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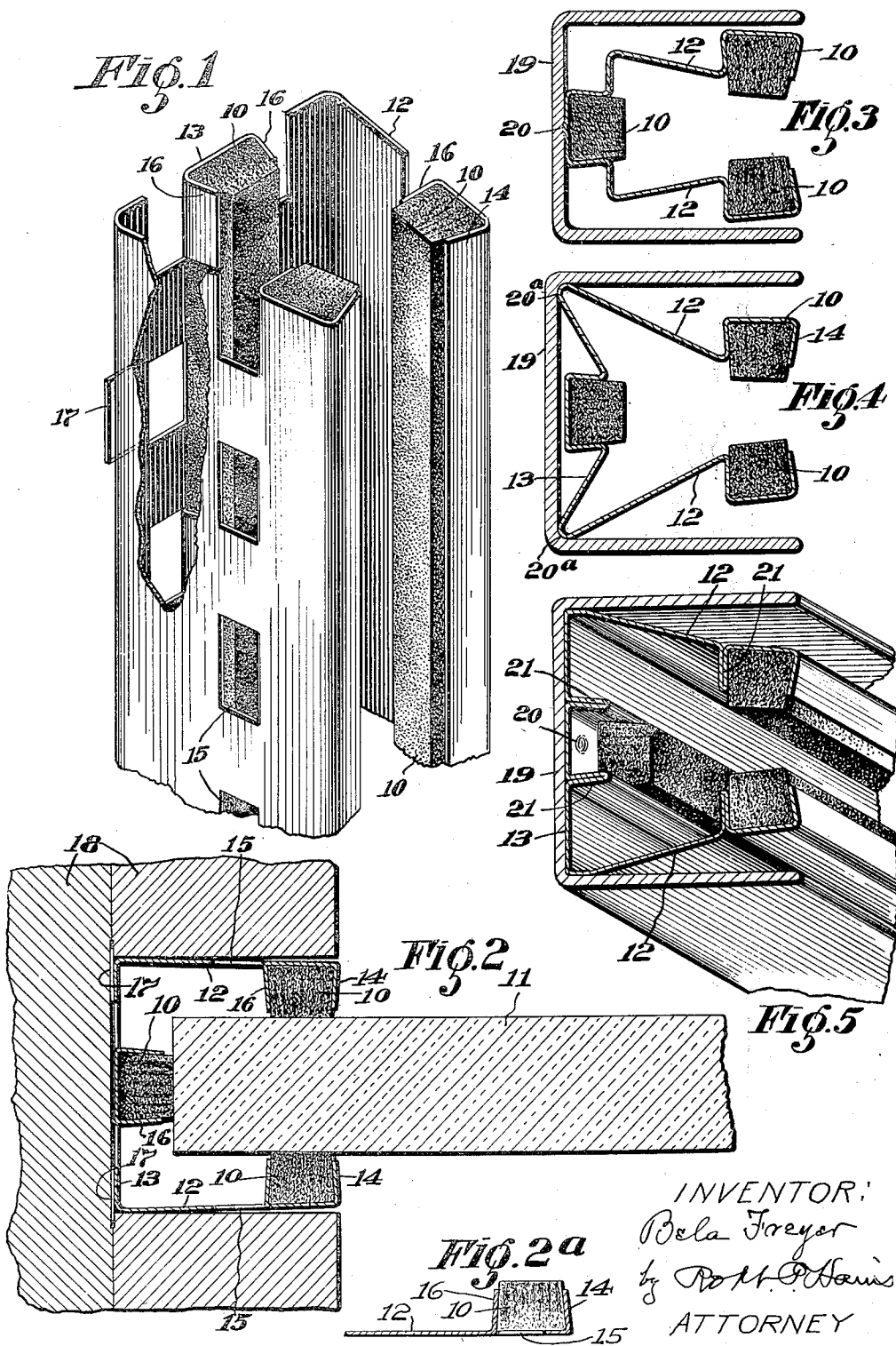
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B. FREYER

WINDOW CHANNEL

Filed Dec. 13, 1926

2 Sheets-Sheet 1



INVENTOR:
Bela Freyer
by R. H. Harris
ATTORNEY

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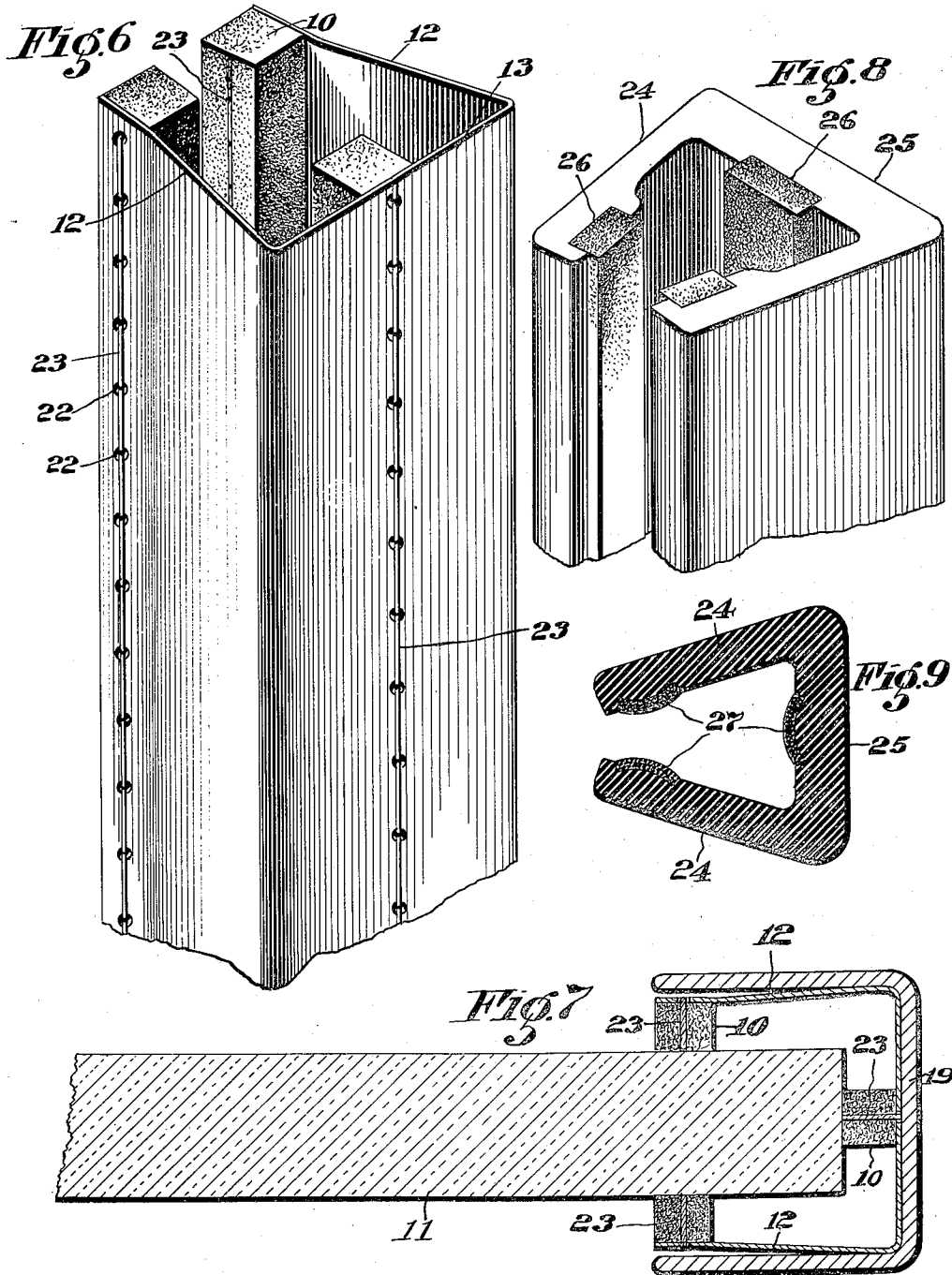
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INVENTOR:
Bela Freyer
BY Robert O. Harris.
ATTORNEY

UNITED STATES PATENT OFFICE.

BELA FREYER, OF PORT CHESTER, NEW YORK, ASSIGNOR TO AMERICAN FELT COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

WINDOW CHANNEL.

Application filed December 13, 1926. Serial No. 154,452.

This invention relates to window channels and more particularly to means for attaching strips of felt or other cushioning material to the channel bars.

Window channels as commonly constructed heretofore have been formed of a channel bar in which is laid a folded strip of felt or other cushioning material, the arrangement being such that the folded strip conforms to the trough shaped construction of the channel and forms a complete lining for the inner walls of the channel bar.

While window channels formed in the manner just described afford a soft guide-way for a window, difficulty is experienced in holding the cushioning material in place since the sliding movement of a window within its channel bars tends to drag the cushioning material lengthwise of the channel bars.

If an adhesive is used to secure the cushioning material in the channel bars the adhesive may become soft and sticky upon exposure to moisture, and may penetrate through the cushioning material and cause the window to stick to this material. On the other hand, if rivets, nails or other metallic fasteners are inserted through the cushioning material to secure it in the channel bar, the window glass is likely to be injured by the engagement of its edges with these metallic fasteners.

Having the foregoing in mind, the present invention contemplates a window channel in which narrow thick strips of cushioning material are secured to the different walls of the channel bar so that the strips lie in spaced relation to each other and are arranged so that they clear the corners of the glass. This arrangement of the cushioning strips not only facilitates their attachment to the channel bars, as will presently appear, but by clearing the corners of the glass the dragging friction between the cushioning material and the sliding window is materially reduced. Furthermore, the tendency of the corners of the glass to cut the cushioning material is eliminated.

The provision of narrow spaced strips of cushioning material in accordance with the present invention has the further advantage in that it results in a substantial saving in the amount of material required to line a channel bar.

The various features of the invention and

novel arrangement of parts will be best understood from the following description when read in connection with the accompanying drawings showing good practical forms of the invention.

In the drawings,—

Fig. 1 is a perspective view of a window channel constructed in accordance with the present invention.

Fig. 2 is a transverse sectional view through a window frame showing a window provided with the window channel of Fig. 1;

Fig. 2^a is a sectional view through one of the side walls of Fig. 2 but shows a different form of strip holding lip;

Fig. 3 is a transverse sectional view of a modified type of a window channel mounted in a metal window frame;

Fig. 4 is a view similar to Fig. 3, but shows another modified construction;

Fig. 5 is a sectional perspective view of a further modified construction;

Fig. 6 is a perspective view of still another modified construction;

Fig. 7 is a transverse sectional view through a window frame showing the window provided with the window channel of Fig. 6;

Fig. 8 is a perspective view of a further modified construction, showing a rubber window channel having felt strips.

Fig. 9 is a transverse sectional view of a rubber window channel provided with fabric strips.

The various types of window channels forming the subject matter of the present invention may be mounted in a wooden window frame as shown in Fig. 2, or they may be mounted in a metal window frame as shown in Figs. 3, 4, 5 and 7.

In each of the modifications shown it will be noted that the strips of felt or other cushioning material are relatively narrow so that when secured in place they lie in spaced relation to each other, and are positioned to engage the opposite side faces of the window glass, but do not engage the glass at the corners formed at the juncture of the side walls and edge of the glass.

In each of the constructions shown the channel bar is formed of resilient material. While this is not an essential feature in all embodiments of the invention, it is desirable as it increases the cushioning effect of the window supporting channel. In Figs. 1 to 7

inclusive the channel bar is shown as formed of sheet metal, whereas in Figs. 8 and 9 the channel bar is formed of rubber.

In the embodiment of the invention shown in Figs. 1 to 5 inclusive, the cushioning strips 10 are secured to the side walls 12 of the channel bar near the outer edge of these walls by bending the metal of each side wall to form a strip receiving groove or trough, and the metal of the bottom wall 13 of the channel bar is likewise bent to form a strip holding groove.

In Figs. 1 and 2, the strip receiving channels for the side walls are formed by bending inwardly the marginal edge of the side walls as at 14 and by cutting the metal of the side walls along three sides of the openings 15 to form the lips 16 which are bent inwardly to form one side of the strip receiving groove above mentioned. The cushioning strips 10 are made relatively thick and narrow as shown and are retained in place by bending the portions 14 and 16 into gripping engagement with the strip. The construction is such that the material of each strip extends inwardly a substantial distance beyond the groove forming portions 14 and 16 with the result that the strip holding portions 14 and 16 are prevented from contacting with the glass 11. The strip 10 at the base of the channel bar is similarly secured in place by providing the holding lips 16.

In some cases it may be desirable to form the lips 16 so that the openings 15 which are produced in forming the lips 16 will be covered by the strip of material 10. That is, in some constructions it may be desirable to close the openings 15 so that air from the atmosphere cannot enter through these openings. This is readily done by employing the construction of Fig. 2^a wherein it will be seen that the opening 15 lies under the strip 10 and not at one side of this strip, as in Figs. 1 and 2.

Various means may be provided for securing the window channels in the window frame, and in the construction shown in Figs. 1 and 2 this is accomplished in accordance with the present invention by providing the channel bar with the additional lips 17 which are bent so that they extend outwardly beyond the side walls 12, the construction being such that as the window channel of Figs. 1 and 2 is forced lengthwise of the wooden window frame 18 the lips 17 will cut a groove lengthwise of the wooden frame in which the lips 17 lie to hold the window channel in place, or these lips 17 may project from the side walls 12 into slots previously formed in the window frame 18.

The resilient walls 12 are so constructed that they normally extend inwardly toward each other as shown in Fig. 1, with the result that when the parts are assembled as in Fig. 2 each side wall 12 is free to yield outwardly

slightly under pressure toward the wall of the window frame 18. In this manner the cushioning effect afforded the glass by the strips 10 is increased by the resiliency of the side walls 12.

In Figs. 3, 4, 5 and 7 the channel bar is shown as mounted within a metal window frame 19. Various means might be employed for securing the channel bar within this metal frame, and in the construction shown in Figs. 3 and 5 this is accomplished by spot welding, as indicated by 20.

In the constructions shown in Figs. 3, 4 and 5 the strip holding lips 16 of Figs. 1 and 2 are not employed, but the sheet metal forming the channel bar is bent to form the various strip receiving grooves, as clearly shown by the drawings. In the construction shown in Fig. 3 only the central portion of the bottom wall engages the base portion of the window frame 19, and the side walls 12 have a tendency to spring inwardly away from the side walls of the window frame, as shown, but the introduction of the window 11 between the cushioning strips will force these side walls outwardly into engagement with the side walls of the window frame 19.

In the embodiment of the invention shown in Fig. 4 the construction is such that the strip engaging portion of the bottom wall 13 normally lies in spaced relation to the bottom of the window frame 19, as shown. This construction has the advantage that the base portion of the channel bar may yield outwardly under pressure towards the window frame, thus increasing the cushioning effect afforded the edge of the glass 11. The construction of Fig. 4 has a further advantage in that it is frictionally held in the window frame 19 by the outward pressure of the rounded portions 20^a of the channel bar, as will be apparent from the drawing.

In Fig. 5 the groove which retains the bottom strip 10 in place is formed by bending the metal of the channel bar back upon itself, as indicated at 21, and one side of each of the grooves provided in the side walls 12 is similarly formed.

The strips employed in lining window channels are usually formed of felt, but it is found that these felt strips expand to a pronounced degree in the presence of moisture, with the result that windows which will slide freely in their supporting channels in dry weather, will stick and bind in wet weather, due to the swelling of the felt channel lining.

This difficulty is corrected in accordance with the present invention by arranging the felt strips 10 so that the fibres of these strips extend at right angles to the face of the glass they engage, as shown in Figs. 1 to 5 inclusive, instead of extending parallel to the face of the glass as has been customary heretofore.

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In other words, it has been customary heretofore to lay a felt strip in the window channel so that a flat face of the felt strip engages a face of the window. But in accordance with the present invention the relatively narrow thick strips 10 are arranged in the channel supporting grooves so that an edge of each strip, rather than a flat face thereof, rests against the glass 11. As a result of this construction, when a strip 10 expands, due to the presence of moisture, the expansion takes place in a direction parallel to the face of the glass which the strip engages, rather than toward the glass as has been customary heretofore. The expansion of the strips 10 just mentioned will not increase the pressure upon the glass 11 but will be in a direction to spring the side walls of a strip holding groove outwardly slightly in the constructions shown in Figs. 3, 4 and 5, whereas in the construction shown in Figs. 1 and 2 the felt strip upon expanding may bulge outwardly somewhat between the spaced lips 16.

It will be seen from the foregoing that by arranging the strips 10 so that the fibres extend at right angles to the face of the glass 10, as indicated in the drawings, the binding effect of the strips experienced heretofore in wet weather is entirely eliminated, and the present arrangement of the felt strips has the further advantage in that by arranging these strips so that the fibres extend approximately parallel to the side walls 14 and 16 of the strip holding channels the strips may be more firmly held in place.

In the construction shown in Figs. 6 and 7 the strip receiving grooves above mentioned are omitted and the cushioning strips 10 are secured to the side walls 12 and to the bottom wall 13 of the channel bar by a sewing operation. To this end the walls of the channel bar are provided with the spaced holes 22 adapted to receive the binding threads 23 which pass through the strip 10 and through the holes 22, as will be apparent from the drawing.

In the embodiment of the invention shown in Fig. 8 the channel bar is formed of rubber and the side walls 24 and bottom wall 25 of this rubber channel are preferably provided with the felt strips 26 which are fitted in the strip receiving grooves formed in the inner faces of the walls 24 and 25. These strips may be fastened in their grooves by the use of cement. The channel bar of Fig. 9, like that of Fig. 8, is made of rubber, but in Fig. 9 the strips 27 are formed of a fabric material such as a woven product.

From the foregoing description when read in connection with the drawings, it will be seen that various means may be employed for attaching the narrow thick cushioning strips 10 to the walls of the channel bar, and that by mounting the strips in spaced relation to

each other, as shown, so that they do not engage the corners of the glass, the tendency of these corners to cut the cushioning material is avoided. In this manner the friction between the sliding window 11 and strips 10 is reduced and the tendency of the sliding window to drag the strips lengthwise of their channel bars is likewise reduced.

I claim—

1. A window channel, comprising a spring metal channel bar adapted to receive the edge portion of a window between its spaced side walls and a narrow thick strip of cushioning material secured to each side wall in spaced relation to the bottom wall of the channel bar, each side wall being provided at intervals along its length with inwardly projecting lips positioned to form a strip receiving trough between them and engage the strip near its base and thereby hold it so that the lips do not engage the window-engaging face of the strip throughout its length.

2. A window channel, comprising a channel bar formed of sheet metal and adapted to receive the edge portion of a window between its spaced side walls, a strip of cushioning material mounted within the channel bar, and means securing the channel bar within a groove of a window frame, comprising outwardly projecting lips formed at intervals along the channel bar at points a substantial distance from the marginal edges of the strip of metal forming the channel bar and arranged to extend laterally from the side walls of the bar into locking engagement with the window frame.

3. A window channel, comprising a channel bar adapted to receive the edge portion of a window between its spaced side walls, a strip of felt that is approximately square in cross section for each side wall of the channel bar, and means including strip receiving grooves formed within the channel bar; securing the strips of felt to the respective side walls so that the fibres of each felt strip extend in a direction at right angles to the face of the window they engage.

4. A window channel, comprising a channel bar adapted to receive the edge portion of a window between its spaced side walls, a thick strip of felt for each side wall of the channel bar, and means securing the strips of felt to the respective side walls and adapted to engage the opposite faces of a strip and hold it so that an edge of the thick felt strip instead of a face thereof rests against the face of the window.

5. A window channel, comprising a channel bar of sheet material adapted to receive the edge portion of a window between its spaced side walls, each side wall and the bottom wall of the channel bar being bent to form a strip holding groove that lies in its entirety in front of the plane of its supporting wall, and a narrow thick strip of

cushioning material mounted in each of said grooves and retained therein by the engagement of the side walls of a groove with the cushioning strip.

- 5 6. A window channel, comprising a sheet metal channel bar adapted to receive the edge portion of a window between its spaced side walls, each side wall and the bottom wall of the channel bar being bent to form a strip holding groove, and a narrow strip of cushioning material mounted in each of said grooves and supported thereby in spaced relation to the other strips and so that each strip engages the window throughout its length.

- 10 7. A window channel, comprising a sheet metal channel bar adapted to receive the edge portion of a window between its spaced side walls and having its bottom wall bent to form a narrow strip holding groove that is

disposed in spaced relation to the side walls of the channel bar, a narrow thick strip of cushioning material mounted in said groove, and a strip of cushioning material secured to each side wall of the casing in spaced relation to the strip mounted in said groove. 25

8. A window channel, comprising a channel bar adapted to receive the edge portion of a window between its spaced side walls, each side wall and the bottom wall being constructed to form a strip holding groove, and a narrow strip of cushioning material mounted in each of said grooves and supported thereby in spaced relation to the other strips and so that each strip engages the window throughout its length. 30 35

In testimony whereof, I have signed my name to this specification.

BELA FREYER.