G. H. FORSYTH.

WEATHER STRIP.

APPLICATION FILED OCT. 16, 1913.

1,148,476. Patented July 27, 1915.

Fig. 1

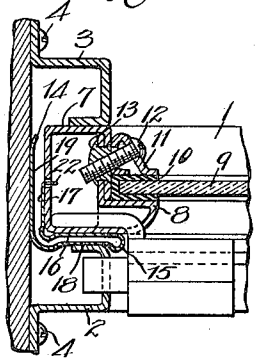


Fig. 2

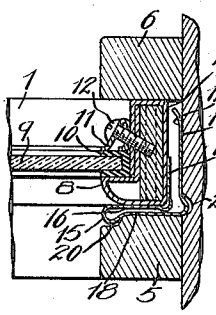


Fig. 3

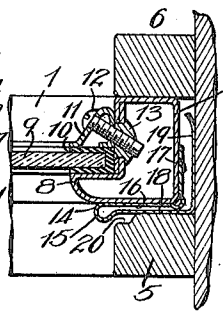


Fig. 4

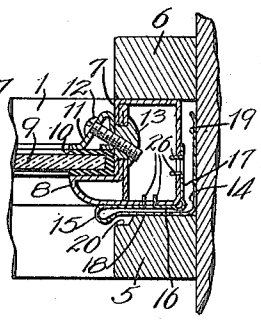


Fig. 5

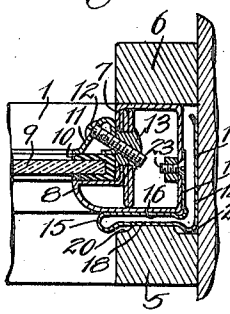


Fig. 6

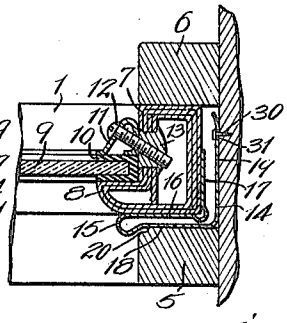


Fig. 7

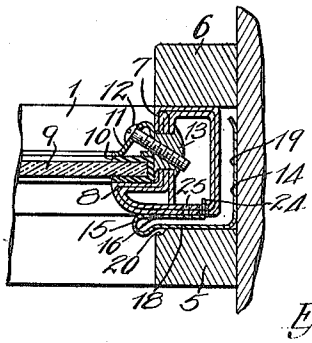


Fig. 8

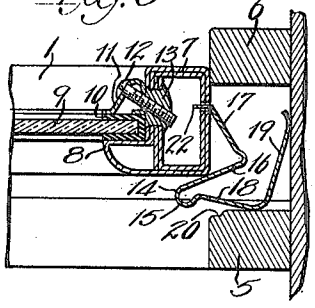


Fig. 9

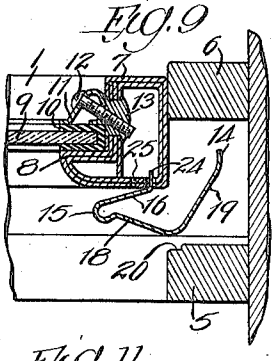


Fig. 10

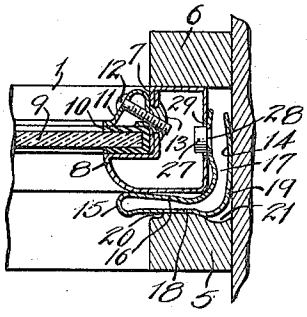
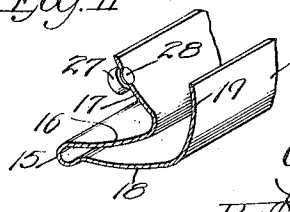


Fig. 11



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Attys

UNITED STATES PATENT OFFICE.

GEORGE H. FORSYTH, OF CHICAGO, ILLINOIS.

WEATHER-STRIP.

1,148,476. Specification of Letters Patent. Patented July 27, 1915.

Continuation in part of application Serial No. 425,467, filed April 6, 1908. This application filed October 16, 1913. Serial No. 795,394.

To all whom it may concern:

Be it known that I, GEORGE H. FORSYTH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Weather-Strips, of which the following is a specification.

This invention relates to improvements in windows, and has reference more particularly, although not exclusively, to car windows.

Certain features of improvement relate to a novel elastic adjusting or weather strip designed to insure a snug fit of the sash against one or more walls of the guide while also providing for variations in width between the sash and the opposed surfaces of the vertical sash guides.

My invention will be readily understood, both with respect to its structural features and the mechanical advantages and improvements secured thereby, when considered in connection with the accompanying drawings illustrating some practical embodiments thereof, in which,—

Figures 1, 2, 3, 4, 6, 7 and 10 are detail sectional views illustrating various embodiments of the invention in operative position; Figs. 5, 8 and 9 are similar views illustrating the manner of application of the strip to the window; and Fig. 11 is a fragmentary view in perspective of the strip shown in Fig. 10.

Referring to the drawings, 1 designates the sash rail, and 2 and 3 the inner and outer beads or stops forming between them guide-grooves in which the stiles of the sash are adapted to slide. In Fig. 1 the guide-strips 2 and 3 are shown as substantially hollow sheet metal members having on their outer sides laterally projecting flanges by which they are secured to the jamb or casing by screws 4, while in the other figures, the stops 5 and 6 are of wood and attached to the casing in any usual way as by brads.

7 designates the side bars or stiles of the sash, which are shown as in all cases formed from a sheet metal strip or a seamless tube bent to the required cross-sectional shape and provided with an inwardly projecting lip 8 that forms a shoulder for the margin of the glass 9. The edges of this latter are embraced by channel-strips 10 of rubber or similar insulation, and the glass is securely held in the sash by glazing strips 11, each of these strips comprising a transversely elastic metal strip substantially triangular shaped in cross-section and having inner and outer lips adapted to bear against the adjacent side of the insulator 10, said strip being secured by a series of screws 12 passed obliquely through the glazing strip and tapped into the adjacent inner wall of the sash stile or bar; said screws preferably being screwed into thick short rivets 13 by which the overlapping sections constituting the inner wall of the stile are secured together.

14 designates as an entirety the adjusting or weather strip which forms the subject matter of the present invention. This weather strip is formed from a piece of thin resilient sheet metal that is bent or doubled upon itself on substantially its median longitudinal line, the inner portion being further bent longitudinally to suitably engage the stile and in some cases secured to the latter, while the outer portion is also suitably bent longitudinally to afford a bearing upon both the inner sash strip and the bottom wall of the guide-groove. In the several forms of this member illustrated the longitudinal bend between the inner and outer portions is indicated at 15, the portions engaging the side and edge of the sash stile are indicated at 16 and 17 respectively, and the portions engaging the stop and the bottom wall of the groove are indicated at 18 and 19, respectively. It will be observed that at the several longitudinal bends of the strip the metal is preferably expanded transversely, producing well rounded flexible corners, as shown, the adjacent portions of the guide being hollowed or cut away to accommodate the same, as indicated at 20 and 21.

In Figs. 1 and 8 the adjusting strip 14 is shown as secured at 22 to the outer margin of the sash stile 7, being bent inwardly and into a suitable slot or kerf in the latter; while Fig. 5 shows the strip secured to the outer margin of the sash stile by means of one or more screws 23. In Figs. 2, 3 and 6 the adjusting strip is shown as simply interposed loosely between the sash and its guide without attachment to either. In Figs. 7 and 9 the inner edge of the adjusting strip is secured at 24 to the adjacent side wall of the stile, being passed through either of two or more slots or kerfs 25 there-

in for purposes of adjustment; and in Fig. 4 tongues 26 punched from the strip extend through the holes in both the side and outer margins of the stile. In Figs. 10 and 11 a stud 27 secured by its head 28, as by riveting, to the strip, engages loosely within an aperture 29 of the stile edge so as to allow slight play of the strip relative to the sash. In Fig. 6 the strip is loosely secured to the bottom wall of the guide-groove by means of a pin 30 passed through a transverse slot 31 in the strip, the head of said pin projecting slightly to thus permit a limited play to the side of the strip engaged thereby for purposes of self-adjustment of the strip between the sash and guide. It is evident that where the adjusting strip is secured either to the stile or to the guide-groove these and various other modes and means of attachment may be employed. It will also be evident that in the application of the strip, as illustrated, for instance, in Figs. 8 and 9, the several longitudinal sections of the strip are angularly compressed or expanded relatively to each other in such a manner as to insure a close engagement of such portions upon the stile and walls of the guide, so that said strip tends to both automatically adjust the sash in its own plane and to crowd the sash into a snug fit with the opposite side wall of the guide-groove.

It will also be observed that, referring to Fig. 10 for example, the curvature of the strip and the relation of its several parts to the faces of the sash, stop and frame is such that the play of the sash in its own plane toward the frame will cause the portion 17 to move toward the stop and the portion 19 to move away from the stop, thus increasing the resilient action of the strip and also allowing the sash to approach more closely the bottom of the guide groove without cramping the strip which bends throughout the several portions 16, 17, 18 and 19.

I claim:

1. The combination with a sash and a sash guide, of a sash adjusting strip comprising a transversely elastic member bent to form a plurality of longitudinal folds, one or more corners or angles between adjacent folds being expanded or swelled transversely, and a corner between the walls of said guide being recessed to accommodate said expanded or swelled corner or corners of the strip, substantially as described.

2. The combination with a sash, of a sash adjusting strip comprising a transversely elastic member having a plurality of longitudinal folds providing faces adapted to abut against bottom and side walls of sash-guiding members and operating to adjust the sash both transversely and in the plane of the sash, and means to attach the strip loosely to the sash to allow of lateral play, substantially as described.

3. The combination with a sash and a sash guide-groove, of a sash adjusting strip comprising a transversely elastic member having a plurality of longitudinal folds operating to adjust the sash both transversely and in the plane of the sash, said strip yieldingly engaging both the bottom and a side wall of the guide, and means to attach the strip to the sash to allow of lateral play within the guide groove, substantially as described.

4. The combination with a sash and a sash guide, of a sash adjusting strip comprising a transversely elastic member bent to form a plurality of longitudinal folds, one or more corners or angles between adjacent folds being expanded or swelled transversely, and a corner of the walls of said guide being recessed to accommodate said expanded or swelled corner or corners of the strip, and means to attach the strip loosely to the sash to allow of lateral play, substantially as described.

5. The combination with a sash, and a guide groove therefor, of a sash adjusting strip comprising a transversely elastic member having a plurality of longitudinal folds operating to adjust the sash both transversely and in the plane of the sash, said strip yieldingly engaging both the bottom and a side wall of the guide, and means to secure the strip within the guide groove to allow of limited lateral play thereof.

6. The combination with a sash, and a guide groove therefor, of a sash adjusting strip comprising a transversely elastic member having a plurality of longitudinal folds operating to adjust the sash both transversely and in the plane of the sash, said strip yieldingly engaging both the bottom and the side wall of the guide, and means carried by the strip to secure the same within the guide groove to allow of limited lateral play thereof.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE H. FORSYTH.

Witnesses:
S. ELIZABETH BRANDT,
J. JORGENSEN.