April 10, 1934. E. G. SIMPSON 1,954,268

WEATHER STRIP WINDOW SASH CHANNEL

Filed Aug. 5, 1930

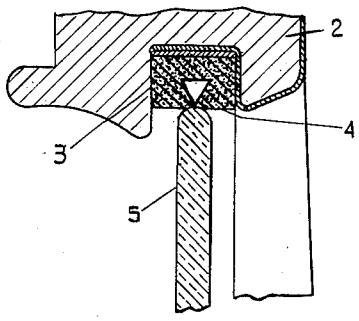


FIG. 2

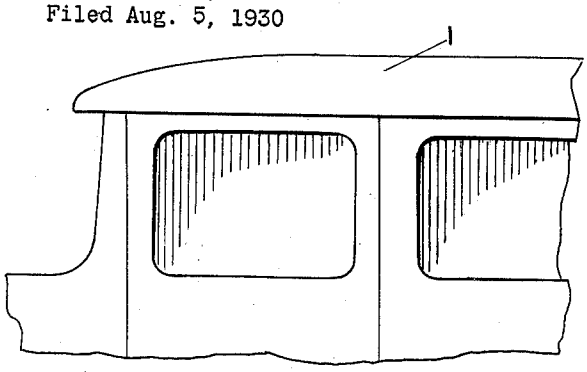
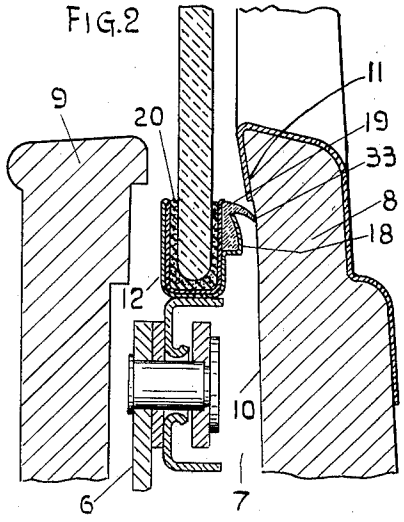


FIG. 1



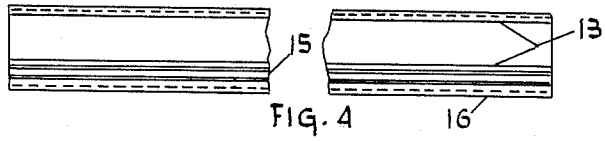


FIG. 4

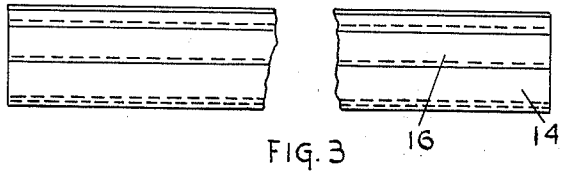


FIG. 3

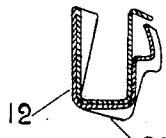


FIG. 5

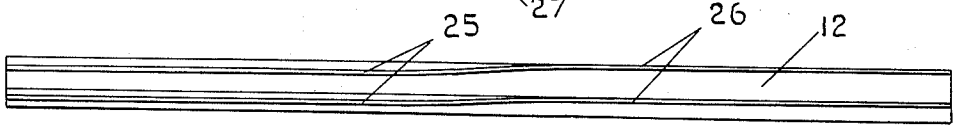


FIG. 6

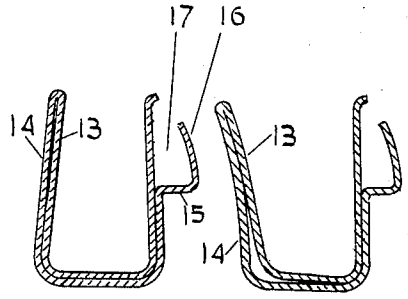


FIG. 7

FIG. 8

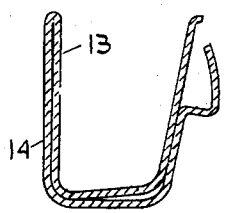


FIG. 9

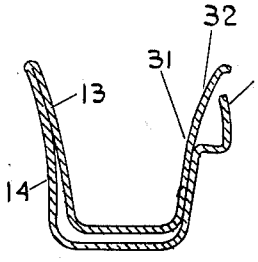


FIG. 10

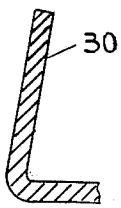


FIG. 11

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WEATHER STRIP WINDOW SASH CHANNEL

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Application August 5, 1930, Serial No. 473,141

7 Claims. (Cl. 296—44)

This invention relates to a weather strip window sash channel.

It is an object of this invention to produce a weather strip window sash channel assembly for the window well of a vehicle body which consists of a rubber lip carried by the window sash channel and which lip has a wiping, sealing engagement with the belt rail.

This invention relates more particularly to that type of window sash which comprises a rolled metal channel strip, the upstanding lips of which converge inwardly. This type of sash is arranged to be snapped over the edge of the window so that the upstanding lips, owing to their resiliency, yieldably grip the window glass to hold the channel thereon. It is usually customary to interpose a rubber fabric composition pad between the window and the channel which in a measure frictionally assists to retain the sash channel on the window.

In the fabrication of such a rolled metal window sash channel it is practically impossible to achieve perfect symmetry and very often the distortion or lack of symmetry of the channel is appreciable. Then too, it is commercially impracticable to roll the window glass so that its surface is a perfect plane. Hence, the distortion of the channel alone or assisted by the unevenness of the glass surface often causes breakage of the window glass when the channel is snapped in place. This is due to the fact that the unsymmetrical channel is insufficiently flexible or resilient to adjust itself to the window glass.

The thickness of the rolled metal channel stock is determined by two factors, namely, the metal stock must be sufficiently thick to insure sufficient strength on the part of the upstanding channel lips to enable them to yieldably grip the window to hold the channel thereon and at the same time the lips must be sufficiently flexible to adjust themselves to the window owing to the lack of symmetry on the part of the channel and the window as above brought out. At present the thickness of the stock used is substantially .051 of an inch. This thickness can vary on either side of .051 of an inch, the point being that where a single thickness or layer of stock is used to fabricated the channel sash, it is practically impossible to obtain a thickness such that will give the required resilience and at the same time the required gripping strength.

It is the object of this invention to produce a sash channel of substantially the same thickness as is now customarily used and yet which produces a greater flexibility to permit adjustment of the sash to the window and which at the same time has sufficient grip to hold the sash on the window. This has been achieved by laminating the channel so that each lamination is of a less thickness, substantially one half, than the customary thickness of the stock now used and so that the composite thickness of the laminated channel is approximately equal to that of the stock now used in the non-laminated structure.

In the drawing:

Fig. 1 shows a fragmentary section of a vehicle body wherein the weather strip window sash channel may be used.

Fig. 2 is a vertical section showing the position of the window sash channel and associated weather strip when the window is closed.

Fig. 3 is a front elevation of the window sash channel with the glass removed.

Fig. 4 is a top plan view of the window sash channel with the rubber lip removed.

Figs. 5 and 6 are exaggerated end and top plan views respectively of the window sash channel showing the absence of symmetry or distortion on the part of the channel.

Figs. 7 to 10 inclusive are sectional views of the window sash channel illustrative of the relative movement between the laminations of the channel to permit adjustment of the same to the window.

Fig. 11 is a fragmentary section of a non-laminated sash channel showing the thickness of the same.

Referring more particularly to the drawing, the vehicle body may be generally designated 1. The window structure of the body comprises a header bar 2 having an undercut channel 3 provided with a suitable rubber header strip 4 which is arranged to seal the upper edge of the window 5 when in raised position. The window 5 may be raised and lowered by a suitable window regulator generally designated 6. The window retreats into a suitable window well 7, the upper portion of which is defined by the belt rail 8 and lock board 9. The inner face 10 of the belt rail 8 slants inwardly as at 11 for reasons which will be explained below.

Secured to the lower edge of the window 5 is a rolled metal window sash channel generally designated 12. The channel 12 is shown in an enlarged section in Fig. 7 and comprises a thin sheet of rolled metal stock which is folded back upon itself to form a laminated channel. The inner lamination may be designated 13 and the outer lamination 14. The outer lamination 14 is bent outwardly from the inner lamination 13 as at 15 and then upwardly as at 16 to form the offset channel 17. The channel 17 is arranged to receive an L-shaped rubber weather strip. The L-shaped rubber weather strip is inverted so that the portion 18 fits in the channel 17 and the outwardly projecting lip 19 engages with a wiping action the upper inclined face 11 of the belt rail 8 to thereby seal the window well against the outside air and rain.

It will be noted that the upstanding lips of the

channel converge inwardly and upwardly. Hence, they grip the lower edge of the window to hold the sash assembled to the window when snapped thereon. A suitable rubber composition padding 20 may be inserted between the channel and the lower edge of the window 5.

In Fig. 6 is shown an exaggerated view of the window channel 12. It will be noted in this view that the portions 25 of the upstanding lips are out of alignment with the portion 26 of the upstanding channel lips. The same is true of the base of the channel strip as at 27, shown in the end view of the channel (Fig. 5). Obviously the distortion in actual practice is not this great but the exaggeration is necessary to better bring out the scope of the invention.

When such a channel as is shown in Figs. 5 and 6 is snapped over the bottom edge of the window 5 so that the upstanding lips grip the lower edge of the window glass to retain the channel thereon, a certain amount of relative movement occurs between the inner and outer laminations 13 and 14 of the sash channel. This relative movement is brought out in Figs. 7 to 10 inclusive. As the distorted channel (shown in Figs. 5 and 6) is snapped onto the lower edge of the window glass a certain amount of lateral relative movement occurs between the inner and outer laminations 13 and 14 as brought out in Figs. 8, 9, and 10. These figures show the displacement of the inner and outer laminations relative to each other which permit the channel to adjust itself to the glass.

A further reason for the greater flexibility of this type of laminated sash channel is that the total thickness of the inner and outer laminations 13 and 14 is approximately that of the non-laminated channel 30 shown in Fig. 11. It is well-known that of two sheets of rolled stock, the thinner of the said pieces will be the more flexible. Hence, here instead of one thick piece of rolled stock such as is used in the channel 30, (which comparatively shows the old practice) we have two thicknesses 13 and 14 which together approximate in thickness that of the single piece of rolled stock in the channel 30. Hence, the two thin laminations 13 and 14 have somewhat of a leaf spring action relative to each other to permit greater flexibility than the single thickness of the channel 30.

Further, the upstanding lip of the sash channel which has the offset channel 17 for the rubber weather strip has the single thickness of metal from the point 31 upward (Fig. 10) which obviously permits a greater flexibility of this portion of the upstanding channel lip. This portion of the channel lip above the line 31 may be designated 32. If the portion 32 were unassisted it might not have sufficient strength to properly grip the window to assist in retaining the sash on the window, but portion 32 is backed up by the flexible portion 16 of the offset weather strip channel 17 and the intervening rubber insert 18. Hence, the flexibility of the portions 32 and 16 in conjunction with the rubber insert weather strip 18 are sufficiently strong to cooperate with the other lip of the channel to grip the lower edge of the window glass and retain the channel thereon.

It will be noted that when the window is in raised position, as shown in Fig. 2, the lip 19 is not compressed between the belt rail 8 and the sash channel 12. When the window is being raised, the lip 19 has a wiping engagement with the slanted face 11 of the belt rail 8. Hence, when the window is completely raised, the rubber weather strip 18 is not compressed, but merely yieldably engages the belt rail as at 33.

It is obvious from the above description that there is here produced a composite or laminated window sash channel comprising a plurality of relatively thin interfitting channels characterized in that the interfitted channels are relatively movable and have an aggregate thickness substantially equal to that of the customary commercial window sash channel formed of a single thickness of sheet metal.

I claim:

1. A sash for a window glass comprising a sheet of rolled stock folded back upon itself to form a channel laminated on all sides with upstanding lips arranged to engage the said window to hold the sash thereon.

2. A sash for a window glass comprising a single sheet of rolled stock folded back upon itself to form a double-walled channel having upstanding and inwardly converging lips arranged to yieldably engage the window to retain the sash thereon.

3. A sash for a window glass comprising a single sheet of rolled stock folded back upon itself to form a channel laminated on all sides with upstanding lips arranged to yieldably engage the window to retain the sash thereon, the laminations of the said sash channel being relatively movable to permit adjustment of the sash channel to the said window.

4. A sash for a window glass comprising a single sheet of thin, relatively flexible sheet metal stock folded back upon itself to form a double-walled channel with upstanding lips arranged to yieldably engage the said window glass to retain the sash thereon.

5. A sash for a window glass comprising a pair of metal channels telescoped one within the other and adapted to function as a unit to grip the window glass to retain the sash thereon, the upper longitudinal edge of one of the lips of the outer channel being offset to form a channel with the adjacent lip of the inner channel, and a distortable weatherstrip carried in the said offset channel and gripped between the offset lip portion of the outer channel and adjacent the lip of the inner channel.

6. A sash for a window glass comprising a pair of metal channels telescoped one within the other and adapted to function as a unit to grip the window glass to retain the sash thereon, the said channels being free to flex one relative to the other, the upper longitudinal edge of a lip of the outer channel being offset to form a groove with the adjacent upper longitudinal edge of the lip of the inner channel, and a rubber weatherstrip mounted in the said groove and gripped between the upper longitudinal edges of the lips of the said inner and outer channels.

7. A sash for a window glass comprising a single sheet of thin, relatively flexible sheet metal stock folded back upon itself to form a double-walled channel having a base portion, and upstanding lips arranged to yieldably engage the window glass to retain the sash thereon, the said sheet metal stock being about .025 of an inch in thickness.

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