Dec. 21, 1937. H. D. RANDALL 2,103,177

MEANS FOR PANELING

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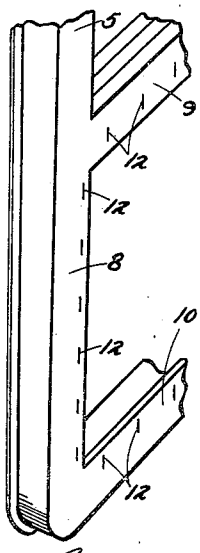


Fig. 6

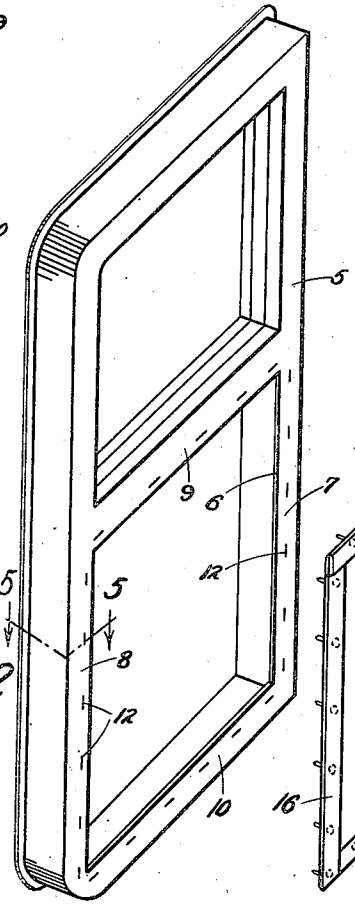


Fig. 2

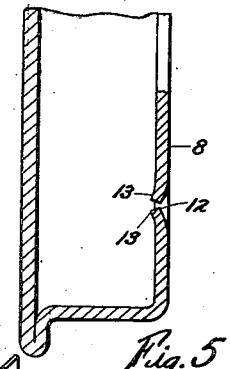


Fig. 5

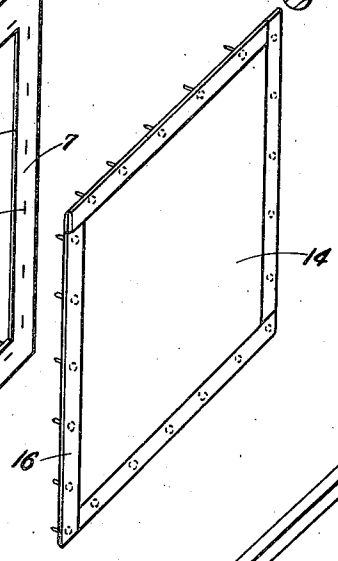


Fig. 1

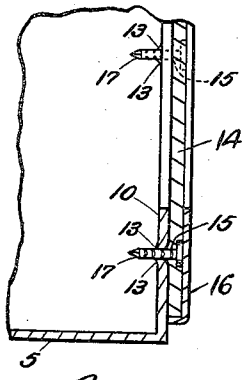


Fig. 3

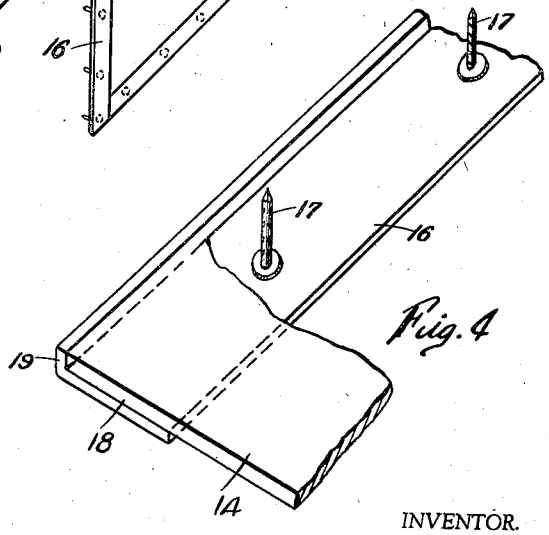


Fig. 4

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MEANS FOR PANELING

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5 Claims. (Cl. 296—44)

This invention relates to improvements in means for paneling, and is particularly adapted for the finishing or trimming of automobile interiors.

An object of the invention is to greatly reduce the labor and expense of manufacturing automobile trim, and of applying the trim to the body of the automobile.

Another object of the invention is to effect the savings above mentioned, without sacrificing durability, neatness, and effectiveness of the paneling job.

The foregoing and other objects are attained by the means described herein and disclosed in the accompanying drawing, in which:

Fig. 1 is a perspective view of a panel assembled for application to an automobile door.

Fig. 2 is a perspective view of a door especially adapted for application of the panel shown in Fig. 1.

Fig. 3 is an enlarged cross-sectional view taken transversely through the lower rail 10 of the door of Fig. 2, showing the panel applied thereto.

Fig. 4 is a perspective view of a nailing strip which forms a detail of the present invention and showing part of a panel in place thereon.

Fig. 5 is an enlarged cross-sectional view taken on line 5—5 of Fig. 2.

Fig. 6 is a fragmental view similar to Fig. 2, showing a modification.

In the application of trim or panels to vehicle bodies, it is necessary to maintain at a minimum, the labor and expense factor because of present-day production methods of manufacture. Much effort has been expended in this art to achieve that end, the problem having been attacked in many different ways. For example, the body of the vehicle was made partly of wood to facilitate attachment of the panels or trim materials by means of ordinary nails. In other instances, manufacturers chose to omit the wood framing from the vehicle body and sought to reduce expense and labor by the employment of snap fasteners of various kinds designed to hold the panels in position relative to the vehicle body. For obvious reasons, the wood frame in a vehicle body was considered undesirable. Snap fasteners of the character heretofore used also met with objection because of the complicated machinery required for their manufacture and for assembly upon the panels preparatory to application of the panels to the vehicle body. The primary object of the present invention is to eliminate both the wood framing and the snap fastener arrangement, and still maintain the high character of workmanship and neatness required in the application of trim or panels to vehicle bodies, and to accomplish the result desired by means of a construction greatly reducing the cost, not only of manufacturing, but of applying the trim or panels.

In accordance with the present invention, the vehicle body or parts thereof, for example, the door 5, is provided with an interior metallic flange 6 which furnishes an open frame for reception of a panel or reinforced board such as is shown in Fig. 1. In practice, the flange is integral with the material of the door, and comprises the two upright sections 7 and 8, and adjoining transverse or horizontal sections or rails 9 and 10. At specified intervals, the flanges 7, 8, 9 and 10 are slotted as at 12, the slots being in the form of substantially straight chisel cuts through the material of the flange, with the edges of the cuts parallel and projected slightly inwardly, as indicated at 13 in Fig. 3. This type of slot is peculiarly adapted for easily starting a nail through the material of the flange, and, in addition, it presents resilient edges that closely hug the shanks of the nails after the nails have been driven into position as shown in Fig. 3. In the preferred construction, the slits or chisel cuts 12 are made in the flanges without removing any of the metal.

Referring now to Fig. 1, 14 indicates a reinforcing board or sheet of rigid material, which may be pressed paper or composition substance, of proper dimensions for substantially covering the flanges of the door 5. This board or sheet, when manufactured or cut to size, is provided with apertures 15 spaced from the edges of the sheet or board, for the reception of the nails carried by nailing strips 16 which bound the marginal portions of the sheet or board 14. In accordance with the invention, the nails of the strips 16, the perforations in the board or sheet 14, and the chisel cuts or slots of the flanges 7, 8, 9 and 10, are all spaced apart or arranged so that they will correspond exactly when the assembled panel of Fig. 1 is placed in position for attachment to the flanges of the vehicle door or body. In other words, the spacings between adjacent nails correspond exactly to the spacings between adjacent perforations of the board or sheet 14, and the spacings between adjacent chisel cuts or slots 12 correspond also, so that all of these parts will initially assume coinciding relationships when the panel or trim is to be applied.

As illustrated in Fig. 4, the nails 17 are spot-

welded to the inner face 18 of the nailing strip, the shanks of the nails being suitably roughened or mutilated to provide a strong frictional engagement when the nails are driven into the slots 12 of the metallic flanges aforesaid. To cover the edges of the reinforcing board or sheet 14, the nailing strip is provided with a narrow flange 19 bent transversely to the plane of the nailing strip, said flange serving also to impart rigidity to the nailing strip, so that the strip will not be unduly distorted during application of the panel, or during removal of the panel from the door flanges subsequent to application. It will therefore be understood that the paneling can be removed from the vehicle body or parts thereof whenever desired, by merely inserting a tool between a flange such as 8 and its overlying nailing strip. The nature of each chisel cut or slot 12 is such that it can be hammered or bent to its original form or configuration upon reapplication of the paneling means, it being understood that the clamping edges formed at 13 would be slightly deformed by the driving of a nail therethrough.

It will be understood that the nail heads are, by preference, but not necessarily, disposed upon the inner faces 18 of the nailing strips, said heads being made sufficiently thin that they may sink into the material of the board or sheet 14, as shown in Fig. 3, when the assembly is effected by means of hammer blows or a pressing operation. By punching the board or sheet 14 for reception of the nail shanks, the nailing strips are forced to fit accurately and neatly along the marginal edges of the board or sheet, this result being impossible or at least uncertain in constructions wherein the nail shanks form their own perforations upon being driven through the material of the board or sheet.

The modification of Fig. 6 which is a view of the forward portion of the door shown in Fig. 2, shows how the slits 12 might be arranged in the flanges 8, 9 and 10 to extend in a common direction, so that a slight tolerance may be provided in placing the panel to insure a desired level of its top edge with respect to the sill of the window aperture in the upper portion of the door. This modification suggests also the possibility of extending the slits horizontally in all the inwardly extended flanges of the door to provide for lateral tolerance or clearance in adjusting the panel toward and from the uprights of the door prior to driving the nailing strips into position. These modifications just mentioned are ordinarily not needed when the part to be paneled is of standard dimensions and undistorted. In other words, the arrangement shown in Figs. 1 and 2 will automatically provide an accurate and workmanlike job if the door is true and dimensioned with ordinary accuracy.

Although the invention has been explained and illustrated as applied to a door of a vehicle, it is to be understood that other parts of a metallic vehicle body may be paneled or finished in the same manner. The method and means herein disclosed for the application of trim or paneling have been found effective for reducing the cost of both material and labor, with a substantial saving of time, the job being completed with the same degree of neatness and accuracy, as was possible in the use of structures heretofore employed.

What is claimed is:

1. In a self-locating panel structure, the combination of a support to be paneled and comprising a sheet metal member having a supporting face and a back, said supporting face having a series of elongated through chisel cuts formed therein, each providing a pair of parallel continuous deformable clamping edges bulged inwardly toward the back of said member leaving the supporting face dented toward the back along substantially the length of said elongated cuts, and means including nail shanks for securing a panel to the supporting surface, the shanks each being guided by the dented areas alongside of the chisel cuts when driven therethrough to deform said clamping edges for frictionally holding the shanks.

2. A self-locating panel structure, including a support to be paneled and comprising a sheet metal member having a supporting face and a back, said supporting face having a series of elongated through slits punched therein from the supporting face toward the back without removal of metal, said slits thereby being bulged at the back and dented along their length at the supporting face, each slit being constituted of a pair of parallel uninterrupted and continuous clamping edges deformable with substantially equal resistance at any point along its length when penetrated by a panel securing nail poised over the dented region and driven through the slit from the supporting surface toward the back, the dented region of the supporting face serving to guide the nail shank into the slit.

3. A vehicle door having a frame including a metallic flange at the inner side thereof, said flange having a supporting face and a back, and having also a series of spaced elongated through chisel cuts formed therein, each cut being constituted of not more than two opposed continuous and uninterrupted clamping edges both bulged inwardly toward the back of the flange leaving an elongated uninterrupted dent in the supporting face co-extensive with the clamping edges, said dent furnishing an extensive means of guiding a nail to be driven through when poised substantially over the slit, the continuity of the clamping edges serving to provide substantially the same resistance to deformation of the clamping edges at all points along their length when the nail is driven through the slit from the dented side of the flange toward the bulged side thereof.

4. In combination, a panel including spaced nails extending therefrom substantially at right angles to the plane thereof, a support for the panel comprising a sheet metal member having a panel supporting face and a back, said member having formed therein, at a spacing substantially corresponding to the panel nail spacing, a series of elongated through chisel cuts each punched therein from the supporting face toward the back so as to bulge the sheet metal member at the back and to dent it for providing a nail guide in the supporting face, both the bulge and the dent being elongated and substantially co-extensive in length with the length of the elongated chisel cut, and each chisel cut being constituted of no more than one pair of opposed continuous and uninterrupted parallel clamping edges of substantially the length of the chisel cut, the continuity of said clamping edges serving to furnish approximately the same degree of resistance, at all points along the length thereof, to deformation of the clamping edges when the nails of the panel are poised substantially over the elongated dents and driven through the chisel cuts from the supporting face of the sheet metal member toward the back thereof.

5. In a panel mounting structure, a sheet metal support having a panel supporting face and a back, and a series of spaced elongated through chisel cuts formed therein, each cut being constituted of not more than two opposed continuous and uninterrupted clamping edges both bulged rearwardly toward the back of the sheet metal support leaving an elongated uninterrupted dent in the supporting face co-extensive with the clamping edges, said dent furnishing an extensive means of guiding a nail to be driven through when poised substantially over the slit, the continuity of the clamping edges serving to provide substantially the same resistance to deformation of the clamping edges at all points along their length when the nail is driven through the slit from the dented side of the support toward the bulged side thereof.

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