Dec. 19, 1933. J. FREYSINGER 1,939,969

GUIDE AND STOP MECHANISM FOR WINDOW SASHES OR THE LIKE

Filed Jan. 19, 1933

Fig. 1

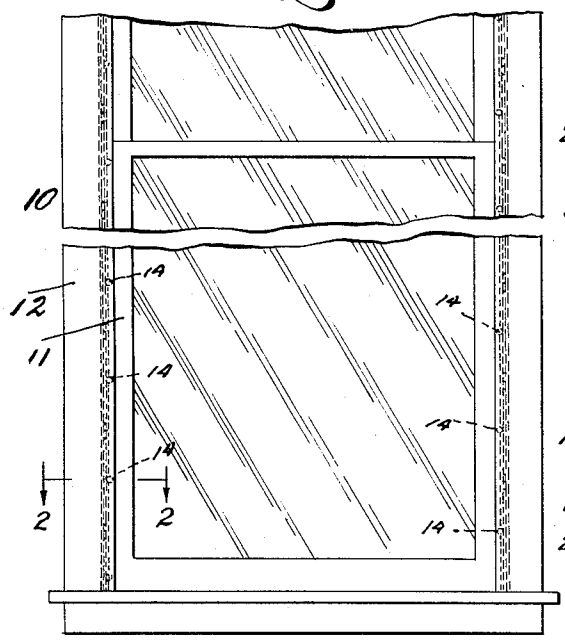


Fig. 4

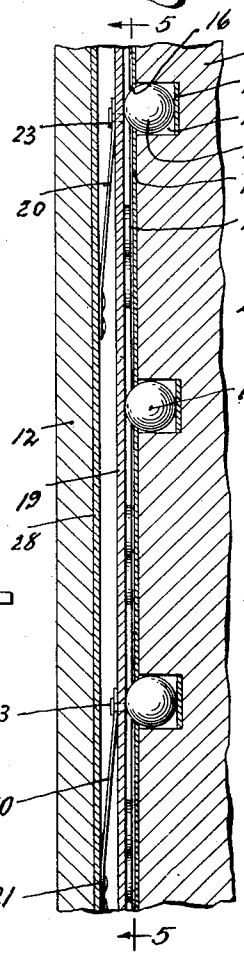


Fig. 5

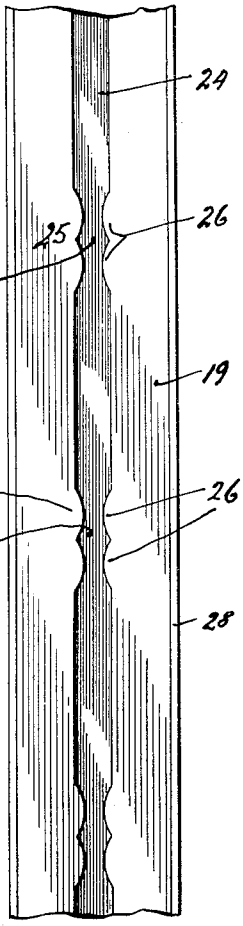


Fig. 2

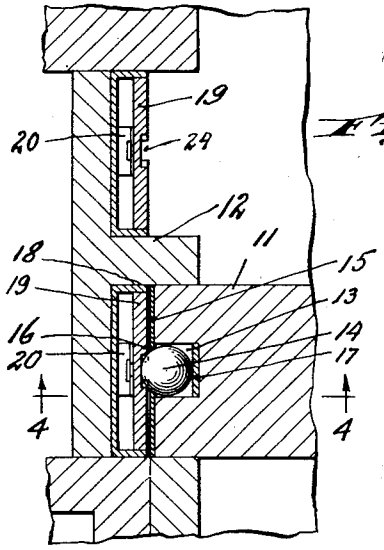


Fig. 3

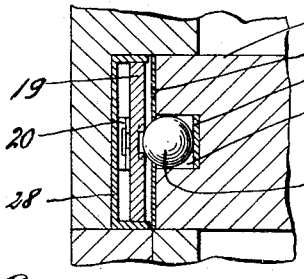
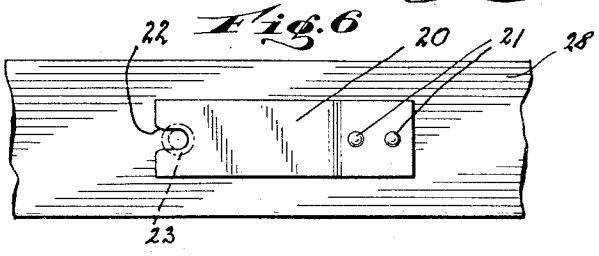


Fig. 6



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GUIDE AND STOP MECHANISM FOR WINDOW SASHES OR THE LIKE

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Application January 19, 1933. Serial No. 652,443

6 Claims. (Cl. 292—15)

This invention relates to guide and holding mechanism to be used between a movable surface and a stationary surface, such as with window sashes of windows, drawers of desks or filing cabinets, etc.

The main object of this invention is to provide a guide and holding mechanism, particularly adaptable for window sashes whereby the usual weights, cords or chains can be dispensed with, the raising and lowering of a sash relative to the frame and the locking thereof in as many elevated positions as is ordinarily desirable greatly facilitated and rendered effective.

Another object of this invention is to provide a construction which will be comparatively simple, durable and efficient in operation.

A still further object is to so construct such mechanism that when used on wooden structures binding between the sliding and the stationary surfaces will be eliminated.

And still another object is to provide a guide and holding mechanism which can be readily applied to existing structures without material changes therein.

With these and other objects in view which will become clear from the detailed description of my invention, the latter consists in the novel construction, combination and arrangement of parts as hereinafter more fully specified and defined in the appended claims.

In the accompanying drawing in which similar reference characters denote corresponding parts and which constitutes a part of this specification;

Fig. 1 is an elevation of a conventional window equipped with my new guide and holding mechanism;

Fig. 2 is a cross section on line 2—2 of Fig. 1 showing one of the sashes in locked position;

Fig. 3 is a similar section showing the same sash unlocked;

Fig. 4 is a longitudinal section on line 4—4 of Fig. 2, seen in the direction of the arrows;

Fig. 5 is a longitudinal section on line 5—5 of Fig. 4, seen in the direction of the arrows; and

Fig. 6 is a plan view of a detail.

Referring to the drawing 10 denotes a conventional window having vertically movable sashes 11 and the window frame 12. The side bars of the window sashes 11 are each provided adjacent their outer edges with a vertical series of grooves or pockets 13, which may be spaced at suitable distances apart and which serve as sockets to bear balls 14 or the like. The sockets 13 are open at their outer sides and are so admeasured that the balls can be readily passed into them through said open sides, will rotatably bear therein and partly project outwardly through said open sides. Fixed to said outer sides of said sashes in any suitable manner and extending over the entire length thereof are strips 15 of sheet metal which opposite said balls 14 have recesses, such as circular perforations 16, so admeasured as to permit said balls to also project therethrough and to hold them in position within said sockets. If the sashes are made of wood then metal plates 17 may be mounted in said sockets to serve as backers to take up the pressure on said balls when the window sash is being raised or lowered, as will be hereinafter described, and to thereby prevent said balls from becoming embedded in the wood.

Provided in the grooves 18 of the frame are guide bars 19 extending the entire length thereof. These bars are suitably attached to resilient means, which are fixed to the inner walls of said grooves. In the present embodiment of my invention these resilient means are in form of plate springs 20 fixed at one end, as at 21, to the walls of the grooves and recessed at the opposite end 22 to engage headed pins 23 projecting from the rear faces of the bars. These resilient supports will hold the bars normally in a laterally projecting position but on the exertion of some lateral pressure permit the bars to yield inwardly relative to said grooves 18. Each bar is provided about centrally with a groove 24 extending substantially the entire length thereof and which is so admeasured in width and depth as to engage the projecting parts of the balls 14 and permit them to freely roll therein. At certain intervals each groove is constricted as at 25 so as to form obstructions to the balls.

According to present embodiment of the invention each constriction is formed by two opposite pairs of circularly curved flaps 26 projecting from the side edges of the grooves 24, there being one pair on each side of said latter, the curved flaps of each pair being adjacent to one another, so that the space 27 between said two pairs of curved flaps 26 in width is the same as groove 24 and forms a nest for a ball 14.

The curved edges of the flaps 26 in cooperation with the balls 14 are adapted to act as cams, so that the balls 14, during the raising or lowering of the sash arriving at the outer ends of the flaps 26 and obstructed thereby will upon forcing the sash further upwardly or downwardly be caused to roll over said cam edges and at the same time depress the bars 19 against the tension of their

spring supports 20. After rolling over the crests of said flaps 26 the balls 14 will gradually pass or snap into the nests 27 and as a result thereof lock the sash in the raised or lowered position, as the case may be. To continue the movement of the sash in the same direction or to move it into the opposite direction a relatively small force will be required to dislodge the balls from their nests 27 over the crests of the flaps 26.

By reason of the balls 14 freely rolling in the grooves 24 the sashes can be moved smoothly up and down. Every time the balls 14 arrive at the constricted parts of the groove there will be a tendency for the sash to stop and will require but a slight force to overcome that tendency by forcing the balls to roll over the cams 26 and depressing the guide bars 19. If it is desired to leave the window sash in an open position the window sash will be moved until its balls 14 snap into nests 27 corresponding to the position desired.

In order to provide for as many nests as desirable to permit a sufficient number of stops at which the sashes may be held in suspension it may be advantageous in order to avoid crowding, to arrange the sockets and balls in the sash, as well as the constrictions 25 of the grooves 24 in the frame at the two opposite sides of the window in a displaced position relative to one another, as is indicated in Fig. 1.

When the window frame is made of wood it may be advantageous, in order to prevent binding between the bars and the side walls of the guide grooves, to provide sheet metal sheaths 28 suitably attached to and covering the inner faces of the walls of said guide grooves (Figs. 2, 3 and 4), so that the bar 19 will when yielding be guided in said sheaths.

It is, of course, understood that various other changes may be made in the construction of my device without departing from the principle of my invention. I, therefore, do not wish to restrict myself to the details shown and described.

What I claim is:—

1. In a window having vertically movable sashes and a frame, a vertical row of elements rotatively borne in each side of a sash and projecting laterally therefrom, laterally movable spring actuated members extending throughout the length of each side of the frame, each member being grooved in its front face longitudinally to freely engage the projecting parts of said elements, the groove on each member being at intervals constricted in width to form obstructions to the said elements whereby said members will be caused to yield laterally to permit the passage of said elements therein.

2. In a window as per claim 1, in which the sashes in their sides are formed with sockets to bear said rotatable elements.

3. In a window as per claim 1, in which the laterally movable members comprise flat bars and spring supports therefor mounted in the guide grooves of said frame.

4. In a window as per claim 1, in which the laterally movable members comprise bars the front faces of which are flat and have longitudinal grooves.

5. In a window as per claim 1, in which the constricted parts are in form of cam shaped flaps.

6. In a window as per claim 1, in which each laterally movable member has a longitudinal groove formed at intervals with opposite pairs of cam shaped flaps projecting from the edges of said groove, the space between each pair of flaps being about as wide as the general width of said groove to form a nest for one of said rotatable elements and retain the window sash in its raised or lowered position.

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