

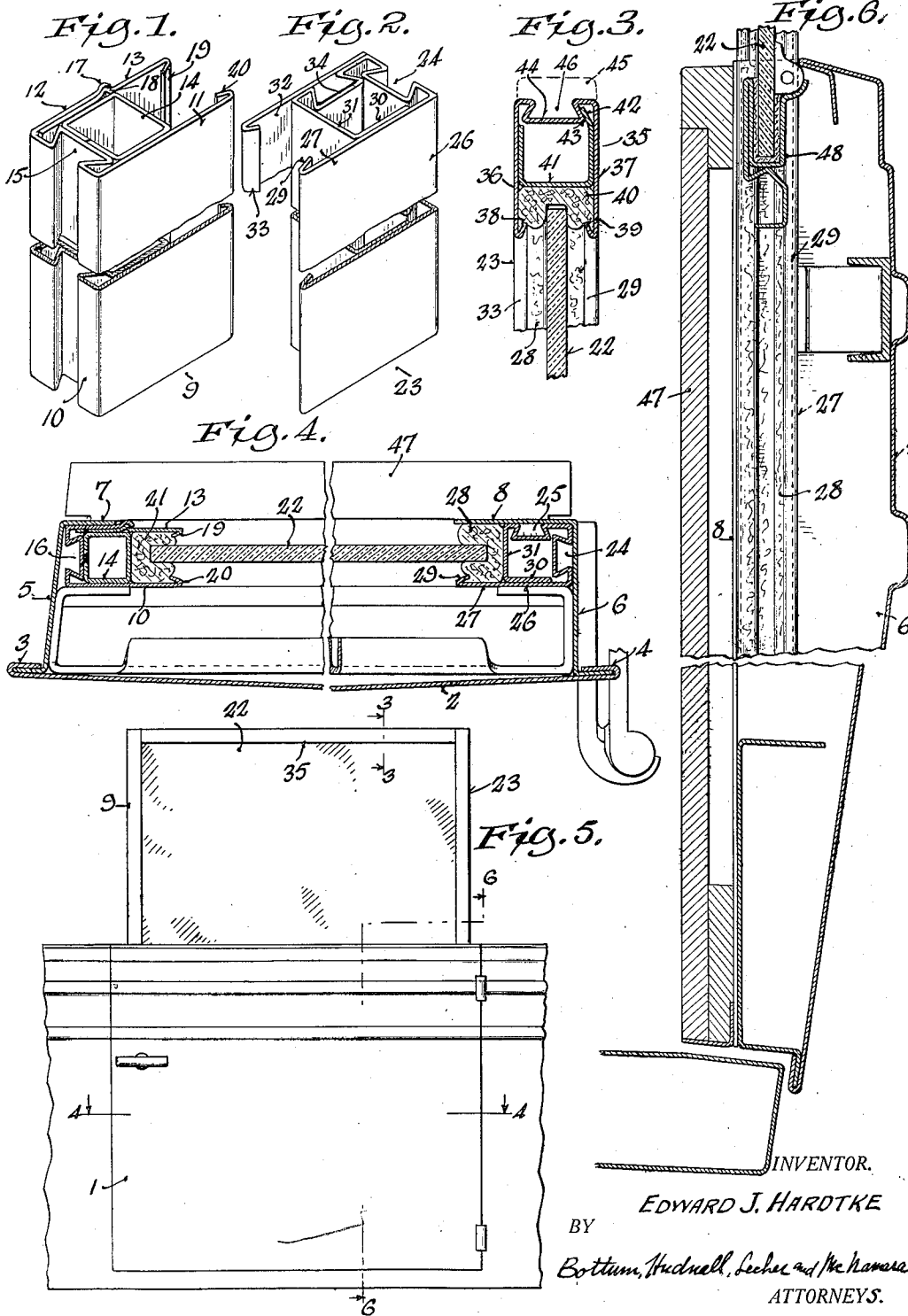
May 28, 1929.

E. J. HARDTKE

1,714,599

WINDOW FRAME

Filed Nov. 12, 1924



INVENTOR.
EDWARD J. HARDTKE
BY
Bottum, Hudnell, Secher and McNamee.
ATTORNEYS.

Patented May 28, 1929.

1,714,599

UNITED STATES PATENT OFFICE.

EDWARD J. HARDTKE, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO SEAMAN BODY CORPORATION, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

WINDOW FRAME.

Application filed November 12, 1924. Serial No. 749,362.

This invention relates to improvements in window frames and more particularly to window frames such as are now used extensively in the construction of motor vehicle bodies of the so-called sedan or convertible types.

It is common practice to provide the doors of automobile bodies of this type with disappearing windows. The frames of these windows in composite body construction such as those employing a super-structure of wood with sheet metal outer construction are usually formed by the side rails of the door. With the advent of the so-called all-metal bodies, however, it became a problem in certain types of construction to provide a window frame which could be made up as a separate unit and applied to a door in such manner that the assembly would be possessed of the required strength and rigidity.

One object of the present invention, therefore, is to provide an improved window frame which may be made up as a separate unit and applied to an automobile door in such manner that the same will form a rigid part thereof.

Other objects and advantages relate more particularly to the construction of the window frame per se, the manner in which it is assembled, and the means whereby the window glass retaining and guiding cushions may be mounted in the frame and held therein against displacement.

Various other objects and advantages will appear from the following description taken in connection with the accompanying drawings wherein one form of the invention is illustrated.

Figures 1 and 2 are perspective views of portions of the improved window frame;

Fig. 3 is an enlarged section on line 3—3 of Fig. 5;

Fig. 4 is an enlarged section on line 4—4 of Fig. 5;

Fig. 5 is a side elevation, showing the improved window frame applied to the door of a motor vehicle body; and

Fig. 6 is an enlarged section on line 6—6 of Fig. 5.

In the drawings, the window frame has been shown mounted in conjunction with a door of all-metal construction, but it will be readily appreciated that the invention is not limited in its usefulness to such specific application, but on the other hand might be

employed in connection with doors generally, regardless of the particular construction thereof or of the material of which they are made.

The window frame in the present embodiment of the invention is fixed to the door and the window pane is slidable up and down therein.

The improved window frame is shown combined with a sheet metal door 1 comprising a front panel 2 having the side edges 3 and 4 thereof bent over the edges of sheet metal side members 5 and 6, respectively, as shown in Fig. 4, the inner portions 7 and 8 of the side members being bent inwardly for giving greater rigidity to the door and for providing means for attaching the vertical window frame members thereto as hereinafter explained.

The door structure per se forms no part of the present invention and is only shown and described with sufficient clearness to enable those skilled in the art to understand the manner in which the improved window frame may be applied to automobile doors of this type.

The vertical side members of the frame will first be described, referring more particularly to Figs. 1, 2 and 4. Vertical member 9 is pressed from sheet metal and, as preferably constructed, comprises a member 10 of U-shape or channel shape in cross section having flanges 11 and 12, and a complementary member 13. Member 9 is placed against the inwardly extending portion 7 of side member 5 and secured thereto in any suitable manner such as by soldering or spot-welding, the member extending downwardly through the greater portion of door 1 so that it is adequately supported thereby, the member in effect being an integral and rigid part of the door. A tubular reinforcing member 14 which is rectangular in cross-section is inserted between flanges 11 and 12 and pressed against the bottom portion or web 15 of the member 10, the web being pressed inwardly as shown in Figs. 1 and 4 to provide a dove-tail groove 16 extending the entire length thereof for the purpose hereinafter explained.

The edge of flange 12 is offset and bent to provide a bead 17 which fits a similar bead 18 pressed from member 13 when the latter is inserted between flange 12 and reinforcing member 14. Flange 12 has sufficient resili-

ency to permit bead 18 to snap into interlocking relation with bead 17 while at the same time holding it securely in position and against accidental displacement. The outer edges 19 and 20 of member 13 and flange 11, respectively, are bent inwardly at acute angles thereto to provide lips for retaining a felt strip 21 in position in the channel provided by member 13 and flange 11, the inner face of the felt being shaped to receive the adjacent edge of the window pane 22, as shown in Fig. 4.

The vertical member 23, as preferably constructed, is pressed from a single piece of sheet metal to form a tubular member substantially rectangular in cross section, two of the faces of said member being pressed inwardly to provide dove-tail grooves 24 and 25 similar to groove 16 formed in member 9 above described.

One side 26 of the tubular member is extended to provide a retaining flange 27 for the felt strip 28, the strip being shaped to receive one edge of pane 22. The edge 29 of flange 27 is bent inwardly at an acute angle thereto to form a lip for holding the felt strip in position. The other edge 30 of the member is bent at a right angle to side 31 thereof and secured in any suitable manner such as by soldering or spot-welding to side 26. Member 23 is secured to side 6 and the inwardly extending portion 8 thereof in any suitable manner, portion 8 extending beyond side 31 to form with flange 27 a channel for receiving felt strip 28. Flange 27 extends the entire length of member 23, whereas portion 8 of the door, of course, only extends to the top edge thereof. Some means, therefore, must be provided and arranged opposite flange 27 to form the other wall of the channel for the felt strip 28 above the top edge of the door. For this purpose a plate 32 having the edge 33 thereof bent inwardly at an acute angle thereto, similar to edge 29 of flange 27, may be secured to the upper half of member 23, as shown in Fig. 2, the plate being provided with a dove-tail tongue 34 which fits within groove 25 to hold the plate securely to member 23.

The upper horizontal member 35, as preferably constructed, is pressed from a single piece of sheet metal to form a substantially U-shape member having flanges 36 and 37, the edges 38 and 39 of the flanges, respectively, being bent inwardly at acute angles thereto to form lips for retaining the felt strip 40 in position in the channel formed by the flanges, the felt strip being shaped to receive the upper edge of pane 22, as shown in Fig. 3. A U-shape reinforcing member 41 is inserted between flanges 36 and 37 and interlocked with member 35 by means of the edge 42 of member 41, this edge being bent inwardly, as shown, and forced back of the

shoulder 43 formed by the inwardly bent web of member 35 forming a dove-tail groove 44 similar to groove 16 of member 9. A T molding or finishing strip 45 may be applied to the upper face of member 35 and held in position thereon by means of a dove-tail tongue 46 which snugly fits in groove 44, as shown in Fig. 3. Similar moldings or finishing strips may be applied to members 9 and 23 and held in position thereon by means of the dove-tail grooves 16 and 24, respectively, the strips extending from the upper ends of the members to the top edge of door 1. The lower portion of groove 25 below the top edge of the door may be used for holding in place the adjacent edge of the wood panel or backing 47 which supports the actuating mechanism for the window, the lock and other accessories (not shown) which may be applied to the door, this edge of the panel being provided with a suitable T-shape tongue to snugly fit the groove. When this lower portion of groove 25 is used for holding the adjacent edge of panel 47 in position, portion 8 is made to terminate short of the groove so that the same is not covered thereby. The panel then forms with flange 27 the channel for receiving that portion of felt strip 28 lying below the upper edge of the door.

In placing pane 22 in operative position in the frame, a side edge thereof is inserted into the felt strip 28, as shown in Fig. 4, and felt strip 21 applied over the opposite side edge thereof. The pane is then swung inwardly about felt strip 28 as a center until strip 21 rests against flange 10 and reinforcing member 14, as shown in Fig. 4, the felt being hooked under lip 20 of the flange. Member 13 is then inserted between flange 12 and member 14 and forced inwardly, flange 12 yielding sufficiently to permit bead 18 to snap under bead 17 thereof whereby member 13 interlocks with member 9 and forms with flange 10 a retaining channel for felt strip 21. Lip 19 of member 13 acts with lip 20 to hold the felt strip in position. The pane may be readily removed by removing strip 13.

The lower edge of pane 22 may be provided with the usual connection 48 for co-operation with the actuating mechanism (not shown) for raising and lowering the pane in the manner well known in the art.

From the foregoing it will be seen that a window frame has been provided which may be built up as a separate unit and rigidly applied to an automobile door. The improved window frame also permits of ready removal of the pane should occasion arise.

While the window frame has been shown and described as a separate unit secured to the door, it will be obvious to those skilled in the art that the side edge members of the door might be built up of several parts

pressed from sheet metal and constructed substantially in accordance with the present invention, as defined by the claims. In this case the improved window frame will be an integral part of the door, each side edge member of the door and the corresponding side member of the frame being one and the same part.

Various changes in the size, shape and arrangement of the parts may be adopted without departing from the spirit of the invention or the scope of the claims.

The invention claimed is:

1. A window frame comprising side and top members, one of said members comprising a member substantially channel shaped in cross section having flanges of unequal length, the shorter of said flanges being provided with a bead at the edge thereof, a reinforcing member arranged intermediate said flanges, and a complementary member inserted between said shorter flange and said reinforcing member and arranged to form with the longer of said flanges a channel for receiving an edge of a window pane, said complementary member being provided with a bead arranged to interlock with said first-mentioned bead whereby the same is held in operative position.

2. A window frame comprising side and top members, one of said members comprising a member substantially U-shaped in cross section having the web thereof pressed inwardly forming a shoulder, and a second member substantially U-shaped in cross section arranged in reverse position with respect to said first-mentioned member and between the flanges of the latter, a flange of said second member interlocking with said shoulder, the flanges of said first-mentioned member extending beyond said second member to provide a channel for receiving an edge of a window pane.

3. A window frame including a member having a substantially tubular body portion whereby it is self-reinforcing and having an integral extension constituting a retaining flange, a complementary member having a portion constituting a cooperable retaining flange, the tubular body portion having an undercut way therein and the complementary member having a correspondingly formed tongue thereon for securing the members together.

4. A window frame including a member consisting of a single piece of sheet metal so shaped as to be provided with an integral reinforcement and with an integral retaining flange, a complementary member having a portion constituting a cooperable retaining flange and also having an attaching portion, and means on the reinforcement co-acting with the attaching portion on the complementary member for positively securing the members together.

5. In combination, a metal door having a metallic front panel and metallic side members rigidly connected with the frame, a metallic window frame having side members fitting flush against the side members of the door and positively, rigidly and directly secured thereto, one of the side members of the window frame having a removable retaining flange, and means for positively, although releasably, securing the retaining flange in position.

6. In combination, a metal door having a metallic front panel and angular side members of metal rigidly connected to the front panel, and a metallic window frame having side members positively, rigidly and directly secured to the angular side members of the door, one of the angular side members of the door having a portion constituting a retaining flange for one of the side members of the window frame.

7. A window frame comprising side and top members, one of said members comprising a resilient member substantially U-shaped in cross section, a tubular reinforcing member inserted between the flanges thereof and a substantially flat complementary member inserted between one side of the tubular member and the adjacent flange of said substantially U-shaped member, said complementary member and its engaging flange having interlocking means contiguous with the tubular reinforcing member whereby the tubular reinforcing member coacts with the resilient U-shaped member to releasably secure the complementary member in position.

8. The combination with a door, of window frame members secured thereto adjacent the side members thereof and extending above and below the upper edge of the door, one of said members consisting of a tubular body portion formed with an extension constituting a retaining flange, the door having an extension providing a cooperable retaining flange.

9. In a window frame, a self-reinforcing member having a portion of substantially tubular form, and a complementary member, one of said members having a groove in the face thereof, the other of said members having a tongue adapted to co-operate with the groove to secure the two members together, each of said members having a flange thereon, said flanges co-operating with the portion of tubular form to provide a channel for supporting the edge of a window pane.

10. In a metallic door structure having a panel section and side members, window guides fitted in the door structure between said side members and extending above the same, said side members being formed to provide fastening means for holding said guides in position and one of said side members forming a part of one of said guides.

11. A door structure including a panel, window frame members extending above and below the upper edge of said panel and secured thereto, one of said members having
5 two flanges thereon, both extending above the upper edge of said panel for providing a pane guide and one of said flanges extending below the upper edge of said panel
and means on said panel complementary to said last named flange providing a continuation of said pane guide. 10

In witness whereof I hereto affix my signature.

EDWARD J. HARDTKE.