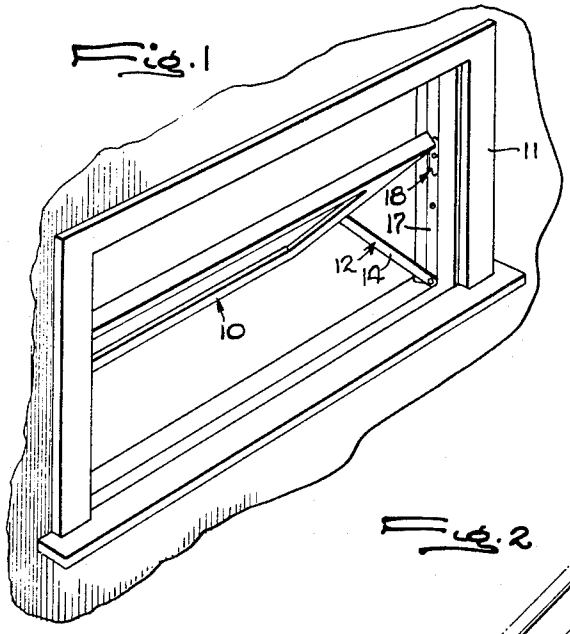
April 19, 1960 A. W. AHLGREN 2,932,848

FRICTION DEVICE FOR SLIDING CLOSURE MEMBERS

Filed Nov. 7, 1957

Fig. 1



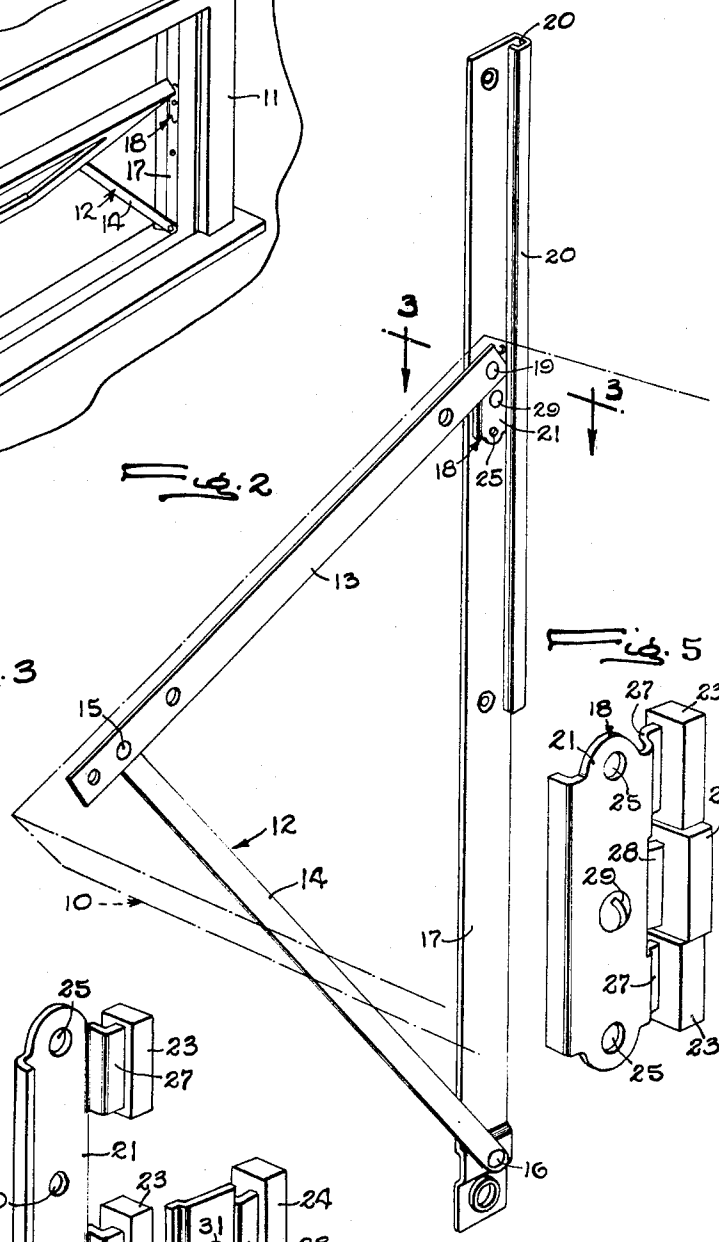


Fig. 2

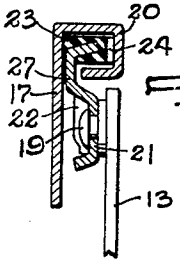


Fig. 3

Fig. 5

Fig. 4

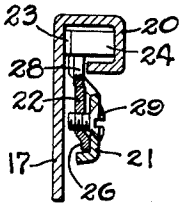


Fig. 6

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FRICTION DEVICE FOR SLIDING CLOSURE MEMBERS

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5 Claims. (Cl. 16—138)

This invention relates to a friction device for a sliding closure member such as a window sash and more particularly, to a shoe which slides with the member and frictionally engages a part on the frame in which the member slides to hold the member in the desired adjusted position.

The general object of the invention is to provide a new and improved device of the above character which permits the friction between the shoe and the cooperating part on the frame to be varied selectively and which, at the same time, is comparatively simple and inexpensive in construction.

A more detailed object is to form the shoe from two laterally spaced members which carry friction elements engaging the inner sides of a channel and to provide a device for moving the members together or apart thereby to shift the friction elements laterally relative to each other and change the pressure with which the elements bear against the channel.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of an awning window employing the novel friction device of the present invention.

Fig. 2 is an enlarged perspective view of the shoe, the channel and the parts which connect these members to the sash and frame.

Fig. 3 is an enlarged fragmentary sectional view taken along the line 3—3 in Fig. 2.

Fig. 4 is a top view of the shoe.

Fig. 5 is a perspective view of the shoe used on one side of the sash.

Fig. 6 is an exploded perspective view of the shoe used on the other side of the sash.

While the invention is applicable to windows of various types, it is shown in the drawings for purposes of illustration as used in conjunction with a so-called awning window in which the sash 10 slides vertically in the frame 11 and simultaneously swings about a horizontal axis extending along the upper edge of the sash. The sash is connected to the frame for such movement by a hinge 12 which comprises a first link 13 (Fig. 2) extending along and fastened to the edge of the sash and a second link 14 pivotally connected at one end by a pin 15 to the lower end of the first link. The other end of the second link is connected by a stationary pivot 16 to the lower end of an upright bar 17 which is fastened to the side of the frame 11. A shoe 18 which is pivotally connected at 19 to the upper end of the first link 13 slides in a vertical channel 20. Herein, the latter is formed integrally with the bar 17 and extends along the upper portion thereof. Preferably, there is a hinge and shoe assembly at each side of the sash.

With the foregoing arrangement, the window is opened by pushing outwardly at the bottom edge of the sash 10 which thus swings about a horizontal axis extending through the pivot 19. During such swinging, the shoes 18 slides down in the channels 20 and the links 13 and 14 turn relative to each other about the pivots 15. The shoe frictionally engages the channel and this friction is utilized to hold the sash in the adjusted position.

In accordance with the present invention, the shoe 18 is constructed in a novel manner so that the friction between it and the channel 20 may be varied selectively while, at the same time, the shoe is simple and inexpensive in construction. To this end, the shoe is made from two members 21 and 22 (see Figs. 3 through 6) which are held apart and each of which carries at least one friction element 23 or 24. The latter are disposed within the channel and frictionally engage the opposite sides thereof so that the friction between the elements and the channel may be changed by moving the members 21 and 22 together or apart.

In the present instance, the member 21 is an elongated vertical plate which parallels the bar 17 and is connected to the upper end of the link 13 by the pivot 19, the latter being a pin projecting through the link and through a hole 25 near the upper end of the plate. There are two such holes, one near each end of the plate, so that the shoe 18 may be used for either side of the sash 10 simply by inverting it. A second and shorter plate constitutes the member 22 and this plate is disposed face to face with the plate 21. The main body portions of the two plates are spaced apart horizontally as shown in Figs. 3 and 4 and this may be achieved by a flange 26 which extends along the outer edge of the plate 22 and engages the plate 21.

Herein, there are two friction elements 23 mounted on the plate 21 and these elements are small rectangular blocks of a plastic material such as molded nylon or zytel. The blocks 23 are molded to vertically spaced lugs 27 which are laterally offset from the plate 21 and project inwardly from the inner edge of the plate. A similar lug 28 projects inwardly from the inner edge of the plate 22 and the friction element 24, which is similar in construction to the blocks 23, is molded to the end of this lug. The latter projects in between the lugs 27 and is offset only slightly so that the side edges of the blocks 23 engage one side of the channel 20 while the opposite side edge of the block 24 engages the other side of the channel.

With the foregoing arrangement, the pressure with which the blocks 23 and 24 bear against the sides of the channel 20 and hence the friction holding the sash 10 in position may be varied by moving the plates 21 and 22 toward and away from each other. Thus, by moving the plates together, the blocks 23 are urged to the left as viewed in Figs. 3 and 4 and the block 24 is urged to the right. This increases the friction between the blocks and the channel while, conversely, moving the plates apart decreases the friction.

While various means may be used to move the plates 21 and 22 together and apart, it is preferred to pivot the plates relative to each other about their outer edges and to employ a device 29 which both effects such pivoting and holds the plates in the adjusted position. Herein, the abutting connection between the flange 26 and the plate 21 is used to form the pivot so that the plate 22 turns relative to the plate 21 about this flange. As shown in the drawings, the device 29 may be a screw which projects through a hole 30 in the plate 21 and is threaded into a hole 31 in the plate 22. Thus, by tightening the screw, the plates turn toward each other about the flange 26 and this increases the friction while loosening the screw reduces the friction.

I claim as my invention:

1. For use with a window having a sash slidable in the opening of a frame, the combination of, an elongated

channel adapted to be secured to said frame to extend along one side of said opening, a first plate disposed adjacent to said channel and in a plane generally parallel to the sides of the channel, a second plate having a portion laterally spaced from a portion of said first plate, a block disposed within said channel and engaging one side thereof, means connecting said block to the adjacent edge of said first plate, a second block disposed within said channel and engaging the opposite side thereof, means connecting said second block to the adjacent edge of said second plate, a flange on one of said plates on the side opposite the corresponding block, said flange paralleling said channel and abutting against the other of said plates, and a screw connecting said portion of said first plate and said portion of said second plate, said screw projecting through one of said plates and being threaded into the other plate whereby turning the screw turns the plates relative to each other about said flange and urges said blocks against the respective sides of said channel.

2. For use with a window having a sash slidable in the opening of a frame, the combination of, an elongated channel adapted to be secured to said frame to extend along one side of said opening, a first plate disposed adjacent to said channel and in a plane generally parallel to the sides of the channel, a second plate having a portion laterally spaced from a portion of said first plate, a block disposed within said channel and engaging one side thereof, means connecting said block to the adjacent edge of said first plate, a second block disposed within said channel and engaging the opposite side thereof, means connecting said second block to the adjacent edge of said second plate, a flange on one of said plates on the side opposite the corresponding block, said flange paralleling said channel and abutting against the other of said plates, and a device connecting said plates and selectively adjustable to turn the plates relative to each other about said flange thereby to urge said blocks against the respective sides of said channel.

3. For use with a window having a sash slidable in the opening of a frame, the combination of, an elongated channel adapted to be secured to said frame to extend along one side of said opening, a first plate disposed adjacent to said channel and in a plane generally parallel to the sides of the channel, a second plate having a portion laterally spaced from said first plate, a block disposed within said channel and engaging one side thereof, means connecting said block to the adjacent

edge of said first plate, a second block disposed within said channel and engaging the opposite side thereof, means connecting said second block to the adjacent edge of said second plate, means connecting said plates to turn relative to each other about an axis paralleling said channel, and a device selectively adjustable to turn said plates about said axis thereby to urge said blocks against the respective sides of said channel.

4. For use with a closure member slidable in a frame, the combination of, an elongated channel adapted to be secured to said frame and a shoe sliding in said channel and adapted to be mounted on said sash, said shoe comprising a first member adapted to be connected to said sash, a second member having a portion spaced from said first member in a direction transversely of said channel, two friction elements disposed within said channel with one engaging one side of the channel and the other engaging the opposite side of the channel, means connecting each of said elements to one of said members, means connecting said members to turn relative to each other about an axis paralleling said channel, and a device selectively adjustable to turn said members about said axis thereby to urge said elements against the respective sides of said channel.

5. For use with a closure member slidable in a frame, the combination of, an elongated channel adapted to be secured to said frame and a shoe sliding in said channel and adapted to be mounted on said sash, said shoe comprising a first member adapted to be connected to said sash, a second member having a portion spaced from a portion of said first member in a direction transversely of said channel, two friction elements disposed within said channel with one engaging one side of the channel and the other engaging the opposite side of the channel, means connecting each of said elements to one of said members, means normally holding said portions of said members in spaced relation while permitting the members to be moved to change the spacing between them, and a device connecting said members and selectively adjustable to move the members together or apart thereby to change the pressure with which said friction elements engage the sides of said channel.

References Cited in the file of this patent

UNITED STATES PATENTS

2,293,944	Moseley	Aug. 25, 1942
2,791,810	Perry	May 14, 1957