Nov. 16, 1937. C. H. WIDMAN 2,099,248

VEHICLE DOOR

Filed Nov. 20, 1935

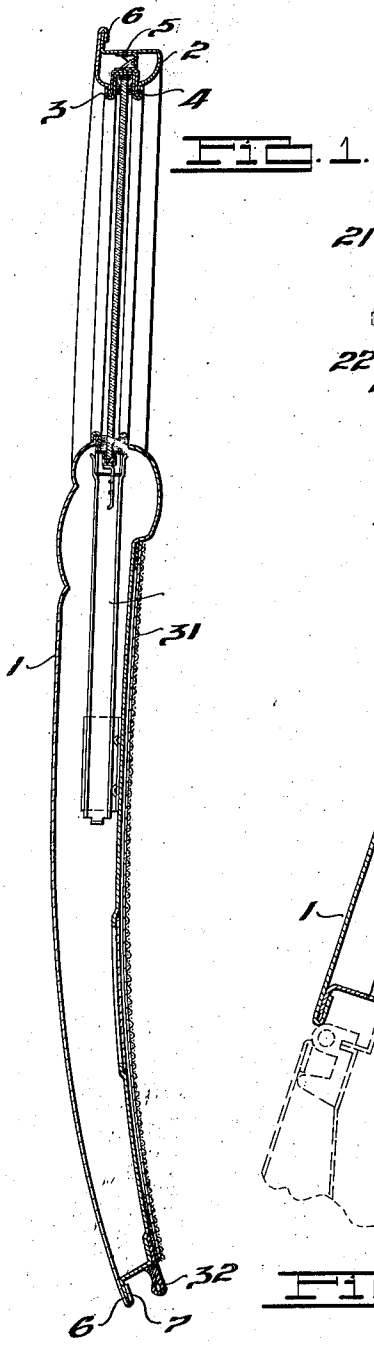


Fig. 1.

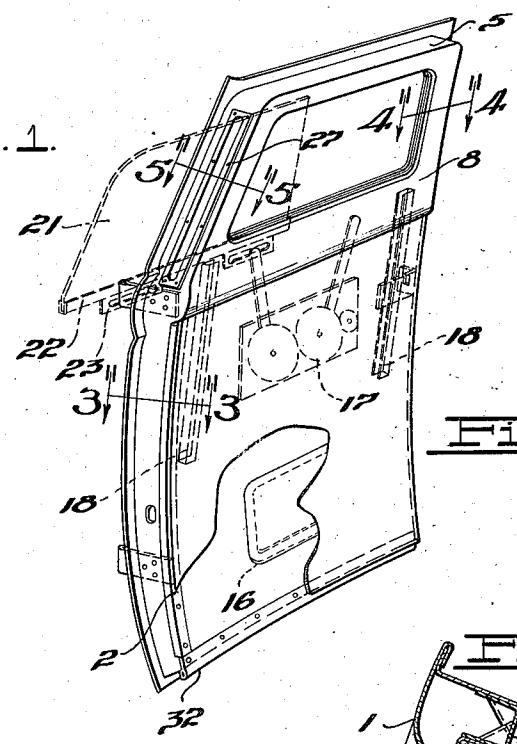


Fig. 2.

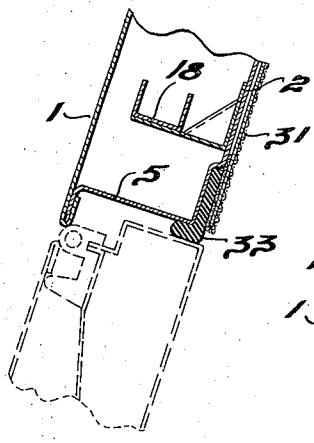


Fig. 3.

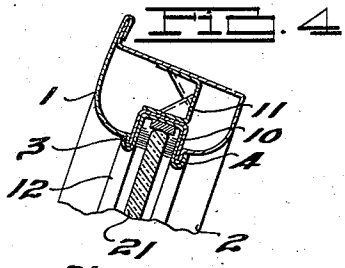


Fig. 4.

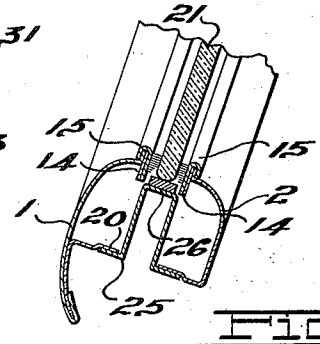


Fig. 5.

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VEHICLE DOOR

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Application November 20, 1935, Serial No. 50,636

8 Claims. (Cl. 296—44)

This invention relates to vehicle doors. More particularly it relates to a novel and useful form of automobile door particularly adaptable for enclosed automobile body constructions in which doors are provided having windows slidably mounted for vertical movement therein.

It is a general object of the present invention to provide a novel sheet metal door construction which may be completely fabricated and assembled prior to the installation of the window and window regulator mechanism therein.

Still another object of the present invention consists in the provision of a door construction provided with an aperture in the frame work to facilitate the mounting of the window in the door after the door has been completely assembled.

Heretofore it has been conventional in the manufacture of doors to surround the window openings therein with displaceable garnish moldings which, when seated in place, constitute one wall of a glass run channel in which the vertically adjustable window is disposed. The present invention contemplates the provision of a door construction in which the glass run channels on all sides of the window are formed as permanent integral portions of the door structure as a whole and in which means are provided for mounting the window in place after the door has been completely assembled.

While door constructions have been known heretofore in which the window was inserted through a slot in the top of the door frame, the present invention is primarily concerned with doors of a shape now in common commercial use in which the window openings are generally trapezoidal in shape and are considerably narrower at the top than at the bottom.

It is a still further object of the present invention to provide a door construction in which a pair of substantially co-extensive sheet metal stampings are secured together in their marginal edges and are also secured together around the periphery of the window openings.

Yet another object of the present invention consists in the provision of a door construction which is relatively simple and cheap to manufacture, which, when completely assembled, provides a strong integral structure, and in which the garnish moldings surrounding the window opening on both the inboard and outboard side of the door are formed as integral parts of the door paneling.

Many other and further objects and advantages of the present invention will become apparent from the following specification when considered in connection with the accompanying drawing forming a part thereof.

In the drawing:

Figure 1 is a vertical sectional view through a door embodying the novel features of the present invention.

Figure 2 is a perspective view of a form of the novel door with portions broken away and indicating the manner in which the window is installed in place.

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 2 illustrating the manner in which one of the jamb faces of the door mates with the body structure in which it is mounted.

Figure 4 is a transverse sectional view taken on the line 4—4 of Figure 2 showing the manner in which the sections of paneling constituting the door are secured together and the manner in which they are secured to the glass run channel in the window opening.

Figure 5 is a transverse sectional view taken on the line 5—5 of Figure 2 showing the front door rail and the manner in which the glass run channel is formed therein.

With more particular reference to the drawing, it will be appreciated that the specific embodiment of the invention disclosed therein is merely illustrative of one of many forms which the generic inventive concept presented in this application may take.

The door construction shown in the drawing comprises a pair of substantially co-extensive mating sections of paneling 1 and 2 respectively. These sections of paneling are preformed to provide registering window openings therein and it will be noted that the marginal edges of the panels around and defining the window openings are formed to provide inturned flanges 3 and 4 respectively, lying substantially in the plane of the window opening. The specific use and function of these inturned flanges will hereinafter become clear.

It will be noted by reference to the perspective view, Fig. 2, that the window opening therein is generally trapezoidal in shape and is considerably narrower at the top than at the bottom. This type of window opening has become generally accepted particularly for front doors due to the almost universal use of rearwardly sloped windshields and front pillars with which these doors mate.

The inner of the two panels constituting the door is preferably preformed to provide a jamb face 5 extending completely around the periphery

of the door and has an outturned flange at the marginal edge of this jamb face. The outer panel 1 is secured to the inner panel by crimping the outer marginal edge 7 of the outer panel around this outturned flange 6, thus firmly securing both of the panels together in predetermined position. It will be readily appreciated that this construction provides a strong box section and adds materially to the rigidity of the door stucture as a whole. The inner panel 2 has the portion thereof surrounding the window opening preformed to provide an attractive finish molding generally designated 8 which is an integral part of the inner panel.

A glass run channel 9 is mounted in the rear edge of the window opening and preferably has its two side walls mated with and welded to the respective inwardly projecting flanges 3 and 4 on the inner and outer panels. The base of this channel member 10 is preferably supported by means of a suitable bracket 11 welded thereto and directly secured to the adjacent jamb face of the inner paneling member 2. The channel member 10 may have secured therein a suitable composite rubber and fabric weather stripping element 12 of the type generally disclosed in applicant's assignee's prior co-pending application, Serial No. 43,882, filed Oct. 7, 1935.

A similar channel element (not shown) may be mounted in substantially the same manner in the upper marginal edge of the window opening to receive the window when in fully raised position.

At the forward side of the door the inwardly projecting flanges on the panel members are reinforced by sheet metal strips 14 welded thereto and these inwardly projecting flanges are covered by means of suitable composite weather stripping elements 15.

The inner paneling 2 is provided substantially centrally thereof with a suitable aperture 16 which permits the installation of a conventional window regulator mechanism 17 after the door has been completely assembled. Also mounted internally of the door, below the window opening, are a pair of permanent guide channels 18 permanently secured to the door frame, which serve to guide the window during vertical movement. It will be appreciated that in door constructions of the type disclosed herein the glass run channels 18, although lying in substantially the same plane, may be offset somewhat, from the channel 10 in the window opening in order to permit a slight longitudinal movement of the window, in its own plane, after it has been elevated to maximum vertical position.

A suitable slot 20 is provided in one of the jamb faces of the door adjacent one of the side edges of the window opening. This slot is preferably of sufficient vertical extent so that a window 21 may be inserted therethrough after the door has been completely assembled. As is conventional in the art, the window 21 has its lower edge secured in a suitable channel element 22 which has thereon fittings 23 adapted to engage and cooperate with the arms of the regulator mechanism 17 in order to control the vertical movement of the window with respect to the door. A channel element 25 serves to close the slot 20 after the window has been mounted in place. This channel element 25 is preferably provided on the exterior of its base with a resilient strip 26 which serves to cooperate with the strips 14, weatherstripping 15 and the inwardly projecting flanges 3 and 4 to provide a glass run channel in the lateral side of the window opening, opposite the side on which the channel 10 is disposed. The channel element 25 may be secured in place by a plurality of suitable screws 27.

From the foregoing, it will be apparent that a door construction comprising a pair of substantially co-extensive panel members has been provided, which may be completely fabricated and assembled prior to the insertion of both the window and window regulator mechanism therein. It will be clear that after the door has been completely assembled, the window regulator mechanism may be installed in place and that the window then may be slid longitudinally in through the slot 25 and locked in position with the regulator mechanism 17 and that the slot 25 may then be closed to provide a complete channel structure surrounding three sides of the window opening.

The aperture 16 in the inner paneling which provides means for inserting the regulator mechanism may be closed by means of a suitable cover plate and the lower portion of the inner surface of the door may be covered by means of a conventional inner trim panel 31. The inner trim panel 31 may extend upwardly to a suitable point below the window opening and the inner paneling of the door surrounding the window opening may be finished in any desired fashion. Weatherstripping elements 32 and 33 may be secured between the inner trim paneling and in order to effect a tight closure of the door with respect to the opening in which it is mounted.

It will be apparent that the specific embodiment of the present invention herein illustrated and described is merely illustrative of one of the forms which the generic inventive concept may take. Many and other further modifications falling within the scope of the subjoined claims will be apparent to those skilled in the art.

What is claimed is:

1. A vehicle door having a window opening therein, said window opening being of substantially greater width at the bottom than at the top, said door being formed to provide a slot in one of the jamb faces thereof, said slot communicating with said window opening, said slot being of substantially shorter length than the transverse width of said window opening.

2. In a vehicle door having a generally trapezoidal window opening therein, said opening being of greater width at the bottom than at the top, a slot communicating with said opening and extending through one of the jamb faces of the door to facilitate the mounting of a window in said opening, and means for closing said slot, said means serving to guide said window during adjustment.

3. In a vehicle door having a window opening therein, a pair of sheet metal stampings secured together in their marginal edges and in the marginal edges of said window opening, one of said stampings having an upwardly extending slot therein adjacent said window opening, said slot being of sufficient vertical height to permit the insertion of a window therethrough in said door after the securement of said stampings together.

4. A vehicle door construction comprising a pair of sheet metal stampings having registering generally trapezoidal window openings therein, one of said stampings being preformed to provide a jamb face for said door and joined to the other of said stampings in their marginal edges, the jamb face of said door adjacent one of the

lateral sides of said window opening having a slot therein to permit insertion of a window laterally between said stampings after said stampings have been secured together and means for closing said slot.

5. A vehicle door construction comprising a pair of sheet metal stampings having registering generally trapezoidal window openings therein, one of said stampings being preformed to provide a jamb face for said door and joined to the other of said stampings in their marginal edges, the jamb face of said door adjacent one of the lateral sides of said window opening having a slot therein to permit insertion of a window laterally between said stampings after said stampings have been secured together and a cover plate removably mounted on the jamb face of said door for closing said slot, said cover plate having a portion adapted to guide said window during vertical movement.

6. A vehicle door construction comprising a pair of sheet metal stampings having registering generally trapezoidal window openings therein, one of said stampings being preformed to provide a jamb face for said door and joined to the other of said stampings in their marginal edges, the jamb face of said door adjacent one of the lateral sides of said window opening having a slot therein to permit insertion of a window laterally between said stampings after said stampings have been secured together and a cover plate removably mounted on the jamb face of said door for closing said slot, said cover plate having a portion providing the base of a glass run channel for guiding said window during vertical movement.

7. A vehicle door construction comprising a pair of sheet metal stampings secured together in their marginal edges and spaced in their body portions, said stampings having registering apertures therein serving to provide a window opening of substantially greater width at the bottom than at the top, said stampings serving to support the side walls of upwardly extending glass run channels at the lateral sides of said window opening, one of said stampings being preformed to provide a slot in the jamb face of the door at the lateral side of said window opening to permit the insertion of a window in said door after the securement of said stampings together and means for closing said slot, said last mentioned means providing a base for one of said glass run channels.

8. A vehicle door construction comprising a pair of sheet metal stampings secured together in their marginal edges and spaced in their body portions, said stampings having registering apertures therein serving to provide a window opening of substantially greater width at the bottom than at the top, said stampings serving to support the side walls of upwardly extending glass run channels at the lateral sides of said window opening, one of said stampings being preformed to provide a slot in the jamb face of the door at the lateral side of said window opening to permit the insertion of a window in said door after the securement of said stampings together and a cover plate for closing said slot removably mounted on the jamb face of said door, the central portion of said cover plate being depressed inwardly to provide a base for one of said glass run channels.

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