

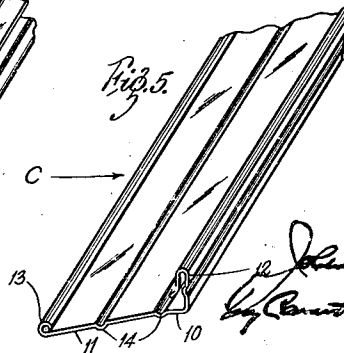
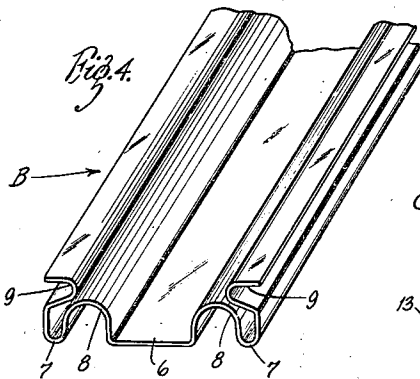
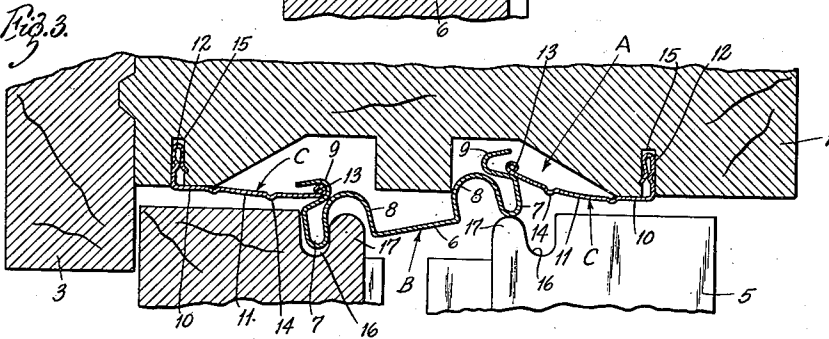
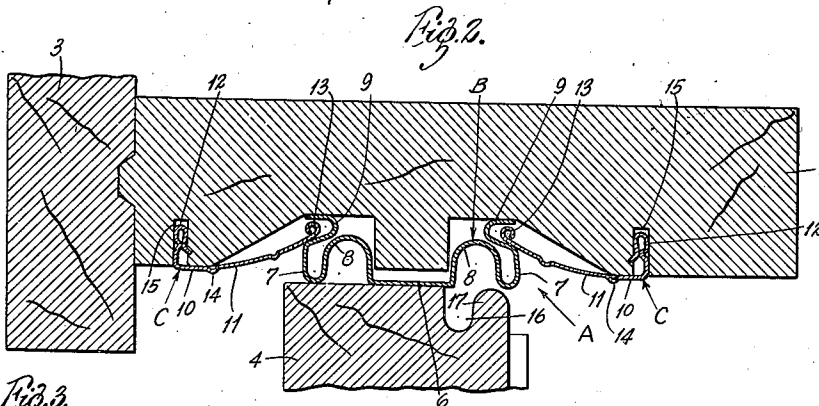
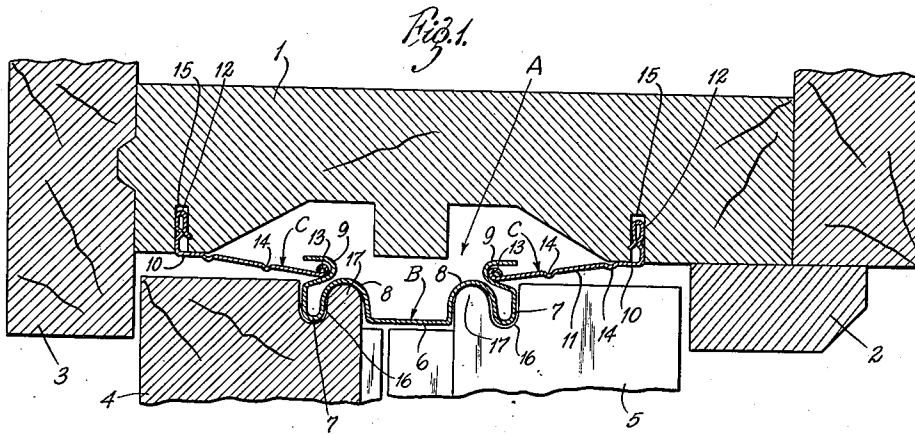
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WEATHERSTRIP

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WEATHER STRIP

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14 Claims. (Cl. 20—69)

This invention relates to weatherstrips, particularly metal weatherstrips for windows equipped with sliding sashes. It has for its principal objects to provide a simple and economical jamb weatherstrip which can be quickly and easily applied to the window; which will cooperate with the inside and outside stops of the window frame to form the slideways for the upper and lower sashes; which will prevent rattling of the sashes in the frame; which will automatically accommodate itself to shrinking and swelling of the sashes and frame and, at the same time, maintain a sliding weatherproof joint therebetween; and which will permit the sashes to be mounted in and dismounted from the frame without removing the weatherstrip. The invention consists in the weatherstrip and in the construction, combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawing, which forms part of this specification and wherein like symbols refer to like parts wherever they occur:

Fig. 1 is a horizontal section through one side of a window provided with a metal weatherstrip embodying my invention,

Fig. 2 is a similar section, showing the position assumed by said weatherstrip during the operation of mounting the top sash in the window frame,

Fig. 3 is a similar section showing the position taken by said weatherstrip while the bottom sash is being mounted in said frame,

Fig. 4 is a perspective view of a portion of the intermediate section of the weatherstrip; and

Fig. 5 is a perspective view of a portion of one of the side sections of said weatherstrip.

In the accompanying drawing, my invention is shown embodied in a window construction comprising a frame including a jamb 1, a finish or inside stop 2, a blind or outside stop 3 and vertically slidable top and bottom sashes, 4 and 5, respectively. The joints or spaces between the opposed faces of the jamb 1 and top and bottom sashes are rendered weatherproof and dust-proof by means of a sectional weatherstrip A that is mounted on the sash opposing face of said jamb and extends continuously thereof between the sill and head members (not shown) of the window frame between the inner and outer stops thereof. The sectional weatherstrip A comprises a relatively rigid intermediate floating section B, and relatively flexible or resilient side sections C rigidly secured to the jamb 1 and adapted to support said intermediate section for bodily movement towards and away from the inside face of said jamb.

The intermediate section B of the jamb weatherstrip A comprises a strip of metal or other suitable material that is bent or otherwise shaped to provide on the sash opposing face

thereof a channel-shaped longitudinal medial rib 6, U-shaped longitudinal side marginal ribs 7 and a U-shaped longitudinal groove 8 between said medial rib and each of said side marginal ribs. The outer side wall of each side marginal rib 7 of the intermediate section B defines one side edge thereof and has a free marginal portion that is disposed inwardly of the adjacent longitudinal groove 8 and is bent inwardly and thence outwardly to form a substantially V-shaped longitudinal groove 9 in said side edge back of the rib 7 and the groove 8.

Each of the side sections C of the jamb weatherstrip A comprises an elongated strip of metal or other suitable material bent along longitudinal lines to form a base portion 10, a resilient flange 11 along one side margin of said base portion and a hollow longitudinal anchoring rib 12 along the other side margin of said base portion. As shown in the drawing, the resilient flange 11 of each side section C is normally disposed at an oblique angle to the base portion 10 thereof and terminates at its free margin in a hollow bead 13. The resilient flange 11 of each side section C has spaced parallel shallow longitudinal hollow ribs 14 therein adapted to stiffen said flange longitudinally and to prevent distortion thereof due to strains set up therein during the operation of forming the rib 12 and bead 13 of said section.

The sectional weatherstrip A is attached to the jamb 1 by engaging the beaded free marginal edges 13 of the resilient flanges 11 of the two side sections B with the V-shaped grooves 9 in the side edges of the intermediate section C and by forcibly inserting the compressible hollow side marginal ribs 12 of said side sections in vertical grooves 15 provided therefor in the sash opposing face of said jamb. In this attached position of the weatherstrip, the resilient flanges 11 of the side sections C thereof are inclined outwardly away from the jamb 1 and the intermediate section B is supported between said side strips by the engagement of the free beaded margins 13 of said resilient flanges with the V-shaped grooves 9 in the side edges of said intermediate section. The medial rib 6 of the intermediate section B is disposed between the top and bottom sashes and operates as a parting bead or strip therefor.

The jamb opposing face of each of the top and bottom sashes has a vertical U-shaped groove 16 therein adapted to receive the adjacent U-shaped side marginal rib 7 of the intermediate section B. The jamb opposing face of each sash is also provided between the groove 16 therein and the parting bead opposing face thereof with a U-shaped vertical rib 17 that slidably engages the adjacent U-shaped groove 8 in the intermediate section. The ribs 17 of the sashes bear against the bottoms of the grooves 8 provided therefor

in the intermediate section B of the weatherstrip and thus press said section inwardly in the direction of the jamb 1; and this inward pressure is transmitted through the inner side walls of the V-shaped grooves 9 in the side edges of said intermediate section to the resilient flanges 11 of the two side sections of said weatherstrip, thereby placing said flanges under sufficient tension to maintain the beaded free margins 13 thereof in contact with said inner side walls of said V-shaped grooves and thus preventing passage of air or dust through the floating joints between said intermediate and side sections. As shown in the drawing, a clearance space is normally provided between the side marginal ribs 7 of the intermediate section of the weatherstrip and the grooves 16 provided therefor in the sashes. The ribs 17 of said sashes are normally spaced from the sides of the grooves 8 provided therefor in said intermediate section but have substantially line contact with the bottoms of said grooves to thereby prevent passage of air or dust between the sashes and intermediate section.

By the arrangement described, the two side sections of the weatherstrip are rigidly secured along their remote side margins to the jamb 1 without the use of nails or other separate fasteners, while the intermediate section of said weatherstrip is resiliently supported by said side sections for movement with sashes towards and away from the jamb. The resilient sealing flanges of the two side sections are held under tension by the sashes and thus serve to maintain weatherproof connections between the side and intermediate sections and between the intermediate section and the sashes and to prevent rattling of the latter in the frame. The resilient supporting flanges of the side sections permit movement of the intermediate section with the sashes towards and away from the jamb to accommodate shrinking and swelling of the sashes and to insure sliding movement thereof in the frame. The medial longitudinal rib of the intermediate section serves as a parting strip or bead for the two sashes; and the clearance spaces between the jamb and the intermediate section of the combined sash guide and weatherstrip permit said section to move inwardly far enough to permit the sashes to be inserted in and removed from the frame without dismounting said weatherstrip.

As shown in Fig. 2, when the top sash is inserted in the frame, said sash forces the intermediate section of the weatherstrip towards the jamb far enough to provide the necessary clearance for the sash. After the top sash is in proper position, the pressure of the resilient side flanges of the side sections of the weatherstrip on the intermediate section thereof causes the rib and groove at the outer margin of said intermediate section to snap into engagement with the groove and rib provided therefor in said sash. As shown in Fig. 3, when the bottom sash is inserted in the frame, the engagement of said sash with the inner side rib along the inner side margin of the intermediate section of the weatherstrip forces said margin in the direction of the jamb to thus provide sufficient clearance for said sash. When the bottom sash is in proper position, the outward pressure of the side sections on the intermediate section causes the rib and groove along the inner margin of said intermediate section to snap into engagement with the groove and rib provided therefor in the sash. When the intermediate section of the weatherstrip is

forced inwardly, during the operation of mounting and dismounting the sashes, the hollow channel-shaped rib of the intermediate section of said weatherstrip straddles the vertical rib on the sash opposing face of the jamb between the clearance recesses on opposite sides of said rib, thereby preventing excessive crosswise movement of said intermediate section relative to said side sections. In the normal, sash guiding and supporting position of the intermediate section, such crosswise movement of the intermediate section and sashes is yieldably resisted by the side sections due to the reverse inclination of the inner walls of the outwardly opening grooves along the opposite side edges of said intermediate section. The engagement of the free margins of the sealing flanges of the two side sections with the V-shaped grooves in the side edges of the intermediate section form floating hinge connections between the side and intermediate sections that permit limited movement of the intermediate section while maintaining weatherproof joints between said sections during such movement.

Obviously, the hereinbefore described construction admits of considerable modification without departing from the invention. Therefore, I do not wish to be limited to the specific construction and arrangement shown.

What I claim is:

1. In a window construction comprising a jamb and top and bottom sashes slidable relative thereto, a three-piece weatherstrip extending longitudinally of said jamb opposite the jamb opposing faces of said sashes, said weatherstrip comprising side sections rigidly secured to said jamb and a floating intermediate section slidably supported by the free margins of said side sections whereby said side sections cooperate with said intermediate section to yieldably maintain the latter in contact with the jamb opposing faces of the respective sashes.

2. In a window construction comprising a jamb and top and bottom sashes slidable relative to said jamb of a three-piece weatherstrip extending longitudinally of said jamb opposite the jamb opposing faces of said sashes, said weatherstrip comprising an intermediate floating section and two flexible side sections whose inner margins have interlocking engagement with the outer margins of said intermediate section, said side sections having hollow ribs along their remote margins which ribs are mounted in and have self-holding engagement with longitudinal grooves provided therefor in the sash opposing face of said jamb, whereby said side sections cooperate with said intermediate section to yieldably maintain the latter in contact with the jamb opposing faces of the respective sashes.

3. In a window construction comprising a jamb and top and bottom sashes slidable relative to said jamb, a weatherstrip extending longitudinally of said jamb opposite the jamb opposing faces of said sashes, said weatherstrip comprising an intermediate floating section and two flexible side sections whose inner margins have interlocking engagement with the outer margins of said intermediate section, said side sections having hollow ribs along their remote margins which ribs are mounted in and have self-holding engagement with longitudinal grooves provided therefor in the sash opposing face of said jamb, said side sections having resilient flanges cooperating with said intermediate section to yieldably maintain the latter in contact with the jamb opposing faces of the respective

sashes, said intermediate strip being shaped to provide a parting bead between said sashes and said intermediate section and said sashes being shaped to provide vertically slidable rib and groove connections between said intermediate section and the respective sashes on opposite sides of said parting bead.

4. In a window construction comprising a jamb and vertically slidable top and bottom sashes, a weatherstrip extending longitudinally of said jamb opposite the jamb opposing face of said sashes, said weatherstrip comprising two side sections and an intermediate section having longitudinal ribs along the side margins thereof cooperating with the grooves provided therefor in the jamb opposing faces of the respective sashes and longitudinal grooves located inwardly of said marginal ribs and adapted to cooperate with ribs on the respective sashes, said side sections being rigidly secured to the sash opposing face of said jamb on opposite sides of said intermediate section and having resilient flanges cooperating with adjacent sides of said intermediate section to yieldably maintain the latter in contact with the jamb opposing faces of the respective sash.

5. In a window construction comprising a jamb and top and bottom sashes slidable relative to said jamb, a weatherstrip extending longitudinally of said jamb opposite the jamb opposing faces of said sashes, said weatherstrip comprising two side sections and an intermediate section, said intermediate section having on its sash opposing face longitudinal side marginal ribs cooperating with grooves provided therefor in the respective sashes and also having longitudinal grooves located adjacent to said ribs and having sliding engagement with ribs provided therefor in the jamb opposing faces of said sashes and also having a medial rib constituting a parting bead between said sashes, and also having in its margins longitudinal grooves that open laterally outwardly relative to said parting bead, said side sections being flexible and having their outer margins rigidly secured to the sash opposing face of the jamb and having their free margins in the marginal grooves of the intermediate section and exerting resilient bearing pressure on said intermediate section toward the sash, the sash opposing face of said jamb being recessed to permit said intermediate section to move towards said jamb far enough to clear the jamb opposing faces of said sashes and having a longitudinal rib thereon adapted in such position of said intermediate section to fit within the parting bead forming rib of said intermediate section.

6. In a window construction comprising a jamb and top and bottom sashes slidable relative thereto, a weatherstrip extending longitudinally of said jamb opposite the jamb opposing faces of said sashes, said weatherstrip comprising an intermediate section having longitudinal grooves in the side edges thereof and separate resilient side sections with their outer margins rigidly secured to said jamb and with their inner margins bearing resiliently against the inner walls of the grooves in the side edges of said intermediate section to yieldably maintain the latter in contact with the jamb opposing faces of the respective sashes.

7. In a window construction comprising a jamb and top and bottom sashes slidable relative to said jamb, and a weatherstrip extending

longitudinally of said jamb opposite the jamb opposing faces of said sashes, said weatherstrip comprising a relatively rigid intermediate section with longitudinal substantially V-shaped grooves in the side edges thereof, and side sections rigidly secured along their remote margins to said jamb independently of said sashes and having resilient sealing flanges clear of said jamb and cooperating with the V-shaped side grooves of said intermediate strip to yieldably maintain the latter in contact with the frame opposing faces of the respective sashes.

8. A weatherstrip comprising an intermediate section having longitudinal grooves in the opposite side edges thereof and side sections having resilient marginal portions adapted for engagement with the grooves in the side edges of said intermediate section.

9. A weatherstrip comprising a relatively rigid intermediate section having outwardly opening longitudinal grooves in the side edges thereof, and side sections having hollow ribs adapted for forcible insertion in and self-holding engagement with grooves in a mounting member and flanges adapted for resilient engagement with the grooves in the side edges of said intermediate section.

10. A weatherstrip comprising a relatively rigid intermediate section having longitudinal grooves in its longitudinal side edges and spaced parallel longitudinal ribs on one side face, and side sections having resilient flanges adapted for engagement with the longitudinal grooves in the side edges of said intermediate strip.

11. A weatherstrip comprising a relatively rigid intermediate section having outwardly opening longitudinal grooves in its longitudinal side edges, spaced longitudinal ribs on one side face and longitudinal grooves in said face adjacent to said longitudinal ribs, and side sections having resilient flanges adapted for engagement with the outwardly opening longitudinal grooves in the side edges of said intermediate strip.

12. A weatherstrip comprising an intermediate section having longitudinal grooves in the side edges thereof, a longitudinal medial rib on one side face thereof, longitudinal side marginal ribs on said face and longitudinal grooves in said side face between said medial and side marginal ribs, and side sections having flanges adapted to resiliently engage the grooves in the side edges of said intermediate section.

13. A three-piece weatherstrip consisting of a relatively stiff intermediate section and separate flexible side sections, said intermediate section having grooves that are open in the direction of the respective side sections and said side sections having their inner margins free and extending into said grooves and having their outer margins adapted to be firmly attached to the jamb of a window.

14. A three-piece weatherstrip consisting of a relatively stiff intermediate section and separate flexible side sections, said intermediate section having grooves that are open in the direction of the respective side sections and having longitudinal ribs spaced apart between its margins for cooperative sliding engagement with grooves in the sashes of a double hung window construction, and said side sections having their inner marginal portions extending into said grooves and having their outer margins adapted to be firmly attached to the jamb of a window.

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