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J. McGLASHAN ET AL

BODY CONSTRUCTION AND TOE BOARD BRACKET

Filed Aug. 13, 1921

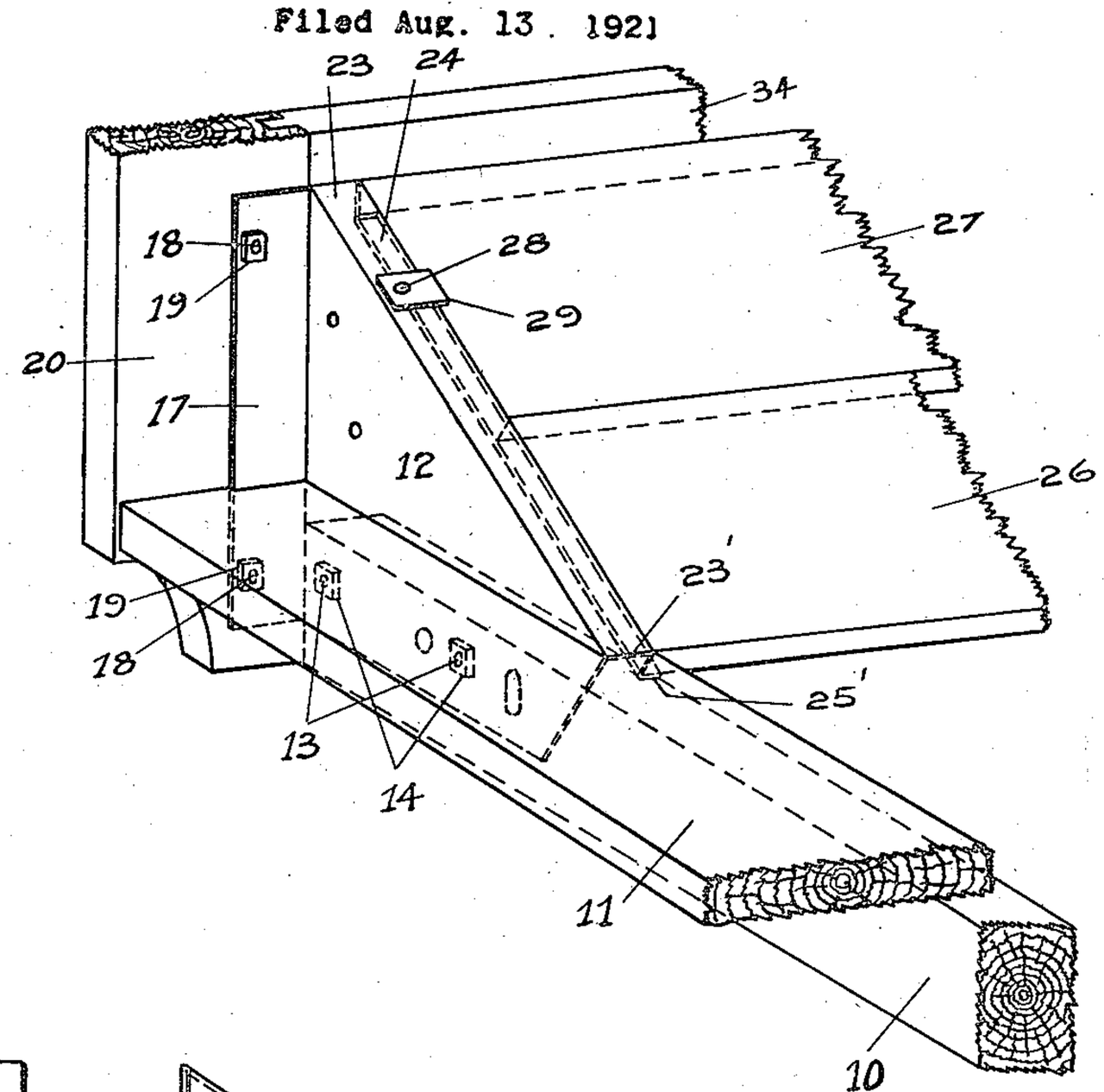


Fig. 1.

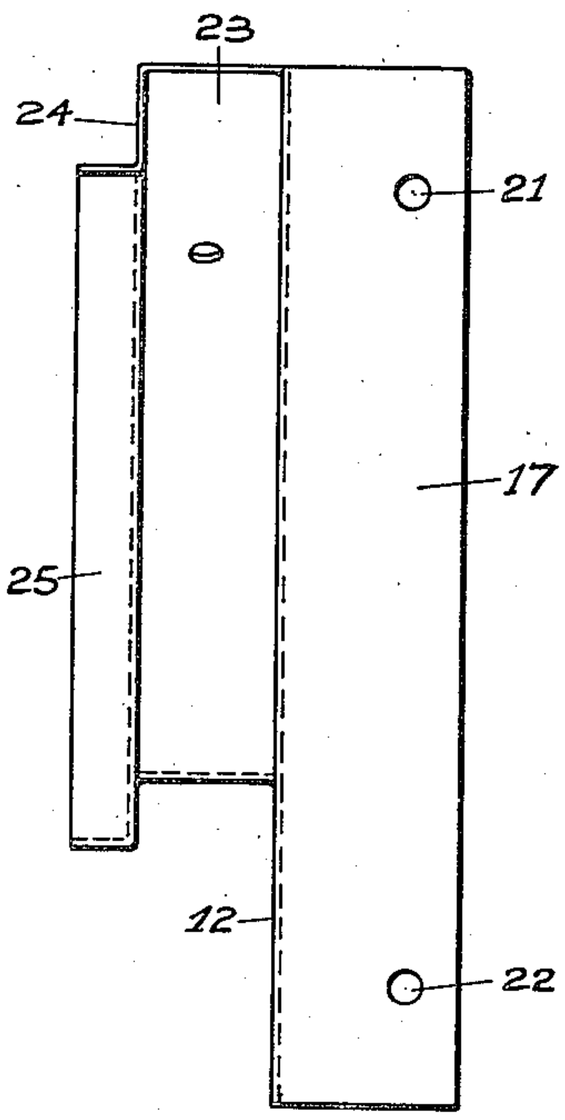


Fig. 2.

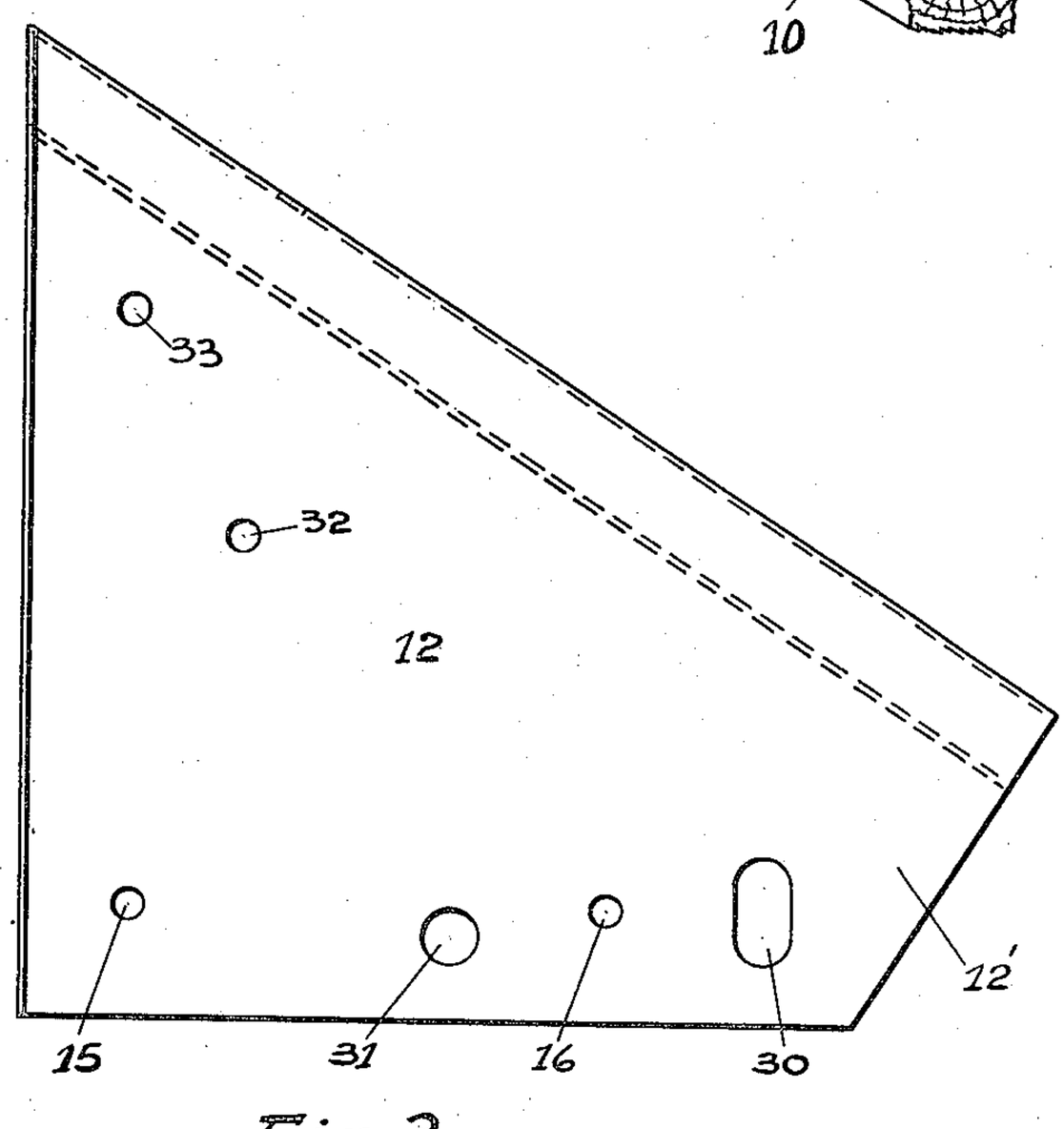


Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## BODY CONSTRUCTION AND TOE-BOARD BRACKET.

Application filed August 13, 1921. Serial No. 491,898.

*To all whom it may concern:*

Be it known that we, JAMES McGLASHAN, a subject of the King of England, residing at York, Pennsylvania, and whose post-office address is No. 154 South Pine Street, York, Pennsylvania, and WALTER AMPHION MAYES, a citizen of the United States, residing at York, Pennsylvania, and whose post-office address is No. 252 East King Street, York, Pennsylvania, have invented certain new and useful Improvements in Body Constructions and Toe-Board Brackets, of which the following is a specification.

This invention relates to vehicle bodies and particularly to constructional arrangements and parts thereof whereby the body is rendered strong and endurable and the cost of manufacture is reduced to a minimum.

The improvements apply particularly to bodies of comparatively light construction and the object generally stated is to obtain great strength, wear and endurance thereof notwithstanding the slender construction, although as will hereinafter appear certain features of these improvements are of general application to other and heavier type of bodies.

One object of the invention is an improved corner construction and assembly of a motor vehicle body and especially the front corner construction embodying a novel construction and arrangement of combined end and side frame members and a toe or foot board member serving as a brace and armor for the frame members, and as a support for the floor boards of standard bodies, as will appear more particularly hereinafter.

Another object of the invention is such a construction and assembly that certain parts of the body may be readily shipped in a knocked down condition and car space conserved by reason of the particular constructional arrangement, and which parts may be with equal facility re-assembled into a rigid body frame when desired.

Another object of this invention is to provide a bracket that will not only properly support that portion of the floor boards of an automobile or wagon body, known as the toe boards, but that will at the same time be strong, durable and cheap, and while acting as a bracket for supporting the said toe boards will also be readily attachable and detachable from the body members to which it is attached, while also serving as a strong and effective corner plate for joining together the sub-sills of the body and the main members of the frame of the wind shield.

The most usual form of bracket which has heretofore been used for supporting the toe boards of such a body has consisted of a triangular block of wood which has been permanently fastened, by glue or other means, to the top of the sub-sill at its front end, and by the use of bolts or screws, with or without clips, has also been attached to the wind shield; in some cases metal strips or plates have been used to reinforce such wooden toe board brackets. Such wooden brackets have not, however, been entirely satisfactory for several reasons, among which may be mentioned the splitting of the bracket itself, as well as the difficulty of securing as strong a joint between the bracket and the wind shield as is desired. Where such automobile or wagon bodies are manufactured in units, and shipped in knocked-down condition from the factory to distributing points or to the user, one of the principal objections of such wooden brackets has been the fact that the bracket being permanently fastened to the sub-sill increases materially the vertical space occupied by the floor unit at this point of the body, thus resulting in greater cubical space being required both in the factory for storing and handling the said units while they are in process of construction, as well as materially increasing the cost of transportation of the floor units when shipped by rail or otherwise.

With these and other objects in view, as will be more clearly pointed out hereinafter, this invention consists of a body construction and metal toe board bracket substantially as shown in the annexed drawings and more particularly pointed out in the claims.

Figure 1 shows an oblique or perspective view of a portion of the front end of an automobile or wagon body with the improved toe board bracket applied thereto. Figure 2 is a front end elevation of the bracket itself and Figure 3 is a side elevation as viewed from the left in Figure 1. Referring now to the drawings in which the same reference characters relate to the

same or corresponding parts in all the views numeral 10 indicates one of the sub-sills which form the foundation for the floor of the body; 11 is the step board resting on the sub-sill 10 to which it is intended to be fastened in the usual manner; 12 generally denotes the improved toe board bracket, made preferably of a single piece of sheet steel; the said bracket 12 being so shaped and formed as to comprise a main vertical web 12′ the lower portion of which extends down along the side of the sub-sill 10 to which it is fastened by the bolts 13 and co-acting nuts 14; the said bolts 13 passing through the holes 15 and 16 formed in the vertical web of the bracket for this purpose. Formed on the front vertical edge of the vertical web of the bracket is a flange 17 bent outward and at right angles to the said vertical web; the bolts 18 with their co-acting nuts 19 serving to fasten the said flange 17 to the stile 20 of the wind shield frame; the said bolts 18 being passed through the holes 21 and 22 formed in flange 17 for this purpose. Formed on the upper diagonal edge of the vertical web of the bracket 12 is a flange 23 which projects inward and at right angles to the said vertical web for a short distance when the material is bent downward to form a short vertical web 24 and the sheet is again bent inward and at right angles to the bottom of the web 24 to form an obliquely inclined projecting flange 25, the bottom corner 25′ of which rests on the sub-sill 10, which forms a support for it as shown in Figure 1. The front face or edge of the flange 23, the vertical web 24 and the flange 25 are all trimmed so as to be vertically in line with the front face of the flange 17, whereby these faces all rest against and are supported by the rear face of the wind shield.

The step board member 11 is cut away as indicated along the inner edge to permit that portion of the vertical web 12′ lying below the level of the rear edge 23′ of the flange 23 to clear the member 11, and the rear edge 23′ or end of the flange 23 stops substantially flush with the top level of the member 11.

In order to enable the bracket 12 to be used interchangeably with the wooden brackets which have heretofore been used, as well as with the standardized toe boards, sub-sills, step boards, wind shield frames and other units, whereby there is no change involved in any of the several units through the substitution of this metal bracket for the usual wooden ones, the height and slope of the inclined edge of the vertical web of the bracket 12 are made such as to bring this edge exactly to the same point as or on a level with the top edge of the wooden bracket, which it is intended to replace, and similarly located in respect to the sub-sill 10; and the width of flange 23 is similarly made such as to place the vertical web 24 and the horizontally projecting flange 25 in exactly the same position with respect to the sub-sill 10 as the rabbeted edge of the usual wooden bracket occupies, and the width of the horizontally projecting flange 25 is such, that the distance from its innermost edge to the outer face of the vertical web of the bracket 12 is equal to the thickness of the usual wooden bracket, which is usually the same as the thickness of the sub-sill 10, whereby the toe boards 26 and 27 may be of the same length and will be supported in the same way as they would be by the usual wooden bracket. Rotatably fastened to the flange 23 by the rivet 28 is a clip 29, such as is usually fastened to the wooden bracket to hold the toe board 27 in its proper place and at the same time to permit its ready removal when desired.

Formed in the lower right hand corner of the vertical web of bracket 12 is an oblong hole 30, so shaped and positioned as to enable the usual bolt which passes through at this point to be readily applied to the sub-sill for attaching the "mounting iron" by which the body is fastened to the frame of the vehicle, this hole 30 thus permitting the mounting iron to be applied in its usual way, the shape of the hole 30 providing for adjustment to compensate for inaccuracies, and at the same time enabling the surrounding portion of the vertical web of the bracket to act as a metal armor to prevent the said bracket from abrading the wooden sill. Formed near the central portion of the lower edge of the vertical web of bracket 12 is a hole 31, so shaped and positioned as to enable the bolt to be passed through it to attach in the usual way the usual step board L iron for bracing the said step board, the surrounding portion of the vertical web of bracket 12 similarly acting as a metal armor to prevent abrading of the sub-sill by the said step board iron. Formed in the upper portion of the vertical web of bracket 12 are the two holes 32 and 33, so shaped and positioned as to enable the "fore door" of certain styles of bodies to be attached in the usual way and by the usual fastenings and in an interchangeable manner, regardless of whether the usual wooden bracket is used or our improved metal bracket.

It is to be particularly noted that the vertical flange 17 projecting outward from the front edge of the vertical web of the bracket 12 enables the bolts by which the wind shield frame is attached to the sub-sills 10 to be placed in the stile or main vertical member 20 of the said wind shield. thus making any strains between these members which react on the wind shield come on the main frame of it instead of the horizontal panel boards

34 as has heretofore been the usual practice where the wooden toe board bracket has been used, since the outermost edge of the said wooden toe board bracket does not usually lie beyond the end of the said horizontal panel boards and they are accordingly fastened by bolts or screws to the said wooden bracket, thus causing the joints between these horizontal panel boards and the stile to transmit all the strains between the wind shield and the sub-sill, resulting frequently in the loosening or damaging of these joints.

It is apparent therefore that a corner construction of a particularly strong and endurable character is obtained, notwithstanding the comparatively light and slender construction of the body, the bracket 12 serving as a brace to reinforce the body members, armor them and otherwise render the body of a rigid and strong form which can withstand the rough usage usually encountered in commercial bodies. At the same time, as above pointed out the bracket 12 is easily applied to practically all standard body constructions, and can therefore be interchangeably applied to standard forms.

In accordance with the patent statutes we have set forth one complete embodiment of the invention in the specific manner required thereby but it is understood that the claims annexed hereto are not to be construed as limited to the particular devices set forth, except as specifically recited therein, but are to be given a construction commensurate with the spirit of the invention with due regard to a consideration of the prior art.

Having described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A body construction for vehicles comprising a sub-sill, a wind shield stile and a toe board bracket of integrally formed sheet metal having a vertical web attached to the side of said sub-sill and a vertical flange formed at right angles to the web and abutting against the face of the stile and attached thereto, said web having an inclined upper edge which is turned over and inwardly to form a support for the toe board.

2. A body construction for vehicles comprising a sub-sill, a wind shield stile and a toe board bracket of integrally formed sheet metal having a vertical web attached to the side of and armoring said sub-sill and a vertical flange formed at right angles to the web and turned outwardly from the front edge thereof, said flange abutting against the face of the stile and attached thereto, and said web having an inclined upper edge which is turned to form an inclined surface flush with the toe boards and then downwardly and inwardly to form a support for the toe boards, the rearmost end of the support bearing on the sub-sill.

3. A body construction for vehicles comprising a sub-sill, a wind shield stile vertically disposed and at right angles to the sub-sill, a step board mounted on the sub-sill and having its end abutting against the stile, a metallic bracket of integral formation for bracing said numbers and forming a rigid body structure having a vertical web securely attached to the sub-sill, a vertical flange turned at right angles to the web and securely fastened to said stile, a second flange at right angles to the web but inclined downwardly and backwardly with its rear edge flush with the upper surface of the step board, and said inclined flange having its edge turned downwardly and then at right angles to form a supporting ledge for the downwardly and rearwardly inclined floor boards, the lower ledge of the supporting edge resting upon the sub-sill.

4. A body construction for vehicles comprising a sub-sill, a wind shield stile vertically disposed and at right angles to the sub-sill, wind shield panels carried by said stile, the end of the sub-sill abutting loosely against the panels, a step board mounted on the sub-sill and having its end abutting against the stile, a metallic bracket of integral formation for bracing said members and forming a rigid body structure having a vertical web securely attached to the outside of said sub-sill, a vertical flange turned outwardly at right angles to the web and securely fastened to said stile, a second flange formed on the upper edge of said web and at right angles but inclined downwardly and backwardly with its front edge terminating flush with the first named flange and its rear edge flush with the upper surface of the step board, and said inclined flange having its ledge turned downwardly and then at right angles to form a supporting edge for the downwardly inclined floor boards, the lower ledge of the supporting edge resting upon the sub-sill, and said step board being cut away to clear the web and vertical flange.

5. An integrally formed sheet metal corner reinforcing plate and toe board bracket for vehicle bodies comprising a vertical web for attachment to the sub-sill of the vehicle and a vertical flange formed on the forward edge of the web at right angles thereto for attachment to the vertical frame member, said web having a downwardly and backwardly inclined upper edge which is turned over to form a supporting ledge for the toe boards.

6. An integrally formed sheet metal corner plate toe board, armoring and bracing bracket for vehicle bodies comprising a vertical web for attachment to the sub-sill of the vehicle and a vertical flange formed on the forward edge of the web and turned outwardly at right angles thereto for attachment to a vertical frame member, said

web having a downwardly and backwardly inclined upper edge which is first turned over inwardly at right angles thereto, then downwardly parallel thereto and again inwardly at right angles thereto to form a supporting ledge for the ends of the toe boards, the front edges of the bracket being trimmed off flush with the vertical flange.

7. An integrally formed sheet metal corner plate toe board, armoring and bracing bracket for vehicle bodies comprising a vertical web for attachment to the longitudinal frame member of a vehicle body, said web being first turned over on its upper edge to form a downwardly and backwardly inclined plane surface and then downwardly and inwardly to form a supporting ledge for the ends of the toe boards of the vehicle and a vertical flange formed on the forward edge of the web and turned outwardly at right angles thereto, said vertical flange terminating flush with the upper edge of the aforesaid plane surface.

8. An integrally formed sheet metal toe board, armoring and bracing bracket for vehicle bodies comprising a vertical web for attachment to a longitudinal frame member of a vehicle body, said web being first turned over on its upper edge to form a downwardly and backwardly inclined plane surface and then downwardly and inwardly to form a rearwardly inclined supporting ledge for the ends of the toe boards of the body and a vertical flange formed on the forward edge of the web and turned outwardly at right angles thereto, said vertical flange terminating flush with the upper edge of the aforesaid backwardly inclined plane surface, and said backwardly inclined plane surface terminating at a point above the lower edge of the vertical web.

9. An integrally formed sheet metal toe board bracket having a main vertical web, a flange formed on the forward edge of the web, and a toe board supporting ledge formed on the upper edge of the web by first turning the upper edge inwardly at right angles to the web, then downwardly parallel thereto and again at right angles thereto.

10. An integrally formed corner reinforcing plate and toe board bracket adapted for ready attachment to the detachment from the corner framework of vehicle bodies comprising a main vertical member integrally uniting a laterally extending corner reinforcing and securing member and a laterally extending toe board supporting member longitudinally inclined to receive and support the toe board in an inclined position.

11. A body construction for vehicles comprising a sub-sill, a wind shield stile and a toe board bracket of integrally formed sheet metal having a portion thereof attached to the sub-sill and comprising a vertical web with a vertical flange formed at right angles to the web, said vertical flange abutting against the face of the stile and secured thereto, said web having an inclined upper edge which is turned over to form a support for the toe board,

In testimony whereof, we have signed our names to this specification.

JAS. McGLASHAN.
WALTER A. MAYES.