Jan. 22, 1957 W. A. CURTZE 2,778,067

WINDOW STRUCTURE

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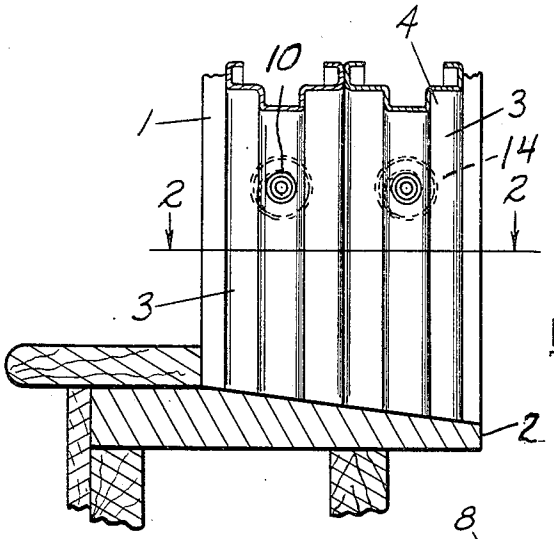


FIG. 1

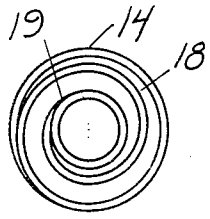


FIG. 3

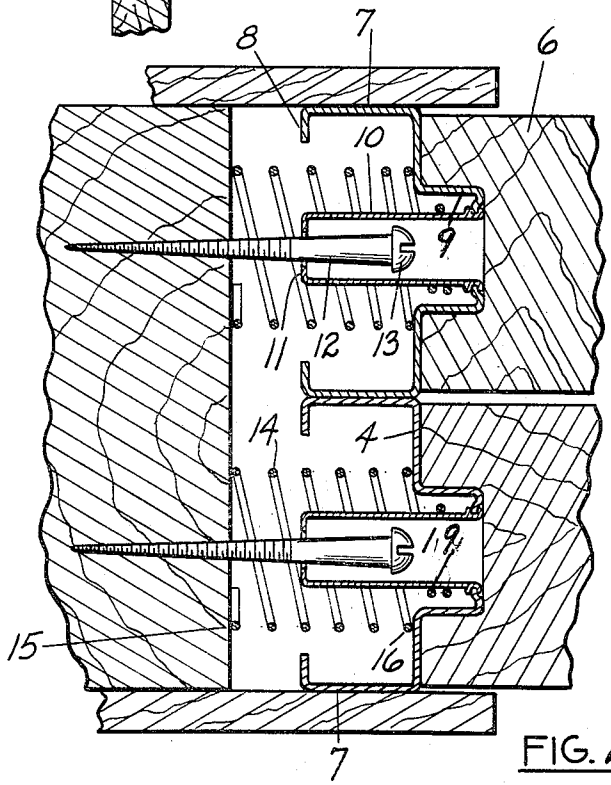


FIG. 2

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WINDOW STRUCTURE

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2 Claims. (Cl. 20—12)

This invention is a window with spring pressed vertical guide channels at one jamb which exert enough friction to hold the upper and lower sash in any position without sash weights. The channels have screw receiving wells which limit the movement away from the jamb and these wells are also used to support the springs.

In the drawing, Fig. 1 is an elevation of the lower end of the floating guide channels, Fig. 2 is a section on line 2—2 of Fig. 1, and Fig. 3 is an enlarged view of one of the springs.

In the usual window frame there are spaced vertical jambs 1 connected at the bottom by a sill 2 and at the top by a header (not shown). In addition to these structural elements there is interior and exterior trim which it is not necessary to illustrate for the purposes of the present invention.

In Figs. 1 and 2, on one of the jambs 1 there is a pair of boating guide channels 3 arranged side by side for a double hung window. Each of the guide channels has a web 4, the outer surface of which is formed to make a tongue and groove connection with the vertical edge of a sash 6. Each of the guide channels has side flanges 7 which extend inwardly toward the jamb and terminate in inturned stiffening flanges 8. The parts so far described are or may be of common construction.

For proper operation it is necessary that the guide channels be movable inwardly toward the jamb a sufficient distance so that in the innermost position the sash will be clear of the guide channel at the opposite edge so as to permit removal of the sash. When the sash is removed, there must be some means for stopping the outward movement of the channels so that the channels will remain in place in the window frame. It is also necessary that there be springs mounted in some manner between the jamb and the channel so as to bias the channels outwardly into engagement with the sash so as to maintain tight engagement with the sash. All of these objects are obtained by the construction best shown in Fig. 2. As there shown, the inner surface of web 4 has a tongue and groove element 9 in which are fixed wells 10. Each of the wells has its bottom wall 11 terminating substantially in the plane of the inturned flanges 8. There will ordinarily be two or three of these wells spaced along the guide channels, the larger number being necessary for heavier window sash. Extending through the bottom walls 11 of the wells are screws 12 having heads 13 which are normally spaced from the bottom walls 11 and which limit the outward movement of the channels away from the jamb. The screws are threaded into the jamb and provide a convenient means for attaching the channels to the jamb. On each of the wells 10 is a coil spring 14 having the major portion of its length made up of turns of diameter less than the spacing between the flanges 8 and greater than the width of the tongue and groove element 9. When the spring is in its operating position, the ends 15 and 16 respectively rest on the jamb 1 and on the inner wall surfaces of the guide

channels on each side of the tongue and groove element 9. The relatively large diameter of the coils of the spring provide stability so the turns of the spring do not tend to tilt or cock and interfere with the screws 12. In order to fasten the coil springs 14 in place, at the inner end 16 there are spiral convolutions 18 terminating in one or more turns 19 of slightly smaller inside diameter than the outside diameter of the wells 10. The turns 19 provide a tight grip on the wells which fasten the springs in place. This is desirable because the springs are on the inside of the channels and unless securely held in place might become dislodged while the channels were being assembled to the window frame. Since the spiral convolutions 18 are limited to a few turns, the stiffness of the spring is not affected. The springs will have essentially uniform spring characteristics independent of deflection.

Because the springs are very easy to assemble, the assembly of the springs can be delayed until the guide channels are to be installed in a window frame. At that time the size of the window will be known and springs of the desired stiffness can be selected. That is, by assembling springs of three stiffnesses, the same guide channels can be used for small, medium and large sized windows.

What is claimed as new is:

1. In a window frame having jambs, a floating metal guide channel on one of the jambs having a web spaced from said one jamb with the center part of the web formed to a tongue and groove member for mating with a sash and guiding its opening and closing movement, the channel having side flanges extending inward from the web toward the jamb, a plurality of cup-shaped wells fixed to the tongue and groove member and extending inward toward the jamb with the bottom walls of the wells between the side flanges and having screw holes therein, screws extending through the holes into the jamb and having heads within the wells in all positions of the channel and normally spaced from the bottom walls of the wells, and coil springs surrounding the wells and extending from the inner side of the web to the jamb to bias the channel away from the jamb, said springs having small diameter turns at one end telescoped over and gripping the wells to support the springs and larger diameter turns spaced from the side walls of the wells.

2. In a window frame having jambs, a floating metal guide channel on one of the jambs having a web spaced from said one jamb with the center part of the web formed to a tongue and groove member for mating with a sash and guiding its opening and closing movement, the channel having side flanges extending inward from the web toward the jamb, a plurality of cup-shaped wells fixed to the tongue and groove member and extending inward toward the jamb with the bottom walls of the wells between the side flanges and having screw holes therein, screws extending through the holes into the jamb and having heads within the wells in all positions of the channel and normally spaced from the bottom walls of the wells, and coil springs surrounding the wells and extending from the inner side of the web to the jamb to bias the channel away from the jamb, said springs having turns of diameter greater than the width of the tongue and groove member providing the biasing force on the channel and said springs at the ends adjacent the web having a spiral configuration terminating in turn telescoped over and gripping the wells to support the springs.

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