Aug. 7, 1928. 1,679,612

A. M. LANE

METAL WEATHER STRIP

Filed Jan. 14, 1926

Fig. 1.

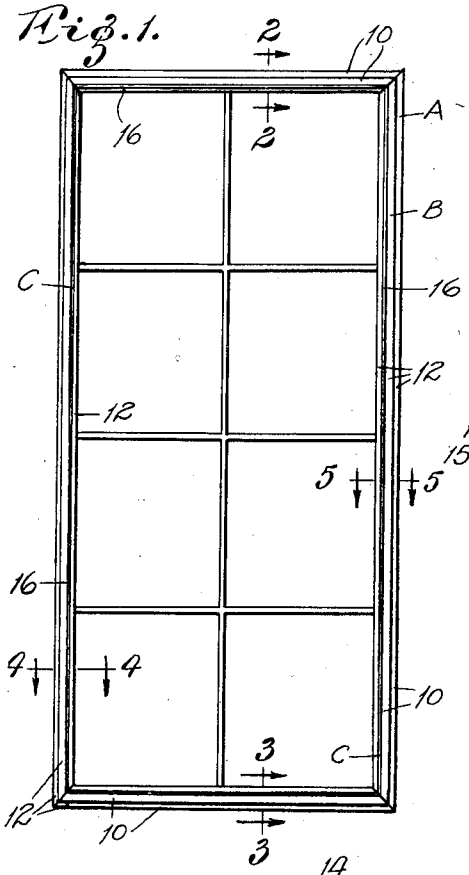


Fig. 2

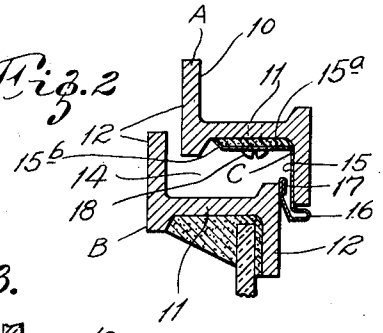


Fig. 3.

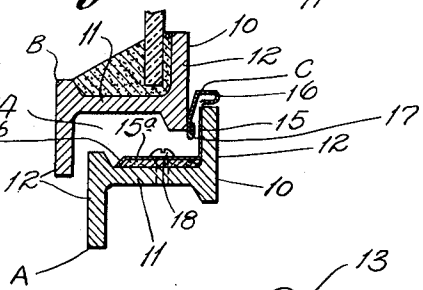


Fig. 4.

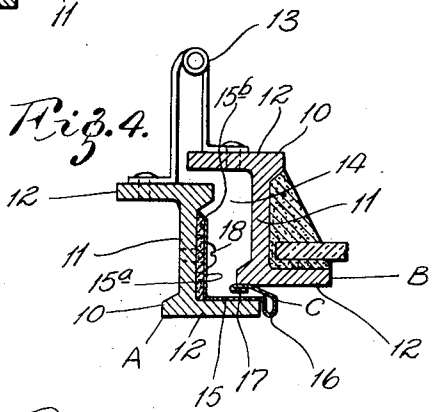


Fig. 5.

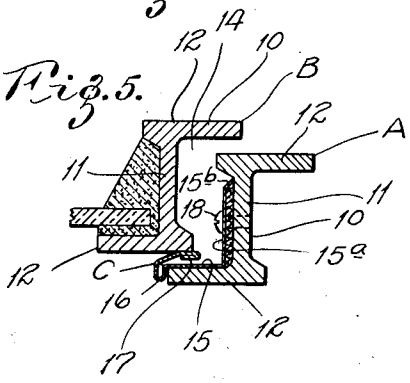


Fig. 7.

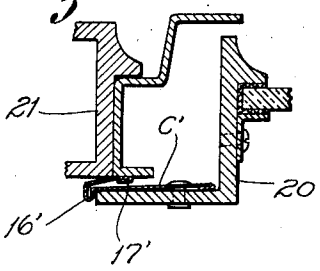
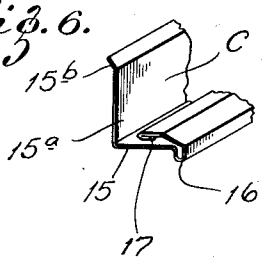


Fig. 6.



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UNITED STATES PATENT OFFICE.

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METAL WEATHER STRIP.

Application filed January 14, 1926. Serial No. 81,151.

This invention relates to weatherstrips and more particularly to those made of metal and adapted for hinged or swinging windows or ventilators having metal frames and sashes.

It has for its principal object to produce a simple and efficient weatherstrip which can be easily and cheaply applied to different types of swinging windows without material change and which will make the joints between the window frame and sash weathertight and dust-proof. Other principal objects are to render the weatherstrip operative for all variations of the width of said joints and to prevent rattling of the sash without binding or interfering with the easy operation thereof.

The invention consists principally in the parts and in the arrangements and combinations of parts hereinafter described.

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

Fig. 1 is an exterior face view of a metallic casement window equipped with weatherstripping embodying my invention;

Fig. 2 is an enlarged vertical cross-section taken through the upper framing members of the window frame and sash on the line 2—2 in Fig. 1;

Fig. 3 is a similar section taken through the lower framing members of said frame and sash on the line 3—3 in Fig. 1;

Fig. 4 is a horizontal cross-section taken through the side framing members of the frame and sash at one side of the window on the line 4—4 in Fig. 1;

Fig. 5 is a similar cross-section through the side framing members of the frame and sash at the other side of the window, on the line 5—5 in Fig. 1;

Fig. 6 is a perspective view showing a section of the weatherstrip detached; and

Fig. 7 is a horizontal cross-section through the lower portions of the side framing members of the sash and frame of a steel reversible ventilator window, showing a modified form of weatherstrip applied thereto.

In Figs. 1 to 6, inclusive, of the accompanying drawing, my invention is shown in connection with a metallic casement window comprising a steel window frame A and a horizontally swinging steel sash B; but the invention is applicable to other types of windows having steel or wooden frames or sashes.

As shown in the drawing, the window frame A and the sash frame B are made up of metal framing members 10 of substantially Z-shaped cross-section; that is, each of said framing members comprises a web portion 11 having two lateral flanges 12 disposed one on each side of said web portion and projecting at right angles therefrom in opposite directions. One side framing member of the sash B is secured to the adjacent side framing member of the window frame by means of hinges 13 whereby said sash is adapted to swing in a horizontal plane to open and close the opening in said window frame. The Z-shaped framing members 10, which frame the sash opening are positioned so as to form an angular recess 14 that extends continuously around the outer edge of the sash opening; and the size of the sash and the arrangement of its Z-shaped framing members are such that the marginal portions of said sash fit in the angular recess 14, in the closed position of the sash.

The joints between the adjacent faces or meeting edges of the sash and the window frame are rendered weatherproof and dust-proof by means of resilient metal weatherstrips C that are mounted in the outwardly opening angular recess 14 which extends along the outer edge of the sash opening, and are adapted to resiliently engage the adjacent edges of the sash in the closed position thereof. At the four corners of the sash opening, the adjacent ends of the weatherstrips C are preferably beveled and are disposed in abutting relation.

Each of said weatherstrips preferably comprises a main body portion of angular cross-section, one flange 15 of which has its free outer marginal portion bent outwardly on one side of said flange and thence rebent to form a hollow bead or rib 16, whose outer wall is extended back over the base of said rib and along the opposite side of said flange 15 to form a resilient sealing flange 17. As shown in the drawing, the marginal portion of the other flange 15^a of each strip is bent outwardly to form an inclined flange 15^b along the outer edge of said flange.

The weatherstrips C are arranged in the outwardly opening angular recess 14, with their flanges 15^a disposed opposite the webs

11 of the Z-shaped framing members that frame the sash opening, said flanges being removably secured to said webs preferably by means of screws 18. As shown in the drawing, strips of felt or other suitable material are clamped between the opposing faces of the flanges 15ª and the adjacent webs of window framing members; but, if desired, the strips may be omitted and said flanges secured directly to said webs. The other flanges 15 of the weatherstrips C are disposed opposite the inner faces of the outstanding flanges of the Z-shaped window framing members with the ribs 16 of said strips overlapping the outer edges of said outstanding flanges and the rebent sealing flanges 17 thereof in position to bear or press against the adjacent edges of the sash in the closed position thereof and thus weatherproof the joints between the sash and window frame.

The arrangement hereinbefore described has numerous advantages. It minimizes the time and expense of applying the strip by eliminating the need for altering the sash or frame and by enabling the strip to be readily applied with a minimum number of fastening members. It prevents rattling of the sash without interfering with the easy movement thereof; and it insures a weatherproof joint between the frame and sash regardless of any variation of the width of said joint.

Fig. 7 illustrates a modified form of weatherstrip adapted for use with steel windows of the reversible ventilator type. Said figure illustrates the cross-sectional shape and arrangement of the cooperating parts of the adjacent side framing member of the window frame and the sash below the sash pivots. The side rails 20 of the sash are of angle-shaped section and are arranged with one flange overlapping the adjacent framing member 21 of the window frame. The weatherstrip C′ comprises a substantially flat body portion that is riveted or otherwise rigidly secured to the flange of the framing member 20 of the sash and has its outer marginal portion formed into a rib 16′ whose outer wall has an extension which is doubled back over said body portion to form a resilient sealing flange 17′ adapted to yieldably engage the adjacent face of the window frame in the closed position of the sash.

Obviously the construction hereinbefore described admits of considerable modification without departing from the invention; therefore, I do not wish to be limited to the precise arrangements shown and described.

What I claim is:

1. The combination of a metal window frame having a sash opening provided with an angular recess extending along the edges thereof, and a metal sash hinged in said opening with its marginal portions disposed in said recess of a metal weatherstrip of angular section fitting in said angular recess with one flange only secured directly thereto, the other flange of said strip being left free with its outer margin overlapping the edge of said recess and doubled back toward the corner thereof alongside the free flange of said strip to form a sealing flange adapted to yieldably engage the adjacent face of said sash.

2. The combination of a metal window frame and a metal sash mounted to swing therein of a metal weatherstrip arranged between the meeting edges of said frame and sash, said strip comprising a substantially flat body portion secured to said frame along one margin only with the other marginal portion left free and provided with a hollow bead that overlaps the sash opening and a doubled-back sealing flange which extends away from said sash opening and is adapted to yieldably engage the adjacent face of said sash.

Signed at St. Louis, Missouri, this 8th day of Jan., 1926.

ALFRED M. LANE.