Sept. 18, 1945. F. M. REID 2,384,965

VEHICLE BODY CONSTRUCTION

Filed March 13, 1944 2 Sheets-Sheet 1

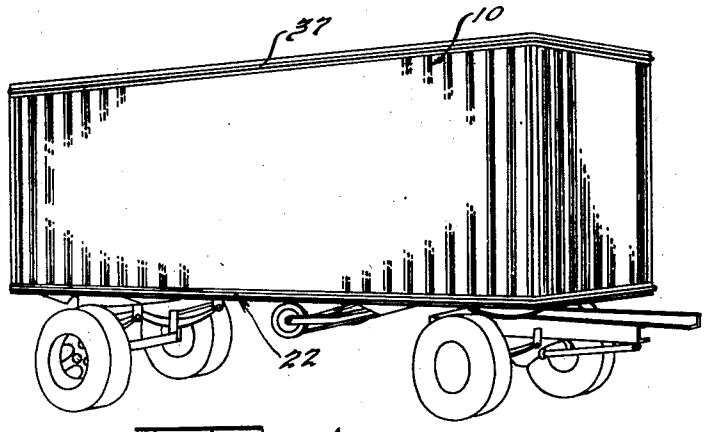


Fig. 1.

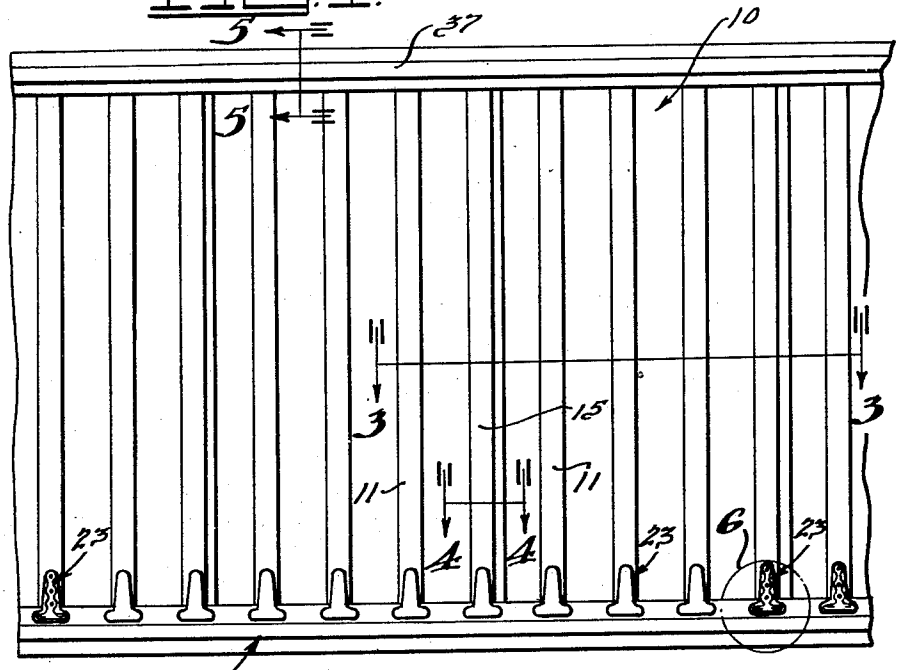


Fig. 2.

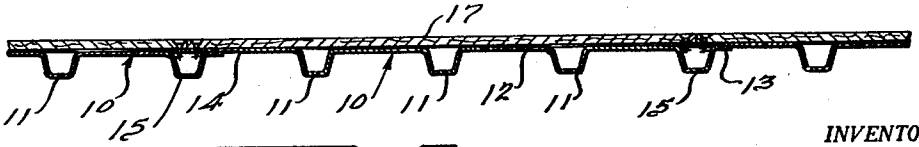


Fig. 3.

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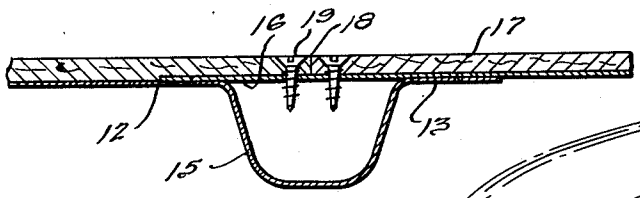


FIG. 4.



FIG. 5.

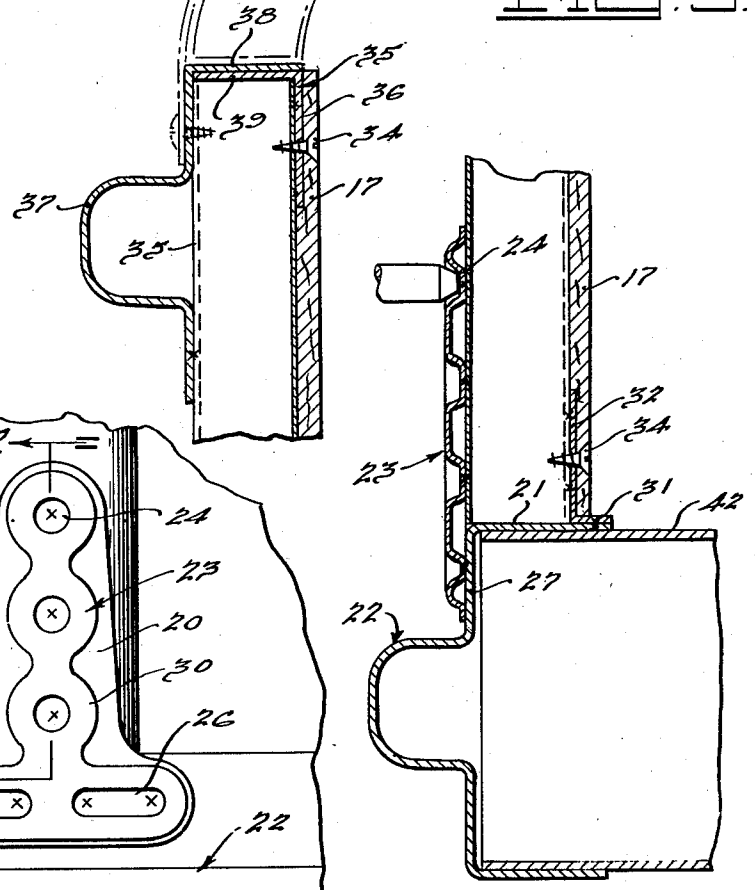


FIG. 7.

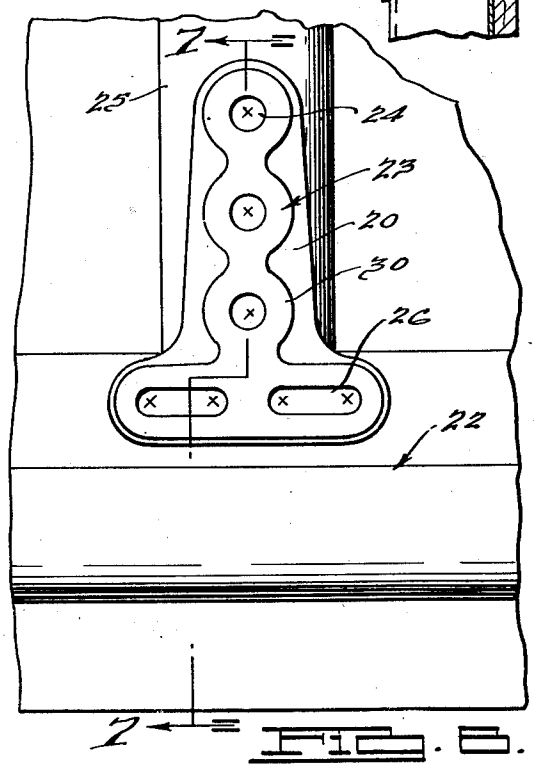


FIG. 6.

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2,384,965

VEHICLE BODY CONSTRUCTION

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Application March 13, 1944, Serial No. 526,191

4 Claims. (Cl. 296—28)

This invention relates to side constructions for vehicle bodies, and particularly to an assembly of panels of predetermined form and in a predetermined manner to construct the side portions of a body.

In the drawings, the invention is shown by way of illustration as applied to a trailer body. The side and end walls of such body are formed by a plurality of sheet metal panels suitably secured together. The panels are vertically corrugated to provide strength, each panel containing a plurality of narrow channel sections, each projecting in the same direction from the plane of the panel or web thereof, and spaced by wide web portions. A short flange is provided in the plane of the web portion along the channel at one edge of the sheet and a wide flange or web extends along the edge of the channel on the opposite end of the sheets. The wide edge flange or web is overlapped by the channel and narrow flange of an adjacent panel, and are welded together at each side of the corrugation to form a unit construction. The web at one end of the panel spans the open face of the channel of the overlapped panel to form a box section construction therewith. Panels of wood or other material are attached to the inner face of the panels of a width to form a joint at the corrugations which is reinforced by the web extending across its open face into which web screws are driven to support the wood panels against the inner web surfaces of metal panels. By having the screws extend through the portion of the panel spanning the end corrugation, the ends of the screws will not be visible on the outside of the trailer body. The panels are reinforced at the top and bottom by rub rail elements which are secured thereto in the conventional manner. A reinforcement, preferably in the form of an angle, is welded to both the upper and lower ends of the panels of each wall and each wall rests upon a bottom rub rail element and the outer face of each corrugation in the wall and an outer face of the rail are joined thereto preferably by welding. It is, of course, within the purview of the invention to employ the gusset plates at the top of the body for joining the panels to the top rail element if desired.

An object of the invention is to form the sides of a body from a plurality of sheets having spaced corrugated portions presenting inwardly of the body, with the corrugation near one end of the sheet spanned by a web at the end of an adjacent sheet to form a box section structure therewith having the web so disposed as to provide holding means for the screws of the inner panels which are invisible from the outer face of the assembly.

A further object of the invention is to secure panels against the inner face of a plurality of corrugated metal panels which form a joint at the portions of the assembled panels at which a web of one panel spans one end corrugation of an adjacent panel through which the holding means for the inner panels extend when applied from the inside of the body.

A still further object of the invention is to secure pre-formed gusset plates to the rub rail and the web of the corrugations by spot welding predetermined offset areas which are in contact therewith.

Other objects and features of the novelty of the invention will be specifically pointed out or will become apparent when referring, for a better understanding of the invention, to the following description taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a perspective view of a trailer having a body constructed in accordance with the present invention;

Fig. 2 is an enlarged view, in elevation, of a portion of the trailer body illustrated in Fig. 1;

Fig. 3 is an enlarged sectional view of the structure illustrated in Fig. 2, taken on the line 3—3 thereof;

Fig. 4 is an enlarged sectional view of the structure illustrated in Fig. 2, taken on the line 4—4 thereof;

Fig. 5 is an enlarged broken sectional view of the structure illustrated in Fig. 2, taken on the line 5—5 thereof;

Fig. 6 is an enlarged view of a portion of the structure illustrated in Fig. 2, taken within the circle 6 thereof, and

Fig. 7 is a sectional view of the structure illustrated in Fig. 6, taken on the line 7—7 thereof.

Referring to the figures, the body is constructed from a plurality of metal sheets 10 which have been pre-formed to have the spaced corrugations 11 joined by the webs 12. At the right-hand end of each sheet, as viewed in the figures, a short flange 13 is provided, while at the left-hand end an extending web 14 is employed. The endmost corrugation 15 of one sheet overlies the end portion of the extended web 14 of an adjacent sheet and is spot welded or otherwise secured thereto along the end flange 13 and the web 12 adjacent to the end corrugation 15. The portion 16 of the web 14 spans the open face of the corrugation 15 and forms a box section construction therewith. The length of the extended web portion 14 is such that after the corrugation 15 overlies the end

portion thereof, as illustrated in Figs. 3 and 4, the center line of the corrugation 15 and that of the adjacent corrugations 11 will be equal and the junction between the sheets will not be readily apparent.

Interior panels 17 which may be made of metal, wood, fibre board, or other material, are of such lengths as to have the joint 18, formed at the abutted edges, fall substantially upon the center line of each of the web portions 16 spanning the corrugations 15. Securing means, such as the screws 19, are then driven through the panels 17 into the web portion 16, as illustrated in Fig. 4, for securing the panels 17 against the inner faces of sheets 10. The ends of the panels 17 are thereby supported at the reinforced corrugations 15 of the assembled sheet, with the ends of the screws 19 invisible from the exterior of the body.

At the corners of the body, the sheets 10 are bent at right angle and overlap with the end and side sheets in the same manner, as the sheets are progressively assembled to form the body walls. The last sheet to be applied extends under the edge of the first sheet and over the edge of the last sheet assembled, and a like construction is provided at all points throughout the ends, corners, and sides of the body.

The sheets rest upon a flange 21 of a bottom rub rail 22 and are secured in position thereon by the stamped gusset plates 23 which are provided with offset areas 24 which engage the web portions 25 of the corrugations 11 and to which they are secured in a suitable manner herein illustrated as by spot welding. The gusset plates have the offset areas 26 horizontally disposed along the bottom edge which engage the flange 27 of the rub rail 22 to which they are secured by suitable means herein illustrated as by welding. The gusset plates have the embossed central portion 30 struck upwardly from the edge flange 20 so as to have the offset areas 24 and 26 disposed in the plane of the edge flange 20. The tapered side walls of the offset areas 24 and 26 guide the welding electrode to position it directly against the areas and thereby locate the points at which the weld is to occur. These offset areas not only locate the welds but make certain that the desired number of welds will be made on each gusset plate.

An angle-shaped element 31 is welded to the inner faces of the web portions 12 of the sheets and to the flange 21 of the rub rail 22 to provide further support thereof. The upstanding flange 32 of the element 31 has the bottom rabbeted edge of the panels 17 secured thereto by suitable means, herein illustrated as by the screws 34. A similar angle-shaped element 35 is welded to the inner faces of the web portions 12 at the top of the sheets 10 providing a vertical web portion 36 to which the top rabbeted edge of the panels 17 is secured by the screws 34. The top rub rail 37 is welded to the web portions 25 of the corrugations 11 along the top of the body and is also provided with a horizontally extending flange 38 which mates with and is welded to the flange 39 of the angle member 35. A flat or arcuately disposed top 41 is supported upon the flange 38 of the rub rail 37 in a manner conventionally employed in the art. The rub rail 22 along the bottom of the body is supported by or on transversely disposed stringers or cross-members 42 in the conventional manner. The stringers or cross-members 42 may form a part of the vehicle frame itself, or may form a part of a body floor section which, in turn, is supported upon such vehicle frame.

The preferred method of constructing a body as above explained is as follows. Preferably each side or end wall is first built up as a unit and then applied to the floor section or frame and secured thereto. In building up such a side or end wall the sheets or panels 10 for such end wall are welded one to the other in the overlapped relation as described, such welding being possible by spot welding and, therefore, permitting the operation to be performed quickly and cheaply. Next the angles 31 and 35 are positioned at the lower and upper edges of such connected sheets or panels and are welded in place. The upper rail 37 is then applied and welded in place, the gusset members 23 are then welded to the outer faces of the corrugations, and the whole wall in such condition and as a unit is then applied in place upon the rub rail 22 upon which the lower ends of the gussets 23 are welded to the rub rail thereby to complete the securement of all of these parts together. When all of the side and end walls have thus been built up and applied they are in turn secured together, the inner panels 17 are applied, and then the top applied to complete the body. On the other hand if desired the panels 17 may be applied prior to mounting the walls on the rub rail 22.

It will be appreciated that by this method of assembly and because of the construction explained an extremely rigid body can be constructed in a relatively short period of time and that the body thus constructed will be not only pleasing in appearance but will be strong and rigid and relatively economical to build.

Having thus described my invention, what I claim by Letters Patent is:

1. In a vehicle body, in combination, a side rail having a stepped upper surface providing a lower outer and an upper inner horizontally directed surface joined by an intermediate vertically directed wall, a plurality of vertically directed sheets each formed to provide a plurality of vertically directed laterally spaced outwardly offset inwardly presented channel portions, a relatively narrow flange portion projecting laterally from the channel portion at one edge of said sheet and a relatively wide flange portion projecting laterally from the channel portion at the opposite edge of said sheet, said sheets being arranged with said wide flange of one extending under said narrow flange and its corresponding channel portion and being fixed thereto to form a box section, the lower ends of said sheets resting upon said upper inner surface of said side rail, and means fixing said sheets to said side rail, comprising a plurality of gusset plates, each gusset plate overlapping an outer face of one of said channel portions and said intermediate wall of said side rail and being rigidly fixed to both thereof.

2. In a vehicle body, in combination, a side rail having a stepped upper surface providing a lower outer and an upper inner horizontally directed surface joined by an intermediate vertically directed wall, a plurality of vertically directed sheets each formed to provide a plurality of vertically directed laterally spaced outwardly offset inwardly presented channel portions, a relatively narrow flange portion projecting laterally from the channel portion at one edge of said sheet and a relatively wide flange portion projecting laterally from the channel portion at the opposite edge of said sheet, said sheets being arranged with

said wide flange of one extending under said narrow flange and its corresponding channel portion and being fixed thereto to form a box section, an angle member arranged with one flange thereof in flat contacting relationship with respect to the inner faces of said sheets over the combined width of the same and fixed thereto with its remaining flange flush with the lower ends of said sheets and projecting inwardly therefrom, said lower ends of said sheets and said remaining flange resting upon said upper inner surface of said side rail, and means arranged in overlapping relation with respect to the joint between said sheets and rail rigidly fixed to both thereof.

3. In a vehicle body, in combination, a side rail having a stepped upper surface providing a lower outer and an upper inner horizontally directed surface joined by an intermediate vertically directed wall, a plurality of vertically directed sheets each formed to provide a plurality of vertically directed laterally spaced outwardly offset inwardly presented channel portions, a relatively narrow flange portion projecting laterally from the channel portion at one edge of said sheet and a relatively wide flange portion projecting laterally from the channel portion at the opposite edge of said sheet, said sheets being arranged with said wide flange of one extending under said narrow flange and its corresponding channel portion and being fixed thereto to form a box section, an angle member arranged with one flange thereof in flat contacting relationship with respect to the inner faces of said sheets over the combined width of the same and fixed thereto with its remaining flange flush with the lower ends of said sheets and projecting inwardly therefrom, a second angle member extending over the combined width of said sheets in embracing relationship to the upper inner corners of the same, said lower ends of said sheets and said remaining flange resting upon said upper inner surface of said side rail, and means arranged in overlapping relation with respect to the joint between said sheets and rail rigidly fixed to both thereof.

4. In a vehicle body, in combination, a side rail having a stepped upper surface providing a lower outer and an upper inner horizontally directed surface joined by an intermediate vertically directed wall, a plurality of vertically directed sheets each formed to provide a plurality of vertically directed laterally spaced outwardly offset inwardly presented channel portions, a relatively narrow flange portion projecting laterally from the channel portion at one edge of said sheet and a relatively wide flange portion projecting laterally from the channel portion at the opposite edge of said sheet, said sheets being arranged with said wide flange of one extending under said narrow flange and its corresponding channel portion and being fixed thereto to form a box section, an angle member arranged with one flange thereof in flat contacting relationship with respect to the inner faces of said sheets over the combined width of the same and fixed thereto with its remaining flange flush with the lower ends of said sheets and projecting inwardly therefrom, said lower ends of said sheets and said remaining flange resting upon said upper inner surface of said side rail, means arranged in overlapping relation with respect to the joint between said sheets and rail rigidly fixed to both thereof, inner panels arranged against the inner faces of said sheets and abutting each other in alignment with said box sections, and means securing said inner panels to said sheets operatively engaging the inner walls of said box sections.

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