Dec. 16, 1958 H. K. PIPER 2,864,131

WINDOW CONSTRUCTION

Filed Nov. 16, 1954

FIG. 1

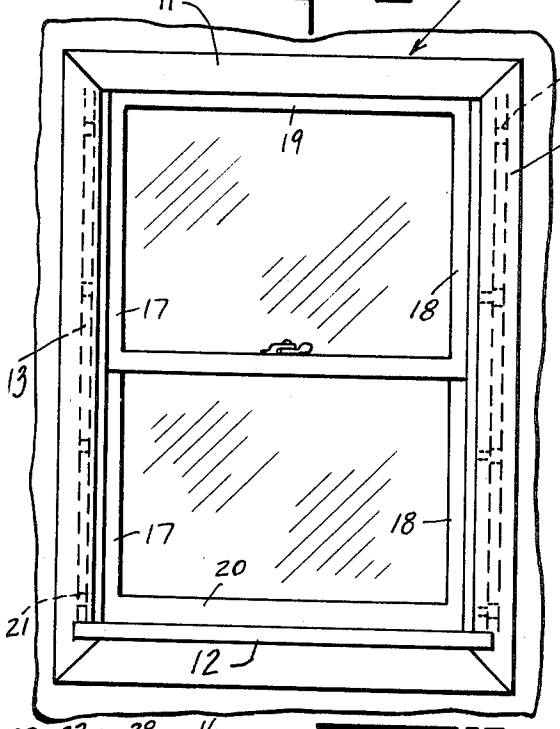


FIG. 3

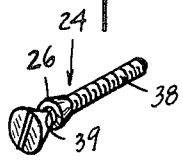


FIG. 4

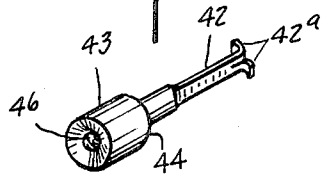


FIG. 5

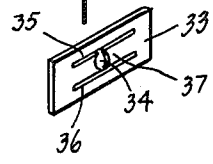
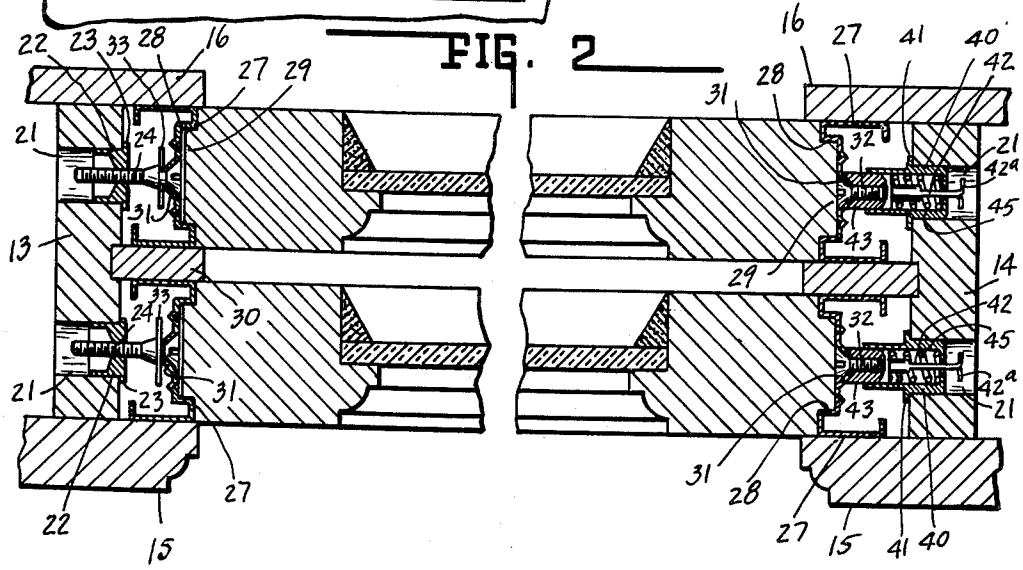


FIG. 2



INVENTOR.
HARRY K. PIPER.

BY

Lockwood, Galt, Woodard & Smith.
ATTORNEYS.

United States Patent Office 2,864,131 Patented Dec. 16, 1958

2,864,131

WINDOW CONSTRUCTION

Harry K. Piper, Paris, Ill.

Application November 16, 1954, Serial No. 469,107

2 Claims. (Cl. 20—12)

This invention relates to a window construction and more particularly to improved means for slidably supporting the window sashes.

The use of laterally adjustable sash holders which make possible the elimination of counterweights, pulleys, sash cords and the like, is known in the art of window constructions. Heretofore, however, such sash holding assemblies have been characterized by slide or guide rails which are fixed on one side to the window frame, and adjustable on the other side alone. As a result, certain disadvantages have arisen. For example, the slide rail affixed to the window frame will in time at least conform in configuration to the frame itself. Thus, when the frame itself becomes warped or distorted, the slide rail does likewise, thereby impairing the free sliding characteristics of the sash which are so necessary and desirable.

It is the primary object of this invention to provide a sash holding assembly that supports both slide rails in suspension so to speak, relative to the window frames, whereby the rails conform to the characteristics of the sash and not to those of the frame; that is to say, the rails are held uniform to the sash and not to the frame.

It is a further object of the present invention to provide an assembly which may readily and easily be adjusted to compensate for any twisted, warped or bowed characteristics in the frame.

It is a still further object of the present invention to provide means for applying a more uniform holding and supporting pressure against the sashes.

It is a still further object of the present invention to provide means for increasing the tension on the sashes by one simple adjustment. Heretofore in the conventional devices of this general type, as adjustment of the resilient means resulted in lessened rather than increased tension. In the present invention a compression means appears on one side of the sash, and a movable or adjustable but non-yielding means is associated with the other side of the sash as will hereafter be pointed out in detail.

It is a still further object of this invention to provide sash holding means of such character and arrangement that the sashes may be centered relative to the side rails of the window frame. Heretofore, in conventional devices the appearance of the sashes has been adversely affected by the fact that one slide rail is fixed to the frame and the other is held in spaced relation thereto, thereby leaving the sash improperly centered.

A still further object of the present invention is to provide means which are more efficient than conventional devices when used not only with standard windows but with wider ones as well. This result stems from the fact that an adjustment on the adjusting side of this invention increases rather than lessens the pressure against the sashes. Heavier, that is, larger and wider sashes can thus better be supported. Furthermore, because there is no fastening of the slide rails to either window frame side rail, the present invention can be used

to better advantage with standard sized sashes already in place.

It is a still further object of the present invention to provide sash holding means of such character and construction that the sash may be removed readily and with ease for cleaning, painting purposes and the like.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

Fig. 1 is a front elevational view of a window construction.

Fig. 2 is a transverse sectional view thereof.

Fig. 3 is an enlarged perspective view of the shouldered screw used with the sash holding assembly.

Fig. 4 is an enlarged perspective view of another element of the assembly.

Fig. 5 is an enlarged perspective view of one of the resilient clips associated with the assembly.

In the drawings the window frame is shown generally at **10**, it comprising the head rail **11**, a sill **12** and the vertical side rails or stiles **13** and **14**. Conventional molding and blind stops **15** and **16**, respectively, are shown in Fig. 2. This much of the invention is conventional and no claim is made per se thereto.

A pair of vertical sliding window sashes are slidably mounted within the window frame and comprise the side rails **17** and **18** in addition to the top and bottom rails **19** and **20**.

Formed in each of the side stiles of the window frame are vertically spaced recesses **21**. Frictionally seated in each recess in one of the stiles is an internally threaded cup shaped nut **22** having shoulders **23** which serve as stops.

As will be observed particularly in Fig. 2, the recess is relatively elongated in comparison with the depth of the nut. This is for the purpose of permitting axial movement therewithin of the screw **24**. This screw is flat headed, as shown for a purpose hereinafter described.

An elongated slide or guide rail **27** engages each side rail of the sashes. These slide rails have a centrally formed groove **28** for reception of the tongue portion **29** of the sash side rail. The slide rails are suitably disposed between the blind stop **16** and central partition **30**, and between the molding stop **15** and that partition respectively (see Fig. 2).

Each slide rail is provided with a plurality of spaced reentrant openings **31**, which are sized to receive the head of the screw **24** or the screw **32**, as the case may be, so that the head lies flush with the grooved portion of the slide rail and does not in any manner impede or restrict the free sliding movement therein of the sash. In order to hold the head of screw **24** flush relative to said grove, there is provided a resilient spring clip **33** having a central opening **34** and slots **35** and **36**. These slots give greater resiliency and bending characteristics to the portion **37** whereby, upon the application of the clip to the threaded shank **38** of screw **24**, the portions **37** "give" sufficiently to enable the clip to pass over the shoulder **26**. Once that portion of the shoulder having the greatest diameter is passed, the portions **37** will flex back to their normal position as the annular reentrant portion **39** is reached by the clip. Thus, in this manner the clip holds the head of the screw within the dished out or reentrant portion **31** of each slide rail.

It will be observed particularly in Fig. 2 that the slide rail on the left-hand side of the drawing is supported by the screws **24** in non-yielding yet adjustable position relative to the adjacent side rail of the sash with which it is associated. The clips "lock" the screws and the slide rail together. Thus as the screws are adjusted inwardly or outwardly the slide rail automatically moves with them. With this construction the left-hand slide rail serves in

effect as an anvil upon which the sash bears as it is urged to the left by the compression springs that are on the right-hand side of the drawings as hereinafter described. Consequently as of any given time the left-hand slide rail is in a non-yielding or "fixed" position, while the slide rail on the right-hand side is in a yielding position, i. e. is being urged to the left by the compression springs, thereby forcing the sash to the left into abutment with the "anvil."

The assembly on the opposite side of the window frame is different, except that the elongated recesses **21** are similarly formed in the vertical side rails of the window frame, and slide rails are also employed. Mounted within these recesses are the housings **40** having shoulders **41** intermediate the opposite ends thereof which restrict and limit further inward movement into the recess. One end o fthe housing projects inwardly from the side rail towards the sash and is open while the other end of the housing is closed except for a small opening formed therethrough for free sliding reception of the yoke type shank **42** of the free floating element **43**. This last-mentioned element is slidably mounted within the housing and has interposed between its end **44** and the substantially closed end of the housing a compression spring **45**. The element is internally threaded, as at **46**, to receive the flat headed screw **32**. This screw is extended through the dished-out or re-entrant portion **31** of the side rail into the element. Thus the right-hand slide rail is fixed to the element and is movable therewith, the element, as aforesaid, being under compression.

Spring **45** will be of compression type, as stated, and will be mounted within the housing at a predetermined pressure such by way of illustration as is sufficient to hold and support a sash twenty-four inches by twenty-four inches. In order to limit the movement towards the sash of the assembly comprising the slide rail, the screw **32** and the element **43** with its yoke type shank **42**, the ends **42*a*** of the shank are bent over as shown, particularly in Fig. 4. The bent or turned ends thus serve as stops to limit the movement of this assembly towards the sash. They also serve to retain the element within the housing so that it cannot be forced thereout by the compression spring.

In operation, the sash is inserted between the opposed slide rails by moving it laterally under pressure against the side rail on the right side of the drawing in Fig. 2. This will force the slide rail, the screw **32** and the element **43** inwardly against the bias of the spring **45** a distance sufficient to enable the opposite side of the sash to be nested within its slide rail. Should it become necessary or desirable after use to increase the pressure against the sash, the sash will first be taken out, whereupon the screw **24** may be turned so that the slide rail will move inwardly towards the opposed slide rail. Once again the sash will be mounted, but because of the fact that the slide rail on the left-hand side (in Fig. 2) is now closer to the slide rail on the opposite side, there will be greater pressure against the sash by both slide rails. Thus, it is apparent that instead of losing pressure or tension against the sash when the screw **24** is turned in the direction indicated, as is true in conventional constructions, even greater pressure and tension is exerted. This is because of the fact that the compression spring on the right-hand side (see Fig. 2) is placed under increased compression or tension, rather than contrariwise.

While the invention has been illustrated and described in detail in the drawing and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention and the scope of the claims are also desired to be protected.

The invention claimed is:

1. In a window construction including a sash and a frame having side rails for receiving said sash therebetween; a pair of opposed first and second slide rails mounted within the frame for slidably supporting said sash, adjustable means connecting the first slide rail to its adjacent side rail for moving said sash to a multiplicity of selective transverse positions between said side rails, said means including a plurality of vertically spaced nuts mounted in the side rail adjacent said first slide rail, a plurality of vertically spaced threaded members rotatably fixed to said first slide rail in alignment with said nuts, said members being adjustable within said nuts for moving said first slide rail transversely relative to the opposite slide and side rails, and a second means for connecting the second slide rail to its adjacent side rail, said second means including a compression spring of predetermined tension for normally urging said second slide rail towards said first slide rail.

2. In a window construction including a sash and a frame having side rails for receiving said sash therebetween; first and second opposed slide rails positioned within said frame for slidably supporting said sash, means connecting said first slide rail to its adjacent side rail, said means including a plurality of vertically spaced nuts mounted within said adjacent side rail, a plurality of shouldered, threaded members including a head rotatably carried by said first slide rail, said members being in alignment with said nuts and adjustable to and fro therewithin, said threaded members having a resilient clip mounted between the shoulder and the head of the member for detachably securing said members to said first slide rail, and second means connecting said second slide rail and its adjacent side rail, said second means including a plurality of vertically spaced cup-shaped housings mounted in the side rail adjacent said second slide rail, free floating members carried by said second slide rail and movable to and fro within said housings, and a compression spring in each housing engaging said free floating members and normally biasing them and said second slide rail towards said first slide rail.

References Cited in the file of this patent

UNITED STATES PATENTS

Re. 23,931	Weissman	Jan. 25, 1955
2,264,020	Dautrick et al.	Nov. 25, 1941
2,718,035	Schwerak	Sept. 20, 1955

FOREIGN PATENTS

2,855	Great Britain	June 16, 1882