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WINDOW CONSTRUCTION
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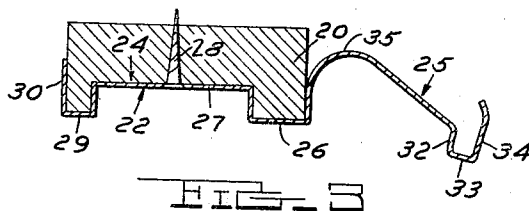
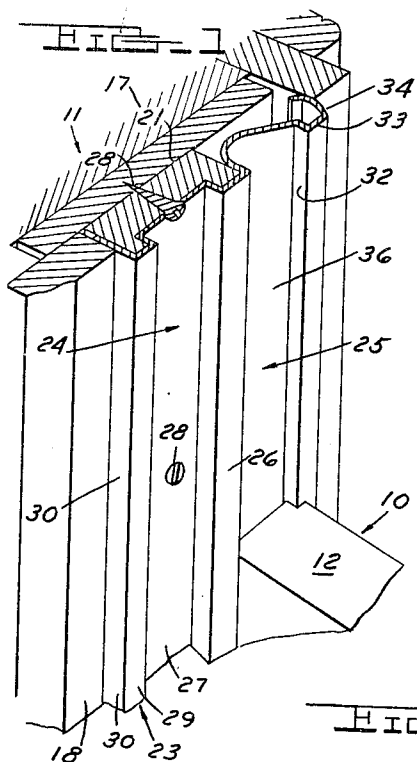


FIG. 4

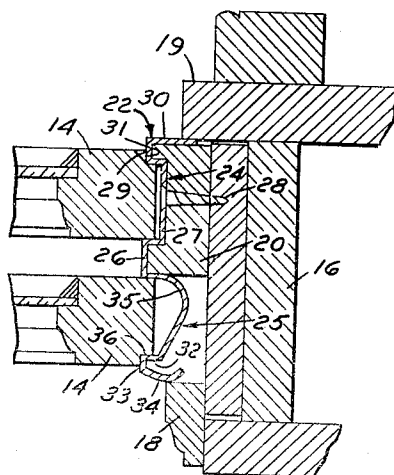
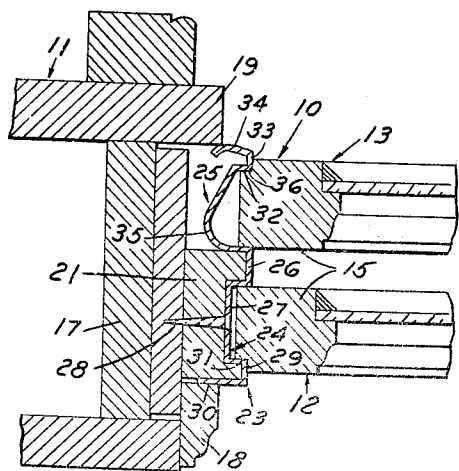
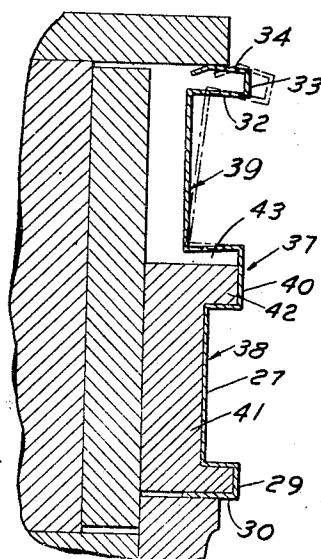


FIG. 2

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WINDOW CONSTRUCTION

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This invention relates generally to window constructions and refers more particularly to improvements in a combined sash guide and weatherstrip for windows of the so-called double-hung type having laterally spaced vertically slidable sashes.

It is an object of this invention to provide a combined sash guide and weatherstrip having a fixed guide part for sliding engagement with one side edge of a sash and having a flexible wing part slidably engageable with the corresponding side edge of an adjacent sash. In accordance with the present invention the wing part performs four major functions, which are (1) yieldably urges the adjacent sash laterally of the window casing into frictional engagement with a guide on the jamb opposite the jamb adjacent the flexible wing part; (2) urges the sash against the parting stop usually provided between the sashes; (3) allows sufficient lateral displacement of the sash engaged thereby to enable quickly removing said sash without detaching any part of the window assembly; and (4) permits expansion and contraction of the sash and/or casing without interfering with free sliding movement of the sash or affecting in any way the weather sealing efficiency of the window structure.

It is another object of this invention to provide a combined sash guide and weatherstrip of the above general type wherein the guide part and the flexible wing part are integrally connected by an intermediate section which is shaped to act as a parting stop between the adjacent sashes.

It is still another object of this invention to provide a combined guide and weatherstrip wherein the wing part has a portion adjacent the parting stop shaped to have a rolling engagement with an adjacent fixed portion of the window casing. Thus, any stresses resulting from continued flexing of the wing part are distributed over a substantial area of said part and the tendency for the latter to break or crack is reduced to a minimum.

It is a further object of this invention to provide a construction wherein combined sash guides and weatherstrips of the foregoing construction are respectively installed at opposite sides of the casing in reversed relationship and this feature as well as the foregoing and other objects will be made more apparent as this description proceeds especially when considered in connection with the accompanying drawing, wherein

Figure 1 is a fragmentary perspective view of a window assembly embodying the features of this invention;

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Figure 2 is a cross sectional view through the window assembly;

Figure 3 is an enlarged cross sectional view of a part of the window assembly and illustrating a combined guide and weatherstrip constructed in accordance with this invention; and

Figure 4 is a fragmentary cross sectional view showing a modified form of construction.

Referring more in detail to the drawing, the numeral 10 designates a double-hung window of the sliding sash type comprising a casing 11, an inner sash 12, and an outer sash 13. Each sash has a first vertically extending side bar 14 and a second vertically extending side bar 15. The side bars are respectively connected at opposite ends by cross bars which are not shown herein.

The casing 11 comprises a first jamb 16 positioned adjacent the first side bars 14 of the sashes and a second jamb 17 positioned adjacent the second side bars 15 of the sashes. Each jamb has a stop 18 secured thereto at the inner side of the inner sash 12 and has a second stop 19 secured thereto at the outer side of the outer sash 13. Also, a filler block 20 is secured to the laterally inner face of the jamb 16 at the inner side of the stop 19 and in registration with the side bar 14 of the outer sash 13. A similar filler block 21 is secured to the laterally inner face of the jamb 17 at the inner side of the stop 18 and in registration with the side bar 15 of the inner sash 12.

In accordance with conventional practice, the sashes are supported within the casing 11 in side by side relationship for relative sliding movement in a vertical direction. The sashes are guided throughout their vertical travel by combined guide and weatherstrip elements 22 and 23 respectively. The combined sash guide and weatherstrip elements are preferably formed of sheet metal capable of being rolled or otherwise inexpensively fashioned to the cross sectional contour shown and having the required resiliency.

The element 22 comprises a guide part 24 and a flexible wing part 25 integrally joined together by a laterally outwardly opening channel-shaped intermediate section 26. In assembly the section 26 projects between the sashes and serves as a parting stop. The guide part 24 has a laterally inwardly opening channel section 27 which is seated in a recess formed in the laterally inner face of the filler block 20 and is secured to the jamb 16 by fastener elements 28 which may also be used for the purpose of securing the filler block 20 in place. The outer flange of the channel 27 is extended outwardly over the adjacent

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portion of the block 20 to provide a flange 29 and is then turned in a direction toward the jamb 16 to provide a flange 30. The flange 30 projects along the outer edge of the block 20 and extends into a space provided between the stop 19 and the adjacent surface of the block 29.

As shown particularly in Figure 2 of the drawing, the side bar 14 of the outer sash 13 projects into the channel 27 and the outer corner of the side bar 14 is fashioned with a vertically extending rabbeted portion 31. The adjacent walls of the rabbeted portion 31 respectively slidably engage the outer flange of the channel 27 and the flange 31. The inner face of the bar 14 is slidably engageable with the adjacent side of the parting stop 26 and the outer surface of the bar 14 is free from frictional engagement with the base of the channel 27.

The flexible wing part 25 projects inwardly from the inner side of the parting stop 26 and is located between the side bar 14 of the inner sash and the jamb 16. The inner edge of the wing part 25 is turned laterally inwardly to provide a flange 32 and is then turned inwardly toward the stop 18 to provide a flange 33. The flange 33 terminates in a laterally outwardly extending transversely curved flange 34 positioned for engagement with the outer surface of the adjacent stop 18 on the jamb 16. It is also important to note that the flexible wing part 25 is integrally connected to the adjacent flange of the parting stop 26 by a curved section 35 which has a rolling contact with the inner surface of the filler block 20 during flexing movement of the wing part 25. Hence, the stresses resulting from flexing of the wing section 25 are distributed over a substantial area and the tendency for the metal to break due to fatigue is reduced to a minimum.

As shown in Figure 2 of the drawing, the cross sectional contour of the flexible wing part is generally channel-shaped in order to receive the adjacent edge portion of the side bar 14 on the inner sash 12. The inner corner of the bar 14 is rabbeted as at 36 to provide angularly related guide surfaces which respectively engage the flanges 32 and 33 on the flexible wing part 25. In use the flexible wing part is under tension so that it not only urges the inner sash 12 in a direction toward the jamb 17 but in addition urges the inner sash 12 toward the parting stop 26. Also the flange 34 frictionally engages the stop 18 so that an efficient weatherseal is assured.

The combined sash guide and weatherstrip element 23 is identical in construction to the element 22 previously described and the same reference numerals are used to indicate corresponding parts. It is to be noted however that the element 23 is installed on the jamb 17 in a reverse direction with respect to the element 22. In other words the side bar 15 of the inner sash 12 engages the fixed guide part 24 of the element 23, and the side bar 15 of the outer sash 13 engages the flexible wing part 25 of the element 23.

In view of the above the flexible wing part 25 of the element 22 urges the inner sash 12 into engagement with the guide part 24 on the element 23, and the flexible wing part 25 of the element 23 yieldably urges the outer sash 15 in a direction toward the guide part 24 of the element 22. Also both sashes are yieldably urged in a direction toward one another into frictional engagement with the parting stop 26 and the flanges 34 are maintained in frictional contact with the stops 18. Hence an effective weather seal is provided along the sides of the two sashes. Moreover, it is to be

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noted that sufficient clearance is provided between the flexible wing parts 25 and the adjacent jambs to enable readily removing said sashes from the casing without detaching any part of the casing. In addition, it will be apparent that the elements 22 and 23 coact with one another to permit substantial expansion and contraction of the sashes and/or casing without affecting the efficiency of the weather seal and without causing the sashes to bind.

In Figure 4 of the drawings, a modified form of combined sash guide and weatherstrip element is shown. This element is indicated generally by the reference character 37 and comprises a guide part 38 and a flexible wing part 39. The guide part 38 is integrally connected to the flexible wing part 39 by a channel section 40 which acts as a parting stop.

The element 37 is mounted on a jamb of a window casing in the same manner as the elements 22 and 23 previously described. It is to be noted however that the filler block 41 has a portion 42 which projects into the channel-shaped parting stop 40 and provides a bearing for the stop 40 about which the flexible wing section 39 is movable. The portion 42 has a width less than the channel-shaped stop 40 in order to provide a clearance space 43 of sufficient width to enable relatively free flexing movement of the wing part 39. With the above exceptions, the combined guide and weatherstrip shown in Figure 4 is similar to the elements 22 and 23 previously described. Accordingly the same reference characters are used to indicate corresponding parts.

What we claim as our invention is:

1. In combination with a window having spaced vertically extending first and second side jamb members, laterally spaced first and second sashes supported between the jamb members for relative sliding movement therein and having side bars, the side bar of the first sash adjacent the first jamb member being spaced laterally from the first jamb member, a combined sash guide and weatherstrip element secured to the second jamb member in a position to slidably engage the adjacent sides of the sashes, a second combined sash guide and weatherstrip element located between the first jamb member and the adjacent side bars of the sashes, said second element having a fixed vertically extending guide channel-shaped in cross section and secured to the first jamb member in a position to slidably receive the adjacent bar of the second sash, said second element also having a flexible wing part having a free edge which extends laterally from the fixed guide between the first jamb member and the adjacent side bar of the first sash, said wing part having a portion substantially channel-shaped in cross section for slidably receiving the adjacent side bar of the first sash and having a portion adjacent its free edge engageable with the adjacent bar of the first sash and held under tension by the latter, and a stop secured to the first jamb member and slidably engageable with the free edge portion of said wing part.

2. The structure defined in claim 1 wherein the guide part of the second element is integrally joined to the flexible wing part by a channel-shaped section which forms a parting stop between said sashes, and wherein the free edge portion of the flexible wing part applies a yielding force to the first sash tending to urge the first sash toward the second jamb and its parting stop.

3. The structure defined in claim 2 wherein the first element has a fixed guide engageable with

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the adjacent side bar of the first sash, and wherein sufficient clearance is provided between the flexible wing part and first jamb to enable shifting the first sash in a direction toward the first jamb the distance required to release the first sash from the fixed guide on said first element.

4. The structure defined in claim 2 having a flexible flange projecting laterally toward the first jamb from the wing part at the free edge thereof and frictionally engageable with the stop secured to the first jamb member.

5. The structure defined in claim 2 having a projection on the first jamb extending into the channel-shaped parting stop and having an arcuate portion on the wing part arranged in rolling contact with the adjacent side of said projection.

6. In combination with a window having spaced vertically extending first and second jambs, inner and outer sashes supported between said jambs for relative sliding movement therein in a vertical direction, said sashes having first side bars positioned adjacent the first jamb and having second side bars positioned adjacent the second jamb, the first side bar of the inner sash and the second side bar of the outer sash being spaced laterally inwardly from the adjacent jambs, combined sash guide and weatherstrip elements respectively positioned between the jambs and the adjacent side bars of the sashes, said elements having vertically extending channel-shaped guides respectively secured to the jambs in positions to respectively slidably engage the second side bar of the inner sash and the first side bar of the outer sash, said elements also having flexible wing parts which project laterally in opposite directions from the respective guide parts and respectively extend between the jambs and adjacent sides of the sashes, said wing parts having substantially channel-shaped portions respectively slidably engageable

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with the first bar of the inner sash and with the second bar of the outer sash, and stops fixed relative to the jambs and respectively engageable with the free edge portions of the flexible wing parts.

7. The structure defined in claim 6 wherein the flexible wing parts of the elements are respectively integrally connected to the fixed guide parts by laterally outwardly opening channel-shaped sections which respectively project between the sashes and provide parting stops for said sashes.

8. The structure defined in claim 6 having projections fixed relative to the jambs and respectively extending into the channel-shaped stops, and said wing parts having portions shaped to have a rolling contact with said projections.

9. The structure defined in claim 6 having means at the free edges of the wing parts respectively slidably engageable with the sashes and said stops.

10. The structure defined in claim 9 wherein the wing parts are held under tension by the sashes and wherein the clearance between the jambs and adjacent bars of the sashes is sufficient to enable shifting movement of the sashes the extent required to release the sashes from the fixed guide parts.

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