May 26, 1936. C. P. SCHLEGEL 2,042,362

WINDOW CHANNEL

Filed March 23, 1934

Fig. 1

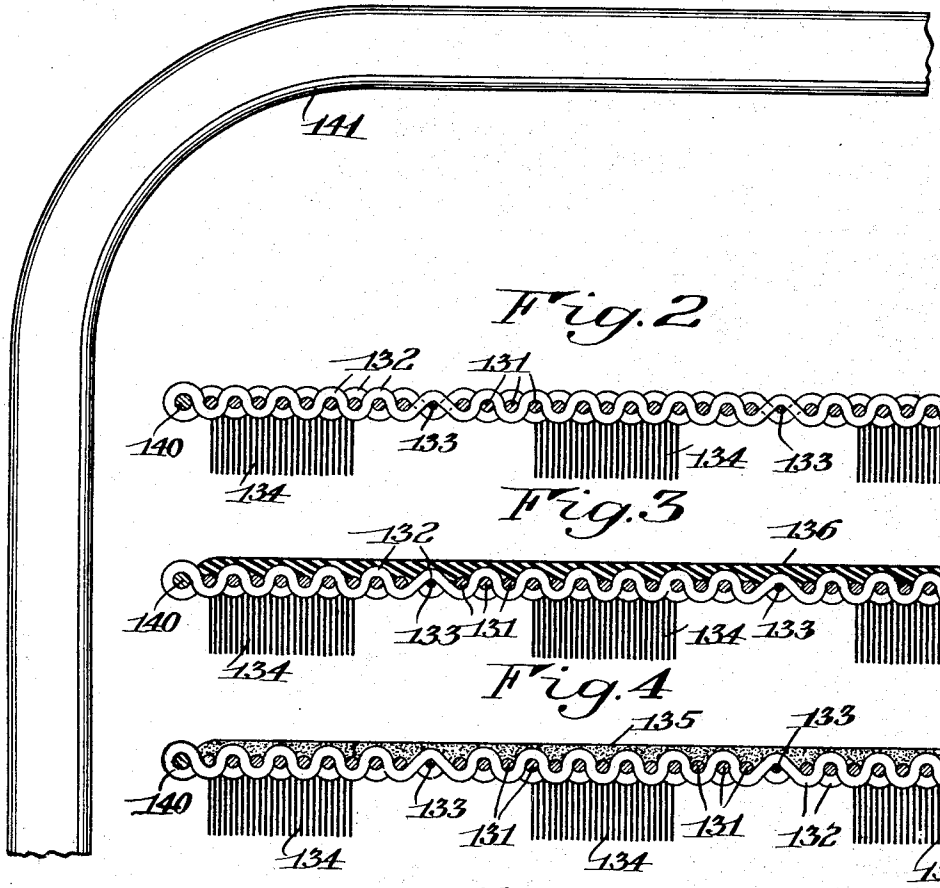
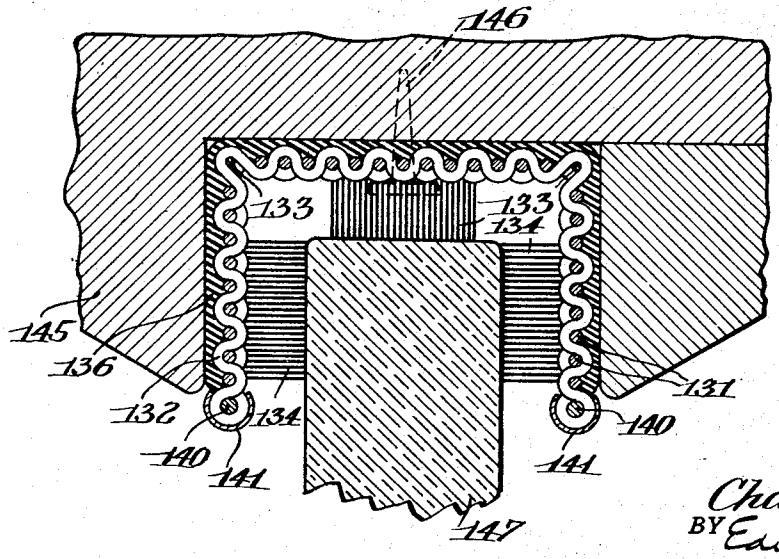


Fig. 2

Fig. 3

Fig. 4

Fig. 5



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WINDOW CHANNEL

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1 Claim. (Cl. 296—44.5)

This invention deals with window channels such as are used for holding or guiding window panes in various kinds of vehicles, including automobiles, aeroplanes, water craft, and the like.

An object of the invention is to provide a generally improved and more satisfactory channel, which can readily be bent both longitudinally and transversely, and yet which is sufficiently stiff to retain its shape properly under normal conditions of use.

Another object of the invention is to provide such a channel having few or no metal parts, the requisite stiffness being obtained by other means.

A further object is the provision of a simple and satisfactory method for making such a channel.

To these and other ends the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claim at the end of the specification.

In the drawing:

Fig. 1 is a side view of a channel constructed in accordance with one embodiment of the invention, illustrating it bent around a corner;

Fig. 2 is a diagrammatic cross section through the channel in flat form, at a preliminary stage of its manufacture;

Fig. 3 is a view similar to Fig. 2 showing the completed channel in flat form, with one embodiment of stiffening means applied thereto;

Fig. 4 is a view similar to Fig. 3 showing a different embodiment of stiffening means, and

Fig. 5 is a diagrammatic cross section through the channel shown in Fig. 3 bent into its normal shape for use and applied to a supporting frame.

The same reference numerals throughout the several views indicate the same parts.

Heretofore window channels have customarily included a layer of fabric or the like embraced by a channel-shaped member of sheet metal for holding the fabric in proper position. The use of a sheet metal channel member of the usual form has prevented the channel as a whole from being readily bent either longitudinally or transversely, although both forms of bending are highly desirable. The ability of a window channel to be bent transversely, enables it to be made, packed, and shipped in flat form (as shown, for example, in Figs. 2 to 4 of the present drawing) and then to be bent up or erected into channel-shaped form at the time of installation in the vehicle. The ability of the channel to be bent longitudinally enables it to be bent around rounded corners of a window frame, as shown, for example, in Fig. 1 of the present drawing. The conventional channel including a fairly rigid sheel metal embracing body, has been lacking in both of these desirable respects.

It has heretofore been proposed to provide slits or cut-out portions in the sides alone, or partly in the sides and partly in the bottoms, of such sheet metal members in order to permit the channels to be bent in a longitudinal direction. But this has still not allowed the channel to be bent in a lateral or transverse direction, so that the channel still had to be made, packed, and shipped in erected channel-shaped form and could not be shipped in the more convenient flat form.

It has also been proposed, by this present applicant, to provide a channel in which a sheet metal embracing member is not used, but in which the requisite stiffness is obtained by the use of wires. Such channels have been a marked advance over the prior constructions, since the wires have held the channel sufficiently stiffly under ordinary conditions of use, but have at the same time allowed it to be bent both transversely and longitudinally. For some classes of work, however, channels employing wires are more expensive than desired, and the present invention has been developed in order to provide a channel which is capable of being bent both transversely and longitudinally, and yet which is held sufficiently stiffly without the necessity of using wires or the like. According to the present invention, the woven fabric channel body is stiffened by the use of a non-metallic stiffening compound or material.

Referring now to the drawing, there is shown in Fig. 2 a diagrammatic cross section of a channel in flat form at an intermediate stage of its manufacture. The channel has a main fabric body of woven non-metallic textile material (such as cotton or linen) including warp strands indicated diagrammatically at **131** and weft strands indicated diagrammatically at **132**. This woven body may be weakened along longitudinal lines corresponding to the corners of the channel when bent up into its normal shape, in order to assist easy bending and to insure bending at the proper points. Such weakened lines may be formed, for example, by the use along each desired corner line of one or more warp strands **133** of smaller size than the others and, if desired, spaced further from the adjacent strands than the normal spacing between the other warp strands.

Suitable cushioning means **134** is provided on

one or more faces of the woven body. This cushioning means may be of various forms known to those skilled in the art, but preferably it is in the nature of a relatively long stiff pile which will form a cushioning support for the window and hold it away from the woven body of the channel, as disclosed in my United States Patent No. 1,847,700, issued March 1, 1932. The pile or other cushioning means preferably extends along the fabric body in three laterally spaced lines, as plainly shown in the drawing, so that when the channel is erected into normal channel-shaped form (as in Fig. 5) there will be a line of padding or cushioning on the inner face of the bottom or base section of the channel and a line of padding or cushioning along the inner face of each side wall of the channel.

The woven textile body shown in Fig. 2 may be so woven as to be readily flexible and indeed so flexible that under normal conditions of use it might not hold its shape properly. According to the present invention this woven textile body is stiffened by the application to it of a stiffening compound or material, which compound or material may in some instances impregnate or partially impregnate the woven body.

The stiffening compound or material may be of any suitable form, applied preferably to the back of the fabric body in a wet or plastic condition and subsequently allowed to dry or harden. Such material is indicated at **135** in Fig. 4 of the drawing. It may be any suitable known form of sizing or other stiffening compound, although it is preferred at present to employ a cellulosic compound of any suitable formula. Among typical suitable formulas for this purpose may be mentioned those disclosed in United States Patent No. 1,397,173, issued November 15, 1921, to Mitchell, or No. 1,400,196, issued December 13, 1921, to Willkie, or No. 1,444,333, issued February 6, 1923, to Clarke, or No. 1,521,859, issued January 6, 1925, to Bohan. Those skilled in the art will readily understand how to modify the above or other known cellulosic formulas, by the addition of solvents or otherwise, to make them most suitable for use as a coating for the window channel body.

In a slightly different embodiment of the invention which is preferred under some conditions, the stiffening coating or material is of rubber, as indicated at **136** in Fig. 3 of the drawing. This may be a layer of rubber separately formed and then cemented or otherwise applied to the fabric body, or it may be applied to the woven body while plastic and vulcanized thereto, or applied in any other suitable way known in the art. What is known as "extruded rubber" is found to be quite suitable.

If desired, and particularly when a decorative edge or finish is wanted on the channel, the edges of the channel may be provided with enlarged warp strands **140** of somewhat larger diameter than the other warp strands, and these may be embraced by beads **141** running along the edges of the channel and clamped around the enlarged warp strands sufficiently tightly to prevent lateral displacement and yet sufficiently loosely so that the beads may slide longitudinally along the channel so as not to interfere with the longitudinal bending of the channel around a corner as shown in Fig. 1. Such beads may be made of any suitable sheet material such as thin sheet metal, and serve not only as a decorative finish, but also to hold the edges of the channel true and straight.

In use, the completed channel, when ready for installation, is bent up from flat form into a generally U-shaped form as shown at Fig. 5, and is inserted in a suitable groove or rabbet in a support or frame **145**, being held therein, for example, by tacks **146** driven at intervals through the bottom or base portion of the channel. The channel is then in proper form to support and serve as a mounting for a window **147**, which may be either fixed in the channel or slidable therein.

The form of channel stiffened with rubber is particularly advantageous because the layer of rubber on the outer face of the channel forms to some degree a cushion between the woven channel body itself and the surrounding support or frame.

The stiffening material in each embodiment of the invention also has the additional advantage that it helps to hold the various fibers of the textile material in place and is especially advantageous in assisting in holding the pile fibers or other fibers forming the cushioning means. This is particularly true when a rubber coating is used on the fabric, but to some extent also true of other forms of coating, and due to the use of this stiffening coating it may be possible at times to omit some of the threads or strands which would otherwise be required in order to hold the pile strands in place.

The term "non-metallic" as applied to the stiffening material in this specification and the accompanying claim, is not intended to exclude finely ground-up particles of metal such as are used, for example, in aluminum paint, bronze paint, and the like. Obviously such ground-up particles of metal could be added to the stiffening compound or material without thereby destroying the usefulness of this invention or departing from its spirit.

While certain embodiments of the invention have been disclosed, it is to be understood that the inventive idea may be carried out in a number of ways. This application is therefore not to be limited to the precise details described, but is intended to cover all variations and modifications thereof falling within the spirit of the invention or the scope of the appended claim.

I claim:

A window channel capable of being bent both transversely and longitudinally, comprising a main body of readily bendable woven textile material, a thin coating compound applied to and at least partially impregnating said textile material, said coating in itself having insufficient stiffness to form a self-sustaining window channel but serving to stiffen said textile material sufficiently to form a channel capable of being laid substantially flat and of being bent up transversely into a channel shaped cross section and of being self-sustaining in the rabbet of the window frame, and means forming relatively thick, interwoven cushioning on certain faces of said textile body for cushioning a sash embraced by said window channel and holding said sash out of contact with said textile body.

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