Jan. 20, 1942. C. F. KRUEGER 2,270,315

WINDOW

Filed Feb. 16, 1940 3 Sheets-Sheet 1

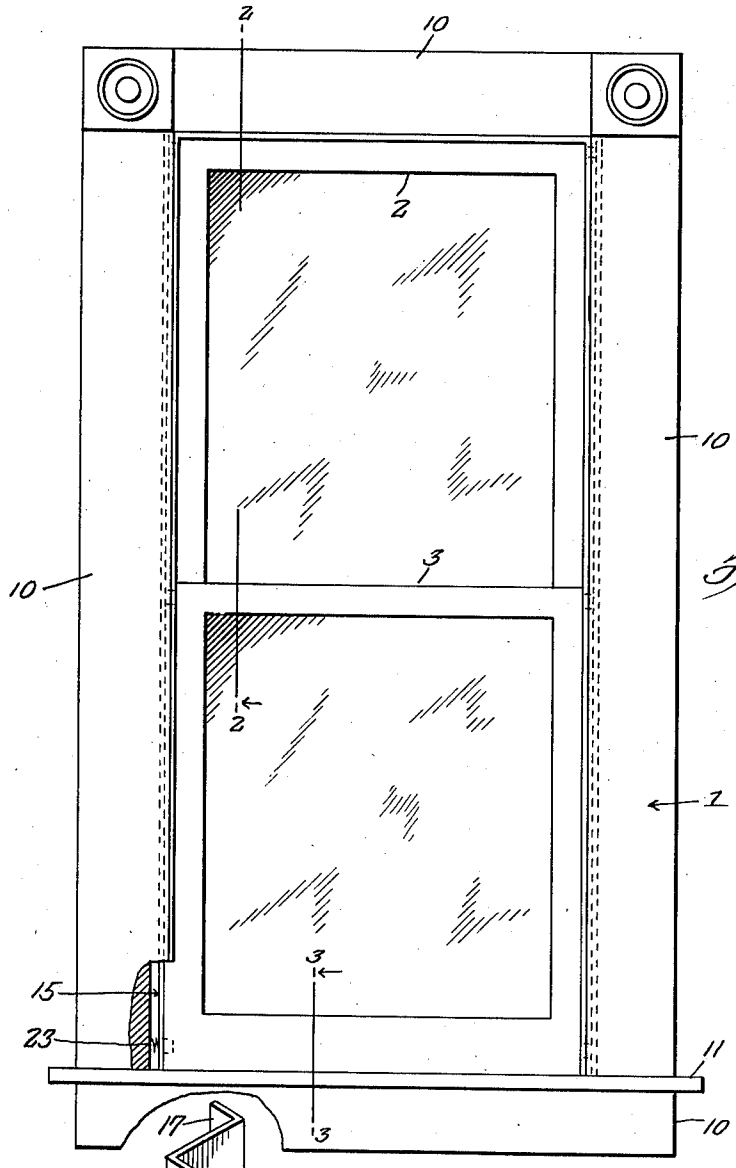


Fig. 1.

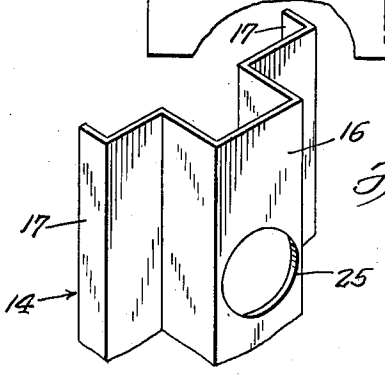


Fig. 6.

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WINDOW

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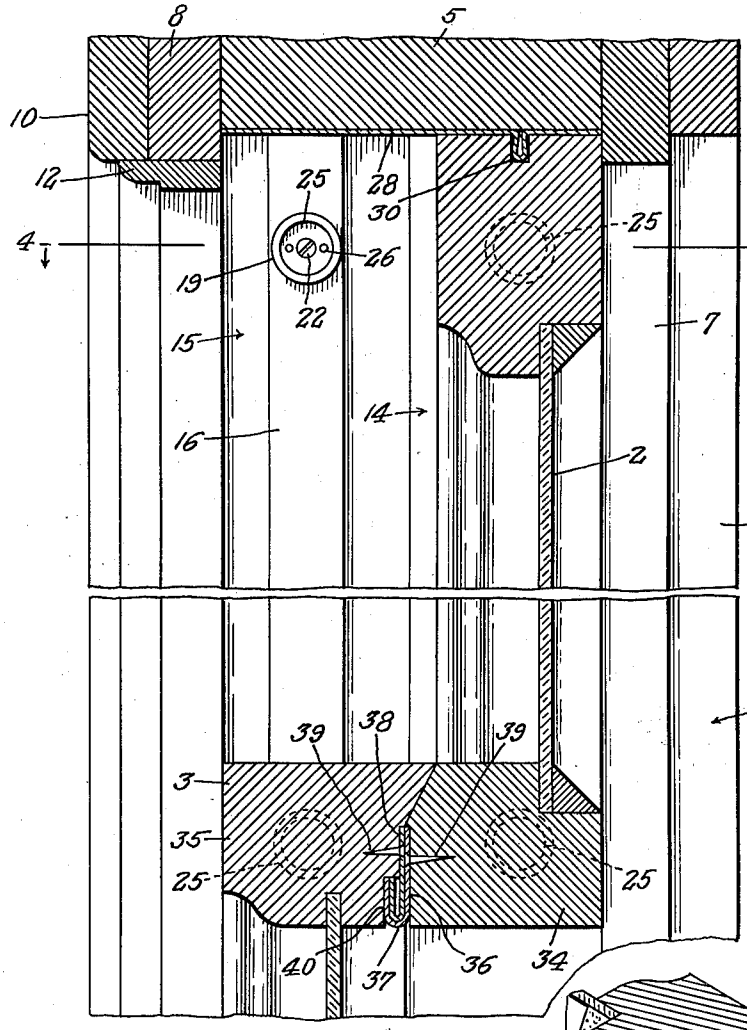


Fig. 2.

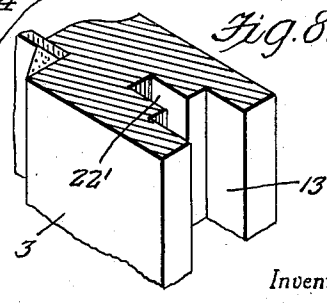


Fig. 8.

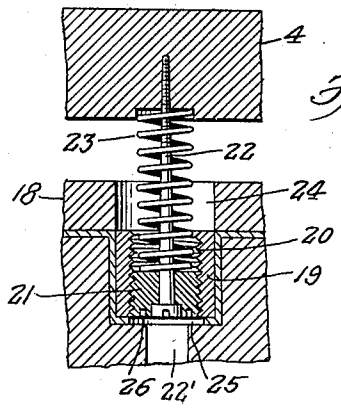


Fig. 5.

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WINDOW

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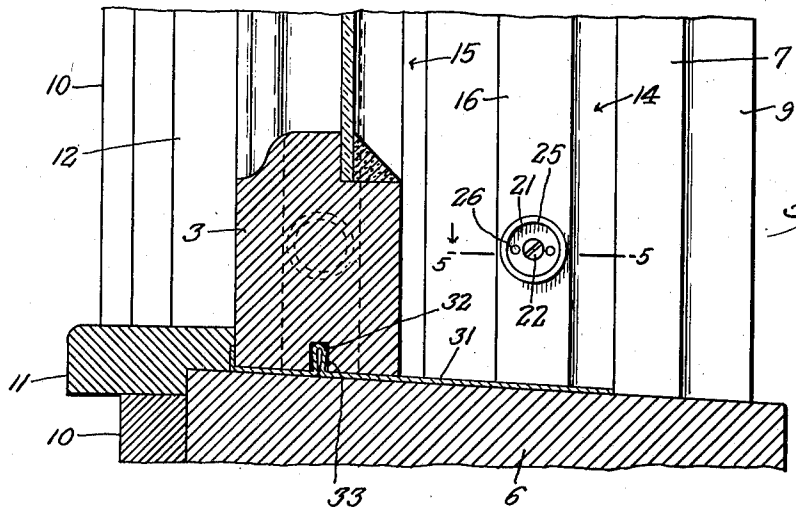


Fig. 3.

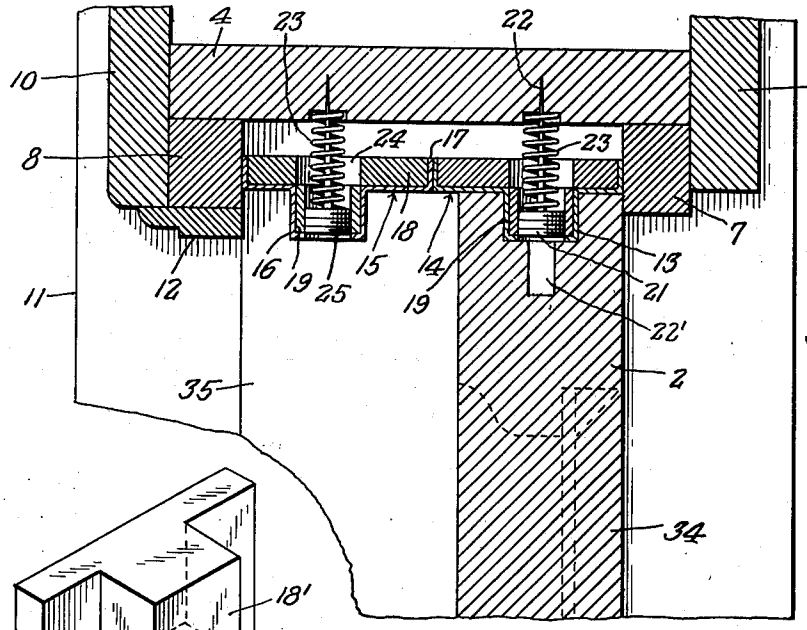


Fig. 4.

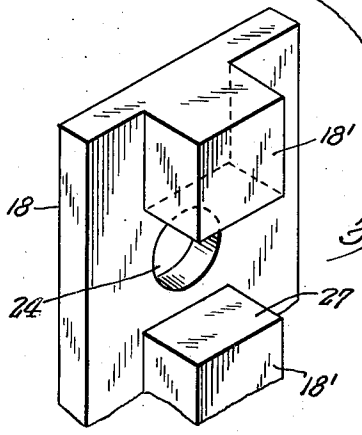


Fig. 7.

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2,270,315

UNITED STATES PATENT OFFICE

2,270,315

WINDOW

Carl F. Krueger, Detroit, Mich.

Application February 16, 1940, Serial No. 319,361

1 Claim. (Cl. 20—12)

My invention relates to improvements in windows of the sliding wood sash type and more particularly to weatherstripping therefor.

The invention is designed with the particular purpose in view of providing a window of the type indicated which is completely weatherstripped and so that the sashes may be easily and quickly removed from the frame without detaching any part of the latter, whereby said sashes may be quickly and easily cleaned from either the inside or outside of the house, and without necessitating climbing on chairs, ladders and the like.

To the accomplishment of the above, and subordinate objects presently appearing, a preferred embodiment of my invention has been illustrated in the accompanying drawings, set forth in detail in the succeeding description and defined in the claim appended hereto.

In said drawings:

Figure 1 is a view in elevation of a window equipped according to the preferred form of my invention, looking at the window from the inside thereof,

Figure 2 is a fragmentary view in vertical section taken on the line 2—2 of Figure 1 looking in the direction indicated by the arrows, drawn to an enlarged scale, and partly broken away.

Figure 3 is a similar view taken on the line 3—3 of Figure 1 looking in the direction of the arrows,

Figure 4 is a fragmentary view in transverse section taken on the line 4—4 of Figure 2, looking downwardly,

Figure 5 is a detail view in transverse section taken on the line 5—5 of Figure 3 looking downwardly,

Figure 6 is a fragmentary view in perspective of one of the side weather-strips, and

Figure 7 is a similar view of the filler strip for the side weather-strip.

Referring to the drawings by numerals, the window to which my invention is shown as applied is of the usual sliding wood sash type and includes a frame designated as a unit by the numeral 1 and upper and lower vertically slidable sashes 2 and 3. The frame 1 comprises the usual side stiles 4, head stile 5, sill 6, outer and inner sash guides 7, 8, outer blind stop strips 9, inner trim, 10, stool cap strip 11, and inner stop strips 12.

According to my invention the sashes 2, 3, are rabbeted centrally along their sides to provide transversely square guide grooves 13 extending from top to bottom thereof. Adjacent each side stile 4 and spaced inwardly therefrom is a pair of outer and inner weather-strips, as at 14, 15, of sheet metal, for the upper and lower sashes 2, 3, respectively, extending vertically from the sill 6 to the head stile 5. Each side weather-strip 14, 15, is formed with a longitudinally extending hollow rib 16 on its inner face conforming transversely to the contour of the groove 13 of the related sash and fitting therein so as to form a vertical guide upon which the sash slides, said strip being flat upon each side of the rib 16 to fit flush against the side of the sash upon each side of the groove 13 thereof and having right-angled side edge flanges 17, turned outwardly toward the side stile. As best shown in Figure 4, the side weather-strips 14, 15, of each pair are of the proper width to fit between the outer and inner sash guides 7, 8, in side-by-side engaging relation. A filler strip 18 of wood is provided in each side weatherstrip 14, 15, to fit between the flanges 17 thereof flush with the edges of the flanges and extending from end to end of said weather-strip, said filler strips being provided with a rib 18′ fitting into the rib of the side weather-strip.

Each side weather-strip 14, 15, is secured to the adjacent side stile 4 at three points, to wit, adjacent the upper and lower ends thereof and at its approximate center for yielding movement under pressure toward said stile. For this purpose upper, lower and intermediate bushings, as at 19, are suitably secured in the rib 16 of the weather-strip, said bushings being disposed axially horizontally therein and internally threaded, as at 20, to receive axially bored plugs, as at 21, turned therein. A headed screw 22 extends horizontally through the bore of each plug 21 into the side stile 4. A coil spring 23 surrounds each screw 22, being interposed between the side stile 4 and plug 19 so that it urges the weather-strip 14, 15, into the groove 13. The filler strip 18 is apertured, at suitable points, as at 24, to accommodate the bushings 19 which extend thereinto. The plugs 21 are located in the outer ends of the bushings 19, likewise the heads of the screws 22, so that the weather-strips 14, 15, may be pressed outwardly on either side of the sashes 7, 8, toward the adjacent side stiles 4 sufficiently to permit the sash grooves 13 on the other side of the sashes to be disengaged from the ribs 16 of the side weather-strips at said other side of said sashes. The ribs 16 are apertured axially of the bushings 19, as shown at 25, for the insertion of a suitable tool into the bushings 19 in the sockets 26 formed in the bushings, where-

by the bushings 19 may be turned to adjust the tension exerted by the springs 23. As shown in Figure 7, the ribs 18' of the filler strips 18 are cut out, as at 27, to accommodate the bushings 19. The side edges of the sashes 2, 3, are grooved vertically as at 22', to accommodate the screws 22 when the sashes are moved toward the stiles 4.

A plate-like weather-strip 28 of sheet metal is suitably secured to the under face of the head stile 5, said strip being of the proper size to fit between the side weather-strips 14, 15, and the outer and inner sash guides 7, 8, and being crimped to provide a depending tongue 29 extending transversely of the window and fitting into a square groove 30 extending centrally along the top of the upper sash 2.

Another plate-like weather-strip 31, similar to strip 28, is suitably secured to the top of the sill 6, said strip 31 fitting between the side weather-strips 14, 15, and between the outer sash guide 7 and the stool cap strip 11 and being crimped to provide a transversely extending tongue 32 upstanding from the strip and fitting into a groove 33 extending centrally along the bottom of the lower sash 3.

The meeting rails 34, 35 of the upper and lower sashes 7, 8 are equipped as follows. On the front face of the meeting rail 34 of the upper sash 7 is a sheet metal weather-strip 36 extending along said rail and provided with a lower forwardly and upwardly turned hooked lower edge 37. A similar strip 38 is provided on the rear face of the meeting rail 35 of the lower sash 3, and which is adapted to fit in the edge 37 of the strip 36 when the lower sash is lowered. Conversely, as will be clear, the edge 37 of the strip 36 will fit around the corresponding edge of the strip 38 when the upper sash is raised relative to the lower one. The strips 36, 38 are nailed, as at 39, to their respective rails and the rail 35 is rabbeted, as at 40, along its lower outer edge to accommodate the described fitting edges of the strips 36, 38.

As will now be manifest, when it is desired to remove either sash 2, 3, the sash is first slid in the proper direction to break the connection between the strips 36, 38 and the tongue 29, or tongue 32, as the case may be, and then forced sidewise toward one side stile 4 against the related side weather-strip, 14, 15, adjacent said stile. Under the pressure thus exerted by said sidewise movement of the sash against the related side weather-strip 14, 15, as the case may be, said weather-strip may be yieldingly forced toward said side stile sufficiently to permit the groove 13 at the other side of the sash to be moved clear of the rib 16 of the side weather-strip at said other side of said sash. At this point, the sash may be swung laterally in whichever direction is convenient, on the rib 16 of the side weather-strip 14, 15, being yieldingly pressed and into proper position to be pulled off said rib. In replacing the sash, the procedure described in removal is reversed, as will be clear.

Thus, as will be obvious, the sashes 2, 3, when closed are completely weather-stripped and either may be detached, or removed, without detachment of any part of the window frame and from either outside or inside of the windows.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention without further explanation.

Manifestly the invention, as described, is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the subjoined claim.

What I claim is:

A metal weather-strip and guide for attachment to the side stile of a window frame to seal and guide the side edge of a sash having a vertical groove in said edge, said strip comprising a transversely square hollow rib extending outwardly along the same centrally thereof for fitting in said groove and having an open rear side, flat sash engaging portion upon opposite sides of said rib, and means to attach said strip to said stile in upright position for yielding movement toward said stile comprising bushings secured in said rib and spaced apart lengthwise thereof, axially bored plugs threaded into said bushings, screws slidably extended through said plugs, and coil springs surrounding said screws and bearing against said plugs and stile.

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