Dec. 14, 1943. G. T. BALFE 2,336,835

GLASS RUN GUIDE

Filed April 10, 1940

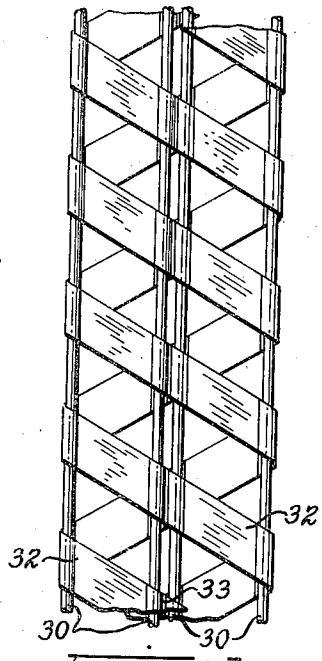


FIG. 1

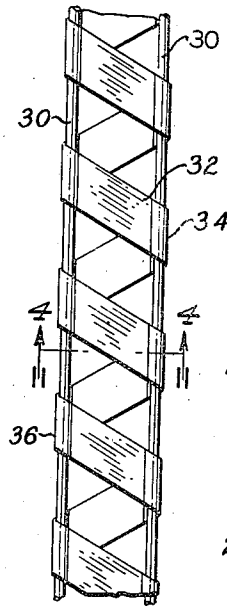


FIG. 2

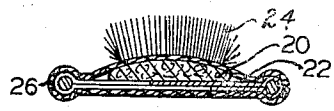


FIG. 4

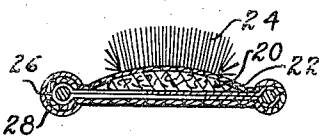


FIG. 5

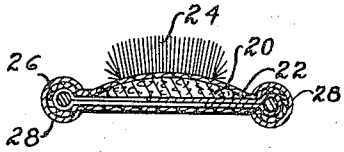


FIG. 6

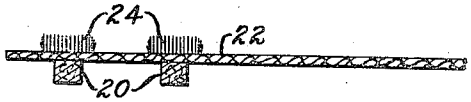


FIG. 3

FIG. 8

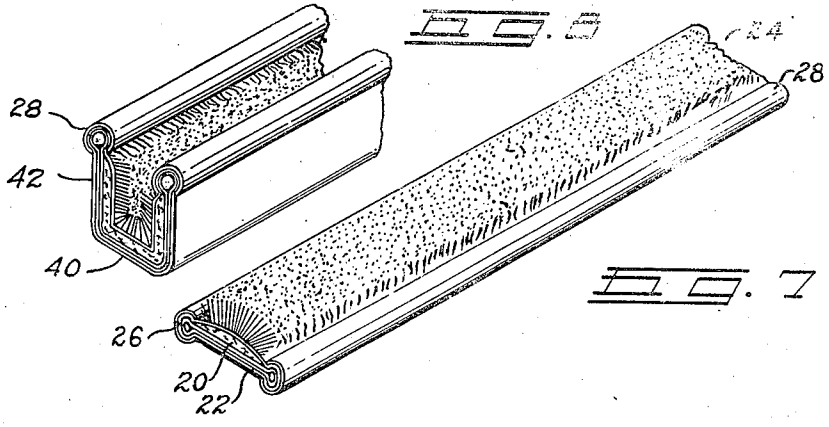


FIG. 7

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GLASS RUN GUIDE

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Application April 10, 1940, Serial No. 328,929

4 Claims. (Cl. 296—44.5)

This invention relates to an improved glass run guide and particularly to a guide such as is adapted for use with the slidable glass windows of closed automobile bodies.

An object is to provide a guide of simple, inexpensive construction and one which will effectively cushion the glass pane against rattle while insuring free slidable movement of the pane and which guide may be freely bent without buckling or bulging to conform with the curvature of the frame member with which it is associated.

Another object is to provide such a guide with an improved form of metallic insert or foundation member which insert carries the cushioning material and about which the covering material is wrapped and which insert is so constructed as to maintain the guide in the desired shape and form while permitting ready flexing of the guide to desired curvatures to conform with curved frame elements.

A meritorious feature is the provision of a metallic insert for a glass run guide, which insert includes a supporting wire that extends along each longitudinal margin of the guide and a plurality of wire strands which extend transversely between said supporting wires and which are arranged in a longitudinal succession therealong. These wire strands constitute a succession of spirals or loops which serve to maintain the supporting wires in braced spaced apart substantially parallel relationship while having limited relative slidable movement longitudinally of the supporting wires to permit curvature of the guide to conform with a curved frame element. The above named advantages together with others will more fully appear from the following specification, appended claims, and accompanying drawing, wherein:

Figure 1 is an elevation of a fabricated multiple insert structure prior to being cut apart to form two individual and separate insert structures,

Fig. 2 is an elevation of a single metallic insert formed from this structure of Fig. 1,

Fig. 3 is an end elevation of covering and cushioning material adapted to be associated with the insert structure of Fig. 1,

Fig. 4 is a cross-sectional view through a glass run guide made up from the structure of Fig. 2 and cushioning material associated therewith,

Fig. 5 is a cross-sectional view taken on the line similar to Fig. 4 but showing a retaining finish tube associated with one margin of the guide,

Fig. 6 is a cross sectional view taken on the same line as Fig. 5 but showing two retaining finishing tubes one associated with each margin of the guide,

Fig. 7 is a perspective of a complete guide structure such as shown in cross section in Fig. 6, and

Fig. 8 is a perspective of a fragment of a modified form of guide which is channel shaped in cross section.

My improved glass run guide is shown as embodied in a flat strip type of guide in Figs. 1 to 7 of the drawing. This guide is shown particularly in figures such as 4 to 7 wherein it appears in completed form though Figs. 5, 6 and 7 exhibit slight modifications as compared with Fig. 4. Two of these guides are associated with each vertical margin of a vertically movable window pane one on each side thereof. They are secured in any conventional manner to the window frame element which positions the pane. Each guide includes a metallic insert such as shown in Fig. 2 and a cushioning element **20** and covering material **22** which carries glass engaging cushioning pile **24**. This covering element is wrapped about the insert and may be adhesively secured thereto. The adhesive preferably extends through the openings in the insert so that the rear wall of the covering material is secured to the cushioning element **22**, which cushioning element **22** is also adhesively secured to the front wall of the covering material. This covering material may be of woven fabric and the pile **24** formed thereon at the time of weaving in a manner which is well understood.

The covering material is formed as a single strip and the two edges may be brought together as at **26** along one margin of the guide. In Figs. 5 and 6 a slit metal tube **28** may extend along the margin of the guide reinforcing the same as shown in the figures. In Fig. 6 this tubular structure is shown as extending along both margins.

The metallic insert includes a pair of relatively heavy supporting wires **30**. One of the supporting wires extends along each longitudinal margin of the guide. These supporting wires are held in braced spaced apart parallel relationship by a plurality of wire strands **32** which are arranged in a longitudinal succession and which extend transversely between the supporting wires. As shown in the figures of the drawing, this transverse extension is along an angular line and each strand is folded as at **34** over one supporting wire and has its opposite ends engaged as at **36** with the other supporting wire.

In the fabricating of the insert they are formed as a multiple unit such as shown in Fig. 1 wherein

a series of four supporting wires 30 are provided. The wire which forms the strands is preferably relatively thin flat wire and is woven about the supporting wires as shown in this figure. In this Fig. 2 such wires 32 are shown as woven about the four supporting wires. Two of the supporting wires are arranged intermediate the other two and substantially close together and the wire strands cross each other as they pass over these two closely spaced supporting wires.

In the fabrication of the guide this multiple insert structure is woven as a continuous operation and a covered cushioning element such as shown in Fig. 3 is wrapped thereabout and its margins brought together on one side of the insert opposite the space between the two closely spaced parallel supporting wires 30. The cushioning elements 20 will be positioned one between each pair of supporting wires which forms the single strips with the pile portions 24 projecting from the opposite side as shown more clearly in Figs. 4 to 6, inclusive. The fabricated covered dual structure is then cut apart between the two closely spaced supporting wires. This entire fabrication is carried on as a continuous operation as is more clearly set forth, described, and claimed in my copending application, Serial No. 328,928, filed April 10, 1940, now Patent No. 2,268,562, granted January 6, 1942.

In the fabrication of the insert structure of Fig. 1 each strand 32 is crimped toward the opposite strand on the line 33 between the two closely spaced supporting wires 30 and the separation of the two strips is along this crimped line 33 so that the two ends of each strand partially embrace a supporting wire 30. It will appear that the strand wires now comprise a longitudinal succession of doubled strands. Each strand is folded about one of the supporting wires as at 34 and its opposite end portions extend transversely angularly and in opposite directions to the other supporting wire and each end portion is crimped partially thereover from opposite sides. These two opposite end portions of a wire strand engage the same supporting wire at points spaced apart longitudinally along the wire. The adjacent end portions of the two adjacent folded strands engages the same supporting wire and at points directly opposite as appears from Figs. 1 and 2.

The covering material is adhesively secured in the folded relationship to itself through the intervention of the cushioning element and about and between the supporting wires and between the successive strands and between the two ends of each strand so as to form an integral unitary structure. Such a structure is shown in cross section in Fig. 4.

In Fig. 5 a slit metal tube 28 is crimped over one margin of the guide. It is shown as crimped over that margin which includes the supporting wire 30 that is engaged by the free ends of the strands 32 so that a pressure is exerted on these free ends to hold them in engagement with the supporting wire 30.

This tube is here shown as crimped about the covering material so as to form a decorative finish margin as well as a binding tube. It is apparent that it might be crimped over the supporting wires underneath the covering material if such were desired. Such disposition of a wire tube is shown in Fig. 12 of copending application, Serial No. 283,120, filed July 6, 1939, now Patent No. 2,216,105, granted October 1, 1940.

In Fig. 6 such a slit tube 28 is shown as secured about each margin of the guide outside the covering material and this is also the construction in Fig. 7.

In Fig. 8 this improved guide is shown in channel form having a bottom 40 and side wall 42. The covering material for each channel guide is provided with three strips of pile, one along each side wall and one along the bottom of the guide. The construction is the same as shown in Fig. 2 except that the insert is made sufficiently wide so that it can be bent into channel form following the covering of the insert. A split tube 28 may be engaged over each margin as shown.

What I claim is:

1. A metallic insert for a glass run guide comprising a pair of spaced apart parallel supporting wires, a longitudinal succession of thin flat wire strands extending therebetween, each wire strand being folded intermediate its ends about one supporting wire and extending in angular directions from such fold and having its free ends engaging opposite sides of the other supporting wire at points spaced apart longitudinally of said wire, the extremity of each of the two end portions of each wire strand being clamped partially about said other supporting wire directly opposite the point of engagement of said supporting wire by the adjacent free end of the adjacent wire strand, the free ends of each wire strand being independently slidable along the supporting wire engaged thereby relative to the free ends of the adjacent wire strands.

2. A glass run guide comprising a metallic insert having a pair of supporting wires extending along the two longitudinal margins thereof and having a longitudinal succession of wire strands extending angularly transversely therebetween, each wire strand being folded intermediate its ends about one supporting wire and extending from said fold in angularly opposite directions toward the other supporting wire and crimped partially thereabout, longitudinally successive strands having adjacent ends engaged with the same supporting wire upon opposite sides at substantially the same point longitudinally of the wire and being independently relatively shiftable along said supporting wire and covering material extending about said insert.

3. A glass run guide comprising a metallic insert having a pair of spaced apart parallel supporting wires extending along the two longitudinal margins of the guide and having a longitudinal succession of wire strands extending transversely between the supporting wires, each wire strand being folded intermediate its ends about one supporting wire and having its opposite free ends crimped partially about the other supporting wire, adjacent wire strands having their adjacent free ends engaging the supporting wire opposite each other and being independently relatively slidable thereover during bending of the guide, a cushioning element extending along one side of the wire strands between said supporting wires, covering material folded over said insert and cushioning element and secured together and to the cushioning element through the opening between said supporting wires and wire strands, and a metal bead folded over that longitudinal margin of the guide at which the free ends of the strands terminate gripping said ends about their supporting wire while permitting slidable movement thereof relative to said supporting wire.

4. The metallic insert for a glass run guide comprising two pairs of spaced apart parallel longitudinal supporting wires, said two pairs of

wires being disposed in the same plane and having the two adjacent wires of the two pairs spaced apart a distance not greater than the diameter of one of the supporting wires, a pair of flat mesh wires wound spirally about said two pairs of supporting wires as a unit and crossing each other opposite the space between said two pairs of wires, said mesh wires crimped toward each other at their crossing points between the two adjacent wires of said two pairs of supporting wires, each mesh wire being crimped together about the other supporting wire of each pair.

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