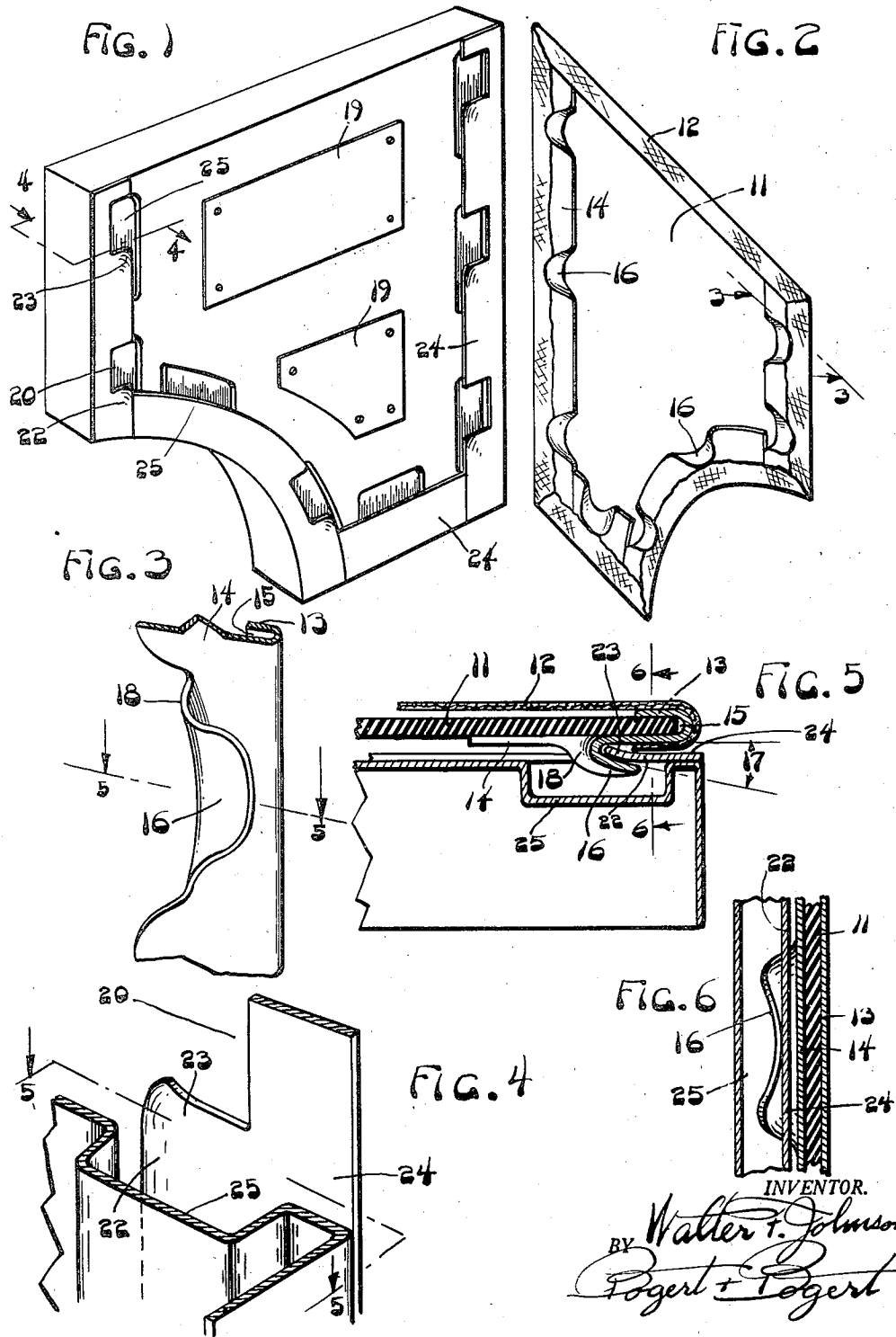


Nov. 16, 1948.

W. F. JOHNSON
PANEL AND TRIM MOUNTING

2,454,066

Filed Oct. 13, 1944



INVENTOR.
Walter F. Johnson
BY Roger + Roger

UNITED STATES PATENT OFFICE

2,454,066

PANEL AND TRIM MOUNTING

Walter F. Johnson, Cincinnati, Ohio

Application October 13, 1944, Serial No. 558,525

4 Claims. (Cl. 296-44)

1

The prevailing practice in vehicle body construction is to provide the interior surfaces of such structures with upholstery materials which embellish the appearance thereof and which contribute to its comfort. In such constructions provisions have to be made for accessibility to features of mechanical detail existing in other portions of the construction and in its assembling operations. For example, upholstery of this type has to be made conveniently removable to afford access to such mechanical features as window raising and lowering mechanisms and similar details, the mounting of such upholstery has to be adapted to structural detail such as frame members and the like, and, of equal importance, the installation of such upholstery has to be made in a manner which will attain the objectives of secure and yet demountable attachment speedily and repeatedly, for repairs, replacement, or servicing purposes by others than those skilled in the upholstering art.

Such objectives are attained in the panel and trim mounting I have described, with the added objective that the mounting I set forth is inexpensive to produce, not only in its utilization of all the material in the readily available stock from which it is formed, but also in its ease and rapidity of fabrication through the use of dies which are simple to produce, easy to maintain, and which require no special machinery in order to use them.

Other objectives will become apparent in the mounting I now describe and illustrate in the accompanying drawing.

Fig. 1 is a perspective view of an exemplary lower portion of a motor vehicle door embodying details of the invention I am about to describe.

Fig. 2 is a perspective view of a panel which is shaped to cover the framed or inner side of the door shown in Fig. 1, its disclosed position being such with relation to Fig. 1 as to convey relationship of details thereof to those details of the door which cooperate with the complementary details of the panel.

Fig. 3 is a fragmental perspective view of a panel binding strip on enlarged scale, looking somewhat in the direction of arrowed line 3-3 in Fig. 2, showing the characteristics of the panel mounting gib which constitutes the principal feature of novelty upon which my invention rests.

Fig. 4 is an enlarged fragmental perspective view of the frame-like edge of the door as prepared for the reception of the gib of the panel binding shown in Fig. 3, looking somewhat in the direction of the arrows 4 in Fig. 1, the positions of Fig. 3 to Fig. 4 being such as to convey an under-

2

standing of the relationship of these parts just before assembly.

Fig. 5 is an enlarged fragmental sectional view of the related parts shown in Figs. 3 and 4, the disclosure showing them assembled and looking in the direction of the arrowed line in each view.

Fig. 6 is an enlarged sectional view of the details shown in Fig. 5, taken on the line 6-6 thereof, but omitting the upholstery material in order that structural detail of the gib and its relationship to door parts may be more clearly understood.

Panels which carry the upholstery materials usually provided for motor vehicle interiors, may consist basically of a sheet of fiber board 11 or similar material shaped to fit the door or other body element to be equipped. Various devices have been conceived and some of them employed, preferably located along the edges of the board, for attachment of the board to the body element. Such a panel then is provided with the upholstery material 12 with which the body interior is trimmed. The mounting I have devised is provided from a simple strip of metal of relatively narrow width, preferably having one edge turned backwardly to produce a longitudinal flange 13 occupying spaced relation to the body 14 of the strip to form a channel 15. The channel engages the edge of the panel board, acting as a binding thereon, preferably by being pressed or crimped in place, as suggested in Fig. 5.

This binding may be provided with a series of gibs 16 spaced apart and in number, size, etc., being governed by the length of the piece employed. Such gibs preferably partake of the form shown in detail in Figs. 2, 3, 5 and 6, the formation thereof being made by a simple bending of the strip edge backwardly at intervals in roughly crescent shape as shown, in which, transversely, as shown in Fig. 5, they occupy an angle 17 to the strip surface, the purpose of which will be described, in which, longitudinally, the shape as shown in Fig. 3 is curved, in which, when viewed as shown in Fig. 6, they are curved out of the horizontal plane of the strip, and in which, as shown in Figs. 3 and 5, the gib is curved backward from the strip as at 18. Such a gib therefore is most rigid and incapable of distortion, as may be appreciated upon a careful study of its unique formation. Also, from this characteristic, the formation just described performs another and most important function which will appear presently.

Turning now to the body element, such as the door I have shown in Fig. 1, simple provision is made therein to receive the gibs of the panel for locking it to the door. This provision is a series,

of door-framing strips 24 which may be spot-welded in place. In the strips are a series of notches 20 which have vertically longitudinal placement as shown. In order that the purpose of these notches may be understood, I point out that the mounting movement of the panel relatively to the door frame, takes place toward the door and then downwardly, as in the motion made in hanging a picture on a support provided on the wall. With this preliminary explanation it will be seen that the notches pass the cooperating panel gibs 16 below the plane of the notches so that when the panel is pressed downwardly, with all of its gibs in the recesses 25 of the mounting plane of the door, these gibs will engage back of the wall extensions 22 of the strips which create the narrow portions of the spaces beneath the strips adjacent to the notches, thereby serving to lock the panel in position. To facilitate the engagement of the gibs with the wall extensions 22 I prefer to form the upper ends 23 of these extensions so that they are rounded and also so that they turn outwardly, as Figs. 1, 4 and 5 show. Thus gib engagement is assured, and, as the panel is pressed downwardly, the action is to draw the panel tightly against the door. At this point the upholstery material itself functions to press throughout the entire periphery of the panel upon the cooperating surface of the door frame and thereby cushion the panel against rattle as well as assist in preventing its displacement.

Obviously, the bottom edge of the door has to be provided with recesses 25 to receive the gibs back of the weld-attached lower strip 24 by which the panel has to be held at its bottom. This bottom strip need be but plain since its edge is the agency upon which the lower panel gib or gibs engage.

The curved edge of the door likewise has to be provided with recesses 25, but in the weld-attached curved strip, while its upper curvature may not require a notch 20, its lower portion may require one, as is shown in Fig. 1.

The usual trim or sill material of the framing around the window opening of the door is the agency employed for holding the panel in place. This retains the entire panel in mounted position against upward movement, thus dispensing with the necessity for a gibbed mounting at or along the top edge of the panel.

To emphasize the characteristics of the most important feature of my invention, namely, the gib 16, I point out that at no area or cross section of my novel gib is there to be found a straight, flat or planar formation. The entire gib is completely curved transversely, longitudinally, and at or along any line or lines at any angle to the transverse or horizontal axes. As is obvious from a careful study of Fig. 3, of Fig. 5, and of Fig. 6, curvature is the distinction upon which the structural functioning of this device depends for its performance. In other words, a specifically non-yielding gib had been produced. Not only have these curvatures been produced to obtain non-yielding characteristics for this purpose alone, but they have been designed directionally to obtain ease of movement of the panel into and out of mounted position to avoid destructive distortions which render other structures very objectionable. Additionally they have been designed to avoid flexing distortions at the root of the gib, thus overcoming the usual tendency which sharp angle flat hook formations may have to crack from their attaching sheets or strips, as well as overcoming the frequent separation which weld

attached detents of commonly used panel mounting devices exhibit and which thereby become useless frequently upon but one detachment of the panel.

Another valuable feature of the construction I have shown lies in the provision of the sheet metal inner facing of the door itself, with closures 19 permitting access to the window mechanism, whereby water which enters the door interior around the window opening, will not result in destructive rusting and locking of the panel in place, thereby preventing its ready removal and resultant injury when the window or its operating mechanism has to be reached, as well as protecting the upholstery and fiber board panel against buckling or other injury from such moisture.

As a further feature of merit the fiber base of the panel I have described adds material insulation to the otherwise uncomfortable wall of the door, thus contributing to the comfort of the vehicle, particularly in cold weather.

Having thus described my invention what I claim is:

1. A panel mounting structure for a vehicle door comprising an inner flat panel on the door, a frame adjacent at least two edges of said panel and fastened thereto, notches in the inner edge of said frame, and imperforate recesses in said inner panel underlying only each notch and a portion of the inner frame edge adjacent thereto, a removable relatively rigid flat panel configured to cover said inner panel and frame, gibs incorporating a projecting neck mounted on said removable panel and so positioned as to register with said frame notches and project in said recesses when the removable panel is placed against said frame and to slide under said frame with their necks in contact with the inner edge thereof when said removable panel is slid into its final position.

2. A panel mounting structure for a vehicle door comprising an inner panel on the door, a frame adjacent at least two edges of said panel and fastened thereto, notches in the inner edge of said frame, and imperforate recesses in said inner panel underlying only each notch and a portion of the inner frame edge adjacent thereto, a removable relatively rigid panel configured to cover said inner panel and frame, gibs incorporating a projecting neck mounted on said removable panel and so positioned as to register with said frame notches and project in said recesses when the removable panel is placed against said frame and to slide under said frame with their necks in contact with the inner edge thereof when said removable panel is slid into its final position, said gibs having a transverse convex surface where they contact the underside of said frame.

3. A panel mounting structure for a vehicle door comprising an inner panel on the door, a frame adjacent at least two edges of said panel and fastened thereto, notches in the inner edge of said frame, and imperforate recesses in said inner panel underlying only each notch and a portion of the inner frame edge adjacent thereto, a removable relatively rigid panel configured to cover said inner panel and frame, gibs incorporating a projecting neck mounted on said removable panel and so positioned as to register with said frame notches and project in said recesses when the removable panel is placed against said frame and to slide under said frame with their necks in contact with the inner edge

5

thereof when said removable panel is slid into its final position, said gibs having a transverse convex surface where they contact the underside of said frame, said removable panel being formed of an imperforate surface bounded by molding, said gibs being formed out of said molding and being a portion of the inner molding edge turned over on itself without a fracture.

4. A panel mounting structure for a vehicle door comprising an inner flat panel on the door, a frame adjacent at least two edges of said panel and fastened thereto, notches in the inner edge of said frame, and imperforate recesses in said inner panel underlying only each notch and a portion of the inner frame edge adjacent thereto, a removable relatively rigid flat panel configured to cover said inner panel and frame, gibs incorporating a projecting neck mounted on said removable panel and so positioned as to register with said frame notches and project in said recesses when the removable panel is placed against said frame and to slide under said frame with their necks in contact with the inner edge thereof when said removable panel is slid into its final position, said inner flat panel and said removable panel being in contact or just out of

6

contact when said removable panel is in its final position.

WALTER F. JOHNSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

	Number	Name	Date
10	404,872	Scofield	June 11, 1889
	1,877,265	Chadwick	Sept. 13, 1932
	1,903,469	Meader	Apr. 11, 1933
	1,960,949	Miller et al.	May 29, 1934
15	2,019,110	Ball	Oct. 29, 1935
	2,082,235	Warren	June 1, 1937
	2,110,351	Woodall	Mar. 8, 1938
	2,262,426	Hall	Nov. 11, 1941
	2,337,239	Hall	Dec. 21, 1943

FOREIGN PATENTS

	Number	Country	Date
	427,187	Great Britain	Apr. 17, 1935
	466,342	Great Britain	May 26, 1937
25	470,613	Great Britain	Aug. 18, 1937