

W. H. SHEEHAN AND J. W. ECKARD.
WINDOW.

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1,403,575.

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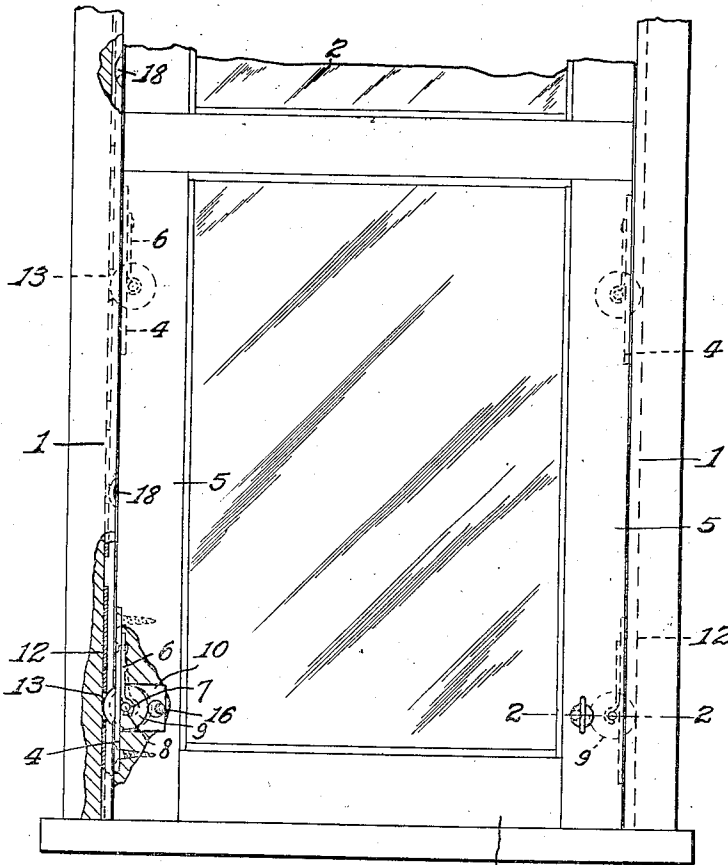


Fig. 1.

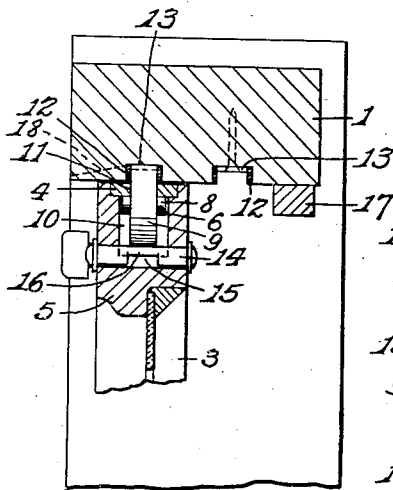


Fig. 2.

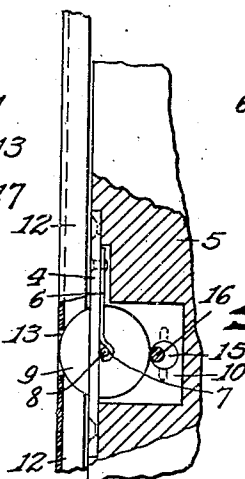


Fig. 3.

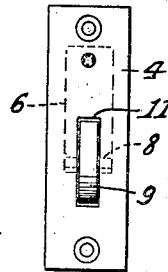


Fig. 4.

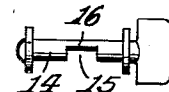


Fig. 5.

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WINDOW.

1,403,575.

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To all whom it may concern:

Be it known that we, WALTER H. SHEEHAN and JAMES W. ECKARD, citizens of the United States of America, and residents, respectively, of Steubenville and Mingo Junction, in the county of Jefferson and State of Ohio, have invented certain new and useful Improvements in Windows, of which the following is a specification.

This invention relates broadly to windows, and more particularly to a window sash and means for supporting same.

The primary object of the invention is to provide a window having simple and efficient means whereby the sash thereof is secured against chance displacement without the use of the usual guide strips, whereby the sash is secured in adjusted elevated position without the use of weights and pulleys, and whereby the movement of the sash to and from elevated position is facilitated and binding of the sash upon the casing or frame is effectually prevented.

A further object is to provide, in a window of the character mentioned, a sash equipped with a plurality of yieldably mounted disks which serve as anti-friction rollers upon which said sash travels as it is raised and lowered and also whereby said sash is both guided in its vertical movements and normally held against outward movement.

A still further object is to provide a window of the character mentioned in which the sash may be readily removed from the frame, as for cleaning, and as readily replaced.

With these and other objects in view, the invention resides in the features of construction, arrangement of parts and combinations of elements which will hereinafter be fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation, partly in broken section, of a window embodying our invention;

Figure 2 is an enlarged section on line 2—2, Fig. 1;

Figure 3 is an enlarged fragmentary section showing the sash-locking means in operative position;

Figure 4 is a face view of a spring-carried disk and its supporting plate; and

Figure 5 is a side elevation of the locking pin, detached.

Referring to said drawings, 1 indicates the sides of a window frame, and 2 and 3 the upper and lower sashes which are fitted to and vertically movable in said frame. Each sash has a face plate 4 countersunk in the opposite edges of the vertical sides 5 of the frame thereof at points adjacent to the upper and lower ends of said sides, and rigidly attached to the inner side of said face plate adjacent to the upper end thereof is the upper end portion of a resilient metal plate or spring 6 which normally depends flat against the said inner side of said face plate, as shown in Figs. 1 and 3. Said spring 6 is bifurcated from its lower end upward throughout a suitable part of its length and has the ends of its separated prongs curved to form forwardly facing seats 7 which constitute bearings for the opposite ends of a transverse pin 8 which carries a plain wheel or disk 9 of suitable size. Said disk is disposed partially within a recess 10 provided therefor in the side 5 of the sash frame and projects outward from said recess through a slot 11 in the face plate 4.

Fitted in each of the sides 1 of the window frame in position to receive the projecting edges of the disks 9 carried by the upper and lower sashes are two vertically disposed channel members 12 constituting runways in which the disks of said sashes travel when the latter are raised and lowered.

As shown, the disks 9 fit more or less snugly in said runways 12 and said parts cooperate to secure the sash in its proper position in the window frame and to guide the sash in its vertical movements. Formed at suitably spaced intervals in the bottoms of each of the companion runways mounted in the opposite sides 1 of the window frame are seats 13 for the reception of portions of the peripheral edges of the disks, said seats being preferably formed by cutting away small portions of said bottoms, as shown. The disks are preferably so proportioned in diameter to the depth of the runways that when the former are received in the seats 13, the supporting springs therefor rest flat against the face plates 4. Further, said springs are made sufficiently stiff that they effectually resist the tendency to permit said disks to withdraw from said seats produced by the weight of the sash, thus requiring that manual force be exerted for lowering

a sash from an elevated position in which the disks rest in seats. As is obvious, sufficient force must be applied initially, in either raising or lowering a sash, to overcome the resistance of the springs 6 in holding said disks to their seats and to cause said disks to mount the bottoms of the runways. Having mounted said bottoms, said disks constitute yieldably held anti-friction rollers upon which the sash is carried freely, or without tendency to bind on the sides of the window frame.

Means is preferably provided whereby one or more of the disks 9 may be locked in any of the seats 13 provided therefor in the runways. As herein exemplified, said locking means consists of a pin 14 directed transversely through and rotatable in the side 5 of the sash frame behind and adjacent to the disk 9. Said pin has a recess 15 formed in one side of the body thereof. In the normal position of said pin the recess thereof faces the disk, as shown in Fig. 1, and permits the latter to freely move relative to said pin to any extent required. However, when it is desired to secure said disk against withdrawal from the seat engaged thereby, said pin is rotated to present the plain, or unrecessed, side 16 thereof to the adjacent periphery of the disk, as shown in Figs. 2 and 3, in which position it positively obstructs inward movement of the disk. As is apparent, said locking pin is in effect a cam which is rotatable into and out of locking engagement with the disk. Obviously, when one or more of the disks are locked in their seats as aforesaid, vertical movement of the window sash is effectually prevented.

It will be noted that the necessity for employing the usual sash guiding strips attached to the sides of the window frame is largely obviated by the provision of the guiding means hereinbefore described, although one or more such strips may be used if preferred, as shown at 17 in Fig. 2.

To provide for ready removal and replacement of a sash, as for cleaning purposes, channels or grooves 18 are provided in one side 1 of the frame at suitable points which are relatively spaced to correspond with the relative spacing of the disks 9. Said channels or grooves lead outward horizontally from the bottoms of the runways,

gradually decreasing in depth, as shown by dotted lines in Figs. 1 and 2, as the edge of said side 1 is approached, and constitute ways through which the disks, disposed in register therewith, may pass in swinging the adjacent side 5 of the sash frame into and out of proper position within the window frame.

While we have herein illustrated and described the preferred form of construction of the various parts of our invention, it will be obvious that various modifications and changes in the form of some of said parts may be resorted to without departure from the spirit of the invention. It will therefore be understood that we desire to avail ourselves of such variations and modifications as come within the scope of the appended claim.

What is claimed is—

In a window, a window frame having vertical runways in the sides thereof, a window sash fitted between said sides of said frame and having suitably located recesses in the sides of the frame thereof, apertured face plates covering said recesses, a disk mounted for rotation rearward of each face plate and projecting outward through the aperture of said plate into the adjacent runway and adapted to travel in the latter, seats formed at intervals in the bottoms of said runways, resilient means exerting yielding pressure upon each disk whereby the latter is held in said runway under yielding tension, a locking pin located rearward of each disk, said pin having a camlike portion and being adapted for rotation to engage said portion with the periphery of said disk at a point diametrically opposite said runway for preventing the latter from being forced back against said resilient means, and horizontal channels in one of the sides of the window frame through which the adjacent disks may pass in introducing and removing the sash, said channels gradually diminishing in depth as they approach the face of said window frame.

In testimony whereof we affix our signatures in presence of two witnesses.

WALTER H. SHEEHAN.
JAMES W. ECKARD.

Witnesses:

SADELLE WELDAY,
E. M. MORROW.