Marginal rail for cover strip retaining panels, especially for railway car.

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FIG. 1

FIG. 2

FIG. 3

INVENTOR
Albert G. Dean

ATTORNEY

Maurice A. Crane
The invention relates to the formation and attachment of marginal rails to the framework of vehicle, especially railway car, bodies. More specifically, the invention relates to that type of vehicle body which is provided with an outer trim sheathing or is at least provided with means for retaining such sheathing.

The application is a division of applicant's originally co-pending application Serial No. 57,796, filed November 1, 1940, under the same title, which is now abandoned.

In certain respects, the invention relates to improvements of the structure disclosed in the inventor's application Serial No. 782,000, filed October 24, 1947, which matured into Patent No. 2,592,545 on April 15, 1952, for "Cover Panels for Vehicles, Especially Railway Cars," of which the present application is a continuation-in-part. More specifically, the invention is directed to improvements of the structure disclosed in the simultaneously filed application Serial No. 57,683 of Michael Watter, which matured into Patent No. 2,620,750 on December 9, 1952, entitled "Panel, and Panel Cover, Especially for Railway Car."

A main object of the invention is an improved construction and attachment of rails, such as belt and rub rails, along a panel provided with cover-sheathing-retaining nodes.

This object, broadly speaking, is achieved by using marginal cover-sheathing-retaining nodes as means for holding the marginal rails in place.

The briefly outlined objects and features of the invention will be more fully understood from the embodiment illustrated in the attached drawing and from the following detailed description thereof.

In the drawing,

Fig. 1 is a fragmetary perspective side elevation, partially in transverse section, of the lower portion of side wall and adjoining underframe sill of a sheet metal railway car;

Fig. 2 is a fragmentary section, on a larger scale, along line 2—2 of Fig. 1;

Fig. 3 is a diagrammatic fragmentary perspective and sectional view of part of panel shown in Figs. 1 and 2 of a repair strip.

The railway car body shown fragmentarily in the drawing comprises a plurality of longitudinally spaced upright posts 10, only one being visible. Posts 10 have lower ends interconnected by a bottom sill or chord comprising a Z-section 11 and a gusset plate 12. The outer arms of section 11 and plate 12 are overlyingly secured to each other and to the web of underframe sill 13. In the region of window openings 14 (only one opening is shown fragmentarily in the drawing), the posts are interconnected by a structural dead light panel 15 and window sill members 16. A shear panel 17 and a belt rail 18 structurally interconnect posts 10, gusset plate 12, dead light panel 15, and window sill members 16. Shear panel 17 has longitudinally extending nodes or corrugations 19. Each node 19 has a top wall 20 and side walls 21 forming together an inwardly facing channel section. Top walls 20 are profiled to give the appearance of narrow trim or molding strips. The side walls 21 of each node converge inwardly toward each other so as to present undercut surfaces adapted to retain removable trim sheathing in the form of cover plates or strips 22. Each plate 22 has a web 23, preferably fluted or otherwise curved in section, and marginal flanges 24 with curled in edges 25. Plates 22 consist of resilient material, such as cold rolled austenitic stainless sheet steel. The thickness may be 0.02 inch. Their width and the angles between their flanges 24 and their webs 23 are such that each plate can be sprung into place between the side walls 21 of successive nodes 19 and will be held in place by the resiliently of the plate as well as by the engagement of the flanges 24 with the side walls 21. The width of the flanges 24 is such that the curled edges 25 nest in the angle between the side walls 24 and the adjoining main portions of panel 17.

The construction described so far is either known or forms the subject matter of the originally co-pending Watter application, now Patent 2,620,750, above referred to.

Belt rail 18 is a channel section which comprises a bottom wall 18' and has its upwardly directed marginal flange 27 secured, such as by spot welding, to dead light panel 15 and window sill 16. The lower portion or side wall of rail 18 is of Z-section having one arm 27' adjoining said bottom wall 18' and the web and other arm of the Z-section being formed by extensions 28, 29, the latter being shaped corresponding to top wall 20 and one side wall 21, respectively, of one of the nodes 19 so as to form a marginal node of itself. Extension 29 is continued by a downwardly directed flange 30 which is overlyingly secured, such as by spot welding, to the upper margin of shear panel 17. Belt rail 18, therefore, may be considered as part or extension of shear panel 17, to which it is connected prior to the attachment of panel and belt rail to adjoining body members 10, 12, 15 and 16. Along its lower margin, shear panel 17 terminates in a node 19 which has its lower side wall 21 cut off slightly outside the plane of the inner surface of panel 17 so as to leave a narrow slot between the edge of this wall 21 and gusset plate 12. After panel 17 has been connected with the members 10, 12, 15 and 16 to form part of the side wall subassembly, such side subassembly is secured to the outer web of underframe sill 13, for instance, by electric spot welds, at 31. This is done prior to the attachment of rub rail 32 and skirt molding 33.

Rub rail 32 has an upwardly directed marginal flange 34 which is merely pushed between the edge of the lowermost node wall 21 and gusset plate 12. A downwardly directed flange 35 of the rub rail and upper margin of skirt molding 33 are overlyingly secured to the web of underframe sill 13 by blind rivets 36 or other connecting means applicable exclusively from the outside of the car. The use of such means applicable from the outside is important because the rail and skirt rail suffer damage occasionally and have to be replaced, and because in the finished car, the inside of the web of rail 13 is practically inaccessible on account of the underframe shear panel 37 and the floor boards (not shown) secured above the top arm of sill 13. With the described construction it is necessary merely to break the comparatively widely spaced blind rivets 35, wherupon the top flange 34 may be taken off by pulling its flange 34 from under the lowermost wall 21 and by putting in a new belt rail and applying a new set of blind rivets.

The lower margin of skirt panel 33 may be spot weld-
ed to flange 38 of rail 13 by relatively widely spaced welds. This connection is freely accessible even after completion of the car, and the welds can be broken and replaced by new welds if the skirt molding 33 requires replacement.

In case one of the nodes 19 should become damaged, a member 30 of very thin sheet metal formed corresponding to the outer contour of the nodes, is snapped over the damaged region and held additionally by the adjoining trim strip or strips 22, as shown in Fig. 3. This repair member does not form part of the subject matter of the present application.

The connection between rub rail 32 and shear panel 17 forms the subject matter of applicant's application filed under the same title simultaneously herewith as a continuation of the aforesaid original application Serial No. 57,796.

While only one embodiment of the invention has been shown and described, it should be understood that the invention is susceptible to modifications and refinements falling within the spirit and the scope of the invention. For instance, the invention is not restricted to the specifically illustrated formation of the nodes as integral one-piece parts of the shear panel, but the invention is also applicable to constructions in which separately manufactured nodes serve for holding the cover sheathing members 22. Another example of a modification is employment of the same form of rail under the window opening as well as along the lower margin of the side-wall. In short, the invention is not restricted to the illustrated embodiment or to the specifically mentioned modifications, but is directed to all constructions.

What is claimed is:

1. In a vehicle body, a panel having nodes provided with cover-strip-retaining means, a separately made molding section secured to a margin of said panel free of a node, said section having formed thereon cover-strip-retaining means corresponding to the means on said nodes so that the means on said section and on the next node of the panel serve for the retention of a cover strip between them.

2. A channel-section molding for vehicle bodies such as railway cars, said section having side walls and a bottom wall, at least one of said side walls having Z-section with one arm of the Z adjoining said bottom wall, the web of the Z extending away from the other one of said side walls, and the other arm of the Z converging from its joiner with said web in a direction toward the other side wall, said last-named arm constituting means for holding a correspondingly shaped margin of a cover plate.

3. In a railway car body or similar structure, having a panel provided with cover-strip-retaining inwardly facing U-section nodes between its margins, a rail along one margin of said panel having a main body portion and an inwardly facing hollow-section node integral therewith and projecting therefrom in the direction toward said panel; said last-named node providing connection means between said panel and said rail.

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