

April 3, 1956

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2,740,171

WINDOW TRACK AND WEATHER STRIP

Filed Aug. 6, 1951

3 Sheets-Sheet 1

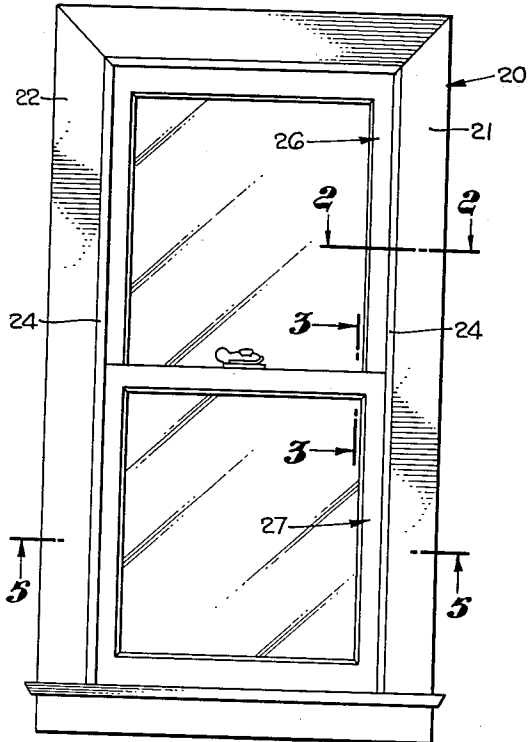


FIG. 1.

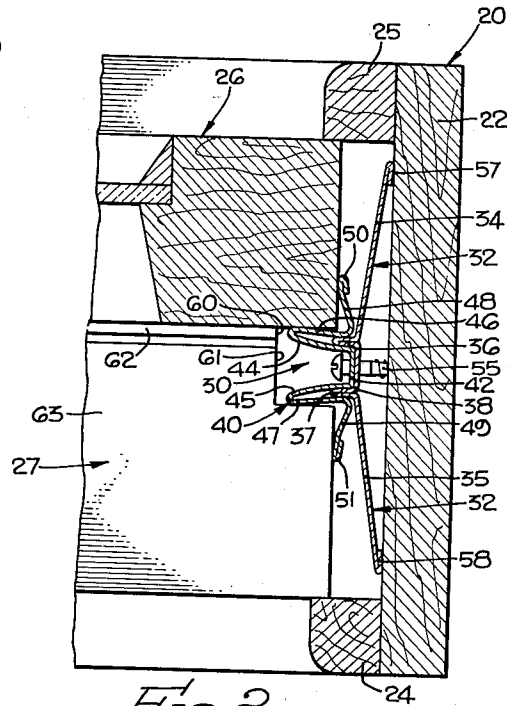


FIG. 2.

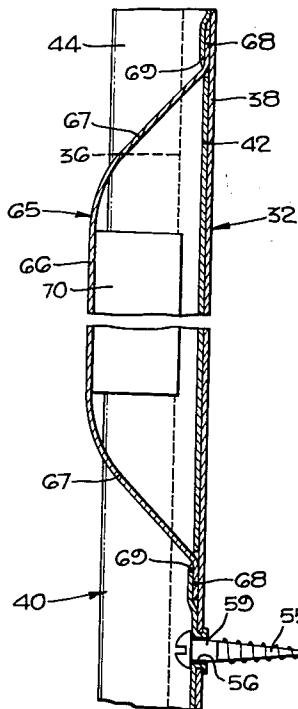


FIG. 3.

FIG. 4.

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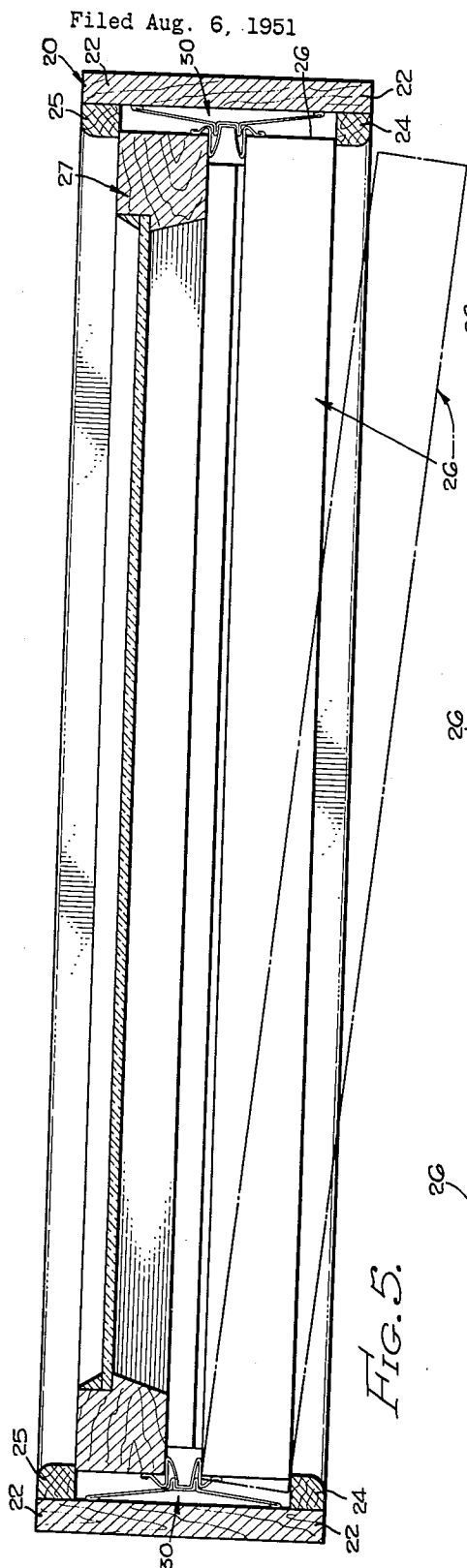


FIG. 5.

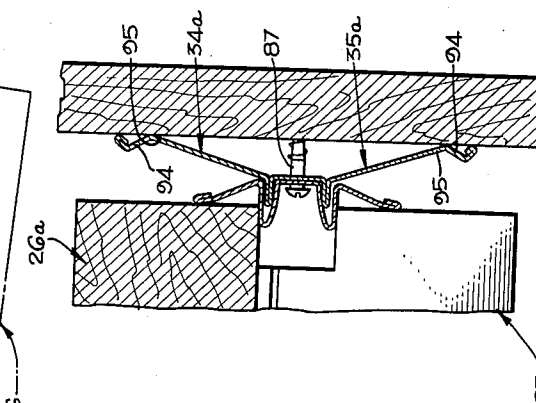


FIG. 11.

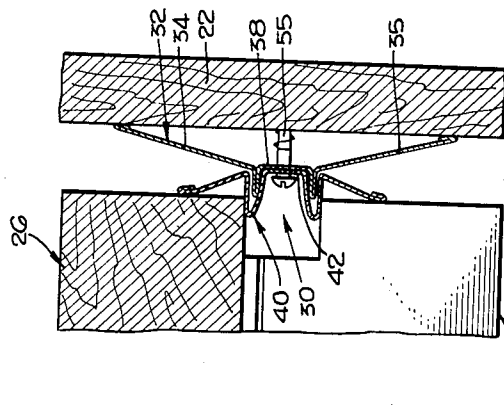


FIG. 7.

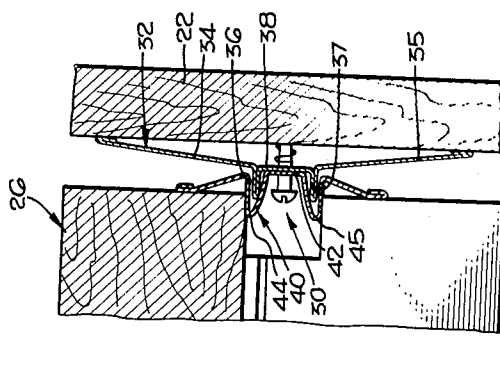


FIG. 6.

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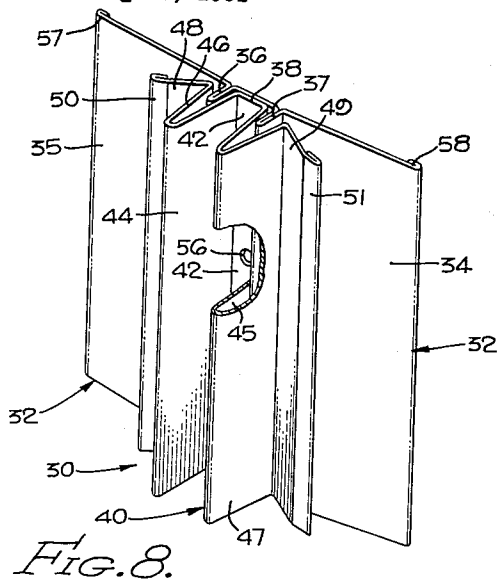
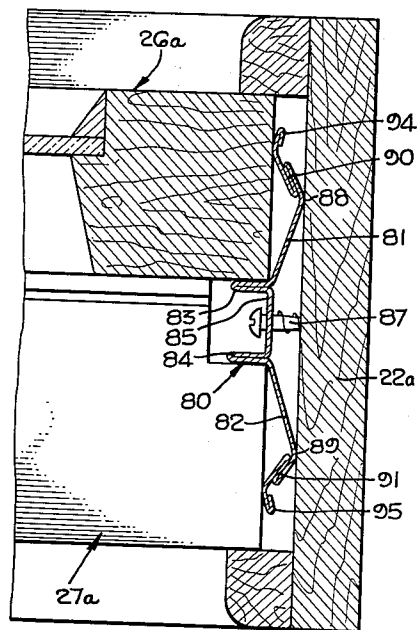
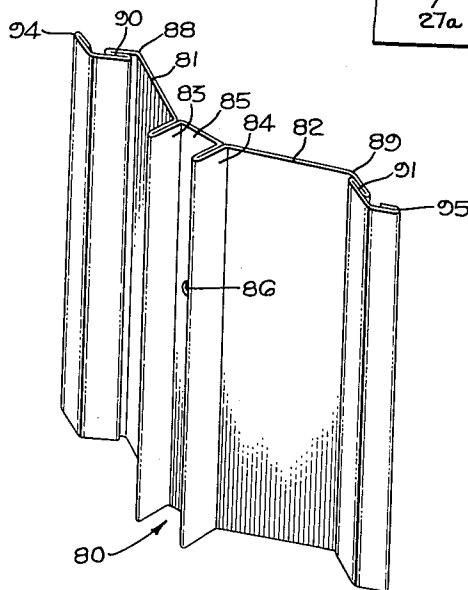
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WINDOW TRACK AND WEATHER STRIP

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3 Sheets-Sheet 3



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WINDOW TRACK AND WEATHER STRIP

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Application August 6, 1951, Serial No. 240,577

6 Claims. (Cl. 20—52.4)

This invention relates to window constructions and has particular reference to an improved window track and weather strip.

One of the principal objects of my invention is to provide a novel window track and weather strip for windows of the sliding sash type.

Another object of this invention is to provide a novel window track and weather strip so constructed as to permit easy movement of the sash during opening and closing of the window, yet which frictionally contacts the sash to seal the same against the passage of air around or between the sash sections.

Another object of this invention is to provide a window track and weather strip construction which eliminates the necessity for sash balances except on very large and heavy windows and which permits the use of only a single sash balance on such large windows, where commonly two balances are required.

Another object of this invention is to provide a flexible window track and weather strip so constructed as to permit installation in and removal of the window sash from the window frame without the use of tools and without disassembly of any portion of the frame or sashes.

Another object of this invention is to provide a flexible window track and weather strip incorporating therewith a longitudinal parting stop or bead, thus eliminating the necessity of grooving the window sash and installing the conventional parting stop in the window frame.

A further object of this invention is to provide a window track and weather strip of flexible construction which automatically compensates for the dimensional variations in the window which are generally present and which initially are due to construction procedures and subsequently to warpage and the like.

Yet another object of this invention is to provide a window track and weather strip having a central section forming a parting stop which adds to the strength of the construction and which is shaped to permit easy and quick assembly and installation.

Another object of this invention is to provide a device of the character described which is adapted to be fitted to all conventional windows.

Another object of this invention is to provide a window track and weather strip of spring construction having means for adjusting the amount of spring action therein.

Other objects and advantages of this invention it is believed will be readily apparent from the following detailed description of preferred embodiments thereof when read in connection with the accompanying drawings.

In the drawings:

Figure 1 is a front elevation of a window assembly embodying the invention.

Figure 2 is a sectional elevation taken substantially on the line 2—2 of Figure 1.

Figure 3 is a sectional elevation taken substantially on the line 3—3 of Figure 1.

Figure 4 is a sectional elevation taken substantially on the line 4—4 of Figure 3.

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Figure 5 is a sectional elevation taken substantially on the line 5—5 of Figure 1.

Figure 6 is a sectional elevation similar to Figure 2 but with the window frame removed.

Figure 7 is a sectional elevation similar to Figure 6 but illustrating another position of the window track and weather strip.

Figure 8 is a perspective view of the preferred form of window track and weather strip.

Figure 9 is a horizontal sectional elevation illustrating a modified form of the invention.

Figure 10 is a perspective view of the modification illustrated in Figure 9.

Figure 11 is a horizontal sectional elevation of a further modified form of my invention.

Referring now to the drawings, and particularly to Figures 1—8, the conventional window assembly 20 illustrated in Figure 1 includes a frame 21 having a pair of jambs 22, each having secured thereto inside and outside stop members 24 and 25, respectively, and the assembly further includes upper and lower sash members 26 and 27 slidably mounted between the jambs and adjacent the inside and outside stops.

Disposed between each end of the sash members and the adjacent jamb 22 are the window track and weather strip assemblies generally indicated 30, each of which is formed of resilient material such as, for example, resilient sheet metal or the like. The assemblies 30 include an elongated jamb cover 32 shaped in cross-section to provide a pair of inclined inwardly-converging wings 34 and 35 which merge into longitudinal rib portions 36 and 37, respectively. The spaced rib portions 36 and 37 define therebetween a longitudinal recessed channel 38 in which is mounted the cap member 40. Formed centrally of the cap member is a flat base portion 42 adapted to nest in the channel 38 between the rib portions 36 and 37 and extending upwardly from the base portion are a pair of inner legs 44 and 45 which are bent over to form outer legs 46 and 47. Integral with the outer legs are upwardly and outwardly inclined wing portions 48 and 49, the marginal edges of which are bent at an angle to form flattened bead portions 50 and 51.

The cap member 40 is secured to the jamb cover 32, preferably by spot welding the base portion 42 to the channel 38. The assemblies are mounted on the jambs by means of wood screw members 55 extending through suitably spaced oversize apertures 56 in the base portions and channels. The marginal edges of the cover wings 34 and 35 are crimped to form bead portions 57 and 58 for easy sliding contact on the jamb surfaces. It will be understood that the amount of tension in the jamb covers may be adjusted by varying the position of the screw members with respect to the jamb surface; and it will be further noted that the screw members are provided with unthreaded shank portions 59 permitting free flexing of the assemblies 30 with respect thereto.

As shown clearly in Figure 2, each sash member 26, 27 is contacted by a portion of one of the outer legs 46, 47 and also by a portion of one of the wing portions 48, 49, which, due to the spring construction thereof, form a highly efficient seal against the entrance or exit of air and dust and which prevent rattling of the sash members within the jambs. The arrangement of the inner legs 44 and 45 and the wing portions 48 and 49 is such that the major spring action is in a direction perpendicular to the jambs, but additional spring tension is provided by the legs 46 and 47 which act as a parting bead or stop and which further tend to urge the sash members outwardly and inwardly against the respective stop members 24 and 25.

In accordance with this invention, the sash members are of a width approximately $\frac{1}{2}$ inch less than the dis-

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tance between the jambs. With the employment of two spring members, namely the jamb cover 32 and cap member 40, the maximum possible deflection of the assembly is obtained. Referring now to Figure 5, it will be understood that this maximum deflection, together with the reduced sash size, permits the sash members to be readily removed from the window frame without disassembly of any of the component parts thereof. This is accomplished by bodily moving the sash member toward either one of the jambs 22 until the end of the sash member clears the end of the corresponding stop member. The sash member may then be pivoted to the position shown by the phantom lines, from which position it may be entirely removed from the window frame. This feature of the invention enables simple and easy removal of the sash members for the purpose of cleaning or repair. In addition, with regard to initial installation, this feature permits the delivery and installation of the complete window frame prior to the delivery and installation of the sash members.

The assemblies 30 are designed so that there is generally a relatively small area of contact with the sash members to provide a relatively high unit pressure thereagainst, forming an effective seal and maintaining the sash in the desired raised or partly raised position; yet the smooth metal-to-wood contact permits the sash members to be easily raised and lowered, as desired. Moreover, means are provided whereby the amount of bearing surface area may be varied depending upon the size and weight of the particular sash members. The wing portions 48 and 49 and the flattened bead portions 50 and 51 are disposed at such angles that, as shown in Figure 6, the entire surface area of each of the bead portions may be in contact with its respective sash member. This is desirable in the case of relatively heavy windows so that the maximum amount of frictional resistance may be obtained to maintain the sash member in the desired raised position without the use of sash balances, or at most with the use of only a single sash balance. In the case of smaller and lighter windows, less frictional resistance is required, and as shown in Figure 7, the assemblies 30 may be adjusted and, if desired, the clearance between sash and jamb may be increased so that the wings 48 and 49 are under less tension and a minimum surface area of contact between the bead portions and sash members is obtained.

The jamb covers 32, in addition to cooperating with the cap members 40, as pointed out above, also serve to hide the wood of the jambs 22 which may therefore be constructed of a less expensive grade of wood, from an appearance standpoint, than is generally required. It should be further pointed out that the rib portions 36 and 37 serve to stiffen the elongated cover members 32, provide a channel for facilitating assembly of the covers and cap members 40, and assist in the support of the cap members.

As shown in Figure 2, the ends 60 and 61 of the sash check rails 62 and 63, respectively, are recessed to provide clearance with the cap members 40. Means are provided for sealing the opening thus formed between the check rail ends 60 and 61 and the cap members 40 when the sash members are in the closed position shown in Figure 1. As shown in the drawings, particularly Figures 3 and 4, these means may include the plug members 65, one on each side, formed of resilient sheet material. The central portion 66 of each of the plug members is substantially parallel to the base portion 42 of the cap member 40 and is spaced therefrom a distance to provide a tight fit against the ends 60 and 61. Integral with each end of the central portion is a downwardly extending leg member 67, each leg member being provided with a reduced end portion 68 adapted to be inserted in a transverse slot 69 in the base portion 42 to secure the plug member in place. Extending from each side of the central portion 66 is a web element 70 providing strength

and insuring against the leakage of air or dust through the opening. It will be understood that the plug member is sufficiently resilient to permit easy closing of the window while maintaining a firm contact with the ends 60 and 61.

In addition to the advantages of the device enumerated above, it should be pointed out that with straps made in accordance with this invention, free sliding of the sash is obtained at all times. This is not affected by swelling or warping of the wood frames, nor are the sash members subject to binding or "cocking" when they are pulled from a point at one side of the center.

A modified form of my invention is illustrated in Figures 9 and 10. The window track and weather strip 80 illustrated therein is designed for use in windows where it is not desired to provide removable sash members and, hence, here the sash members 26a and 27a are only 1/4" less in width than the jamb spacing, in accordance with conventional practice. The member 80, like the jamb cover 32, is shaped in cross section to provide a pair of inclined, inwardly-converging wings 81 and 82, which merge into longitudinal rib portions 83 and 84, respectively. Defined therebetween is a recessed, longitudinal channel 85 provided with a plurality of apertures 86 for the reception of wood screws 87.

The outer ends 88 and 89 of each of the wings 81 and 82 contact the jamb 22a and integral therewith are upwardly and outwardly inclined leg members 90 and 91. These members are S-shaped or formed with a pair of return bends to provide additional resiliency. The outer ends of the leg members contact the sash members 26a, 27a and are bent downwardly and formed into bead portions 94 and 95. This structure has all the advantages of the previously described assembly 30, with the exception that somewhat less deflection of the member 80 is obtained, and, consequently, the clearance between the sash and jamb must be less. Due to the spring action of the wings 81 and 82, and leg members 90 and 91, the window is tightly weather stripped, yet may be easily opened and closed. Here again, no sash balances are required except on very large windows, and here again the tension of the spring action may be adjusted by movement of the wood screws in a direction to cause greater or less deflection of the wings and leg members.

The modified form of my invention illustrated in Figure 11 is substantially identical with the embodiment illustrated in Figures 1-8, with the exception that the wings 34a and 35a are modified by forming the outer ends 94 and 95 in inverted V-shapes. The shorter effective length of the wings provides a stronger spring action with the same gauge of material, yet the overall width of the jamb cover is the same by reason of the V-shaped ends 94 and 95.

While I have shown and described specific embodiments of my invention, I do not limit myself to the exact details of the constructions set forth, and the invention embraces such changes, modifications and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

I claim:

1. In a window track and weather strip, an elongated jamb cover having a pair of inclined, inwardly-converging wings, each of said wings terminating in a longitudinal rib member, said rib members defining therebetween a longitudinal channel; and an elongated cap member secured to said jamb cover, said cap member including a base portion adapted to nest in the channel, a pair of leg members extending upwardly from each side of the base portion, and a pair of inclined, outwardly diverging wing portions, one of said wing portions connected with each of said leg members.

2. In a window, the combination with a frame having laterally spaced substantially parallel inner and outer stops rigidly secured thereto, and inner and outer sash

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members vertically slidably positioned in said frame between said stops, of an elongated jamb cover positioned between said stops, said jamb cover having a pair of inclined, inwardly-converging wings, each of said wings terminating in a longitudinal rib member, said rib members defining therebetween a longitudinal channel; and an elongated cap member secured to said jamb cover, said cap member including a base portion adapted to rest in the channel, a pair of leg members extending upwardly from each side of the base portion, and a pair of inclined, outwardly diverging wing portions, one of said wing portions connected with each of said leg members and adapted to contact the sash members in sealing contact therewith.

3. In a window track and weather strip, an elongated jamb cover having a pair of inclined, inwardly-converging wings, the inward portion of each of said wings terminating in a longitudinal rib member, said rib members defining therebetween a longitudinal channel, the exterior portion of said wings being of inverted V-shape; and an elongated cap member secured to said jamb cover, said cap member including a base portion adapted to nest in the channel, a pair of leg members extending upwardly from each side of the base portion, and a pair of inclined, outwardly diverging wing portions, one of said wing portions connected with each of said leg members.

4. In a window, the combination with a frame having laterally spaced substantially parallel inner and outer stops rigidly secured thereto, and inner and outer sash members vertically slidably positioned in said frame between said stops, of an elongated jamb cover positioned between said stops, said jamb cover having a pair of inclined, inwardly-converging wings, the inward portion of each of said wings terminating in a longitudinal rib member, said rib members defining therebetween a longitudinal channel, the exterior portions of said wings being of inverted V-shape; and an elongated cap member secured to said jamb cover, said cap member including a base portion adapted to rest in the channel, a pair of leg members extending upwardly from each side of the base portion, and a pair of inclined, outwardly diverging wing portions, one of said wing portions connected with each of said leg members and adapted to contact the sash members in sealing contact therewith.

5. In a window, the combination with a frame having laterally spaced substantially parallel inner and outer stops rigidly secured thereto, and inner and outer sash

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members vertically slidably positioned in said frame between said stops, of an elongated jamb cover positioned between said stops, said jamb cover having a pair of inclined, inwardly-converging wings, the inward portion of each of said wings terminating in a longitudinal rib member, said rib members defining therebetween a longitudinal channel, the exterior portions of said wings being of inverted V-shape; an elongated cap member secured to said jamb cover, said cap member including a base portion adapted to rest in the channel, a pair of leg members extending upwardly from each side of the base portion, and a pair of inclined, outwardly diverging wing portions, one of said wing portions connected with each of said leg members and adapted to contact the sash members in sealing contact therewith; and screw members inserted through spaced apertures in said channel and said base portion, said screw members adjustably securing said jamb cover and said cap member on said frame.

6. In a window, the combination with a frame having laterally spaced substantially parallel inner and outer stops rigidly secured thereto, and inner and outer sash members vertically slidably positioned in said frame between said stops, of an elongated jamb cover positioned between said stops, said jamb cover having a pair of inclined, inwardly-converging wings, each of said wings terminating in a longitudinal rib member, said rib members defining therebetween a longitudinal channel; an elongated cap member secured to said jamb cover, said cap member including a base portion adapted to rest in the channel, a pair of leg members extending upwardly from each side of the base portion, and a pair of inclined, outwardly diverging wing portions, one of said wing portions connected with each of said leg members and adapted to contact the sash members in sealing contact therewith; and screw members inserted through spaced apertures in said channel and said base portion, said screw members adjustably securing said jamb cover and said cap member on said frame.

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