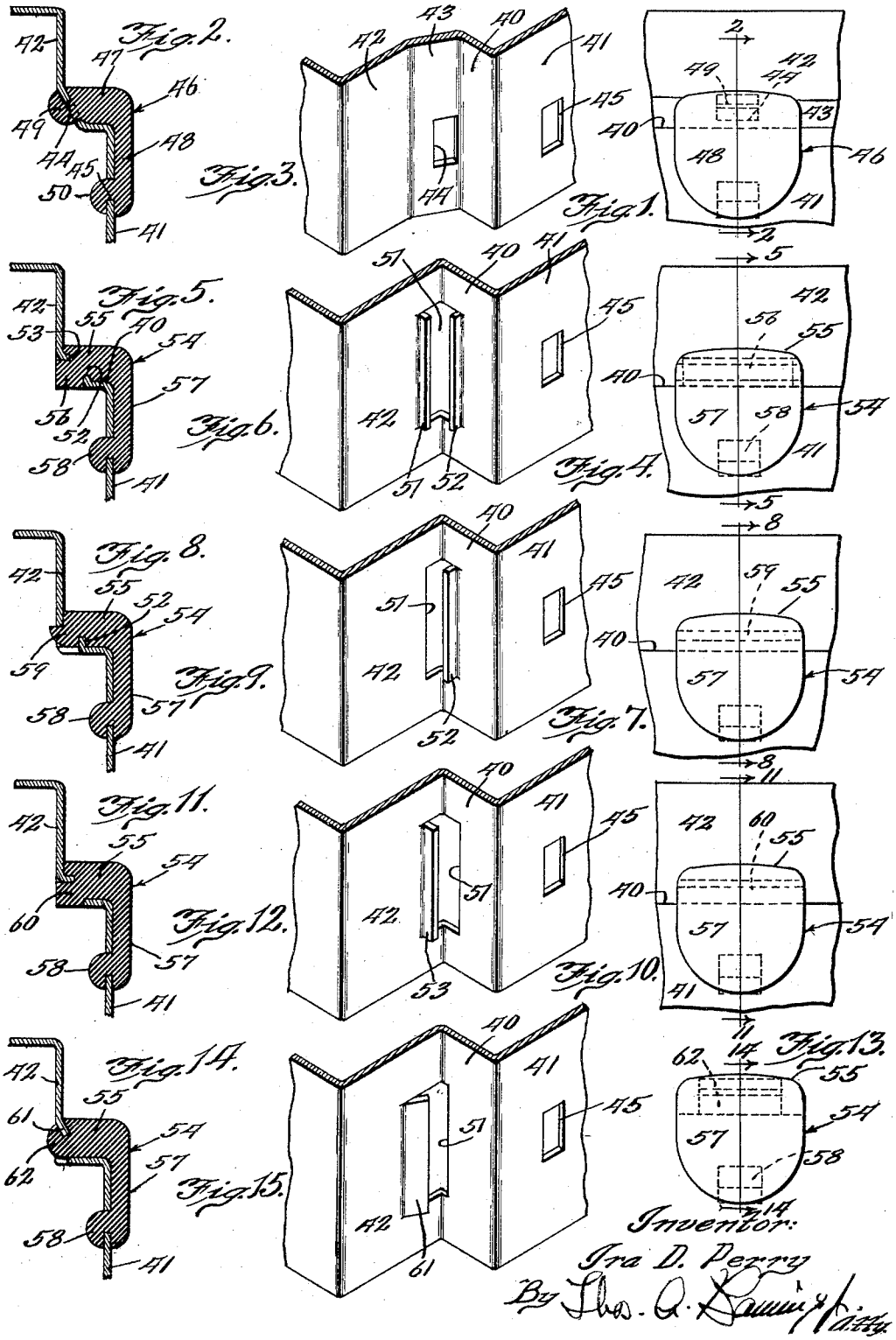
Oct. 25, 1932. I. D. PERRY 1,884,828

DOOR BUMPER AND THE LIKE

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DOOR BUMPER AND THE LIKE

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Fig. 20.

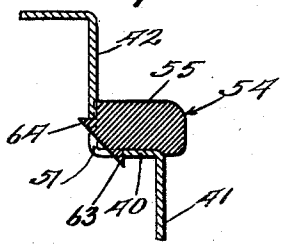


Fig. 19.

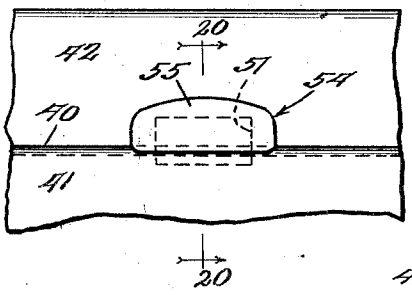


Fig. 22.

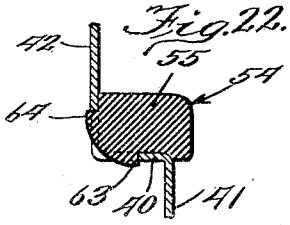


Fig. 17.

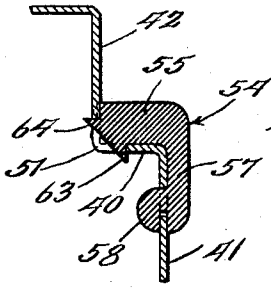
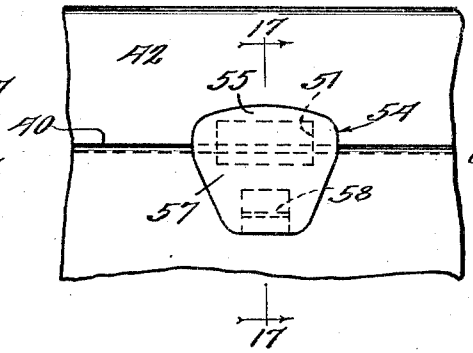


Fig. 16.



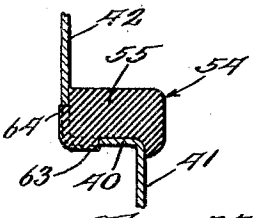


Fig. 23

Fig. 18.

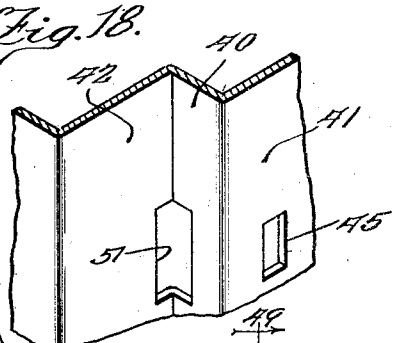
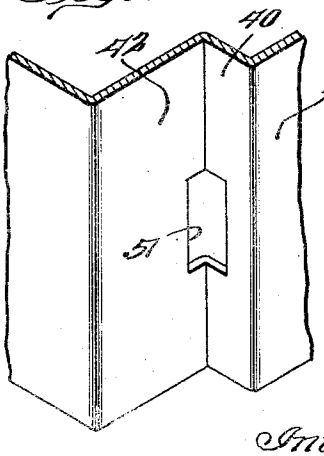


Fig. 21.



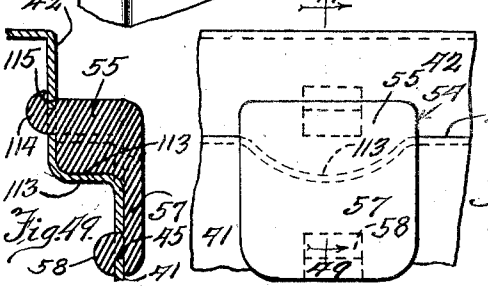


Fig. 19.

Fig. 18.

Inventor

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By Thos. A. Ramsdell

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Fig. 25.

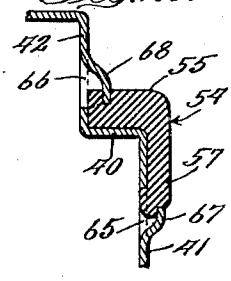


Fig. 24.

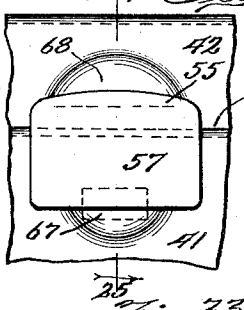


Fig. 26.

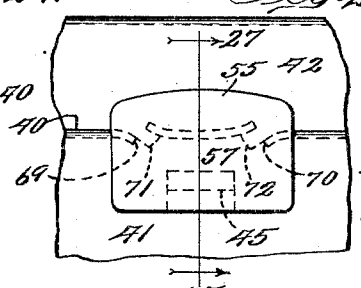


Fig. 27.

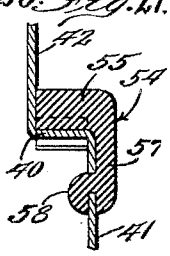


Fig. 32.

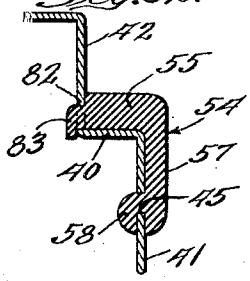


Fig. 33.

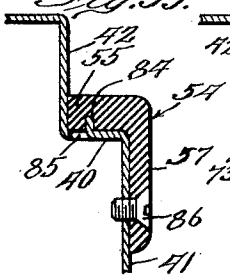


Fig. 29.

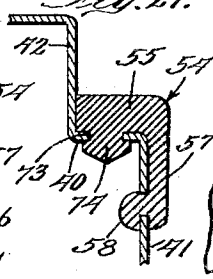


Fig. 28.

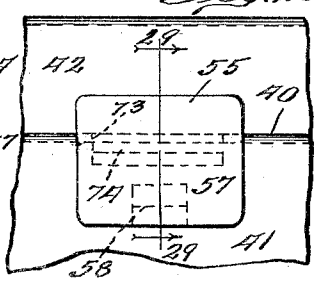


Fig. 34.

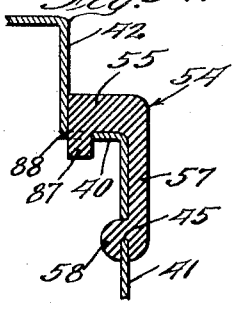


Fig. 31.

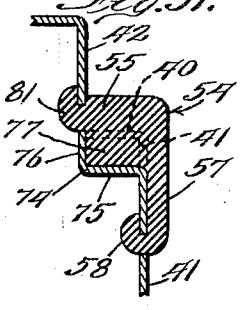


Fig. 30.

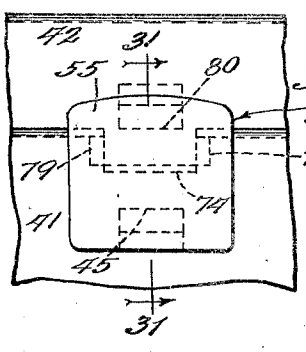


Fig. 35.

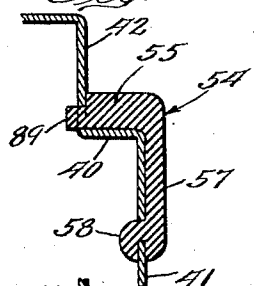


Fig. 37.

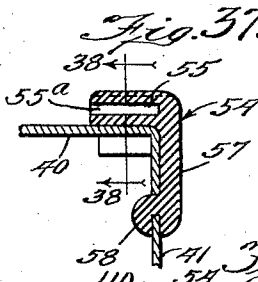


Fig. 38.

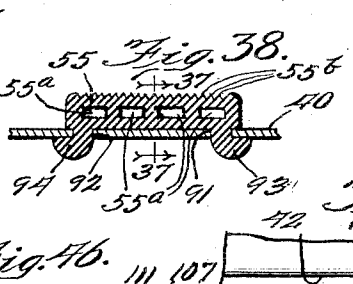


Fig. 45.

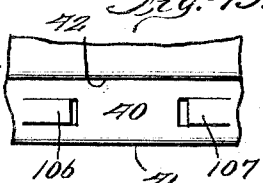


Fig. 46.

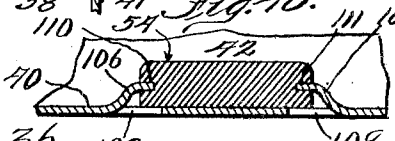


Fig. 36.

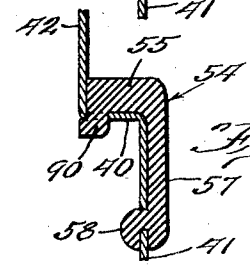


Fig. 47.



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DOOR BUMPER AND THE LIKE

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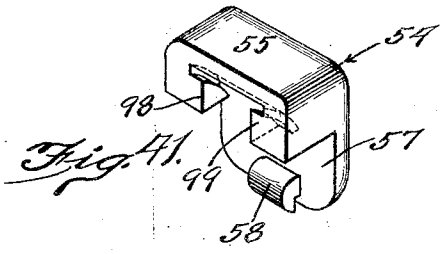


Fig. 41.

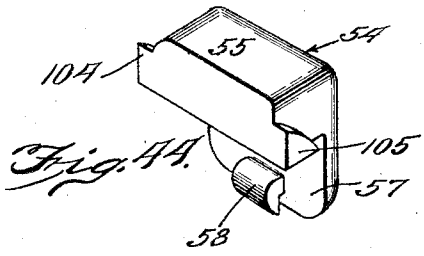


Fig. 44.

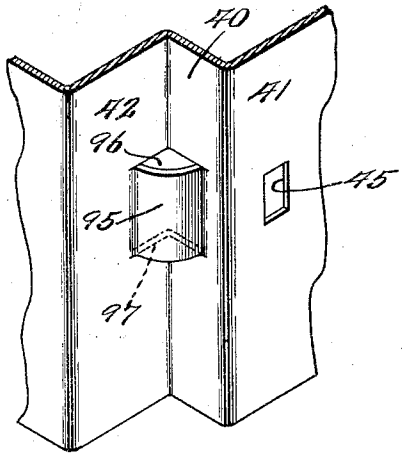


Fig. 40.

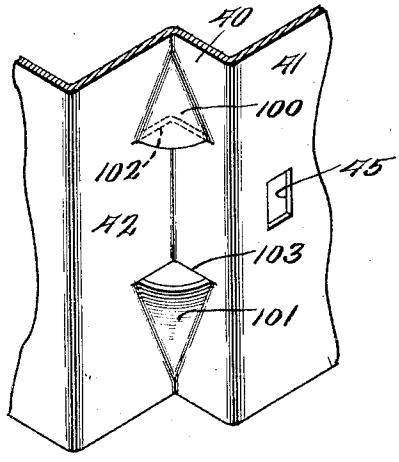


Fig. 43.

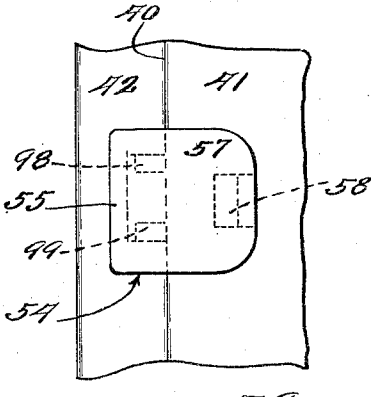


Fig. 39.

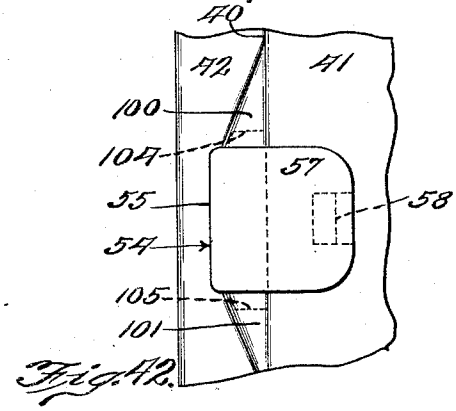


Fig. 42.

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Patented Oct. 25, 1932

1,884,828

UNITED STATES PATENT OFFICE

IRA D. PERRY, OF CHICAGO, ILLINOIS, ASSIGNOR TO EDNA L. MEYER, OF ROCKFORD, ILLINOIS

DOOR BUMPER AND THE LIKE

Application filed July 27, 1931. Serial No. 553,288.

This invention has to do with improvements in door bumpers for automobile bodies and the like. The invention herein disclosed has reference particularly to improvements in door bumpers for vehicles such as automobiles, etc., but the features of invention are not limited to this or any other particular class of service. However, in view of the fact that these door bumpers are generally used in connection with the doors of such vehicles, I have illustrated and will describe this particular application of the invention, but in so doing, I wish it clearly understood that I do not intend thereby to limit myself except as I may do so in the claims.

The doors of vehicles such as automobiles, etc., are usually provided with a contacting edge portion which moves into or towards a shoulder or ledge formed along a permanent portion of the structure of the vehicle, such as the door pillar thereof. This door pillar is usually provided with a companion ledge, the pillar having a ledge surface against or towards which the companion edge surface portion of the door approaches when the door is shut. This surface of the pillar faces in the direction of door closing movement. The pillar is also provided with another surface approximately at right angles to the surface just referred to, and lying substantially parallel to the direction of door closing movement.

One feature of the present invention relates to the provision of a door bumper for use in connection with the pillar above referred to, which door bumper is so arranged and supported in or on the pillar that there is provided a relatively large and rigid surface at the back side of the door stop so as to enable the same to very effectively resist the pressure and shock incident to the door closing operation. In this connection it is an object of the invention to so arrange and support the resilient block of the door bumper that it is supported with a comparatively large flat facial supporting surface on the pillar. This is to be clearly distinguished from previous arrangements in which the resilient block has only been supported and backed by a relatively narrow or sharp edge of line of support, since in the latter case the pressure and shock incident to the door closing operation very quickly result in cutting the material of the door bumper by said sharp edge support.

In connection with the foregoing, it is a further feature of the invention to provide arrangements whereby the resilient block will be very effectively attached and connected to the pillar at or adjacent to the position of face contact support aforesaid, so that not only will the resilient block be able to properly and effectively receive and resist the severe forces incident to the shock of closing the door, but also the resilient block will be properly held in place against rebounds or sudden deflections created either at the instant of opening or the instant of closing the door.

In connection with the foregoing, it is a further object of the invention to provide means whereby the resilient block may be readily attached and permanently connected to the pillar and effectively held in place thereon without the need of any additional or supplemental attaching devices other than the resilient block and the form of the door pillar itself. In this connection it is an object of the invention to provide arrangements whereby the resilient block may be "snapped" or "buttoned" into place on the door pillar, and the parts being relatively so formed that the resilient block may be forced home with respect to suitable receiving openings of the pillar and will thereupon lock itself to the pillar.

A further feature of the invention relates to the provision of door bumper constructions which are especially well adapted and intended for permanent attachment to the door pillar in the form of standard equipment as distinguished from so-called replacement equipment. In this connection, the door bumpers herein disclosed are not intended for removal from the pillar or adjustment thereon after once being set into place, and in some cases the forcible removal of the door bumper will result in injuring or destroying it.

A further feature of the invention relates to the provision of door bumpers for the purpose specified which are so related to the pillar that

the resilient blocks present a relatively large surface facing in the direction of the door closing movement, substantially all of which surface overlies or is directly supported by the solid structure of the door pillar so that a most effective shock and pressure receiving arrangement is established.

Ordinarily the sheet metal door pillar is so formed or folded as to establish a ledge which faces in the direction of door closing movement, together with flanges at right angles to said ledge and lying parallel to the direction of door closing movement. Usually one of these flanges establishes an interior angle with respect to the ledge, and the other flange establishes an exterior angle with respect to the ledge, the interior angle being at the position closest to the extreme edge of the door when said door is closed. One object of the invention is to provide means for connecting the door bumper to the door pillar by providing an opening in the door pillar at the position of this interior angle and by providing the door bumper block with a lug or projection which is adapted to extend through this opening and engage the under or back surfaces of the door pillar adjacent to the position of said opening. In this connection it is an object to so form the door pillar that the aforesaid opening does not extend more than a relatively short distance into the surface of the ledge portion of the pillar, thereby leaving substantially the full area of the ledge at the position of the door bumper available for direct support of said door bumper. This will enable the transmission of forces from the door bumper into the door pillar in a most direct manner and over a maximum amount of contacting surface.

Another feature of the invention relates to the provision of interlocking means on the door pillar and door bumper at the position of this interior angle so as to insure interlocking connections between these parts with a maximum of strength and permanency. At the same time these parts are so arranged and interrelated that the door bumper can be readily snapped or forced into position on the door pillar and locked in place thereon.

Another feature of the invention relates to the provision of door bumpers which are provided with lips or skirts which extend down over the surface of the flange at the position where the edge portion of the door rests when in the closed position; and to provide means for hooking or interlocking said lip or skirt with the flange aforesaid when the door bumper is in place on the pillar.

In connection with the foregoing it may also be considered to be an object of the invention to provide an angle or L-shaped door bumper, one arm or branch of which overlies the ledge of the door pillar, and the other arm or branch of which overlies the flange of the door pillar, both of said arms or branches of the door bumper being individually connected to the adjacent portions of the door pillar, the metal of the door pillar being substantially uncut or severed at any point between these points of attachment. The result is that the door bumper is connected to the pillar at two points remote from each other measured in a plane lying at right angles to the direction of door closing movement as distinguished from an arrangement in which the bumper is connected to the pillar at points separated from each other but lying in a plane parallel to the direction of door closing movement.

Other objects and uses of the invention will appear in the description of the same which consists in the construction and combination of parts hereinafter described and claimed.

In the drawings

Figure 1 shows a fragmentary face view of a portion of a door pillar embodying the features of the present invention and having applied thereto a door bumper embodying the features herein disclosed;

Figure 2 shows a cross section on the line 2—2 of Figure 1 looking in the direction of the arrows;

Figure 3 shows a perspective fragmentary view of the portion of a door pillar at the position of the ledge thereof; the arrangement of Figures 1, 2, and 3 being that in which the door pillar is doubly folded at the interior angle between the ledge and the outer flange;

Figures 4, 5, and 6 show views similar to Figures 1, 2, and 3, but illustrating a modification in which the ledge and the outer flange of the door pillar are both provided with outwardly extending ears at the position of the angular opening between these points;

Figures 7, 8, and 9 show still another modification in which the angular opening between the ledge and the outer flange is provided with only a single ear at the position of the opening, being an ear formed on the ledge itself;

Figures 10, 11, and 12 show still another modification similar to that of Figures 7, 8, and 9 with the exception that only the outer flange is provided with an ear at the position of the angular opening, said ear being struck out at right angles to the flange;

Figures 13, 14, and 15 show still another modification similar to that of Figures 10, 11, and 12 with the exception that the ear is struck out from the flange at an obtuse angle instead of at right angles thereto;

Figure 16 shows a fragmentary face view of a portion of the door pillar having applied thereto another modified form of construction;

Figure 17 is a cross section in the line 17—17 of Figure 16 looking in the direction of the arrows;

Figure 18 shows a fragmentary perspective view of a portion of the door pillar of the form shown in Figures 16 and 17;

Figure 19 shows a view similar to that of Figure 16 but illustrating another modified form of construction in which the bumper block is held in place only by engagement with an opening at the interior angle of the door pillar;

Figure 20 is a cross section in the line 20—20 of Figure 19 looking in the direction of the arrows;

Figure 21 is a fragmentary perspective view of a portion of a door pillar for the types shown in Figures 19 and 20;

Figure 22 shows a cross section of another modified form of construction similar to that of Figures 19, 20, and 21;

Figure 23 shows still another modified form similar to that of Figures 19, 20, and 21;

Figure 24 shows a fragmentary face view of a section of door pillar having applied thereto still another modified form of bumper block construction;

Figure 25 shows a cross section on the line 25—25 of Figure 24 looking in the direction of the arrows;

Figures 26 and 27 show views corresponding to Figures 24 and 25 respectively but illustrating another modified type of construction;

Figures 28 and 29 show views corresponding to Figures 24 and 25 but illustrating still another modified type of construction;

Figures 30 and 31 show views corresponding to Figures 24 and 25 but illustrating still another modified form of construction;

Figure 32 shows a cross section through another modified form of construction in which the outside flange of the door pillar is perforated to receive a supporting lug on the body of the door bumper block;

Figure 33 shows a cross section through another modified form of construction in which the ledge of the door pillar is provided with an ear or lug which is engaged by a slot or recess on the body of the door bumper block, the lip or skirt of the door bumper block being secured to the inner flange of the door pillar by means of a screw;

Figure 34 shows a cross section through another modified form of construction in which the ledge of the door pillar is perforated and the door bumper block is provided with a lug extending downwardly through said perforation;

Figure 35 shows a cross section through another modified form of construction similar to that of Figure 32 with the exception that the lug on the body portion of the door bumper block is straight and unhooked;

Figure 36 shows a cross section through another modified form of construction similar to that of Figure 43 with the exception that the body portion of the bumper block is hooked instead of straight;

Figure 37 shows a cross section through another modified form of construction;

Figure 38 shows a section on the line 38—38 of Figure 37 looking in the direction of the arrows;

Figure 39 shows a fragmentary face view of a section of door pillar having applied thereto another modified form of door bumper;

Figure 40 shows a perspective view of a short section of the door pillar of the arrangement shown in Figure 39 taken at the position of the door bumper mounting;

Figure 41 shows a back perspective view of the door bumper of the arrangements of Figures 39 and 40;

Figure 42 shows a face view of another modified form of door pillar having applied thereto another form of bumper;

Figure 43 shows a perspective view of a short section of door pillar of the form shown in Figure 42;

Figure 44 shows a back perspective view of the door bumper shown in Figures 42 and 43;

Figure 45 shows a fragmentary plan view of a short section of door pillar of another modified form;

Figure 46 shows a longitudinal section corresponding to Figure 45 but with the resilient bumper block in place thereon;

Figure 47 shows an end view of the bumper block of Figure 46;

Figure 48 shows a fragmentary face view of a section of sheet metal door pillar having applied thereto still another modified form of bumper block; and

Figure 49 is a cross section on the line 49—49 of Figure 48 looking in the direction of the arrows.

In each of the constructions illustrated herein there is provided a sheet metal door pillar having a ledge 40 which faces in the direction of door closing movement. In each instance also said door pillar is provided with a downwardly extending flange 41 which joins said ledge, said flange 41 lying parallel with the direction of door closing movement. In most instances also the door pillar is provided with another or outer flange 42 lying parallel to the direction of door closing movement, although in some cases this flange 42 may be eliminated and the door pillar ledge 40 made flush with the outside of the car body.

The edge portion of the door itself is provided with a lip or ledge which approaches towards the ledge 40 of the door pillar during the door closing movement and the edge portion of the door is also provided with another portion which moves past and in close proximity to the flange 41 of the door pillar when the door is closed.

It is one of the features of the present invention that the ledge 40 of the door pillar is substantially uncut or unperforated except in some cases immediately adjacent to the inner or acute angle where the flange 42 joins the ledge 40 of the door pillar so that the strength and stiffness of the ledge 40 are left substantially unimpaired. Furthermore by this arrangement the body portion of the bumper block is directly supported by a maximum area of surface of the door pillar ledge and is thus able to best withstand pressures and shocks incident to the door closing operation.

In the form of construction shown in Figures 1, 2, and 3 the inner or acute angle between the ledge 40 and the flange 42 of the door pillar is established by a short connecting portion 43. This is perforated as shown at 44, and the inner door pillar flange 41 is also perforated as shown at 45 in line with the perforation 44.

The bumper block 46 of resilient material is provided with the head portion 47 which rests on the ledge 40 and is provided thereby with support, and is also provided with a lip or skirt 48 which extends down and overlies the inner flange 41 at the position of the opening 45. The body 47 of the bumper block is also provided with a hooked lug or extension 49 which reaches through the opening 44 and locks against the back side of the portion 43 of the door pillar. The lower end of the lip or skirt 48 is provided with a hooked lug 50 which reaches through the opening 45 to the back side of the inner flange 41 and locks against the same.

The bumper block above described is readily inserted by first hooking one of the lugs, for example 49, through the appropriate opening, and then distorting the resilient block sufficiently to enable the other lug to be hooked through its opening. After the bumper block has once been fastened into place it cannot be readily removed except by an operation which would probably damage it.

In the construction shown in Figures 4, 5, and 6 the ledge 40 and outer flange 42 of the door pillar are brought together at right angles, the portion 43 being eliminated, and there is formed an opening 51 at the angle between these parts, said opening reaching slightly into both the ledge 40 and the flange 42. Lugs 52 and 53 are struck upwardly and inwardly from the ledge 40 and flange 42 respectively. The inner flange 41 is provided with the opening 45 as in the previous construction.

In the present case the bumper block 54 of resilient material is of form similar to the block 46 but is modified in the sense that the edge portion of the head 55 of the block is provided with a lug 56 suitably formed to lock through the opening 51, said head 56 being provided with slots or recesses to receive both of the lugs 52 and 53.

The lip or skirt 57 of the bumper block is provided with the hooked lug 58 which locks through the opening 45 similar to the operation of the hooked lug 50.

It will be noted that the lug portion 56 is of such size that it comes substantially flush with the inner surfaces of the ledge 40 and flange 42 when the bumper block is secured in place.

The construction of Figures 7, 8, and 9 is similar to that of Figures 4, 5, and 6. In the present case, however, the lug 53 on the outer flange 42 is eliminated, only the lug 52 being retained. In the present case also the lug 59 on the body portion 55 of the resilient block is modified to conform with the elimination of the lug 53 and is also modified in the sense that it comes flush with the outer or exposed surface of the ledge 40 and projects somewhat beyond the inner face of the outer flange 42.

The construction shown in Figures 10, 11, and 12 is similar to that of Figures 4, 5, and 6. In the present case, however, the lug 52 on the ledge 40 has been eliminated with corresponding modification of the form of the lug 60 at the inner end of the body portion 55 of the resilient block 54.

The construction shown in Figures 13, 14, and 15 is somewhat similar to that of Figures 10, 11, and 12; but in the present case instead of the right angularly projecting lug 53 on the outer flange 42 there is provided a downwardly slanting lip 61, and the lug 42 on the ledge 40 has been eliminated; the lug 62 at the inner end of the head portion 55 of the resilient block 54 has also been correspondingly modified in form so that the same can be properly hooked to the lip 61.

In the modified form of Figures 16 and 17 and 18 both of the lugs 52 and 53 have been eliminated from the ledge 40 and outer flange 42 respectively so that the opening 51 at the acute angle between said parts is cut square off. In the present case the head portion 55 of the resilient block is provided with lugs or ears 63 and 64 which extend down past the edges of the opening 51 so as to lock against same and thereby retain the head portion of the resilient block in place.

The modified construction of Figures 19, 20, and 21 is similar to that of Figures 16, 17, and 18; but in the present case the opening 45 has been eliminated from the inner flange 41 of the door pillar; and likewise the resilient block 54 is not provided with a lip or skirt of substantial size but terminates substantially at the level of the ledge 40 of the door pillar. In this case the resilient block is locked into place solely by the lugs 63 and 64.

The form shown in Figure 22 is similar

to that of Figures 19, 20, and 21 with the exception that the inner corner portion of the resilient block 54 between the positions of the lugs 63 and 64 is rounded so as to provide a greater amount of strength or stiffness to said lugs.

The form shown in Figure 23 is a modified construction similar to that of Figure 22, but in the present case the inner corner portion of the resilient block is carried in still further into a substantially right angular form of size which projects slightly beyond the inner surfaces of the ledge 40 and flange 42.

In the modified form of Figures 24 and 25 the inner and outer flanges 41 and 42 of the door pillar are respectively provided with stamped openings 65 and 66, the metal from which is stamped outwardly into the form of the rounded ears 67 and 68 which both face towards the position of the ledge 40 of the door pillar. In the present case the head portion 55 and the lip or skirt 57 of the resilient block are both formed at their extremities to engage the ears 68 and 67 respectively. The lower end portion of the lip or skirt 57 is also carried inwardly or backwardly to come flush with the inner surface of the flange 41 of the door pillar so as to lock against the upper edge of the opening 65.

In the present case the resilient block is readily set into place by first hooking one end thereof, (for example, its upper end), into engagement with the proper ear, and then deflecting or distorting the block so as to bring its other end into engagement with the other ear.

In the modified form of Figures 26 and 27 the ledge 40 is provided with a pair of longitudinally separated openings 69 and 70 respectively, said openings being established by deflecting the ledge metal downwardly at one side and upwardly at the other side of each of said openings. The inner flange 41 of the door pillar is also provided with the opening 45 as in previous cases.

In the present case the head portion 55 of the resilient block is provided with inwardly and downwardly extending or approaching lugs 71 and 72 which extend through the openings 69 and 70 respectively; and the lip or skirt 57 of the resilient block is provided with the hooked portion 58 which extends through and engages with the opening 45 of the inner flange 41.

In the modified construction of Figures 28 and 29 the ledge 40 of the door pillar is provided with an opening 73 and the head portion 55 of the bumper block is provided with an enlarged and elongated button 74 which is extended through the opening 73 and locks against the lower or inner surface of the ledge 40. In the present case also the lip or skirt 57 of the bumper block is provided with the hooked portion 58 which extends through and engages with the opening in the inner flange 41 of the door pillar.

In the construction of Figures 30 and 31 the ledge portion 40 of door pillar is offset or depressed at the position of the bumper block so as to provide the angular seat 74 having the floor 75 and back wall 76 which are parallel to the remaining portions of the ledges 40 and inner flange 41 respectively. This angular seat 74 is open at both ends as will be clearly evident from comparison of Figures 30 and 31.

The bumper block 54 has a body portion 77 which extends down and rests upon the angular seat 74, said body portion 77 having the end lugs 78 and 79 which may be forced through the end openings at the position of the seat 74, and as already referred to. In the construction illustrated, the head portion 55 of the bumper block is of greater dimension lengthwise of the door pillar than the angular seat and to that extent receives a direct support on the top or exposed surface of the ledge 40 beyond the position of the angular seat or on the uncut portion of the ledge 40 throughout the entire length of the bumper block.

In the present case the outer flange 42 of the door pillar is provided with a perforation 80 through which there is extended a hooked lug 81 on the head 55 of the bumper block so as to lock the same in place on the door pillar and prevent the bumper block from displacement laterally or transversely with respect to the ledge 40. In the present case also the lip or skirt 57 of the bumper block is provided with the hooked lug 58 which extends through the opening 45 of the flange 41 so as to lock the same effectively in place.

In the construction shown in Figure 32 the outer flange 42 of the door pillar is provided with an opening 82 at a position immediately above the ledge 40; and the head portion 55 of the bumper block is provided with a hooked extension 83 which extends through the opening 82 and serves to lock the head portion of the bumper block in place and against lateral displacement. In the present case the lip or skirt 57 is provided with hooked lug 58 which engages the back side of the inner flange 41 at the position of the opening 45 as in previous constructions.

In the form shown in Figure 33 there is provided an upwardly extending lug or lip 84 on the ledge 40 and at a position close to the outer flange 42. This lug or lip 84 is conveniently formed by striking up the metal of the ledge 40 at the position of an opening 85 formed in the said ledge. In the present case the head portion 55 of the bumper block is provided on its bottom surface with a notch or groove to receive the lug 84 to retain the bumper block in place and against displacement laterally or across the width of the ledge 40.

In the present case the lip or skirt 57 of

the bumper block is directly secured to the inner flange 41 of the door pillar by means of a screw 86 threaded into the door pillar flange 41.

In the construction of Figure 34 the head portion 55 of the resilient block is provided with a downwardly extending lug 87 which passes through the opening 88 in the ledge 40 of the door pillar, said opening 88 corresponding to the opening 85 of the arrangement of Figure 33, but the lip or lug 84 being eliminated. In the present case also the lip or skirt 57 is provided with the hooked enlargement 58 which reaches through the opening 45 of the inner flange 41 to engage the back surface thereof as in previous constructions.

The arrangement shown in Figure 35 is similar to that of Figure 32; but in the present case the lug 89 on the head portion 55 of the resilient block is not provided with a hook as in the previous construction.

The form shown in Figure 36 is similar to that of Figure 34; but in the present case the lug 90 on the head portion 55 of the resilient block is provided with a backwardly extending hook which will engage against the bottom surface or edge of the flange 42 or ledge 40 as the case may be so as to lock the bumper block against displacement upwardly away from the ledge 40.

In the construction shown in Figures 37 and 38 the ledge 40 of the door pillar is provided with a pair of longitudinally separated openings 91 and 92 through which there are forced the hooked lugs 93 and 94 on the head portion 55 of the bumper block 54. In the present case the lip or skirt 57 of the bumper block is also provided with the hooked portion 58 which is extended through the opening 45 of the inner flange 41 of the door pillar so as to lock the lip or skirt thereto.

In the present case the head portion 55 of the bumper block is provided with a series of inwardly extending core openings 55[a] which reach through the head portion sufficiently far to establish a considerable degree of compressibility in said head portion so that the elasticity and resiliency thereof are materially improved and at the same time the appearance of the exposed surface of the bumper block is in no degree impaired.

It will be noted that the top surface of the head portion 55 is corrugated or subdivided into a large number of separate contacting surfaces by means of the transverse corrugations 55[b] as shown in Figure 38 in particular. The result is that the surface against which the edge portion of the door makes contact during the door closing operation is subdivided into a large number of relatively small portions separated by intermediate air spaces. This arrangement is of great advantage in the case of resilient bumper blocks for this service for the following reason; during the process of building and assembling the automobile body it frequently becomes necessary to install the bumper blocks and close the doors against them before the paint or enamel on the doors has had time to become thoroughly hardened. Such being the case the said paint or enamel often sticks to the bumper blocks and becomes hardened thereon and when the door is again opened this paint or enamel is pulled away and the appearance of both the door and bumper blocks is thus impaired. By reducing the actual surface areas of contact of the bumper block with the door and subdividing said area into a relatively large number of small portions this sticking tendency is greatly reduced.

In the construction shown in the Figures 39, 40 and 41 the door pillar is formed with an outwardly extending web or tie 95 which reaches between the ledge 40 and the outer flange 42 of the door pillar, said web or tie being formed by striking out a short section of the metal of the door pillar at the inner or acute angle between the ledge and flange aforesaid. This operation also establishes the end openings 96 and 97 at the ends of the web 95.

The bumper block 54 has its head portion 55 so formed as to provide the inwardly reaching lugs 98 and 99 which can be hooked through the openings 96 and 97 in order to lock the bumper block in place on the pillar. The bumper block is also provided with a lip or skirt 57 having at its lower end the backwardly and downwardly extending hook portion 58 which is hooked through the opening 45 in the inner flange 41 of the door pillar as in previous constructions.

In the modified construction of Figures 42, 43, and 44, the metal of the ledge 40 and outer flange 42 of the door pillar is struck outwardly at two points separated from each other a distance substantially equal to the length of the door bumper so as to provide the quarter cone-shaped webs or lugs 100 and 101, each of which comprises a portion of the metal of the ledge 40 and outer flange 42, thus providing the openings 102 and 103 facing each other in the acute or inner angle between the ledge 40 and flange 42 and separated from each other a distance substantially equal to the length of the bumper block.

The resilient bumper block 54 in this case has its head portion 55 provided with the outwardly extending end lugs 104 and 105 which can be hooked in through the openings 102 and 103 so as to lock the bumper block in place. In this case also the lip or skirt 57 of the bumper block is provided with a downwardly and rearwardly extending hook 58 which is adapted to reach through the opening 45 of the flange 41 so as to lock the same in place.

In the modified construction shown in Figures 45, 46, and 47, the ledge 40 of the door pillar is provided with a pair of upwardly extending ears or lugs 106 and 107 which face towards each other and are struck up from the metal of the ledge 40, leaving the openings 108 and 109 therein.

In this case the bumper block 54 is provided with the end notches or recesses 110 and 111 into which the lugs 106 and 107 are hooked so as to retain the bumper block in place on the ledge.

Figure 47, which is an end view of the bumper block itself shows the presence of one of these openings, 110; furthermore as illustrated in that figure the edge portion of the bumper block may be provided with a downwardly extending lip 112 which in the form illustrated only slightly overlies the upper edge of the inner skirt 41 of the door pillar.

In the modified form shown in Figures 48 and 49 the ledge 40 of the door pillar is depressed at the position of the bumper block to establish a curved or rounded depression 113. This depression 113 is formed by transferring a portion of metal from the inner flange 41 to the depression 113 and from the depression 113 to the outer flange 42 so that there is substantially no stretch of metal due to this portion of the operation. There may be a slight stretch of metal lengthwise of the ledge 40 at the position of the depression 113 due to the slight increase in length caused by the presence of said depression.

The bumper block 54 of resilient material is so formed that its head portion 55 conforms to the depression 113 thus establishing an increased thickness of resilient material at the position of said depression. Furthermore due to the form of this depression the pressure and shock incident to the door closing operation will tend to maintain the resilient block centered in said depression into which the block will naturally settle firmly.

In the form illustrated the bumper block is also provided with a lip or skirt 57 having at its lower end the inwardly and downwardly extending hooked portion 58 which engages the opening 45 in the flange 41. The head portion 55 of the resilient block is also provided with a rearwardly extending hooked portion 114 which engages a hole 115 formed in the outer flange 42 of the door pillar.

It will be noted that in each of the constructions herein described the bumper block is set and secured into place by deflecting or distorting it in such manner as to enable the proper portion thereof to be engaged with the proper openings or parts of the door pillar; and furthermore that in each instance the retention of the bumper block in position on the door pillar is accomplished by such coaction or engagement and without the necessity of using other or extraneous attaching means with the exception of the form shown in Figure 33 in which a screw is provided for securing the lip or skirt of the bumper block to the flange 41.

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

I claim:

1. A door buffer device comprising a pillar member having an impact ledge formed to provide a depression at the position of the buffer block, and a buffer block extending across the impact surface of said ledge and having an enlarged portion engaged in said depression, said pillar member having means adjacent opposite sides of said ledge cooperating with said block to fasten the same in position on the ledge.

2. A door buffer device comprising a pillar member having an impact ledge and oppositely extending side flanges, each of said flanges having an opening, the impact ledge being formed so as to provide a depression at the position of a bumper block, a bumper block extending across said ledge and having a portion thereof enlarged in the direction of door closing movement and entered in said depression, said block having portions overlying said openings, and means passing through said openings and anchoring said block on opposite sides of said ledge.

3. A door buffer device comprising a piller member formed to provide an impact ledge having oppositely extending side flanges each provided with an opening, the ledge being formed to provide a transverse depression approximately in alignment with said openings, and a bumper block extending across said ledge and having an enlarged transverse portion on the inner side thereof received in said depression and having lug means engaging the openings in the oppositely extending flanges.

4. A door buffer device for a pillar having an impact ledge and oppositely extending perforated side flanges, the impact ledge having a depression formed therein, comprising a resilient bumper block having flange engaging portions and an intermediate ledge engaging portion provided with an enlargement for entry in the depression, and a holding lug formed on each flange engaging portion and adapted to extend into the perforation provided therefor in the flange.

5. A bumper for auto door pillars comprising a resilient block having angularly disposed sides, one of which is adapted to extend across an impact ledge on a door pillar, the last mentioned side having an enlarged portion for entry in a depression in said impact ledge, and lugs on said angularly disposed sides extending in parallel spaced planes.

6. An auto door buffer comprising a resilient block substantially L-shaped in cross-section having oppositely extending spaced holding lugs adjacent the remote ends of the arms of said block, and having a transverse boss formed on the inside of one of said arms.

7. A door buffer device comprising a metal door pillar member cut and bent to provide substantially parallel flanges spaced by integral impact ledge and bumper seat portions, said portions extending in substantially parallel spaced planes connected by a bumper backing portion, said backing portion forming with said seat an angular continuation of each of said flanges, a resilient bumper block engaging said seat and backing portions and having the opposite ends thereof extending from the ends of the seat and backing portions and engaging behind the impact ledge and one adjacent flange, the flanges having openings provided therein, and the bumper block having lug means engaging said openings.

8. A door buffer device comprising a pillar member having an impact ledge and oppositely extending side flanges, each of said flanges having an opening, a bumper block extending across said ledge and having portions overlying said openings, means passing through said openings and anchoring said block on opposite sides of said ledge, the pillar member being cut and bent to provide a bumper seat portion substantially parallel with the impact ledge, and a bumper backing portion substantially parallel with the side flanges, said bumper seat and backing portions defining a recess communicating with the impact ledge, and said bumper block having an enlarged portion engaging in said recess.

9. A door buffer device comprising a pillar member having an impact ledge and oppositely extending side flanges each of said flanges having an opening, a bumper block extending across said ledge and having portions overlying said openings, means passing through said openings and anchoring said block on opposite sides of said ledge, the pillar member being cut and bent to provide a bumper seat portion substantially parallel with the impact ledge, and a bumper backing portion substantially parallel with the side flanges, said bumper seat and backing portions defining a recess communicating with the impact ledge, and said bumper block having an enlarged portion engaging in said recess, the ends of the enlarged portion extending beyond the ends of the bumper seat and backing portions so as to engage behind the impact ledge and one side flange.

10. A door buffer device comprising a pillar member having an impact ledge and oppositely extending side flanges, each of said flanges having an opening, a bumper block extending across said ledge and having portions overlying said openings, means passing through said openings and anchoring said block on opposite sides of said ledge, the pillar member being formed to provide a depression in the impact ledge at the position of the bumper block, and the bumper block having an enlarged portion engaged in said depression.

11. A door buffer device comprising a pillar member having an impact ledge and oppositely extending side flanges, each of said flanges having an opening, a bumper block extending across said ledge and having portions overlying said openings, means passing through said openings and anchoring said block on opposite sides of said ledge, the pillar member being cut and bent to provide a bumper seat portion substantially parallel with the impact ledge, said bumper seat portion defining a recess communicating with the impact ledge, and said bumper block having an enlarged portion engaging in said recess.

12. A door buffer device comprising a pillar member having an impact ledge and oppositely extending side flanges, each of said flanges having an opening, a bumper block extending across said ledge and having portions overlying said openings, means passing through said openings and anchoring said block on opposite sides of said ledge, the pillar member being cut and bent to provide a bumper seat portion substantially parallel with the impact ledge, said bumper seat portion defining a recess communicating with the impact ledge, and said bumper block having an enlarged portion engaging in said recess, the ends of the enlarged portion extending beyond the ends of the bumper seat portion so as to engage behind the impact ledge and one side flange.

13. A door buffer device comprising a sheet metal pillar member having a ledge portion facing in the direction of door closing movement and formed to provide a transverse depression as an integral part of the pillar member at the position of the bumper block, and a bumper block of resilient material extending across said ledge portion and secured to the pillar member adjacent the ledge portion at opposite ends of the depression, said block being enlarged in the direction of door closing movement and the enlarged portion being received in the aforesaid depression.

14. A door buffer comprising a sheet metal pillar member having an impact ledge portion and a side flange, the ledge portion being formed to provide a transverse depression as an integral part of the pillar member reaching laterally from the side flange and an L-shaped bumper block of resilient material having one portion extending across said ledge and another portion overlying the side flange, the first portion being enlarged in the direction of door closing movement and re-

ceived in said depression, the side flange being provided with an opening, and said block having means on the other portion thereof for engagement in said opening to anchor the block to the pillar member in the position stated.

15. An auto door buffer comprising a resilient block substantially L-shaped in cross section, whereby to provide angularly disposed sides, one of which is adapted to extend across an impact ledge on a door pillar, the last mentioned side having an enlarged portion for entry in a depression in said impact ledge, and a lug on one of said angularly disposed sides for securing the block to the door pillar.

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