Nov. 8, 1932. I. D. PERRY 1,886,974

DOOR PILLAR AND THE LIKE

Filed Sept. 16, 1931 2 Sheets-Sheet 1

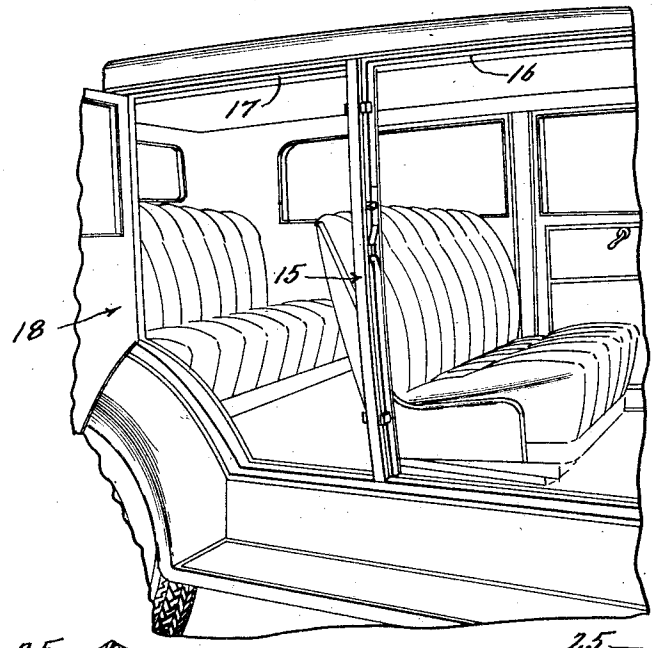


Fig. 1.

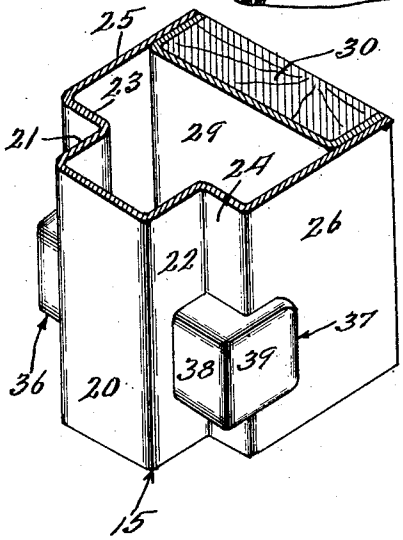


Fig. 3.

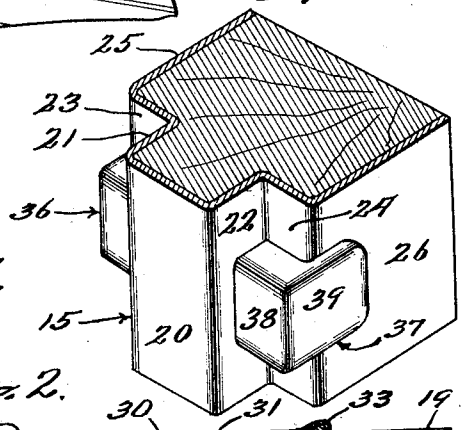


Fig. 4.

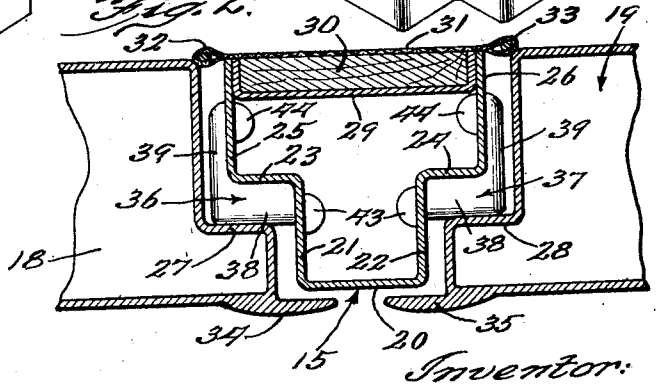


Fig. 2.

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Nov. 8, 1932. I. D. PERRY 1,886,974

DOOR PILLAR AND THE LIKE

Filed Sept. 16, 1931 2 Sheets-Sheet 2

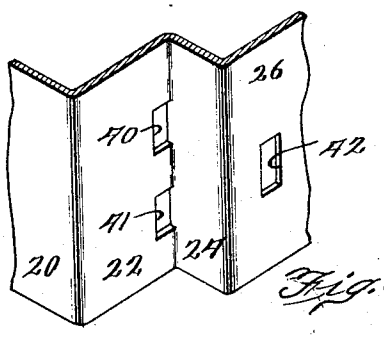


Fig. 5.

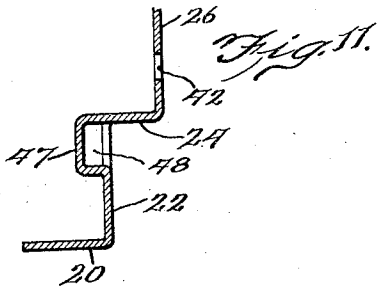


Fig. 11.

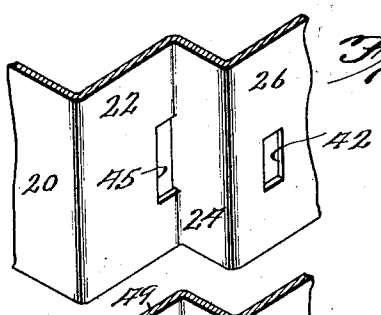


Fig. 6.

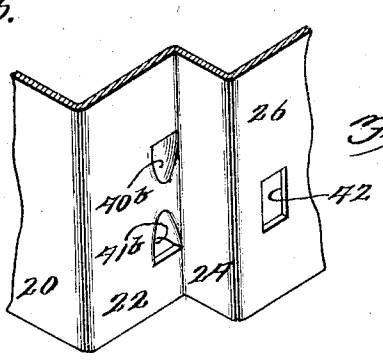


Fig. 8.

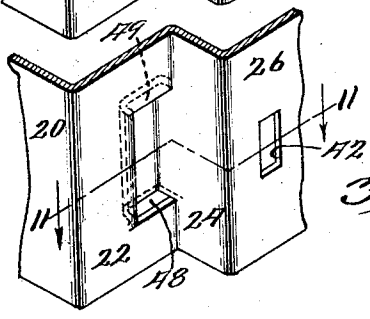


Fig. 10.

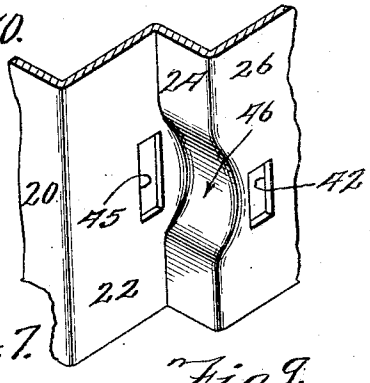


Fig. 9.

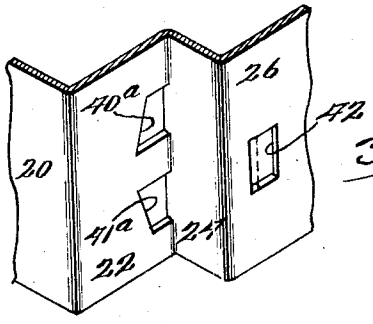


Fig. 7.

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Patented Nov. 8, 1932 1,886,974

UNITED STATES PATENT OFFICE

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DOOR PILLAR AND THE LIKE

Application filed September 16, 1931. Serial No. 563,062.

This invention has to do with improvements in door pillars and the like for automobile bodies. These door pillars are built into and constitute a portion of the automobile body and establish a portion of the door frame against which the swinging portion of the door comes into contact when the door is closed. In other words the door pillar is located at the locking or latching edge portion of the door.

Furthermore in the case of a great majority of automobile bodies constructed there are provided two doors at each side of the body, and the door pillar is located between these doors and it forms the portion of the body located at such point. In such case both of the doors swing towards and latch or lock to this common door pillar.

It is also customary to provide the door pillar with a rabbeted or recessed outwardly facing ledge portion which establishes a ledge facing outwardly towards the exterior of the body and towards the door. Likewise the edge portion of the door itself is provided with an inwardly facing rabbeted or ledge portion which is a companion to that of the door pillar, so that when the door is closed these two companion edge portions seat together or in close proximity to each other. In other words the door pillar has a ledge surface which faces outwardly in the direction of door closing movement and the door pillar also has an inwardly extending flange surface at the door side of the pillar and which lies parallel to the direction of door closing movement. Generally also the door pillar is provided with an outwardly extending flange surface lying parallel to the direction of door closing movement. The edge portion of each door is provided with companion surfaces including a ledge facing also in the direction of door closing movement and which approaches the corresponding ledge of the door pillar when the door is closed.

Generally speaking it may be stated that the door pillar is of T-shaped cross section in the case of automobile bodies having two doors closing against an intermediate pillar, and is of L-shaped cross section in the case of automobile bodies having only a single door closing against the pillar.

It is also customary to provide the door pillar with one or more bumper blocks on the ledge which faces in the direction of door closing movement, said bumper blocks being of resilient material such as rubber or the like. In the past it has been customary to provide the door pillar with a socket or recess which is cut into or reaches into both the ledge and the inner or inwardly extending flange whereby said socket or recess has exposures both towards the direction of door closing movement on the ledge surface and also parallel to the direction of door closing movement in the flange surface. In the past it has been customary to set the resilient bumper block into such socket or recess, said bumper block being of proper size and formation to extend beyond the ledge surface towards the companion door surface and to extend beyond the flange surface so as to provide a wiping portion against which the companion portion of the door will engage when the door is closed.

The foregoing arrangement is objectionable for the reason among other things that the cutting or recessing of the ledge surface at the position of the bumper block makes it impossible to directly support the bumper block at that location so that it becomes necessary to make other or supplemental provision for supporting the bumper block and sustaining it against the shocks and forces incident to the door closing operation. Such supplemental supporting means involves additional parts or operations of manufacture with corresponding added expense and possibility of derangement in service.

The main object of the present invention is to provide a sheet metal door pillar which is so formed as to provide the ledge facing in the direction of door closing movement and also the inwardly and outwardly extending flanges lying parallel to the direction of door closing movement and to provide said sheet metal door pillar with openings in the outwardly extending flange adjacent to the position of the ledge, and in some cases to also provide openings in the

inwardly extending flange in transverse alignment with said first mentioned openings; all of which openings are so formed as to receive companion portions of the bumper block itself to retain the bumper block securely in place on the door pillar. In each case the arrangement of the openings in the door pillar is such as to leave the ledge which faces in the direction of door closing movement uncut and unperforated to thereby establish a large supporting surface for the head portion of the bumper block. In each case this supporting surface is of substantially the full area or size of the head portion looking in the direction of door closing movement so that the entire pressure and shock on the head of the bumper block incident to the door closing operation is transmitted directly through the resilient material of the bumper block to the pressure and shock resisting ledge portion of the door pillar.

A further desirable result of this arrangement is that the strength and stiffness of the door pillar is maintained at a maximum amount consistent with the necessary attachment of the bumper block to the pillar since the opening or openings at the interior angle and/or inwardly extending flange need be only of such size as is required to receive the lug or lugs by means of which the bumper block is held in place; it being unnecessary to provide a socket or recess of the full size of the body portion of the bumper block.

In some cases it is also the present practise to provide a filler of wood or the like for all or a portion of the door pillar so as to stiffen and reinforce the same. In such cases the sheet metal serves as a finishing plate or sheathing for such wooden pillar. In the case of this type of construction the wooden or other filler may be suitably socketed or recessed at the proper position corresponding to the lugs whereby the bumper block is secured in place.

A further advantage of the type of construction herein disclosed is the fact that the openings in the sheet metal door pillar can be readily formed by punching or other operations at the same time that the sheet metal is folded into the form of the door pillar or by operations incidental thereto so that the entire door pillar construction including the means for attaching the bumper blocks in place is produced at a minimum of cost and with a minimum number of operations and without the necessity of using welding or other objectionable manufacturing operations.

Another feature of the present invention relates to the provision of means for adjusting the elevation of the contacting surface of the head portion of the bumper block with respect to the ledge of the door pillar so that the position thereof can be brought into a proper condition of adjustment from time to time in order to ensure proper contact of the edge portion of the door against same. Such adjustment may be desirable for various reasons including the wear or change of thickness of the head portion of the bumper block in service, or may be due to warping or change of adjustment of the door itself with respect to the position of the door pillar. In the present case this adjustment of the head portion of the bumper block is produced by shimming the same with respect to the ledge of the door pillar as distinguished from other types of construction in which the entire bumper block is bodily shifted or adjusted with respect to the door pillar.

More specifically, the above mentioned adjustment is produced by supporting the end portions of the head of the bumper block with respect to the outwardly extending flange, so that the central portion of said head can be forced upwardly away from the ledge the desired amount, at the same time deflecting the head portion of the bumper block into a slightly curved form. In this connection it is a further feature to attach the ends of the head portion to the outwardly extending flange by means of lugs or enlargements engaging suitably positioned holes in the flange, said holes being so formed as to permit the necessary bending action above referred to without cutting or otherwise injuring the material of the bumper block.

Still another feature of the invention relates to the provision of a sheet metal door pillar having its ledge portion and the adjacent flange portions so formed as to provide a depressed or concave recess into which the suitably formed head portion of the bumper block seats. Due to this arrangement the head portion of the bumper block is provided with an extra thickness of resilient material so that an improved buffing and shock resisting action is produced. Other objects and uses of the invention will appear from a detailed description of the same which consists in the features of construction and combinations of parts hereinafter described and claimed.

In the drawings:

Figure 1 shows a fragmentary perspective view of a portion of an automobile body having applied thereto a door pillar embodying the features of the present invention, the construction illustrated being that in which both doors work against a common T-shaped door pillar, both of the doors being opened so as to better illustrate the construction of the door pillar itself;

Figure 2 shows a fragmentary horizontal section through a T-shaped door pillar embodying the features of the present invention together with the adjacent portions of the two doors, said doors being closed;

Figure 3 shows a perspective view of a

short length of a T-shaped door pillar of the type shown in Figures 1 and 2;

Figure 4 shows a view similar to that of Figure 3 with the exception that it illustrates a wooden filled T-shaped door pillar construction;

Figures 5 to 9 inclusive show short perspective views of portions of five different forms of sheet metal door pillars each embodying the features of the present invention;

Figure 10 shows a short perspective view of a portion of another different form of sheet metal door pillar embodying the features of the present invention.

Figure 11 shows a section on the line 11—11 of Figure 10 looking in the direction of the arrows; and

Referring first to Figures 1 and 2, the same illustrate a typical application of the embodiment of the present invention. In this case the door pillar is designated in its entirety by the numeral 15. It is located intermediate between the front and the rear door openings 16 and 17 respectively and serves the doors of both of these openings. A portion of the rear door 18 is shown in Figure 1 and portions of both of the doors are shown at 18 and 19 in Figure 2.

As shown in Figure 2 the door pillar 15 is of sheet metal including the cross plate portion 20, the two outwardly extending flanges 21 and 22 lying in the direction of door closing movement, the two ledges 23 and 24 facing in the direction of door closing movement and the two inwardly facing flanges 25 and 26 lying parallel to the direction of door closing movement. The swinging edge portions of the doors 18 and 19 are provided with ledges 27 and 28 respectively which face in the direction of door closing movement and directly approach the door pillar ledges 23 and 24.

As a matter of convenience a U-shaped sheet metal plate 29 has its flanges seated between flanges 25 and 26 of the door pillar at the body side thereof; and a filler block 30 of wood or the like is placed into the channel 29. The fabric 31 is then readily secured to the filler block 30 and the lips 32 and 33 at the edges of said fabric 31 overlie the flanges 25 and 26 of the door pillar and thus establish sealing lips through which the inner corners of the doors 18 and 19 seat and seal when the doors are closed.

Generally also the outer edges of the doors are provided with the overhanging lips 34 and 35 at the swinging edges of the doors so that said lips approach the door pillar and cover over the clearances between the edges of the doors and the outwardly extending flanges of the door pillar.

In the construction illustrated I have shown L-shaped bumper blocks 36 and 37 as being mounted upon the two sides of the door pillar in position to receive contact by the edge portions of the doors when they are closed. Each of these bumper blocks includes a head portion 38 which seats against the ledge 23 or 24 as the case may be and a lip or skirt 39 which seats against an inwardly extending door pillar flange 25 or 26 as the case may be.

Referring to Figures 5 to 11 inclusive, the same show fragmentary perspective views of portions of typical door pillar constructions showing the manner in which the same are perforated or provided with attaching portions of the bumper blocks. In the construction of Figure 5 the outwardly extending flange 22 of the door pillar is provided with a pair of openings 40 and 41 close to the surface of the door pillar ledge 24 and the inwardly extending flange 26 of the door pillar is provided with an opening 42 substantially in transverse alignment with the openings just referred to. The head portion 38 of the bumper block 37 is provided with inwardly extending hooked lugs 43 which extend through the openings 40 and 42 respectively to engage the back or inside face of the flange 22 in locking fashion; and the lip or skirt 37 of the bumper block is provided with an inwardly extending hooked lug 44 which reaches through the opening 42 to the back or inside face of the flange 26 and engages the same. Accordingly both the head and skirt portions of the bumper block are securely connected to the flanges of the door pillar by engaging said hooked lugs through the openings of the door pillar. At the same time the ledge 24 of the pillar is entirely uncut and is provided with a full and continuous supporting surface for the head portion of the bumper block.

In the modified construction of Figure 6 there is provided only a single opening 45 in the flange 22 at a position close to the ledge 24 and the flange 26 is provided with a single opening 42 as in the previous construction. The openings 45 and 42 are engaged by suitable hook shaped lugs formed on the head and skirt portions of the bumper block in a manner similar to that already explained.

The construction shown in Figure 7 is similar to that of Figure 5. However, in the present case the two openings 40^a and 41^a formed in the outwardly extending flange 22 are corresponding to the openings 40 and 41 of the form shown in Figure 5 are tapered with respect to the surface of the ledge 24 so that the adjacent portions of said openings are deeper measured in a direction at right angles to the ledge than their more distantly separated portions. As a consequence it is possible to deflect the central part of the head portion of the bumper block outwardly from the ledge 24 by forcing shims between said ledge and said head portions, the central portion of the head being thus deflected outwardly and carrying with it the adjacent portions

of the two lugs. When using this feature in connection with bumper blocks having the lip or skirt which lies against the flange 26 the opening 42 may also be deflected outwardly as shown in Figure 7 to permit of such shimming movement; or the hooked lug may be formed with sufficient clearance in the opening 42 to permit of the necessary amount of shimming adjustment.

It will be observed that in each of the arrangements of Figures 5, 6, and 7 the material of the flange 22 is completely cut away at the positions of the openings therein. In the case of the construction of Figure 8 there are provided two openings 40^b and 41^b in the flange 22; but in this case these openings are formed by stamping the metal of the flange 22 backwardly in such manner as to establish lugs or ears at the back side of the flange together with outwardly facing openings through the flange to the positions of said ears so that the suitably formed lugs on the head portion of the bumper block can be extended through said openings.

In the modified form of Figure 9 the ledge 24 and the adjacent portions of the flanges 22 and 26 of the door pillar are so treated as to establish the concave socket or recess 46 facing in the direction of door closing movement and adapted to receive a correspondingly formed seating surface of the head portion of the bumper block. Preferably also the adjacent portions of the flanges 22 and 26 are perforated as shown at 45 and 42 respectively to receive companion hooked lugs or the head and skirt portions of the bumper block respectively. It is noted that with this type of construction the forces and shocks incident to the door closing operation will tend to seat the bumper block head more perfectly into this recess 46 so as to keep the same firmly centered and located therein. Furthermore this recess arrangement makes it possible to use a bumper block head of thicker proportions than would otherwise be possible with corresponding increase of resiliency and improved operation.

In the modified arrangement of Figures 10 and 11 the metal of the outwardly extending flange 22 is pressed inwardly at a point adjacent to the ledge 24 establishing a backwardly reaching seat 47 which is open at its ends 48 and 49 as clearly shown in Figure 10. In this construction there is also provided the opening 42 in the flange 26 in transverse alignment with said seat. With this type of construction the head portion of the bumper block is provided with an extension which occupies the seat 47 and is provided with lugs which extend through the openings 48 and 49 so as to lock said extension in place with respect to the flange 22. With this construction also the skirt may be provided with an inwardly extending hooked lug to reach through the opening 42 of the flange 26 and engage the back face thereof.

In the construction shown in Figures 2 and 3 the filler block 30 does not reach far enough over to interfere with the inwardly extending hooked lugs on the lips or skirts of the bumper blocks. In the modified construction of Figure 4 the filler block 50 completely fills the space within the sheet metal door pillar so that said filler block should be properly recessed at the positions where the lugs of the bumper block extend through the sheet metal in order to permit proper engagement of the parts.

While I have herein shown and described only certain embodiments of the features of my present invention still I do not intend to limit myself thereto except as I may do so in the claims.

I claim:

1. A pillar for an automobile body comprising a sheet metal member bent to provide a rabbet portion of angular cross-section, and inwardly and outwardly projecting flange portions extending from opposite sides of the rabbet portion substantially at right angles to each other, the rabbet portion comprising a ledge substantially at right angles to the inwardly projecting flange and facing in the direction of door closing movement, and a back wall substantially at right angles to the outwardly projecting flange, the ledge being imperforate but formed to provide a transverse depression adapted to receive a bumper block extending across the ledge, one of the walls of said pillar adjacent the ledge having an opening provided therein in a predetermined relation to the end of the depression to permit fastening the bumper block to the pillar by means on the end of the bumper block entering the opening.

2. A pillar for an automobile body comprising a sheet metal member bent to provide a rabbet portion of angular cross-section, and inwardly and outwardly projecting flange portions extending from opposite sides of the rabbet portion substantially at right angles to each other, the rabbet portion comprising a ledge substantially at right angles to the inwardly projecting flange and facing in the direction of door closing movement, and a back wall substantially at right angles to the outwardly projecting flange, the ledge being imperforate but formed to provide a transverse depression adapted to receive a bumper block extending across the ledge, the two walls of the pillar adjacent the ledge having openings provided therein in a predetermined relation to opposite ends of the depression to permit fastening the bumper block to the pillar by means on the ends of the bumper block entering the openings.

3. A pillar for an automobile body comprising a sheet metal member bent to provide a rabbet portion of angular cross-section, and

inwardly and outwardly projecting flange portions extending from opposite sides of the rabbet portion substantially at right angles to each other, the rabbet portion comprising a ledge substantially at right angles to the inwardly projecting flange and facing in the direction of door closing movement, and a back wall substantially at right angles to the outwardly projecting flange, said ledge being imperforate but formed to provide a transverse depression reaching from the back wall of the rabbet to the inwardly projecting flange, the opposite sides of said depression being sloped so that the depression is deepest at the middle, said depression being adapted to receive a bumper block having sloping surfaces to fit the sloping sides of the depression, and the back wall and inwardly projecting flange having openings provided therein adjacent opposite ends of the depression in a plane passing lengthwise through the middle of the depression transversely relative to the ledge to permit fastening the bumper block to the pillar by means on the ends of the block at the middle thereof entering the openings.

4. A pillar for an automobile body comprising a sheet metal member bent to provide a rabbet portion of angular cross-section, and inwardly and outwardly projecting flange portions extending from opposite sides of the rabbet portion substantially at right angles to each other, the rabbet portion comprising a wall at right angles to one of the aforesaid flanges, and another wall at right angles to the other of said flanges, one of said walls being formed to provide a depression adapted to receive a buffer block facing in the direction of door closing movement, and one of the flanges of the pillar having an opening provided therein in a predetermined relation to said depression to permit fastening the buffer block to the pillar by means on an adjoining face of the block entering said opening.

5. A pillar for an automobile body comprising a sheet metal member formed to provide an impact ledge and a side flange, the impact ledge being formed so as to provide a transverse depression as an integral part of the pillar member at the position of the bumper block, the opposite sides of said depression being sloped toward each other, said depression being adapted to receive one of the two angularly related portions of a substantially L-shaped bumper block of resilient material extending across said ledge and having sloping surfaces to fit the sloping sides of the depression, and the side flange having an opening provided therein at the position of the bumper block, the other portion of the block being adapted to overlie the opening in the side flange and being adapted to be anchored to the pillar member in said opening.

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