

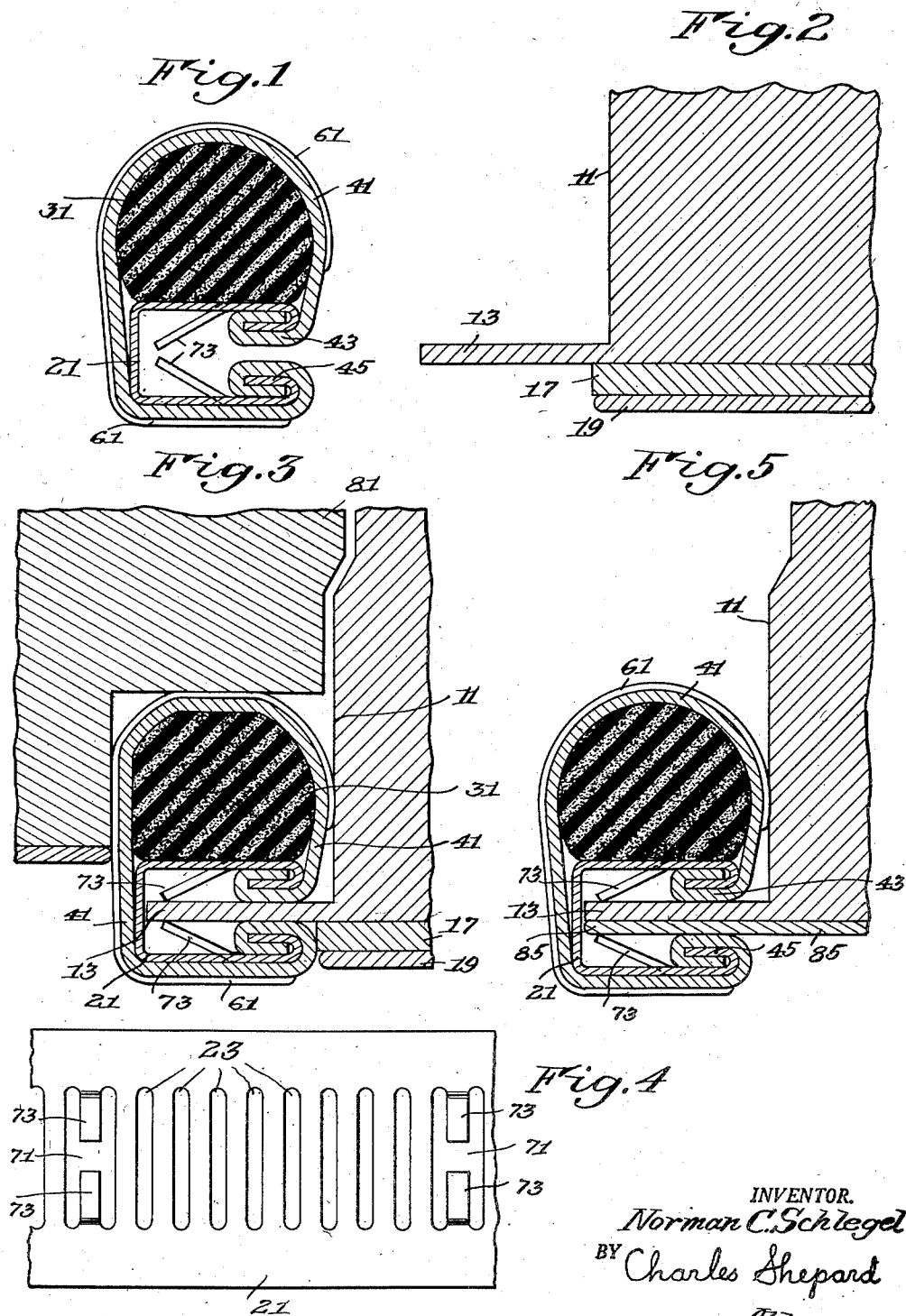
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QUICK-ATTACHABLE WINDLACE STRUCTURE

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QUICK-ATTACHABLE WINDLACE STRUCTURE

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The present invention relates to a quick attachable windlace construction adapted especially, although not exclusively, to the trimming of motor vehicle bodies in such manner as to exclude drafts and dirt at the joints around the edges of the doors.

To be wholly satisfactory, a windlace structure, under modern conditions of mass production of automobile bodies, should fulfill many different requirements, including the following requirements of major importance:

1. It should provide a good tight seal between the body and the door, when the door is closed.

2. It should have a long service life; in other words, it should continue to provide a good tight seal even after several years of use.

3. It should provide an attractive appearance.

4. The windlace should be so designed and constructed that it may be applied easily and quickly to the automobile body, without the use of tools of any kind and without requiring special fastening means such as screws or rivets.

5. It should also be so designed and constructed as to conform to the curvatures customarily found at the corners of the door opening of the automobile body.

6. In spite of the lack of screws, rivets, or other special fastening means of that kind, the windlace structure should stay put permanently once it has been applied to the automobile body, without any substantial likelihood of becoming accidentally detached or displaced.

7. It should be so designed and constructed as to be capable of being manufactured easily and economically.

Many prior forms of windlace or weatherstripping construction are known, the art being an old one, and there are many known structures which fulfill some or even several of the foregoing requirements. However, so far as applicant is now aware, there is no prior structure which fulfills all of the above requirements to a satisfactory degree. The object of the present invention is to provide a windlace structure which will fulfill all of the above requirements to such a high degree as to be commercially practicable and feasible, and which, in addition, provides such other advantages and benefits as will be apparent hereafter.

These and other desirable objects may be attained in the manner disclosed as an illustrative embodiment of the invention in the following description and in the accompanying drawings forming a part hereof, in which:

Fig. 1 is a transverse section through a windlace in accordance with a preferred embodiment of the invention;

Fig. 2 is a transverse section of a body post of an automobile, of the type to which the windlace is to be applied;

Fig. 3 is a transverse section through the windlace and body post and a fragment of the door, showing the parts in normal assembled position with the door closed;

Fig. 4 is a face view of a metal stiffening member forming part of the windlace construction, in a preliminary stage of manufacture; and

Fig. 5 is a view similar to a portion of Fig. 3, showing the present windlace applied to a modified body construction.

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

Referring first to Fig. 2, there is shown at 11 a fixed part of an automobile body of conventional structure, this part being adjacent the opening edge of the door of the vehicle and constituting, in effect, the door frame,

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commonly referred to as the body post. The exact construction of the body post itself is subject to variations, as well understood in the art, the form here shown being merely illustrative of the general type of body post with which the windlace of the present invention is to be used. The body post includes a flange 13 parallel to the plane of the door. In some prior constructions, the free edge of the flange 13 has been folded or doubled back upon itself to provide a thickened edge to retain a windlace or weatherstrip in place. The windlace of the present invention may be used on such a doubled-back flange, if desired, but it is one of the features of the present invention that the windlace will stay in place on a simple flange of uniform thickness, so that the doubled-back edge is not required. A trim panel 17 having a cloth 17 having a cloth or leather facing 19 is customarily attached to the inner face of the body post and other parts of the automobile body structure, to form the interior finish of the body.

Referring now to Fig. 1 of the drawings, the windlace in its preferred form comprises a stiffening body of metal of generally U-shaped cross section, to be applied over the body flange part 13 and to embrace it between the legs or side walls of the metal body, in combination with a resilient body or mass supported directly or indirectly from the above mentioned metal body, the resilient body or mass providing a yielding sealing contact with the vehicle door when the latter is closed, the resilient body and the metal body being combined with each other in such a way and having such details as to fulfill, to a feasible and practical extent, all of the various requirements above mentioned.

The metal body of generally U-shaped cross section is indicated in general at 21, and a face view of this metal body, before being bent to its U-shaped form, is shown in Fig. 4. For the purpose of achieving flexibility in bending the entire windlace around the curves at the corners of the door opening, the metal body is provided with transverse cut-outs or slots 23.

The resilient or compressible body for sealing contact with the door is preferably of approximately circular cross section and is indicated in general at 31. It may comprise either a flexible hollow tube of natural or synthetic rubber or plastic material, or a rod-like or cylinder-like body of inherently compressible or resilient filling material, such as sponge rubber, preferably the latter.

Both to support the resilient body 31 from the metal body 21, and to lend a decorative or attractive appearance to the entire structure, there is a fabric covering which extends around the periphery of the resilient body 31 as indicated at 41. One edge of the fabric strip 41 is inserted in and clamped tightly by an inward reverse fold 43 at the edge of that leg of the metal body 21 against which the resilient body 31 is seated. The other edge of the fabric 41, after leaving the periphery of the resilient body 31, extends over and in covering relation to the back wall or base portion of the U-shaped metal body 21, then over the side wall or leg thereof which is remote from the body 21, and finally is clamped tightly in an inward reverse fold 45 at the edge of this second wall or leg of the metal member 21, all as clearly apparent from Fig. 1. The metal folds 43 and 45 clamp the fabric sufficiently tightly to hold it securely against dislodgement, and the fabric is held under a fair degree of tension while it is being clamped in the metal folds, so that the resilient body 31 is placed and held in some substantial degree of compression, thus holding the body 31 tightly against the outer surface of the adjacent side wall of the U-shaped member 21 and slightly flattening the originally circular contour of the member 31 where it bears against the wall of the member 21.

With this construction, as will be readily appreciated from an analysis of Fig. 1, there are absolutely no raw or exposed edges of the metal body or of the resilient filler 31, all visible parts thereof (when the structure is normally installed in the vehicle body) being covered by the fabric 41. To enhance the attractive decorative appearance of this structure, the fabric itself may have a decorative pattern woven into it or appropriate parts

of it, the so-called pattern face being indicated for example at 61.

At suitable intervals along the length of the U-shaped metal member 21, as for example at intervals of about every two and a half inches, one of the metal strips remaining between the slots 23 is cut transversely as indicated at 71 (Fig. 4) and the free ends of the cut strip on opposite sides of the cut are bent obliquely inwardly as indicated at 73 (Figs. 1 and 3) to form tongues to engage resiliently but tightly with the mounting flange 13 onto which the U-shaped body 21 is shoved. Because of the angularity of the portions 73 as seen in the drawings, they will slip easily onto the flange 13. But upon any attempt to remove the structure from the mounting flange 13, the sharp corners at the ends of the portions 73 will tend to dig into the flange 13 and will greatly resist removal therefrom, so that the portions 73 serve as locking members or retaining members for holding the structure firmly on the mounting flange, even though the mounting flange does not have the thickened edge which is sometimes used, as above mentioned.

The structure above described is quickly applied to the vehicle body post by hand, without the use of any tools whatsoever (assuming, of course, that the windlace has previously been cut to strips of the proper length) merely by pushing the legs of the U-shaped metal member 21 onto the flange portion 13 of the body post with sufficient force to spread the locking or gripping portions 73 slightly apart as they are forced over the edge of the mounting flange 13. The windlace structure is thrust home to the intended position wherein the portions 73 grip tightly against opposite surfaces of the flange 13, and the windlace structure thereby becomes permanently anchored to the automobile body post without any substantial danger of accidental displacement or dislocation. This is the position in which the parts are shown in Fig. 3 which also indicates the vehicle door 81 in its closed position, bearing against and slightly compressing the resilient or compressible body 31 of the windlace, so as to provide a good tight seal against entrance of wind and dirt at the door crack. Simple hand pressure is all that is required to force the windlace structure into its intended final position over the flange 13, and the same simple hand pressure will serve to bend the windlace structure around the curves at the corners of the door openings. No tools are required, and no fastening means other than or separate from the windlace structure itself.

Referring now to Fig. 5, there is here shown the same windlace construction applied to a slightly different automobile body construction in which the thin trim panel 85 extends all the way to the free edge of the mounting flange 13 instead of stopping at the edge of the windlace. This illustrates the fact that the present windlace may be applied over and in embracing relation to a trim panel as well as a metal mounting flange. The U-shaped metal body 21 may, if necessary, be made somewhat wider (with more space between its side walls) to accommodate the added thickness of the trim panel, but the structure is otherwise the same.

Although sheet metal is the preferred material for making the U-shaped body 21, certain aspects of the invention are not dependent upon the use of sheet metal nor, indeed, upon the use of sheet material for forming the U-shaped body.

It is seen from the foregoing disclosure that the above mentioned objects of the invention are well fulfilled. It is to be understood that the foregoing disclosure is given by way of illustrative example only, rather than by way of limitation, and that without departing from the invention, the details may be varied within the scope of the appended claims.

What is claimed is:

1. A quick-attachable windlace structure for motor vehicle bodies having a flange adjacent the edge of a door, said windlace structure comprising a continuous unitary body of generally U-shaped cross-section for mounting on said flange in embracing relation thereto, and having a series of inwardly inclined retaining tongues struck therefrom for engaging said flange to bite into the same to retain said body on the flange, a body of compressible ma-

terial mounted directly on the outer face of a side wall of said body and extending longitudinally along said U-shaped body, and a tensioned fabric facing secured to said U-shaped body and enclosing and compressing said compressible body to retain it thereon.

2. A structure as defined in claim 1 in which said retaining tongues project from both side walls of said U-shaped body obliquely inwardly toward each other and toward the bottom of said U-shaped body, and the edges of the U-shaped body are folded within the body to embrace the opposite edges of the fabric facing and secure it to the U-shaped body.

3. A structure as defined in claim 2, in which said strip of compressible material is at least mainly of sponge rubber.

4. A structure as defined in claim 3, in which said fabric facing is permanently held under sufficient tension in the direction of a cross sectional plane so that said compressible material is normally maintained under compression in a shape uniformly compressed from its initial circular cross sectional shape.

5. A structure as defined in claim 1, in which the side walls of said U-shaped body are folded inwardly and back upon themselves at their free marginal edges, and in which said fabric facing has its marginal edges clamped within and thereby secured to said folded edges of said body and said facing extends from its clamped edges over the outer surfaces of said U-shaped body and said compressible material in substantially completely covering relation thereto.

6. A structure as defined in claim 5, in which said strip of compressible material extends along and lies substantially against the outer face of one side wall of said U-shaped body and is retained in position on said face by means of said fabric facing.

7. A windlace structure comprising an elongated metal body of generally U-shaped cross-section for placement on a mounting flange in embracing relation thereto, a strip of compressible material extending longitudinally along said metal body substantially in contact with the outer face of a first side wall of said metal body, a fabric facing extending from an outer free edge of said first side wall of said metal body outwardly away from said outer face thereof and around the outer side of said compressible strip and thence back to said metal body and across the outer face of the second side wall thereof to the outer free edge of said second side wall, the compressible strip being entirely enclosed by the fabric, and means for securing said fabric facing under tension to said metal body adjacent said outer free edges of said two side walls thereof so that the secured fabric facing serves to hold said compressible strip under compression with the side thereof against said outer face of said first side wall being somewhat flattened.

8. A structure as defined in claim 7, in which said strip of compressible material has an approximately circular cross section whose diameter approximates the width of the side wall on which it is mounted.

9. A windlace structure including an elongated body of generally U-shaped cross section for embracing a mounting flange, an elongated rod-like strip of highly compressible material extending along the outside of said U-shaped body at one side thereof, and a tensioned masking and retaining strip of sheet material overlying said strip of compressible material to hide it and to hold it in a compressed position to said U-shaped body, said masking and retaining strip being stretched approximately tangentially from said rod-like strip to an edge of said U-shaped body and being marginally held to said U-shaped body near the outer edges of the sides thereof.

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