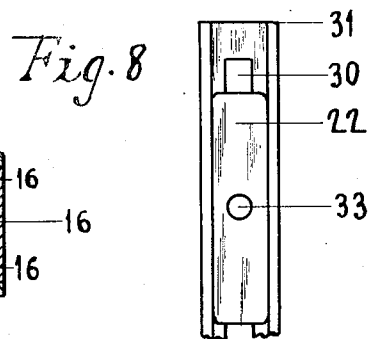
I. REISER

2,183,105

SLIDING AND SWINGING WINDOW

Filed July 19, 1938

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

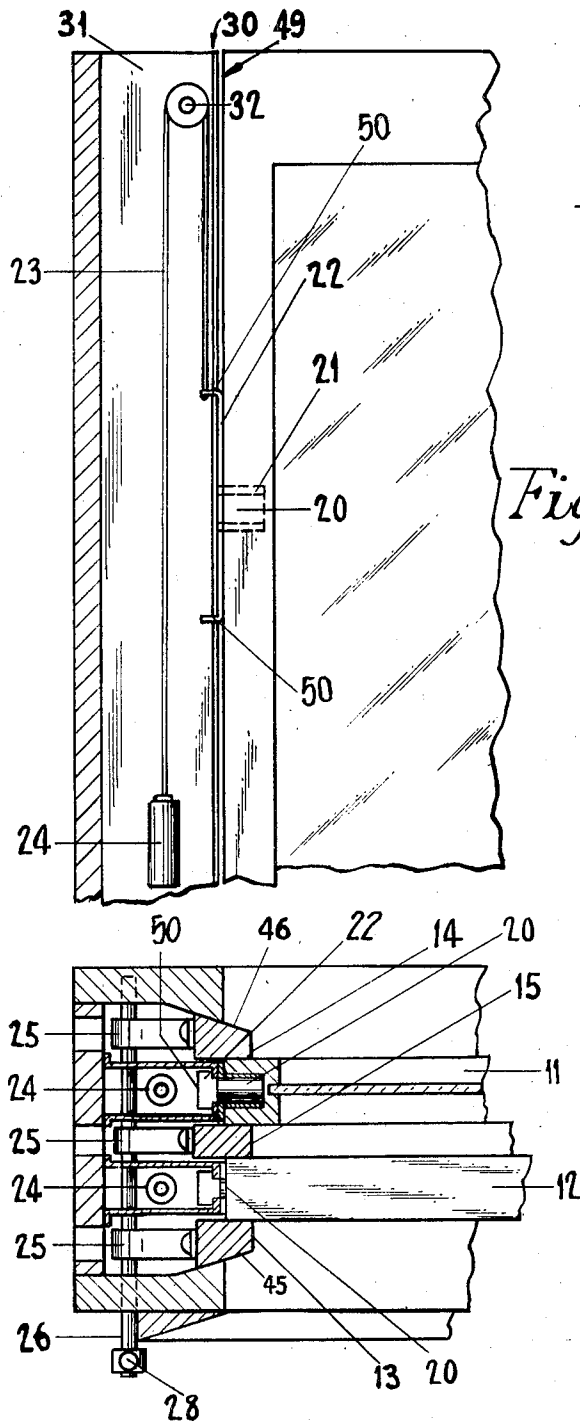


Fig. 5

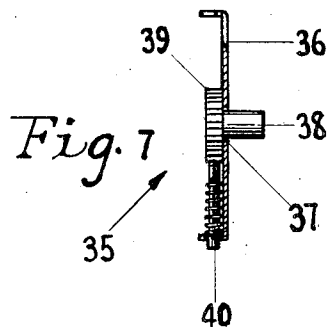


Fig. 7

Fig. 4

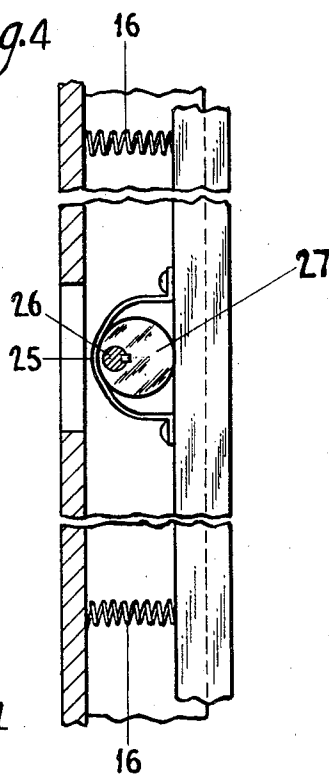


Fig. 6

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UNITED STATES PATENT OFFICE

2,183,105

SLIDING AND SWINGING WINDOW

Isidore Reiser, New York, N. Y.

Application July 19, 1938, Serial No. 220,062

3 Claims. (Cl. 20—12)

This invention relates to improvements in double hung sash windows and particularly to that class of windows in which both sashes are adapted to slide vertically in the window frame and also to be swung inwardly within the room.

An object of this invention is to provide means centrally positioned lengthwise of the sash guiding elements and operable with a single turn of a handle for retracting the sash guiding elements from operable engagement with the sashes to permit swinging of the sash.

Another object of this invention is to provide a window construction in which swelling or shrinkage of the wood of the sash is automatically taken up by bevelled guiding elements and preventing the sash from binding or rattling.

Another object of this invention is to provide cams centrally positioned lengthwise of the sash guiding elements for retracting the guiding elements from the sash with a single turn of the handle, the said cams being adapted to be locked in varied adjusted positions.

Another object of this invention is to provide a housing on each side of the sash forming a vertical chamber in which the sash weight is confined for up and down motion, the said housing having a through slot in its front wall forming a guideway for receiving a pivot carrying slide member in interlocked and slidable relation.

Another object of this invention is to secure a pinion gear on the housing end of each pivot and to provide a spring-pressed member in forcible engagement with the pinion gear teeth and forming means for forcibly retaining the sash in any angular position the occupant may desire.

With the above and other objects in view, the invention will be hereinafter more particularly described, and the combination and arrangement of parts will be shown in the accompanying drawings and pointed out in the claims which form part of this specification.

Reference will now be had to the drawings, wherein like numerals of reference designate corresponding parts throughout the several views, in which:

Figure 1 is an inside front elevation of a window equipped with vertically double hung sash and improved with my retractable sash guiding elements.

Figure 2 is a vertical section through the window casement, the section being taken as on line 2—2 in Figure 1.

Figure 3 is a horizontal section of the casement, the section being taken as on line 3—3

in Figure 2, and shows spring-pressed retractable sash guiding elements.

Figure 4 is a fragmentary vertical view, partly in section, and showing the upper sash both pivotally mounted and in vertical slidable relation.

Figure 5 is a fragmentary horizontal sectional view, showing a cam and strap in normal release position.

Figure 6 is a fragmentary vertical view, showing straps attached to the front and rear guide-strips and to a parting strip.

Figure 7 is a cross-sectional view of a modified pivot carrying member.

Figure 8 is a fragmentary front view of a housing having a slot therein and a pivot carrying member slidably engaged in said slot.

In the illustrated embodiment of the invention the numeral 10 indicates a window frame which except for the particular details of the retractable guiding elements for the sash herein described, may be of the usual double hung sash construction.

Slidable in the frame 10 is an upper sash 11 and a lower sash 12 provided with the usual glass panes. The sashes 11 and 12 are guided by vertical guide-strips 13 and 14, and a parting-strip 15. The guide-strips and the parting-strip are spring-pressed inwardly into overlapping engagement with the front and rear walls of the sash. The springs 16 bear at one end against the vertical side walls of the frame 10 and are located in spaced relation throughout the length of the guiding elements. The springs are mounted at their opposite ends on pins 17 projecting from the guiding elements. The springs are constantly under compression so as to normally press the guiding elements outwardly into engagement with the front and rear faces of the sash.

The guide-strips 13 and 14 are of substantially triangular cross-section and are arranged to contact with one of their sides with fixed vertical frame walls 18 and 19 which are also of triangular cross-section. As best shown in Figure 5, when the springs 16 press outwardly they bring the two guide-strips 13 and 14 into frictional operating relation with the front and rear faces of the stiles of the sash.

As best shown in Figures 4 and 5 I have provided fixed pivot members 20 in bushings 21 in the mid-portion of the vertical sides of the sash. The pivot members 20 are rotatably mounted in apertures in rectangular bars 22. The bars 22 are slidably mounted in a vertical slot 30 in the front face of a housing 31. The bars or pivot carrying slide members 22 are thus slidably

mounted together with the sash. Sash cords 23 passing over pulleys 32 are connected to the bars 22 at one end, and to sash weights 24 at the opposite ends. As shown in Figures 4 and 5, each pivot carrying slide member 22 has spaced right-angular upper and lower T-shaped extensions 50, the said extensions being mounted in slidably interlocked relation in the slots 30 of the housings 31.

It is to be noted that the upper and lower T-shaped extensions 50 are spaced comparatively far apart and that the sash is held by the pivot carrying members 22 at four rectangularly spaced points inside the housings 31. These four spaced supporting points prevent accidental disengagement of the sash from the window frame.

I have provided straps 25 fixed to the respective guide strips 13, 14 and to the parting strip 15 at their respective mid-portions. I have also provided rods 26 passing through the straps and being rotatably mounted at opposite sides of the frame. On the rods 26 I have fixedly secured cams 27 suitably positioned for engagement with the straps 25. As shown in Figure 6, it will be noted that the straps 25 are of non-circular cross-section and of greater cross-section than the circular cross-section of the cams 27. The upper and lower portions of the straps 25 have been spaced sufficiently wide apart to permit the cam 27 to contact with only one of said portions so as to permit the cam to complete its orbit from right to left without raising or lowering the strips 13, 14 and 15, that is the outer periphery of the cam contacts the straps at only one point, at any particular instant. Handles 28 fixed to one end of the respective rods 26 serve for rotating the rods 26 and cams 27 so as to cause the guide strips 13, 14 and the parting strip 15 to be retracted from engagement with the sash.

Referring to Figure 6, it will be seen that a cam 27 has been rotated into normal released position to permit two guide strips and a parting strip to come simultaneously into engagement with the sash. In the reverse position (not shown), the complete outer periphery of the sash is exposed thus enabling the user to swing the sash into angular relation with the window frame or to turn the sash around so as to permit cleaning of the outer face of the glass panels without the necessity of leaning out of the window.

For the purpose of forcibly retaining the sash in any angular position the occupant may desire, I have shown, in Figure 7, a modified pivot carrying member 35 comprising a bracket 36 having an aperture 37 in which is freely rotatably mounted a pivot 38. At the housing end of the pivot 38 I have fixed a gear 39. A spring-pressed member 49 is in engagement with the teeth of the gear 39. The spring is of sufficient strength to forcibly hold the gear and the attached pivot and sash against rotation. The occupant may by exerting pressure against the end of the sash rotate the sash into any desired position where it will be forcibly retained against wind pressure, etc.

Figure 8 is a fragmentary front view of a housing 31 removed from the frame, showing the slot 30 and a pivot carrying slide member 22 slidably mounted in said slot. The member 22 has an aperture 33 for receiving a pivot 29 freely rotatably therein.

As shown in Figure 5, the guide strip 13 is bevelled on one side 45, and the guide strip 14 is bevelled on one side 46. The front and rear side walls of the frame 10 have also been bevelled so as to face the bevelled sides of the guide strips. It

will be noted that in the position shown in Figure 5, the respective bevelled sides are in abutting or spring-pressed contacting relation and that the springs 16 cause the bevelled faces to come into forced engagement thereby moving laterally toward each other and bringing both guide strips 13, 14, into tight contacting relation with the sashes 11 and 12 and cause the sash to come into tight contacting relation with the parting strip 15. This joint action prevents both sashes from rattling. It will be noted that when the occupant rotates the handles 28 so as to retract the guide strips and parting strip from contact with the sash that the sash becomes released and free for vertical sliding motion without binding or sticking in the window frame as is a common occurrence with ordinary double hung sash windows. When the strips 13, 14 and 15 are completely retracted so as to leave the entire perimeter of the sash free from contact with the frame the operator may rotate the sash about the pivots. To further assist this rotation, I have provided a clearance 49 between the pivotal sides of the sash and the housings 31.

In accordance with the patent statutes I have described and illustrated the preferred embodiments of my invention, but it will be understood that various changes and modifications can be made therein without departing from the scope of the invention as defined by the appended claims.

It is to be noted that the cam 27, in the position shown in Figure 6, is on the dead center and in locked position and will not move from this position by any force except by rotation of the handle 28. With both sets of cams set in this position, all the guide strips and the parting strips are locked. It is thus impossible for a person outside the window frame to move the guide strips inwardly and release the sash for rotation.

I claim:

1. In a window construction, a frame having retractable sash guiding elements forming slide-way means in which a sash is slidably mounted, said frame having two vertically slotted sash weight carrying housings positioned with said slots in alinement on opposite sides of said sash, an elongated and apertured pivot carrying slide member having upper and lower T-shaped angular extensions mounted in slidably interlocked relation in each of said slots, said sash having pivots fixedly secured thereto at the mid-portion thereof, said pivots being rotatably mounted in said apertures, said pivot carrying slide members being thereby held securely at four rectangularly spaced points inside said housings and adapted for guiding said sash in non-tiltable and parallel slidable relation with the slotted walls of said housings.

2. In a window construction, a frame having retractable sash guiding elements forming slide-way means therebetween in which a sash is slidably mounted, said frame having two sash weight carrying housings positioned in alinement on opposite sides of each of said sash, each of said housings having a through slot forming a vertical guideway, an apertured pivot carrying slide member having two spaced T-shaped angular extensions mounted in slidably interlocked relation in each of said guideways, said sash having pivots fixedly secured thereto at the mid-portion thereof, said pivots being rotatably mounted in said apertures, said guiding elements comprising front and rear sash guiding elements having bevelled faces and said frame having bevelled faces en-

engageable therewith, spring means urging said front and rear guiding elements into frictional engagement with the front and rear walls of said sash, each of said guiding elements having a strap
5 of non-circular cross-section secured thereto, and cams of circular cross-section contacting said straps at only one point for retracting said guiding elements and releasing said sash from operable engagement with said guiding elements and to
10 permit swinging of said sash on said pivots, said cam means being positioned intermediate said springs to permit said guiding elements to be retracted horizontally by said cam means without raising or lowering said guiding elements.
15 3. In a window construction a frame having retractable sash guiding elements forming slide-way means therebetween in which a sash is slidably mounted, said sash being also pivotally
20 comprising front and rear sash guiding elements

having bevelled faces and said frame having bevelled faces engageable therewith, spring means urging said front and rear guiding elements into frictional engagement with the front and rear
5 walls of said sash, each of said guiding elements having a strap of non-circular cross-section, and cam means contacting said straps at only one point for retracting said guiding elements for releasing said sash from operable engagement
10 with said guiding elements and to permit swinging of said sash on said pivots, said frame having two housings respectively positioned on opposite sides of said sash, each of said housings being adapted for mounting a sash weight slidably
15 therein and having a through slot forming a guideway for receiving a pivot carrying member in slidably interlocked relation, the slots in opposite housings being in alinement.

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