Feb. 2, 1926. 1,571,831

E. W. M. BAILEY

WINDOW GLASS CHANNEL

Filed Sept. 22, 1921

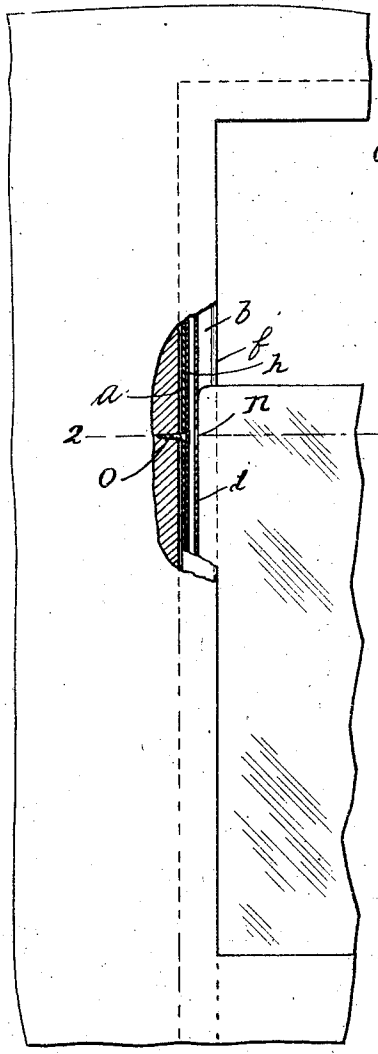


Fig. 1.

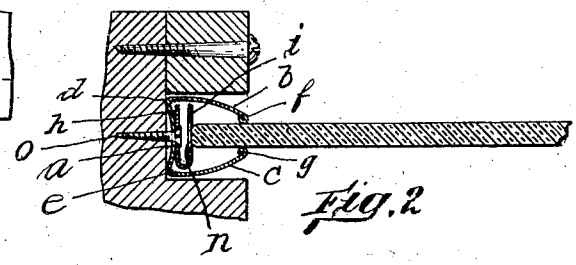


Fig. 2.

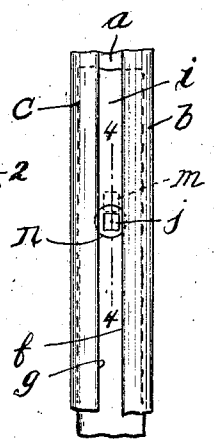


Fig. 3.

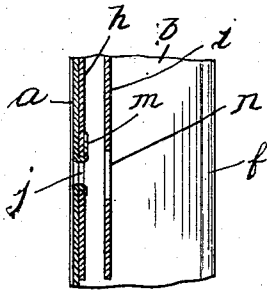


Fig. 4.

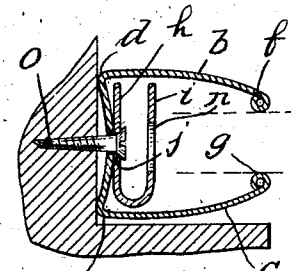


Fig. 5.

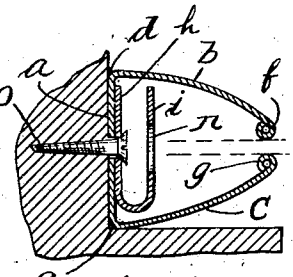


Fig. 6.

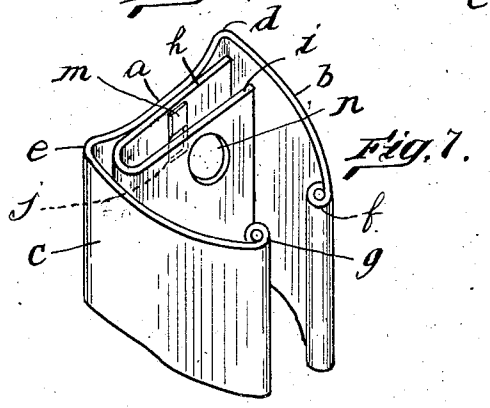


Fig. 7.

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by L. B. Harriman Atty

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UNITED STATES PATENT OFFICE.

EDWIN W. M. BAILEY, OF AMESBURY, MASSACHUSETTS.

WINDOW-GLASS CHANNEL.

Application filed September 22, 1921. Serial No. 502,333.

To all whom it may concern:

Be it known that I, EDWIN W. M. BAILEY, a citizen of the United States, and a resident of Amesbury, county of Essex, State of Massachusetts, have invented an Improvement in Window-Glass Channels, of which the following is a specification.

This invention relates to window glass holding and guiding devices, which are principally employed in automobile bodies where the glass is not set in a sliding frame, or sash, but has its edge portion mounted to slide in a channel or groove.

More particularly, the invention relates to a specific form of the invention disclosed, and generically, but not specifically claimed in my prior Patent #1374629, dated Apr. 12, 1921, and to certain improvements on, or modifications of said form.

The present application, therefore, to a certain extent, relates to matter divided out of the original application on which said patent was based, which form of the original invention is now deemed most practical, and it also relates to certain improvements on and modifications of such form.

In the development of the invention to what is now believed to be its most practical form, certain manufacturing difficulties were encountered, in producing this form of the invention rapidly, in large quantities and at a low cost, and it was considered that, in order to meet these requirements, the metal strips, of which the channel or guide was constructed, must be made by a rolling process. The construction produced in this manner is uniform, and accurate adjustment at the time of installation, is usually necessary according to the particular thickness of glass employed, so that the glass will be firmly held and the force of frictional engagement of the guiding means with its glass will be uniform under all conditions.

One of the objects of the present invention is to produce a form of the generic invention which may be made by a rolling process, and another object is to produce a construction having means whereby the force of frictional engagement with the glass may be accurately adjusted.

I accomplish these, and other objects of the invention, in the manner hereinafter described and as illustrated in the accompanying drawing in which:

Fig. 1 is a side elevation, partly in section, of a window casing provided with a window glass channel embodying my invention.

Fig. 2 is transverse sectional view on a somewhat enlarged scale, at line 2—2 of Fig. 1.

Fig. 3 is an edge view of the guiding strip.

Fig. 4 is a sectional view at line 4—4 of Fig. 3.

Figs. 5 and 6 are greatly enlarged sectional views, similar to Fig. 2, showing the extremes of adjustment of the guiding strip.

Fig. 7 is a similarly enlarged perspective view of one end of the strip.

As explained in said prior patent, the window glass holding and guiding means is formed from one or more strips of thin and somewhat resilient sheet metal, and is adapted to be secured to the bottoms of grooves or slots formed in the window casing, or directly to the surface of the casing.

In accordance with the present invention, the channel, proper, consists of a single strip of sheet metal, which is bent longitudinally in approximately U-form (by passing the same thru a series of suitably shaped forming rolls) to provide a transversely curved or concave intermediate, or bottom portion *a*, and two laterally extending side portions *b* and *c*, connecting portions *d* and *e* being formed between the bottom and each side portions, which extend continuously with the bottom and are curved reversely with relation to the curve thereof, and also extend continuously with the side portions, the latter extending for a short distance in approximate parallelism and then convergently in a gradual curve, so that their opposite surfaces are transversely convex. The edge portions of the side portions *b* and *c* are each rolled inward to form a beaded edge *f* and *g*, thereby providing a rounded surface for engagement with the window glass.

As shown in Figs. 5 and 6, the rounded or transversely convex faces, provided by the beaded edges *f* and *g* for engagement with the surfaces of the glass, project inward from the convergently disposed side portions to such an extent that, when the

sheet of glass is inserted therebetween, its surfaces will be engaged by said surfaces only, and the glass will not be engaged at any other point by said side portions. The area of frictional engagement of the guiding strip with the glass will be reduced to a minimum, and, at the same time, the glass will be securely held against lateral movement and will be accurately guided in its sliding movement with a minimum of frictional resistance.

As originally shaped in the process of manufacture, the distance between the adjacent faces of the beaded edges *f*, *g*, is such that a sheet of glass, of the maximum thickness which is likely to be employed, will be resiliently engaged by the rounded faces of said beaded edges with a force which will permit free sliding movement of the glass on said faces and, at the same time, will prevent rattling. Also, as hereinafter described, the side portions may be set in closer proximity for glass of less thickness, so that the same force of frictional engagement may be secured for all conditions. In this connection, it is to be noted that on account of the transversely rounded edge portions, or beads provided for direct engagement with the glass, the area of the engaging surface will be the same, whether the glass is thick or thin, as indicated in Figs. 5 and 6. Under all conditions, therefore, a yielding support for glass of all degrees of thickness likely to be employed, may be provided, which will accurately and smoothly guide the glass when raised or lowered.

The specific form of yielding engaging means for the edge of the glass, which I employ, consists of a single strip of resilient sheet metal, having a semi-circular bend in the middle thereof, which extends thruout its length to form a supporting member *h* and an overlying yielding member *i*, which is approximately parallel thereto, for engaging the edge of the glass. Said edge-engaging strip is secured to the convex, or inner side of the bottom *a* of the channel strip in the operation of forming the screw holes for the attachment of the entire device to the casing. In performing this operation, holes are punched thru the bottom portion *a*, from the outer side inwardly, so as to form metal tongues, as *m*, which are forced thru holes *j*, formed in the supporting member *h*, and then bent back against the inner surface of the latter and clenched, so as to form a riveted connection between the bottom member *a* and supporting member *h*.

Apertures, as *n*, are formed in the engaging members *i* opposite each aperture *j*, thru which the screws *o* may be passed in securing the strips to the casing, as described in said prior patent.

When the channel strip is first placed in position on the casing its rounded or convex portions *d*, *e* are the only portions thereof which bear against the casing portion to which it is secured, as indicated in Fig. 5, and when the screws *o* are forced into the wood of the casing only to an extent sufficient to hold the strip in firm contact with the casing, at this point, the beaded edges *f*, *g* will be separated by a distance which will be somewhat less than the thickness of a glass plate of the greatest thickness which is likely to be employed, so that the desired degree of frictional engagement will be secured therebetween, for a glass plate of such thickness. In most instances, however, the glass will be of less thickness than this and it will be necessary to decrease the distance between the edges *f* and *g*, to secure the desired force of frictional engagement, so that the side portions *b*, *c*, must be set in closer proximity.

To accomplish this result, the screws *o* will be forced inwardly, so as to press the middle portion of the bottom portion *a* towards the surface to which it is attached and thus reduce its concavity or cause it to be spread out, the width of the casing groove in which it may be placed being sufficient to permit such action. As a result the curved portions *d*, *e*, are tilted towards each other, thereby causing the side portions *b*, *c* to be swung correspondingly into closer proximity. By arranging the screws *o* at suitable intervals and forcing them inwardly to the necessary extent, the side portions will be adjusted with relation to each other thruout their entire lengths, so that the extent of frictional engagement thereof with the glass will be practically uniform and may be varied accurately according to conditions. The extent to which the side portions may be relatively adjusted varies from a position such as is indicated in Fig. 5 to a position in which the base portion is completely flattened against the casing bottom, as indicated in Fig. 6.

On account of the fact that the screws *o* are only inserted at intervals, the tendency to force the side portions together will be somewhat greater close to the screws than midway between them, but the supporting portion *h*, which is directly engaged by the screw heads and pressed against the channel bottom, causes the pressure of the screw heads to be distributed more effectively over the bottom portions between the screws, so that the parallel relation between the beaded edges of the side portions will be approximately maintained by the screws, although an intermediate portion of the bottom may be readily pounded down, before installation, to force in the side portions if necessary. This may be done by inserting a strip of metal, shaped similarly to the space between the spring members *h* and *i*

into this space, and then, by means of a suitable tool, or tools, forcing the bottom portions *a* downwardly.

When the glass plate is in position in the channel it will be yieldingly engaged at each side by the side portions and at its edge by the spring strip, so that it will be yieldingly supported against movement in all directions. I have ascertained that, with the above described construction, by forming the connecting portions between the side and bottom of the channel strip on a gradual curve sufficient resiliency is secured, together with the resiliency of the side portions beyond said connecting portions, to provide a sufficiently yielding force of engagement of the side portions with the glass to make unnecessary the yielding end portions for said side portions described in my said patent.

With the above described construction, both strips which make up the complete device may be completely formed by a rolling process and the two strips may be rapidly connected by a special machine for the purpose.

I claim:

1. A window glass guide consisting of a single strip of resilient sheet metal bent transversely into U-form to provide a bottom portion adapted for attachment to the window casing and a pair of transversely resilient side portions extending convergently therefrom, the edge portions of said guiding portions being inwardly rolled into cylindrical form to form non-yieldable beads arranged to project towards each other beyond their adjacent sides to provide transversely convex guiding faces for the opposite sides of window glass sheets of varying thickness inserted therebetween.

2. A window glass guide consisting of a single strip of resilient sheet metal bent to provide a longitudinal bottom portion, adapted for attachment to a window casing, and a pair of transversely resilient guiding portions extending convergently therefrom and having non-resilient edge portions formed to provide transversely convex engaging faces for the opposite sides of window glass sheets of varying widths inserted therebetween and an independently formed resilient metal cushion supported on said bottom portion between said guiding portions and extending throughout the length of the strip.

3. A window glass channel comprising a resilient sheet metal strip, formed to provide an intermediate bottom portion, adapted to be secured to a window casing, and oppositely disposed side portions extending laterally outward therefrom and arranged for yielding engagement with opposite sides of a sheet of glass disposed therebetween, and a resilient sheet metal strip having a longitudinal intermediate bend, to provide a supporting portion and an engaging portion, said supporting portion being mounted on said bottom portion between said side portions in position to hold said engaging portion in yielding engagement with the edge of the glass.

4. A window casing guide for a slidably mounted sheet of glass, comprising a strip of resilient sheet metal bent transversely into trough form to receive the edge portion of the glass, and to provide a bottom, two sides and a bearing portion connecting each side and the corresponding adjacent portion of the bottom, said bearing portions being arranged to engage the casing and support the bottom out of contact therewith, to permit the sides to be swung into closer proximity on the application of pressure to the bottom to flex the same towards the plane of the bearing surface of the bearing portions, and means to hold the bottom in outwardly flexed position.

5. In a window casing having a window glass slidable therein, a guide for the edge portion of the glass, comprising a resilient sheet metal strip bent transversely into trough form to provide a bottom, two side portions, and a bearing portion intermediate each side portion and the corresponding adjacent portions of the bottom, said side portions being yieldingly engaged with opposite sides of the glass, and said bearing portions being engaged with the casing and arranged to sustain the bottom out of contact therewith, and attaching means, engaging the bottom and the casing and adapted to flex the bottom towards the casing to increase the tension of the side portions on the glass.

6. In combination with a window casing, having a sheet of glass therein, an elongated strip of resilient sheet metal having two longitudinal bearing portions, arranged in contact with the casing, an intermediate bottom portion held out of contact with the frame by said bearing portions, and oppositely disposed side portions extending laterally from said bearing portions and yieldingly engaged with the opposite sides of the glass, and attaching means extending thru the middle of said bottom portion into the frame, to press said bearing portions thereagainst and spring the bottom portion inwardly, thereby to increase the tension of engagement of the side portions with the glass.

7. A window casing guide comprising an elongated strip of resilient sheet metal bent transversely into trough form, to receive the edge portion of a sheet of window glass and providing a transversely and inwardly curved bottom, side portions for engaging opposite sides of the glass, and casing engaging portions, connecting said bottom and side portions and curved reversely with re-

lation to the curve of the bottom, in combination with means for outwardly flexing the bottom while the pressure thereon is resisted by said casing engaging portions, to set the side portions in closer proximity.

8. A window casing guide comprising an elongated strip of resilient sheet metal bent transversely into trough form, to receive the edge portion of a sheet of window glass and providing a transversely and inwardly curved bottom, side portions for engaging opposite sides of the glass, and casing engaging portions, connecting said bottom and side portions and curved reversely with relation to the curve of the bottom, the middle portion of the bottom being apertured to permit the passage of attaching screws therethrough from within the trough into the casing, to clamp the casing engaging portions thereagainst and outwardly flex the bottom to set the side portions into closer proximity.

9. In combination with a window casing having a sheet of glass therein, a strip of resilient sheet metal having convergently extending side portions, arranged for yielding engagement with opposite sides of the glass, convexly curved bearing portions at the base of each side portion, held in engagement with the casing and an intermediate connecting bottom portion transversely curved outwardly from the casing and held out of contact therewith by said bearing portions, a spring composed of a sheet metal strip bent longitudinally to provide a supporting portion arranged on said bottom portion, and an engaging portion arranged for yielding engagement with the edge of the glass, and screws arranged to engage said supporting portion and passing thru the same and said bottom portion, into the casing, to attach the same thereto, and to force the side portions into closer proximity.

10. A window glass channel comprising a resilient sheet metal strip, formed to provide an intermediate bottom portion, adapted to be secured to a window casing, and oppositely disposed side portions extending laterally outward therefrom and arranged for yielding engagement with opposite sides of a sheet of glass disposed therebetween, and a resilient sheet metal strip having a longitudinal intermediate bend, to provide a supporting portion and an engaging portion, said supporting portion being mounted on said bottom portion between said side portions in position to hold said engaging portion in yielding engagement with the edge of the glass, and said bottom and said supporting portions having holes to permit the passage of screw shanks therethrough, to attach the strip to the casing, and said engaging portion being cut away opposite said holes to permit the passage of the screw heads therethrough.

11. A window glass casing guide comprising an elongated strip of resilient sheet metal bent transversely into trough form, to receive the edge portion of a sheet of glass, and providing a bottom portion having two sides arranged for yielding engagement with the sides of the glass and a supplemental sheet metal bottom mounted within the guide, coextensive with, and parallel to said bottom portion and yieldingly supported at a distance therefrom in position for sliding engagement with the sheet.

12. A window glass channel comprising a resilient sheet metal strip formed to provide an intermediate bottom portion, adapted to be secured to a window casing, and oppositely disposed side portions extended laterally outward therefrom and arranged at their edge portions for yielding engagement with opposite sides of a sheet of glass disposed therebetween and a sheet metal spring attached to said strip and extending from one side portion towards the other side portion, out of contact with and in approximately parallel relation to the bottom portion and thruout the length thereof, in position for yielding engagement with the edge of the glass disposed between said side portions.

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

EDWIN W. M. BAILEY.